



October 9, 2019

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

RE: EM-AT&T-159-180509 - 23 Kelleher Court, Wethersfield (CT5122 - AT&T)

Dear Ms. Bachman:

Enclosed please find an original and two (2) copies of the first four (4) pages of the Revised Structural Report dated December 6, 2018 and three (3) sets of drawings concerning the above referenced Exempt Modification site. I also have submitted electronic copies of the complete documents via email to the CSC today.

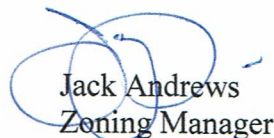
I am in receipt of your correspondence dated October 3, 2019 concerning the revised structural analysis of the above referenced tower. Please accept my sincere apology for the embarrassment and inconvenience that my mistake caused you and all parties concerned.

The responsibility for failing to submit the revised structural report rests solely on my shoulders. It is not the fault of AT&T Wireless or Empire Telecom that I neglected to submit the revised documentation. Mine was an error of omission; please be assured that there was no intentional disregard for the Siting Council's conditions of approval.

I offer no excuses for my oversight. As you are aware, I take the CSC requirements very seriously and make every effort to ensure compliance. Henceforth, I will double check to ensure that something like this never happens again.

If you have any questions or comments, please do not hesitate to contact me.

Very truly yours,


Jack Andrews
Zoning Manager



MASER CONSULTING
— CONNECTICUT —

Monopole Feasibility Study

FOR
CT5122 - Wethersfield North

FA # 10092829
LTE 4C/5C
23 Kelleher Court
Wethersfield, CT 06109
Hartford County

Monopole Utilization: 89.0%

December 6, 2018

Prepared For

AT&T
550 Cochituate Road
Framingham, MA 01701

Prepared By

Maser Consulting Connecticut
331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
T: 732.383.1950



MC Project No. 17963030A



Objective:

The objective of this report is to determine the structural capacity of the existing 179' galvanized steel monopole located at the above referenced address for the addition of the proposed wireless telecommunications equipment by **AT&T**, together with the existing loading.

Introduction:

Maser Consulting Connecticut has reviewed the following documents in completing this report:

- RFDS 2047031 Revision 1.00, provided by Empire, dated January 3, 2018
- Previous Structural Analysis prepared by Destek Engineering, dated March 2, 2017

This report is based upon this information. Since Maser Consulting Connecticut did not visit the site, this analysis is based off of the referenced structural analysis. It is assumed that all the information in the referenced analysis is accurate and no other changes have been made to the monopole.

Equipment Loading:

Maser Consulting Connecticut understands the existing and proposed **AT&T** equipment loading to be as follows:

Quantity	Manufacturer	Antenna/ Appurtenance	Status	Sector
3	Powerwave	7770	Existing	Alpha, Beta, & Gamma
2	CCI	TPA-65R-LCUUUU-H8	Existing	Alpha & Beta
2	CCI	HPA-65R-BUU-H8	Existing	Alpha & Beta
2	Commscope	SBNHH-1D65A	Existing	Gamma
2	Kathrein	80010966	Proposed	Alpha & Beta
1	Kathrein	80010964	Proposed	Gamma
3	Ericsson	RRUS 4478 B14	Proposed	Alpha, Beta, & Gamma
3	Ericsson	RRUS 32 B66	Proposed	Alpha, Beta, & Gamma
3	Ericsson	RRUS 11	Existing	Alpha, Beta, & Gamma
3	Ericsson	RRUS 32	Existing	Alpha, Beta, & Gamma
3	Raycap	DC6-48-60-0-8C	Existing/Proposed	Alpha, Beta, & Gamma
6	Powerwave	LGP 21401	Existing	Alpha, Beta, & Gamma
3	Ericsson	RRUS 32 B2	Existing	Alpha, Beta, & Gamma

See the Material Take-Off sheet in Appendix A for final appurtenance loading of other carriers.

- The proposed mounts shall be Sabre Part # C10857001A, (1) per sector.
- There shall be (2) proposed 6/C DC power cables.

Monopole Member Information:

See the Material Take-Off sheet in Appendix A for monopole information.

Codes, Standards and Loading:

Maser Consulting Connecticut utilized the following codes and standards:

- 2018 Connecticut State Building Code, Incorporating 2015 IBC
- Structural Standards for Antenna Supporting Structures and Antennas ANSI/TIA-EIA-222-G
 - Ultimate Wind Speed – 125 mph (3 Second Gust) Per Connecticut Building Code
 - Nominal Wind Speed – 90 mph
 - Service Wind Speed – 60 mph
 - Ice Wind Speed – 40 mph (1" Ice)
 - Exposure Category – C
 - Structure Class - II

Analysis Approach & Assumptions:

The analysis approach used in this structural analysis is based on the premise that if the existing structure is structurally adequate to support the existing and proposed equipment per the aforementioned codes and standards, then the proposed equipment can be installed as intended. Tower Numerics, tnx Tower, a tower and monopole analysis and design program, designed specifically for the telecommunications industry and for all applicable codes and standards was used for this structural analysis.

The following assumptions were considered during this analysis:

- No physical deterioration has occurred in any of the structural components of the monopole.
- The monopole has the same capacity as the day it was erected.
- The monopole and foundation has been installed as they were originally intended.

Calculations:

The calculations are found in Appendix A of this report.

Conclusion:

Maser Consulting Connecticut has determined that the existing 179' tall structural steel galvanized monopole is **ADEQUATE** to support the existing and proposed loading per the aforementioned codes and standards. It has been calculated that the maximum stress ratio is in the base plate. The monopole and its baseplate are stressed to **82.4%** and **89.0%** respectively. Therefore, the proposed **AT&T** equipment **CAN** be installed on the monopole as intended.

Maser Consulting Connecticut reserves the right to amend this report if additional information about the monopole and foundation is provided. The conclusions reached by Maser Consulting Connecticut in this report are only valid for the discrete and linear appurtenances listed in this report. Any change to the installation will require a revision to this structural analysis.

We appreciate the opportunity to be of service on this project. If you should have any questions or require any additional information, please do not hesitate to call our office.

Very truly yours,
Maser Consulting Connecticut



Petros E. Tsoukalas, P.E.
Geographic Discipline Leader



Carol Luengas
Engineer



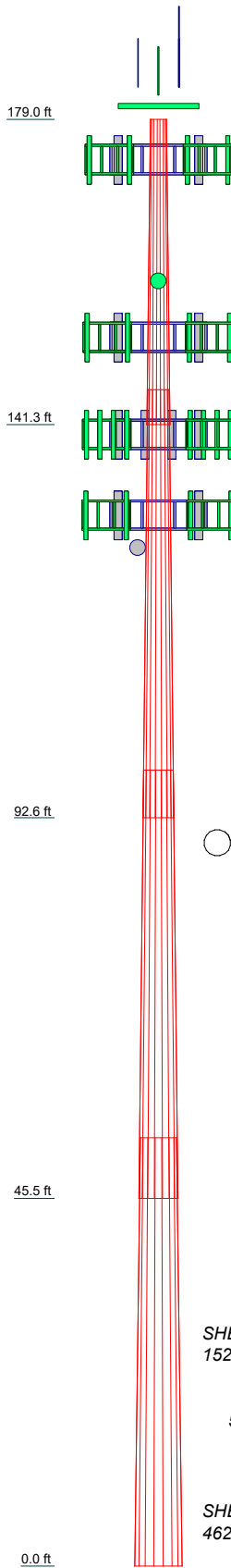
APPENDIX A

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

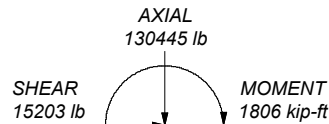
TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 97 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. Weld together tower sections have flange connections.
9. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
10. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
11. Welds are fabricated with ER-70S-6 electrodes.
12. TOWER RATING: 82.4%

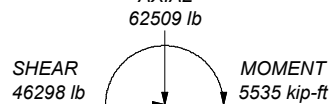


Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	37.75	18	0.2500	4.33	23.1000	33.2490	A572-65	2846.3
2	53.00	18	0.3750	5.92	31.5849	45.8340	A572-65	8228.8
3	53.00	18	0.3750	7.50	43.4924	57.7420	A572-65	10784.9
4	53.00	18	0.3750	54.9765	69.2250	13249.9	A572-65	13249.9

ALL REACTIONS
ARE FACTORED



TORQUE 0 kip-ft
50 mph WIND - 1.0000 in ICE



TORQUE 2 kip-ft
REACTIONS - 97 mph WIND

Maser Consulting
2000 Midlantic Drive, Suite 100
Mt. Laurel, NJ 08054
Phone: (856) 797-0412
FAX:

Job: 17963030A		
Project: CT5122		
Client: AT&T	Drawn by: CLuengas	App'd:
Code: TIA-222-G	Date: 12/06/18	Scale: NTS
Path:	Dwg No. E-1	

DESIGNED APPURTENANCE LOADING

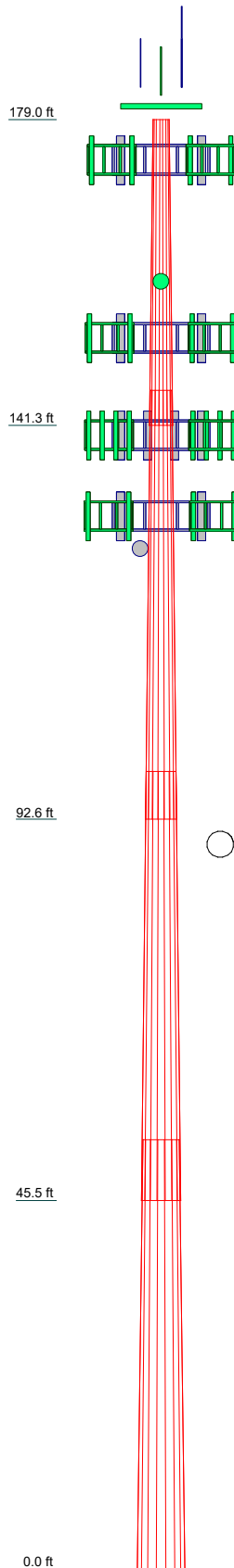
TYPE	ELEVATION	TYPE	ELEVATION
(3) 6' x 2" Pipe Mount	181	80010966 (ATI)	140
(3) 6' x 2" Pipe Mount	181	80010964 (ATI)	140
(3) 6' x 2" Pipe Mount	181	(2) SBNHH-1D65A (ATI)	140
Distribution Box	181	(4) 8' x 2" Mount Pipe (ATI)	140
Distribution Box	181	(4) 8' x 2" Mount Pipe (ATI)	140
4' Dipole	181	(4) 8' x 2" Mount Pipe (ATI)	140
10' Omni	181	DC6 Dome (ATI)	140
(2) 4' Omni	181	DC6 Dome (ATI)	140
6' Omni	181	DC6 Dome (ATI)	140
6' Omni	181	(2) TPX070821 (ATI)	140
TA 702-3	181	(2) TPX070821 (ATI)	140
ET-X-TU-42-15-37-18-IR-ST (Sprint)	174	(2) LGP21401 (ATI)	140
APXVSP18-C (Sprint)	174	(2) LGP21401 (ATI)	140
APXVSP18-C (Sprint)	174	HPA-65R-BUU-H8 (ATI)	140
APXV9TM14-ALU (Sprint)	174	HPA-65R-BUU-H8 (ATI)	140
APXV9TM14-ALU (Sprint)	174	TPA-65R-LCUUUU-H8 (ATI)	140
APXV9TM14-ALU (Sprint)	174	RRUS 32 B66 (ATI)	140
TD-RRH8x20-25 (Sprint)	174	RRUS 32 B66 (ATI)	140
TD-RRH8x20-25 (Sprint)	174	RRUS 32 B66 (ATI)	140
TD-RRH8x20-25 (Sprint)	174	RRUS 32 (ATI)	140
TA 602-3 (Sprint)	174	RRUS 32 (ATI)	140
RRH-2X50-800 (Sprint)	170	RRUS 32 (ATI)	140
ALU RRH-4X45-1900 (Sprint)	170	RRUS 4478 (ATI)	140
RRH-2X50-800 (Sprint)	170	RRUS 4478 (ATI)	140
ALU RRH-4X45-1900 (Sprint)	170	RRUS 4478 (ATI)	140
RRH-2X50-800 (Sprint)	170	(2) LGP21401 (ATI)	140
ALU RRH-4X45-1900 (Sprint)	170	Sabre C10857001C (ATI)	140
Ring Mount (Sprint)	170	Sabre C10857001C (ATI)	140
2' dish (Clearwire)	159	Sabre C10857001C (ATI)	140
(2) AIR 21 B2A/B4P With mount Pipe (T-Mobile)	151	TPA-65R-LCUUUU-H8 (ATI)	140
(2) AIR 21 B2A/B4P With mount Pipe (T-Mobile)	151	BXA-80063/6CF (Verizon)	130
(2) AIR 21 B2A/B4P With mount Pipe (T-Mobile)	151	BXA-80063/6CF (Verizon)	130
(2) AIR 21 B2A/B4P With mount Pipe (T-Mobile)	151	(2) SBNHH-1D65B (Verizon)	130
(2) AIR 21 B2A/B4P With mount Pipe (T-Mobile)	151	(2) SBNHH-1D65B (Verizon)	130
LNx-6515DS-VTM (T-Mobile)	151	(2) SBNHH-1D65B (Verizon)	130
LNx-6515DS-VTM (T-Mobile)	151	(4) 6' x 2" Pipe Mount (Verizon)	130
LNx-6515DS-VTM (T-Mobile)	151	(4) 6' x 2" Pipe Mount (Verizon)	130
RRUS-11 (T-Mobile)	151	(4) 6' x 2" Pipe Mount (Verizon)	130
RRUS-11 (T-Mobile)	151	(2) RRH2X60-PCS (Verizon)	130
RRUS-11 (T-Mobile)	151	(2) RRH2X60-PCS (Verizon)	130
RRUS-11 (T-Mobile)	151	(2) RRH2X60-PCS (Verizon)	130
TMA (T-Mobile)	151	(2) RRH2X60-PCS (Verizon)	130
TMA (T-Mobile)	151	ALU RRH-4X45-1900 (Verizon)	130
TMA (T-Mobile)	151	ALU RRH-4X45-1900 (Verizon)	130
8' x 2" Mount Pipe (T-Mobile)	151	ALU RRH-4X45-1900 (Verizon)	130
8' x 2" Mount Pipe (T-Mobile)	151	RRH2x60-700 (Verizon)	130
8' x 2" Mount Pipe (T-Mobile)	151	RRH2x60-700 (Verizon)	130
RRUS-11 (ATI)	142	RRH2x60-700 (Verizon)	130
RRUS-11 (ATI)	142	DC6 Dome (Verizon)	130
RRUS-11 (ATI)	142	DC6 Dome (Verizon)	130
RRUS 32 B2 (ATI)	142	Pirod 13' Low Profile Platform (Verizon)	130
RRUS 32 B2 (ATI)	142	BXA-80063/4CF (Verizon)	130
RRUS 32 B2 (ATI)	142	BXA-80063/4CF (Verizon)	130
RRUS-11 (ATI)	142	BXA-80063/4CF (Verizon)	130
7770 (ATI)	140	BXA-80063/4CF (Verizon)	130
7770 (ATI)	140	BXA-80063/6CF (Verizon)	130
7770 (ATI)	140	BXA-80063/6CF (Verizon)	130
80010966 (ATI)	140	2' dish (Clearwire)	126

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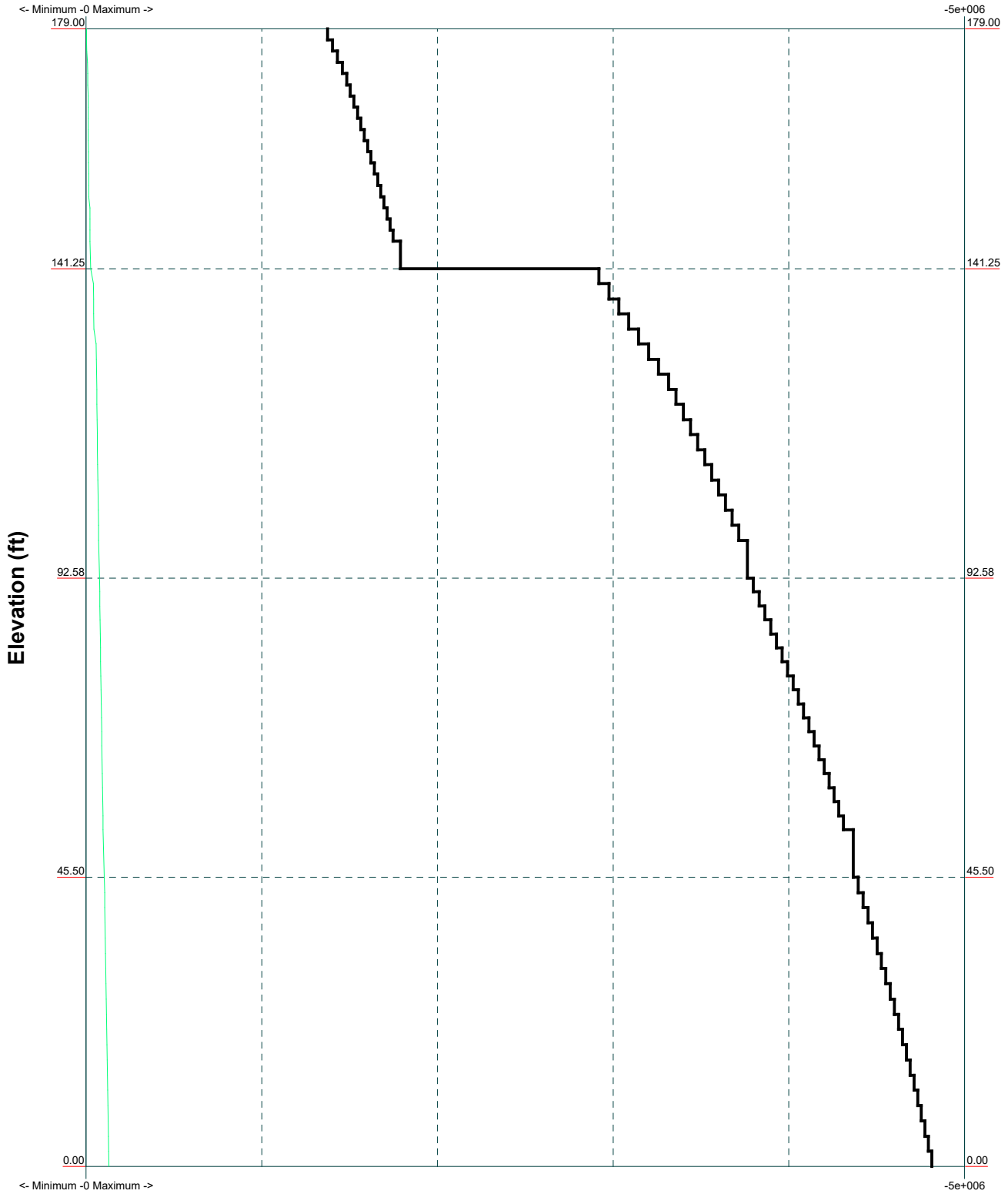
Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
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Maser Consulting
 2000 Midlantic Drive, Suite 100
 Mt. Laurel, NJ 08054
 Phone: (856) 797-0412
 FAX:

Job: **17963030A**
 Project: **CT5122**
 Client: **AT&T** Drawn by: **CLuengas** App'd:
 Code: **TIA-222-G** Date: **12/06/18** Scale: **NTS**
 Path: R:\Projects\2017\17963030A\Structural\Monopole Analysis\Rev 2\m Tower\CT5122.dwg Dwg No. **E-1**

TIA-222-G - 97 mph/50 mph 1.0000 in Ice Exposure C

Leg Capacity ——— Leg Compression (lb)



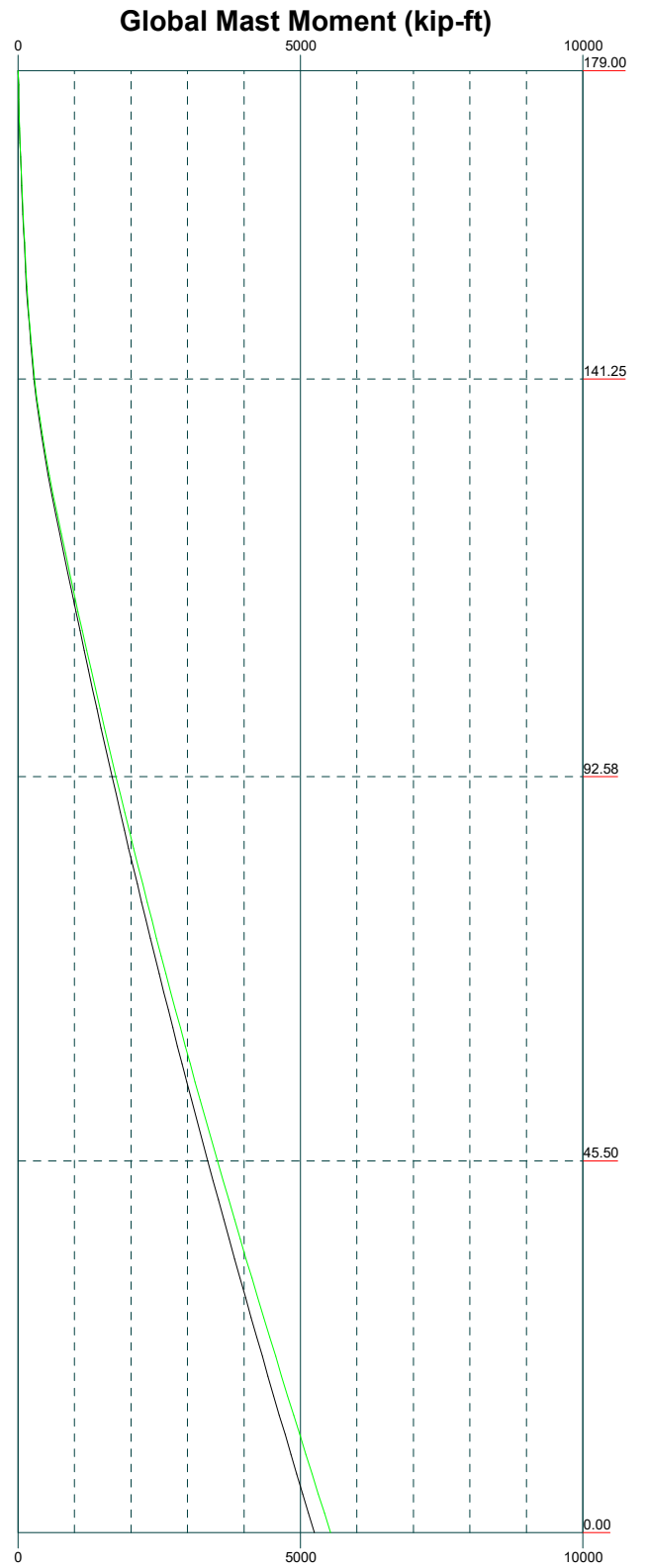
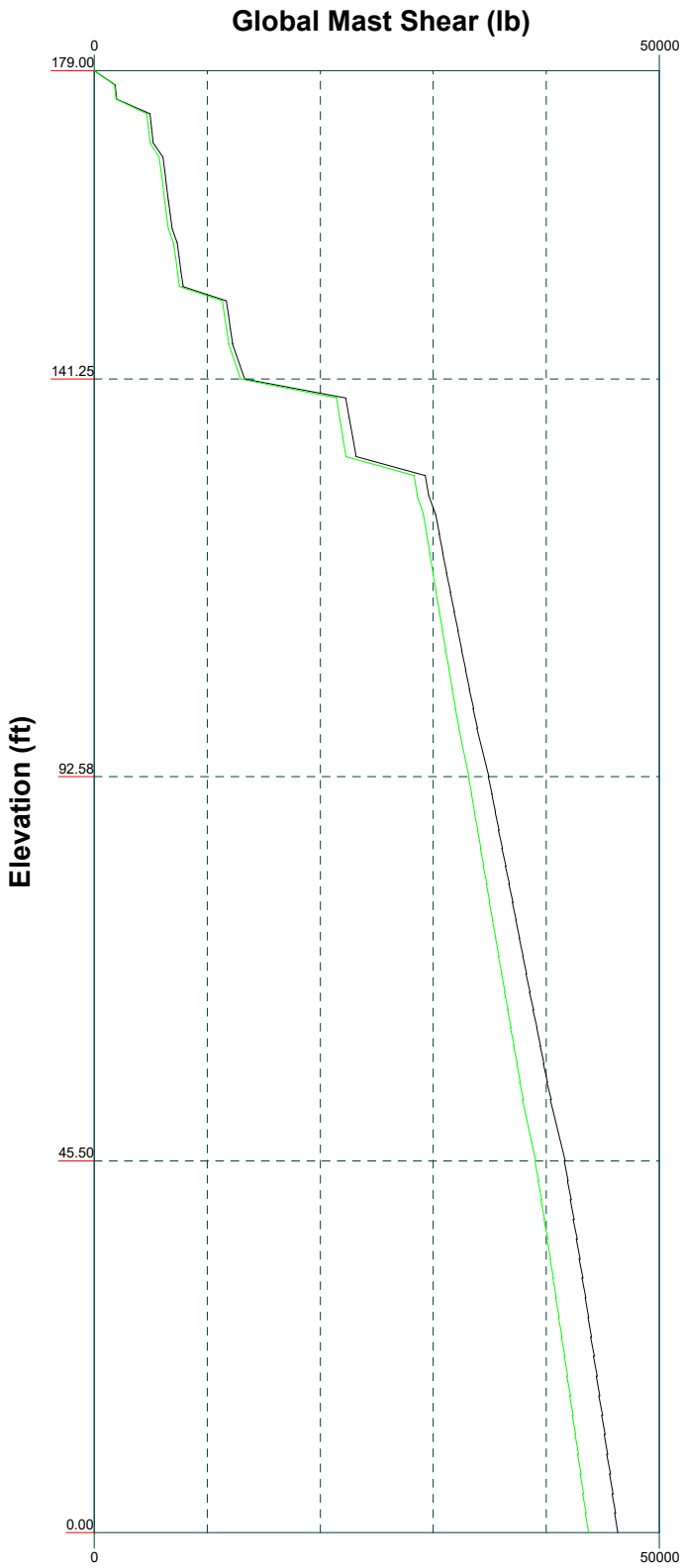
Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ 08054 Phone: (856) 797-0412 FAX:			Job: 17963030A		
			Project: CT5122		
Client: AT&T		Drawn by: CLuengas		App'd:	
Code: TIA-222-G		Date: 12/06/18		Scale: NTS	
Path: R:\Projects\2017\17963030A\17963030A\Structural\Monopole Analysis\Rev 2\Inx Tower\CT5122.dwg			Dwg No. E-3		

Vx

Vz

Mx

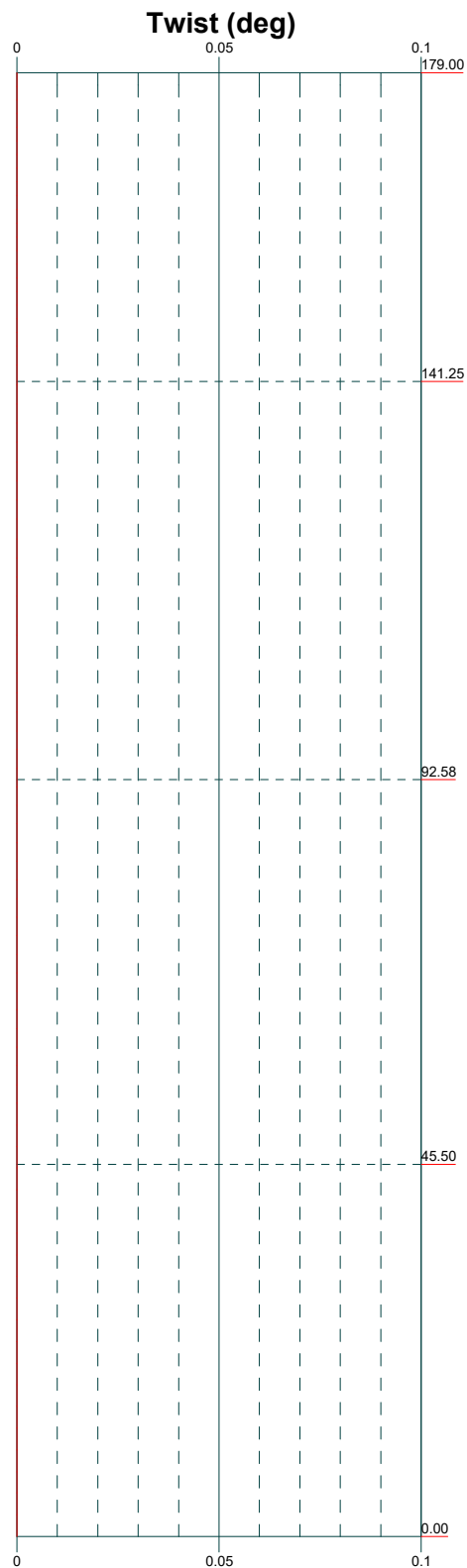
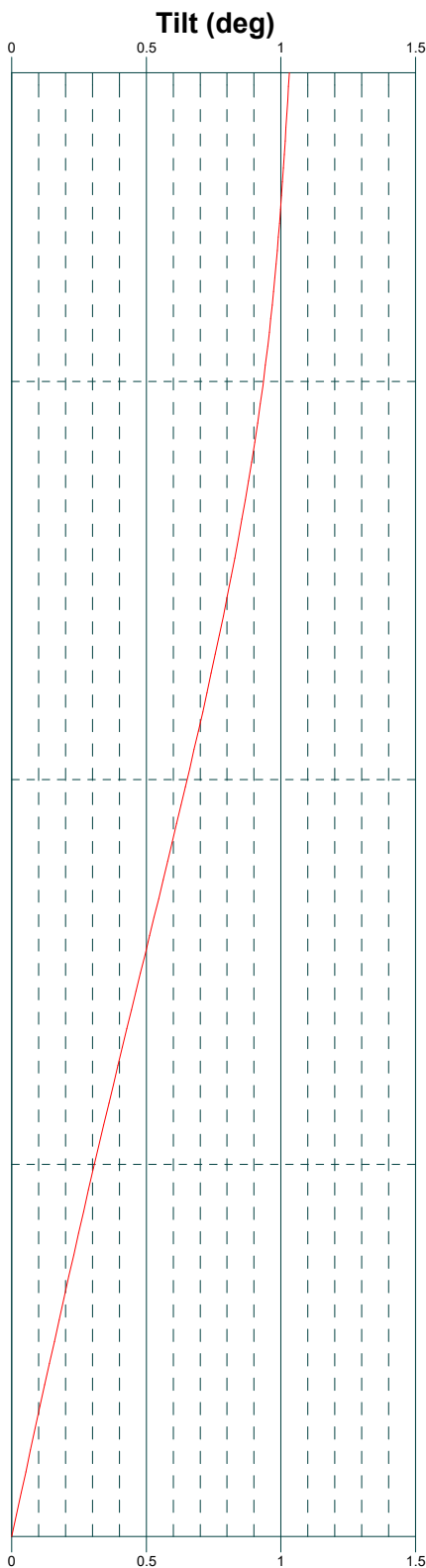
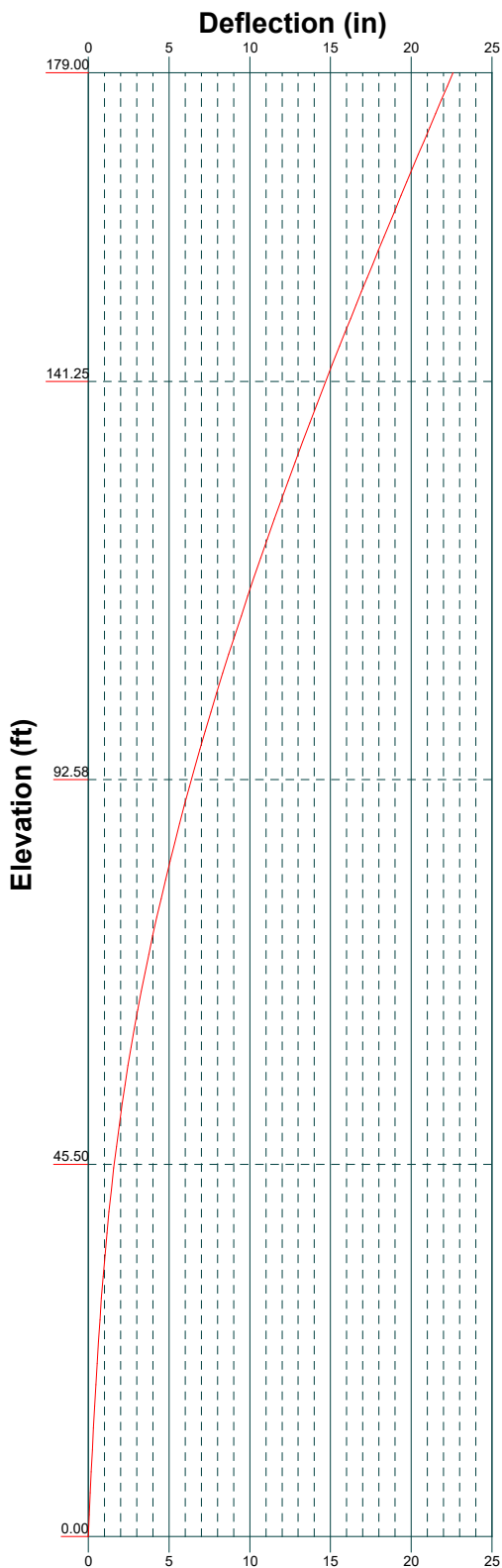
Mz



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 Phone: (856) 797-0412
 FAX:

Job: 17963030A		
Project: CT5122		
Client: AT&T	Drawn by: CLuengas	App'd:
Code: TIA-222-G	Date: 12/06/18	Scale: NTS
Path:	Dwg No. E-4	

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 Mt. Laurel, NJ 08054
 Phone: (856) 797-0412
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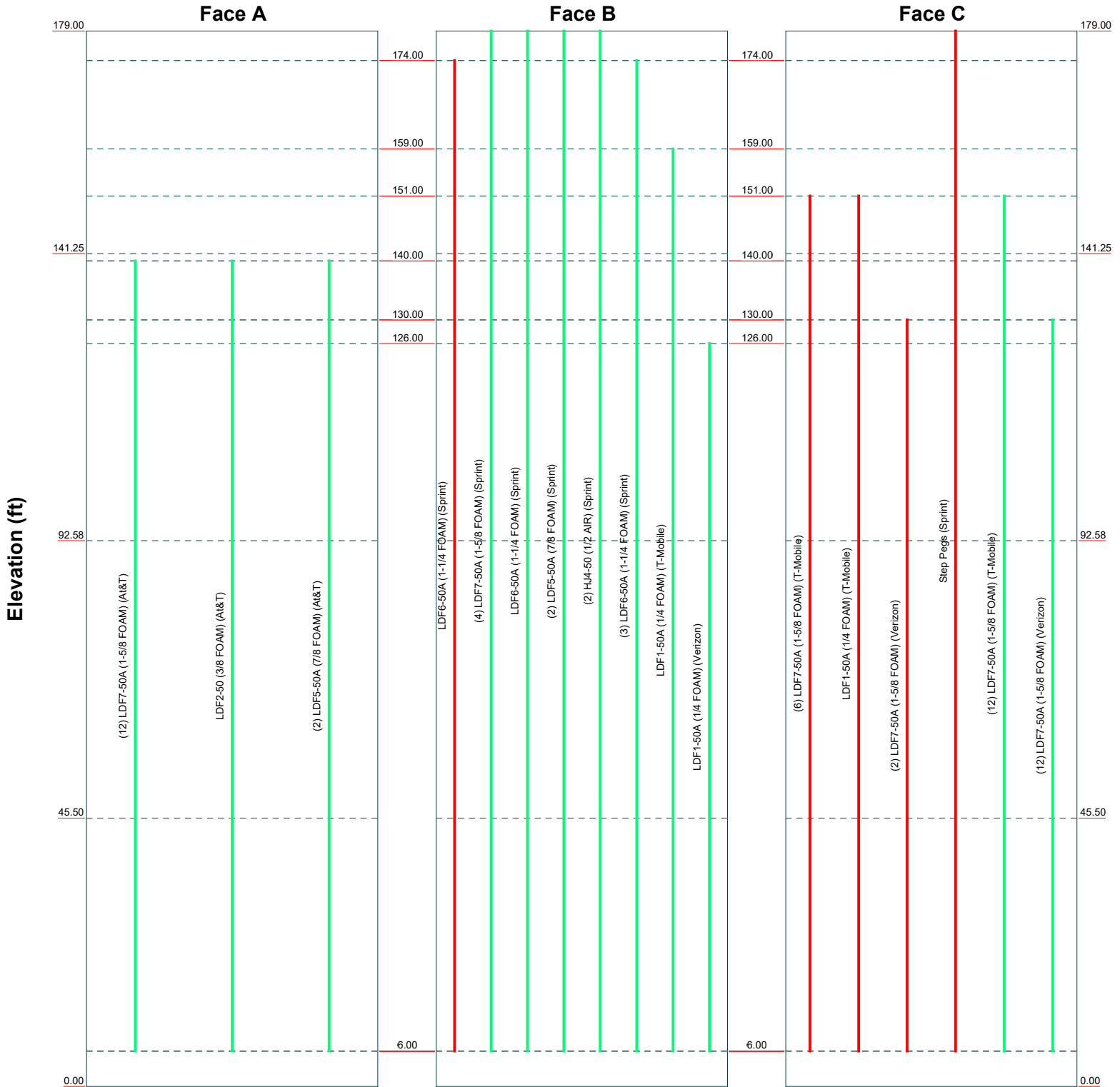
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Project: CT5122		
Client: AT&T	Drawn by: CLuengas	App'd:
Code: TIA-222-G	Date: 12/06/18	Scale: NTS
Path:	Dwg No. E-5	

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Feed Line Distribution Chart

0' - 179'

— Round
 — Flat
 — App In Face
 — App Out Face
 — Truss Leg



Maser Consulting		
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Mt. Laurel, NJ 08054		
Phone: (856) 797-0412		
FAX:		
Job: 17963030A		
Project: CT5122		
Client: AT&T	Drawn by: CLuengas	App'd:
Code: TIA-222-G	Date: 12/06/18	Scale: NTS
Path:	Dwg No. E-7	

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tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ 08054 Phone: (856) 797-0412 FAX:	Job 17963030A	Page 1 of 32
	Project CT5122	Date 17:44:36 12/06/18
	Client AT&T	Designed by CLuengas

Tower Input Data

There is a pole section.

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

The following design criteria apply:

- Tower is located in Hartford County, Connecticut.
- ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
- Basic wind speed of 97 mph.
- Structure Class II.
- Exposure Category C.
- 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.
- Weld together tower sections have flange connections..
- Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..
- Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
- Welds are fabricated with ER-70S-6 electrodes..
- A non-linear (P-delta) analysis was used.
- Pressures are calculated at each section.
- Stress ratio used in pole design is 1.
- Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

- | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension Bypass Mast Stability Checks Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder | <ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption <li style="text-align: center;">Poles Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Tapered Pole Section Geometry

tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ 08054 Phone: (856) 797-0412 FAX:	Job	17963030A	Page	2 of 32
	Project	CT5122	Date	17:44:36 12/06/18
	Client	AT&T	Designed by	CLuengas

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	179.00-141.25	37.75	4.33	18	23.1000	33.2490	0.2500	1.0000	A572-65 (65 ksi)
L2	141.25-92.58	53.00	5.92	18	31.5849	45.8340	0.3750	1.5000	A572-65 (65 ksi)
L3	92.58-45.50	53.00	7.50	18	43.4924	57.7420	0.3750	1.5000	A572-65 (65 ksi)
L4	45.50-0.00	53.00		18	54.9755	69.2250	0.3750	1.5000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	It/Q in ²	w in	w/t
L1	23.4564	18.1315	1196.0325	8.1118	11.7348	101.9219	2393.6388	9.0675	3.6256	14.502
	33.7619	26.1847	3602.3567	11.7146	16.8905	213.2772	7209.4536	13.0948	5.4118	21.647
L2	33.2542	37.1476	4571.4327	11.0795	16.0451	284.9110	9148.8807	18.5773	4.8989	13.064
	46.5411	54.1076	14126.5228	16.1379	23.2837	606.7137	28271.6336	27.0589	7.4068	19.751
L3	45.7795	51.3205	12054.0607	15.3067	22.0941	545.5773	24123.9824	25.6651	6.9947	18.652
	58.6328	68.2811	28389.7820	20.3653	29.3329	967.8466	56816.9200	34.1470	9.5026	25.34
L4	57.8712	64.9883	24477.4758	19.3832	27.9276	876.4625	48987.1596	32.5003	9.0157	24.042
	70.2929	81.9487	49078.0698	24.4417	35.1663	1395.5995	98220.7178	40.9821	11.5236	30.73

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
L1 179.00-141.25				1	1	1			
L2 141.25-92.58				1	1	1			
L3 92.58-45.50				1	1	1			
L4 45.50-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
LDF6-50A (1-1/4 FOAM) (Sprint)	B	Surface Ar (CaAa)	6.00 - 174.00	1	1	0.000 0.000	1.5500		0.66
LDF7-50A (1-5/8 FOAM) (T-Mobile)	C	Surface Ar (CaAa)	6.00 - 151.00	6	6	-0.100 0.100	1.9800		0.82
LDF1-50A (1/4 FOAM) (T-Mobile)	C	Surface Ar (CaAa)	6.00 - 151.00	1	1	-0.125 0.125	0.3500		0.06
LDF7-50A (1-5/8 FOAM) (Verizon)	C	Surface Ar (CaAa)	6.00 - 130.00	2	1	0.100 0.300	1.9800		0.82
Step Pegs (Sprint)	C	Surface Ar (CaAa)	6.00 - 179.00	1	1	0.000 0.000	0.0000		1.50

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Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _{AA}		Weight plf
						In Face ft ² /ft	Out Face ft ² /ft	
LDF7-50A (1-5/8 FOAM) (Sprint)	B	No	Inside Pole	6.00 - 179.00	4	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
LDF6-50A (1-1/4 FOAM) (Sprint)	B	No	Inside Pole	6.00 - 179.00	1	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
LDF5-50A (7/8 FOAM) (Sprint)	B	No	Inside Pole	6.00 - 179.00	2	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
HJ4-50 (1/2 AIR) (Sprint)	B	No	Inside Pole	6.00 - 179.00	2	No Ice	0.00	0.25
						1/2" Ice	0.00	0.25
						1" Ice	0.00	0.25
LDF6-50A (1-1/4 FOAM) (Sprint)	B	No	Inside Pole	6.00 - 174.00	3	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
LDF1-50A (1/4 FOAM) (T-Mobile)	B	No	Inside Pole	6.00 - 159.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
LDF7-50A (1-5/8 FOAM) (T-Mobile)	C	No	Inside Pole	6.00 - 151.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
LDF7-50A (1-5/8 FOAM) (At&T)	A	No	Inside Pole	6.00 - 140.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
LDF2-50 (3/8 FOAM) (At&T)	A	No	Inside Pole	6.00 - 140.00	1	No Ice	0.00	0.08
						1/2" Ice	0.00	0.08
						1" Ice	0.00	0.08
LDF5-50A (7/8 FOAM) (At&T)	A	No	Inside Pole	6.00 - 140.00	2	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
LDF7-50A (1-5/8 FOAM) (Verizon)	C	No	Inside Pole	6.00 - 130.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
LDF1-50A (1/4 FOAM) (Verizon)	B	No	Inside Pole	6.00 - 126.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
7/8" DC (AT&T)	A	No	Inside Pole	140.00 - 140.00	2	No Ice	0.00	0.60
						1/2" Ice	0.00	0.60
						1" Ice	0.00	0.60

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R	A _F	C _{AA} In Face	C _{AA} Out Face	Weight lb
			ft ²	ft ²	ft ²	ft ²	
L1	179.00-141.25	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	5.076	0.000	280.05
		C	0.000	0.000	11.924	0.000	201.12
L2	141.25-92.58	A	0.000	0.000	0.000	0.000	501.70
		B	0.000	0.000	7.544	0.000	381.63
		C	0.000	0.000	66.933	0.000	1223.88
L3	92.58-45.50	A	0.000	0.000	0.000	0.000	498.11
		B	0.000	0.000	7.297	0.000	370.05
		C	0.000	0.000	66.901	0.000	1308.82
L4	45.50-0.00	A	0.000	0.000	0.000	0.000	417.91

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Tower Section	Tower Elevation ft	Face	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight lb
		B	0.000	0.000	6.122	0.000	310.47
		C	0.000	0.000	56.130	0.000	1098.10

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft ²	A_F ft ²	C_{AA} In Face ft ²	C_{AA} Out Face ft ²	Weight lb
L1	179.00-141.25	A	2.341	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	20.408	0.000	644.44
		C		0.000	0.000	42.762	0.000	840.98
L2	141.25-92.58	A	2.268	0.000	0.000	0.000	0.000	501.70
		B		0.000	0.000	30.328	0.000	923.15
		C		0.000	0.000	172.955	0.000	4407.07
L3	92.58-45.50	A	2.152	0.000	0.000	0.000	0.000	498.11
		B		0.000	0.000	28.649	0.000	867.97
		C		0.000	0.000	171.627	0.000	4507.05
L4	45.50-0.00	A	1.929	0.000	0.000	0.000	0.000	417.91
		B		0.000	0.000	23.120	0.000	694.80
		C		0.000	0.000	140.099	0.000	3587.16

Feed Line Center of Pressure

Section	Elevation ft	CP_x in	CP_z in	CP_x Ice in	CP_z Ice in
L1	179.00-141.25	0.1561	0.3817	0.3815	0.7320
L2	141.25-92.58	0.0666	1.3840	0.1763	1.9045
L3	92.58-45.50	0.0525	1.5083	0.1622	2.2480
L4	45.50-0.00	0.0497	1.3904	0.1625	2.2479

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	1	LDF6-50A (1-1/4 FOAM)	141.25 - 174.00	1.0000	1.0000
L1	2	LDF7-50A (1-5/8 FOAM)	141.25 - 151.00	1.0000	1.0000
L1	3	LDF1-50A (1/4 FOAM)	141.25 - 151.00	1.0000	1.0000
L1	5	Step Pegs	141.25 - 179.00	1.0000	1.0000
L1	4	LDF7-50A (1-5/8 FOAM)	141.25 - 130.00	1.0000	1.0000
L2	1	LDF6-50A (1-1/4 FOAM)	92.58 - 141.25	1.0000	1.0000
L2	2	LDF7-50A (1-5/8 FOAM)	92.58 - 141.25	1.0000	1.0000
L2	3	LDF1-50A (1/4 FOAM)	92.58 - 141.25	1.0000	1.0000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L2	4	LDF7-50A (1-5/8 FOAM)	92.58 - 130.00	1.0000	1.0000
L2	5	Step Pegs	92.58 - 141.25	1.0000	1.0000
L3	1	LDF6-50A (1-1/4 FOAM)	45.50 - 92.58	1.0000	1.0000
L3	2	LDF7-50A (1-5/8 FOAM)	45.50 - 92.58	1.0000	1.0000
L3	3	LDF1-50A (1/4 FOAM)	45.50 - 92.58	1.0000	1.0000
L3	4	LDF7-50A (1-5/8 FOAM)	45.50 - 92.58	1.0000	1.0000
L3	5	Step Pegs	45.50 - 92.58	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			ft ft ft	°	ft	ft ²	ft ²	lb	
(3) 6' x 2" Pipe Mount	A	From Face	2.00	0.0000	181.00	No Ice	1.20	20.00	
			0.00			1/2" Ice	1.80	29.39	
			0.00			1" Ice	2.17	42.81	
(3) 6' x 2" Pipe Mount	B	From Face	2.00	0.0000	181.00	No Ice	1.20	20.00	
			0.00			1/2" Ice	1.80	29.39	
			0.00			1" Ice	2.17	42.81	
(3) 6' x 2" Pipe Mount	C	From Face	2.00	0.0000	181.00	No Ice	1.20	20.00	
			0.00			1/2" Ice	1.80	29.39	
			0.00			1" Ice	2.17	42.81	
Distribution Box	A	From Face	2.00	0.0000	181.00	No Ice	2.33	10.00	
			0.00			1/2" Ice	2.55	26.33	
			0.00			1" Ice	2.77	42.66	
Distribution Box	B	From Face	2.00	0.0000	181.00	No Ice	2.33	10.00	
			0.00			1/2" Ice	2.55	26.33	
			0.00			1" Ice	2.77	42.66	
4' Dipole	A	From Face	2.00	0.0000	181.00	No Ice	0.79	20.00	
			0.00			1/2" Ice	1.03	26.34	
			2.00			1" Ice	1.28	35.48	
10' Omni	B	From Face	2.00	0.0000	181.00	No Ice	2.00	30.00	
			0.00			1/2" Ice	3.02	40.00	
			7.00			1" Ice	4.07	60.00	
(2) 4' Omni	C	From Face	2.00	0.0000	181.00	No Ice	1.47	24.60	
			0.00			1/2" Ice	2.03	40.32	
			4.00			1" Ice	2.53	60.07	
6' Omni	A	From Face	2.00	0.0000	181.00	No Ice	2.37	44.60	
			0.00			1/2" Ice	3.08	66.58	
			5.00			1" Ice	3.70	93.91	
6' Omni	B	From Face	2.00	0.0000	181.00	No Ice	2.37	44.60	
			0.00			1/2" Ice	3.08	66.58	
			5.00			1" Ice	3.70	93.91	
TA 702-3	A	None		0.0000	181.00	No Ice	5.64	339.00	
						1/2" Ice	6.55	429.00	
						1" Ice	7.46	519.00	

ET-X-TU-42-15-37-18-iR-ST (Sprint)	A	From Face	3.00	0.0000	174.00	No Ice	7.76	71.90	
			0.00			1/2" Ice	8.28	133.56	
			0.00			1" Ice	8.77	201.83	
APXVSPP18-C	B	From Face	3.00	0.0000	174.00	No Ice	8.26	82.55	

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<i>Description</i>	<i>Face or Leg</i>	<i>Offset Type</i>	<i>Offsets: Horz Lateral Vert</i>	<i>Azimuth Adjustment</i>	<i>Placement</i>	<i>C_{AA} Front</i>	<i>C_{AA} Side</i>	<i>Weight</i>
			<i>ft</i> <i>ft</i> <i>ft</i>	<i>°</i>	<i>ft</i>	<i>ft²</i>	<i>ft²</i>	<i>lb</i>
(Sprint)			0.00		1/2" Ice	8.82	8.13	150.56
			0.00		1" Ice	9.35	9.02	226.53
APXVSPP18-C	C	From Face	3.00	0.0000	174.00	No Ice	8.26	82.55
(Sprint)			0.00		1/2" Ice	8.82	8.13	150.56
			0.00		1" Ice	9.35	9.02	226.53
APXV9TM14-ALU	A	From Face	3.00	0.0000	174.00	No Ice	6.34	63.00
(Sprint)			0.00		1/2" Ice	6.72	3.97	102.53
			0.00		1" Ice	7.10	4.33	147.12
APXV9TM14-ALU	B	From Face	3.00	0.0000	174.00	No Ice	6.34	63.00
(Sprint)			0.00		1/2" Ice	6.72	3.97	102.53
			0.00		1" Ice	7.10	4.33	147.12
APXV9TM14-ALU	C	From Face	3.00	0.0000	174.00	No Ice	6.34	63.00
(Sprint)			0.00		1/2" Ice	6.72	3.97	102.53
			0.00		1" Ice	7.10	4.33	147.12
TD-RRH8x20-25	A	From Face	1.50	0.0000	174.00	No Ice	4.05	70.00
(Sprint)			0.00		1/2" Ice	4.30	1.71	97.14
			0.00		1" Ice	4.56	1.90	127.80
TD-RRH8x20-25	A	From Face	1.50	0.0000	174.00	No Ice	4.05	70.00
(Sprint)			0.00		1/2" Ice	4.30	1.71	97.14
			0.00		1" Ice	4.56	1.90	127.80
TD-RRH8x20-25	A	From Face	1.50	0.0000	174.00	No Ice	4.05	70.00
(Sprint)			0.00		1/2" Ice	4.30	1.71	97.14
			0.00		1" Ice	4.56	1.90	127.80
TA 602-3	B	None		0.0000	174.00	No Ice	11.59	774.00
(Sprint)					1/2" Ice	15.44	15.44	990.00
					1" Ice	19.29	19.29	1206.00
RRH-2X50-800	B	From Face	1.50	0.0000	170.00	No Ice	2.06	53.00
(Sprint)			0.00		1/2" Ice	2.24	1.52	71.28
			0.00		1" Ice	2.43	1.68	92.39
ALU RRH-4X45-1900	C	From Face	1.50	0.0000	170.00	No Ice	2.50	69.50
(Sprint)			0.00		1/2" Ice	2.71	2.71	95.23
			0.00		1" Ice	2.93	2.93	124.33
RRH-2X50-800	B	From Face	1.50	0.0000	170.00	No Ice	2.06	53.00
(Sprint)			0.00		1/2" Ice	2.24	1.52	71.28
			0.00		1" Ice	2.43	1.68	92.39
ALU RRH-4X45-1900	C	From Face	1.50	0.0000	170.00	No Ice	2.50	69.50
(Sprint)			0.00		1/2" Ice	2.71	2.71	95.23
			0.00		1" Ice	2.93	2.93	124.33
RRH-2X50-800	B	From Face	1.50	0.0000	170.00	No Ice	2.06	53.00
(Sprint)			0.00		1/2" Ice	2.24	1.52	71.28
			0.00		1" Ice	2.43	1.68	92.39
ALU RRH-4X45-1900	C	From Face	1.50	0.0000	170.00	No Ice	2.50	69.50
(Sprint)			0.00		1/2" Ice	2.71	2.71	95.23
			0.00		1" Ice	2.93	2.93	124.33
Ring Mount	C	None		0.0000	170.00	No Ice	1.40	90.00
(Sprint)					1/2" Ice	2.40	2.40	130.00
					1" Ice	3.40	3.40	170.00

RRUS-11	A	From Face	1.00	0.0000	142.00	No Ice	2.52	55.00
(AT&T)			0.00		1/2" Ice	2.72	1.16	74.32
			0.00		1" Ice	2.92	1.30	96.56
RRUS-11	B	From Face	1.00	0.0000	142.00	No Ice	2.52	55.00
(AT&T)			0.00		1/2" Ice	2.72	1.16	74.32
			0.00		1" Ice	2.92	1.30	96.56
RRUS-11	C	From Face	1.00	0.0000	142.00	No Ice	2.52	55.00
(AT&T)			0.00		1/2" Ice	2.72	1.16	74.32
			0.00		1" Ice	2.92	1.30	96.56

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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
RRUS 32 B2 (AT&T)	A	From Face	1.00	0.0000	142.00	No Ice	2.72	1.67	52.90
			0.00			1/2" Ice	2.94	1.86	73.90
			0.00			1" Ice	3.17	2.05	98.09
RRUS 32 B2 (AT&T)	B	From Face	1.00	0.0000	142.00	No Ice	2.72	1.67	52.90
			0.00			1/2" Ice	2.94	1.86	73.90
			0.00			1" Ice	3.17	2.05	98.09
RRUS 32 B2 (AT&T)	C	From Face	1.00	0.0000	142.00	No Ice	2.72	1.67	52.90
			0.00			1/2" Ice	2.94	1.86	73.90
			0.00			1" Ice	3.17	2.05	98.09
RRUS 32 B66 (AT&T)	A	From Face	1.00	0.0000	140.00	No Ice	2.72	1.67	50.70
			0.00			1/2" Ice	2.94	1.86	71.70
			0.00			1" Ice	3.17	2.05	95.89
RRUS 32 B66 (AT&T)	B	From Face	1.00	0.0000	140.00	No Ice	2.72	1.67	50.70
			0.00			1/2" Ice	2.94	1.86	71.70
			0.00			1" Ice	3.17	2.05	95.89
RRUS 32 B66 (AT&T)	C	From Face	1.00	0.0000	140.00	No Ice	2.72	1.67	50.70
			0.00			1/2" Ice	2.94	1.86	71.70
			0.00			1" Ice	3.17	2.05	95.89
RRUS 32 (AT&T)	A	From Face	1.00	0.0000	140.00	No Ice	2.72	1.67	52.90
			0.00			1/2" Ice	2.94	1.86	73.90
			0.00			1" Ice	3.17	2.05	98.09
RRUS 32 (AT&T)	B	From Face	1.00	0.0000	140.00	No Ice	2.72	1.67	52.90
			0.00			1/2" Ice	2.94	1.86	73.90
			0.00			1" Ice	3.17	2.05	98.09
RRUS 32 (AT&T)	C	From Face	1.00	0.0000	140.00	No Ice	2.72	1.67	52.90
			0.00			1/2" Ice	2.94	1.86	73.90
			0.00			1" Ice	3.17	2.05	98.09
RRUS 4478 (AT&T)	A	From Face	1.00	0.0000	140.00	No Ice	2.02	1.25	59.40
			0.00			1/2" Ice	2.20	1.40	77.01
			0.00			1" Ice	2.39	1.55	97.40
RRUS 4478 (AT&T)	B	From Face	1.00	0.0000	140.00	No Ice	2.02	1.25	59.40
			0.00			1/2" Ice	2.20	1.40	77.01
			0.00			1" Ice	2.39	1.55	97.40
RRUS 4478 (AT&T)	C	From Face	1.00	0.0000	140.00	No Ice	2.02	1.25	59.40
			0.00			1/2" Ice	2.20	1.40	77.01
			0.00			1" Ice	2.39	1.55	97.40
(2) LGP21401 (AT&T)	A	From Face	2.00	0.0000	140.00	No Ice	1.66	0.44	35.00
			0.00			1/2" Ice	1.82	0.54	45.89
			0.00			1" Ice	1.98	0.65	59.04
(2) LGP21401 (AT&T)	B	From Face	2.00	0.0000	140.00	No Ice	1.66	0.44	35.00
			0.00			1/2" Ice	1.82	0.54	45.89
			0.00			1" Ice	1.98	0.65	59.04
(2) LGP21401 (AT&T)	C	From Face	2.00	0.0000	140.00	No Ice	1.66	0.44	35.00
			0.00			1/2" Ice	1.82	0.54	45.89
			0.00			1" Ice	1.98	0.65	59.04
HPA-65R-BUU-H8 (AT&T)	A	From Face	3.00	0.0000	140.00	No Ice	12.98	7.52	68.00
			0.00			1/2" Ice	13.56	8.09	141.77
			0.00			1" Ice	14.15	8.67	223.17
HPA-65R-BUU-H8 (AT&T)	B	From Face	3.00	0.0000	140.00	No Ice	12.98	7.52	68.00
			0.00			1/2" Ice	13.56	8.09	141.77
			0.00			1" Ice	14.15	8.67	223.17
TPA-65R-LCUUUU-H8 (AT&T)	A	From Face	3.00	0.0000	140.00	No Ice	13.30	8.82	75.00
			0.00			1/2" Ice	13.90	9.42	154.46
			0.00			1" Ice	14.50	10.03	241.82
TPA-65R-LCUUUU-H8 (AT&T)	B	From Face	3.00	0.0000	140.00	No Ice	13.30	8.82	75.00
			0.00			1/2" Ice	13.90	9.42	154.46
			0.00			1" Ice	14.50	10.03	241.82

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	Client	AT&T	Designed by	CLuengas

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
7770 (AT&T)	A	From Face	3.00	0.0000		140.00	No Ice 5.51	2.93	35.00
			0.00				1/2" Ice 5.87	3.27	67.63
			0.00				1" Ice 6.23	3.63	105.06
7770 (AT&T)	B	From Face	3.00	0.0000		140.00	No Ice 5.51	2.93	35.00
			0.00				1/2" Ice 5.87	3.27	67.63
			0.00				1" Ice 6.23	3.63	105.06
7770 (AT&T)	C	From Face	3.00	0.0000		140.00	No Ice 5.51	2.93	35.00
			0.00				1/2" Ice 5.87	3.27	67.63
			0.00				1" Ice 6.23	3.63	105.06
80010966 (AT&T)	A	From Face	3.00	0.0000		140.00	No Ice 17.36	9.40	158.40
			0.00				1/2" Ice 17.99	10.82	271.68
			0.00				1" Ice 18.63	12.09	395.19
80010966 (AT&T)	B	From Face	3.00	0.0000		140.00	No Ice 17.36	9.40	158.40
			0.00				1/2" Ice 17.99	10.82	271.68
			0.00				1" Ice 18.63	12.09	395.19
80010964 (AT&T)	C	From Face	3.00	0.0000		140.00	No Ice 10.00	4.10	35.00
			0.00				1/2" Ice 10.42	4.48	93.72
			0.00				1" Ice 10.86	4.87	158.21
(2) SBNHH-1D65A (AT&T)	C	From Face	3.00	0.0000		140.00	No Ice 5.88	3.86	33.50
			0.00				1/2" Ice 6.25	4.22	72.53
			0.00				1" Ice 6.62	4.57	116.56
(4) 8' x 2" Mount Pipe (AT&T)	A	From Face	3.00	0.0000		140.00	No Ice 1.60	1.60	30.00
			0.00				1/2" Ice 2.42	2.42	42.45
			0.00				1" Ice 3.24	3.24	60.14
(4) 8' x 2" Mount Pipe (AT&T)	B	From Face	3.00	0.0000		140.00	No Ice 1.60	1.60	30.00
			0.00				1/2" Ice 2.42	2.42	42.45
			0.00				1" Ice 3.24	3.24	60.14
(4) 8' x 2" Mount Pipe (AT&T)	C	From Face	3.00	0.0000		140.00	No Ice 1.60	1.60	30.00
			0.00				1/2" Ice 2.42	2.42	42.45
			0.00				1" Ice 3.24	3.24	60.14
DC6 Dome (AT&T)	A	From Face	2.00	0.0000		140.00	No Ice 1.24	1.24	34.00
			0.00				1/2" Ice 1.94	1.94	56.40
			0.00				1" Ice 2.16	2.16	81.70
DC6 Dome (AT&T)	B	From Face	2.00	0.0000		140.00	No Ice 1.24	1.24	34.00
			0.00				1/2" Ice 1.94	1.94	56.40
			0.00				1" Ice 2.16	2.16	81.70
DC6 Dome (AT&T)	C	From Face	2.00	0.0000		140.00	No Ice 1.24	1.24	34.00
			0.00				1/2" Ice 1.94	1.94	56.40
			0.00				1" Ice 2.16	2.16	81.70
(2) TPX070821 (AT&T)	A	From Leg	3.00	0.0000		140.00	No Ice 0.47	0.10	7.50
			0.00				1/2" Ice 0.56	0.15	10.95
			0.00				1" Ice 0.66	0.20	15.73
(2) TPX070821 (AT&T)	B	From Leg	3.00	0.0000		140.00	No Ice 0.47	0.10	7.50
			0.00				1/2" Ice 0.56	0.15	10.95
			0.00				1" Ice 0.66	0.20	15.73

(2) AIR 21 B2A/B4P With mount Pipe (T-Mobile)	A	From Face	3.00	0.0000		151.00	No Ice 6.41	5.69	113.40
			0.00				1/2" Ice 6.89	6.54	170.95
			1.00				1" Ice 7.35	7.27	235.30
(2) AIR 21 B2A/B4P With mount Pipe (T-Mobile)	B	From Face	3.00	0.0000		151.00	No Ice 6.41	5.69	113.40
			0.00				1/2" Ice 6.89	6.54	170.95
			1.00				1" Ice 7.35	7.27	235.30
(2) AIR 21 B2A/B4P With mount Pipe (T-Mobile)	C	From Face	3.00	0.0000		151.00	No Ice 6.41	5.69	113.40
			0.00				1/2" Ice 6.89	6.54	170.95
			1.00				1" Ice 7.35	7.27	235.30
LNX-6515DS-VTM (T-Mobile)	A	From Face	3.00	0.0000		151.00	No Ice 11.45	9.60	79.50
			0.00				1/2" Ice 12.06	11.02	166.47

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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	
LNX-6515DS-VTM (T-Mobile)	B	From Face	1.00		0.0000	151.00	1" Ice	12.69	12.29	263.19
			3.00				No Ice	11.45	9.60	79.50
			0.00				1/2" Ice	12.06	11.02	166.47
LNX-6515DS-VTM (T-Mobile)	C	From Face	1.00		0.0000	151.00	1" Ice	12.69	12.29	263.19
			3.00				No Ice	11.45	9.60	79.50
			0.00				1/2" Ice	12.06	11.02	166.47
RRUS-11 (T-Mobile)	A	From Face	1.00		0.0000	151.00	1" Ice	12.69	12.29	263.19
			2.00				No Ice	2.52	1.02	55.00
			0.00				1/2" Ice	2.72	1.16	74.32
RRUS-11 (T-Mobile)	B	From Face	1.00		0.0000	151.00	1" Ice	12.69	12.29	263.19
			2.00				No Ice	2.52	1.02	55.00
			0.00				1/2" Ice	2.72	1.16	74.32
RRUS-11 (T-Mobile)	C	From Face	1.00		0.0000	151.00	1" Ice	12.69	12.29	263.19
			2.00				No Ice	2.52	1.02	55.00
			0.00				1/2" Ice	2.72	1.16	74.32
TMA (T-Mobile)	A	From Face	1.00		0.0000	151.00	1" Ice	12.69	12.29	263.19
			2.00				No Ice	0.78	0.29	20.00
			0.00				1/2" Ice	0.90	0.38	30.00
TMA (T-Mobile)	B	From Face	1.00		0.0000	151.00	1" Ice	12.69	12.29	263.19
			2.00				No Ice	0.78	0.29	20.00
			0.00				1/2" Ice	0.90	0.38	30.00
TMA (T-Mobile)	C	From Face	1.00		0.0000	151.00	1" Ice	12.69	12.29	263.19
			2.00				No Ice	0.78	0.29	20.00
			0.00				1/2" Ice	0.90	0.38	30.00
8' x 2" Mount Pipe (T-Mobile)	C	From Face	1.00		0.0000	151.00	1" Ice	12.69	12.29	263.19
			0.00				No Ice	1.60	1.60	30.00
			0.00				1/2" Ice	2.42	2.42	42.45
8' x 2" Mount Pipe (T-Mobile)	C	From Face	1.00		0.0000	151.00	1" Ice	12.69	12.29	263.19
			0.00				No Ice	1.60	1.60	30.00
			0.00				1/2" Ice	2.42	2.42	42.45
8' x 2" Mount Pipe (T-Mobile)	C	From Face	1.00		0.0000	151.00	1" Ice	12.69	12.29	263.19
			0.00				No Ice	1.60	1.60	30.00
			0.00				1/2" Ice	2.42	2.42	42.45

BXA-80063/4CF (Verizon)	A	From Face	1.00		0.0000	130.00	1" Ice	12.69	12.29	263.19
			3.00				No Ice	4.71	2.25	9.90
			0.00				1/2" Ice	5.03	2.55	37.73
BXA-80063/4CF (Verizon)	B	From Face	1.00		0.0000	130.00	1" Ice	12.69	12.29	263.19
			3.00				No Ice	4.71	2.25	9.90
			0.00				1/2" Ice	5.03	2.55	37.73
BXA-80063/4CF (Verizon)	C	From Face	1.00		0.0000	130.00	1" Ice	12.69	12.29	263.19
			3.00				No Ice	4.71	2.25	9.90
			0.00				1/2" Ice	5.03	2.55	37.73
BXA-80063/6CF (Verizon)	A	From Face	1.00		0.0000	130.00	1" Ice	12.69	12.29	263.19
			3.00				No Ice	7.58	3.76	14.90
			0.00				1/2" Ice	8.03	4.20	55.55
BXA-80063/6CF (Verizon)	B	From Face	1.00		0.0000	130.00	1" Ice	12.69	12.29	263.19
			3.00				No Ice	7.58	3.76	14.90
			0.00				1/2" Ice	8.03	4.20	55.55
BXA-80063/6CF (Verizon)	C	From Face	1.00		0.0000	130.00	1" Ice	12.69	12.29	263.19
			3.00				No Ice	7.58	3.76	14.90
			0.00				1/2" Ice	8.03	4.20	55.55
(2) SBNHH-1D65B (Verizon)	A	From Face	1.00		0.0000	130.00	1" Ice	12.69	12.29	263.19
			3.00				No Ice	8.20	6.89	74.73
			0.00				1/2" Ice	8.70	7.95	141.97
(2) SBNHH-1D65B	B	From Face	1.00		0.0000	130.00	1" Ice	12.69	12.29	263.19
			3.00				No Ice	8.20	6.89	74.73
			0.00				1" Ice	9.19	8.81	217.08

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb
			Horz Lateral ft	Vert ft					
(Verizon)			0.00			1/2" Ice	8.70	7.95	141.97
			0.00			1" Ice	9.19	8.81	217.08
(2) SBNHH-1D65B (Verizon)	C	From Face	3.00	0.0000	130.00	No Ice	8.20	6.89	74.73
			0.00			1/2" Ice	8.70	7.95	141.97
			0.00			1" Ice	9.19	8.81	217.08
(4) 6' x 2" Pipe Mount (Verizon)	A	From Face	3.00	0.0000	130.00	No Ice	1.20	1.20	20.00
			0.00			1/2" Ice	1.80	1.80	29.39
			0.00			1" Ice	2.17	2.17	42.81
(4) 6' x 2" Pipe Mount (Verizon)	B	From Face	3.00	0.0000	130.00	No Ice	1.20	1.20	20.00
			0.00			1/2" Ice	1.80	1.80	29.39
			0.00			1" Ice	2.17	2.17	42.81
(4) 6' x 2" Pipe Mount (Verizon)	C	From Face	3.00	0.0000	130.00	No Ice	1.20	1.20	20.00
			0.00			1/2" Ice	1.80	1.80	29.39
			0.00			1" Ice	2.17	2.17	42.81
(2) RRH2X60-PCS (Verizon)	A	From Face	3.00	0.0000	130.00	No Ice	2.20	1.72	55.00
			0.00			1/2" Ice	2.39	1.90	75.35
			0.00			1" Ice	2.59	2.09	98.71
(2) RRH2X60-PCS (Verizon)	B	From Face	3.00	0.0000	130.00	No Ice	2.20	1.72	55.00
			0.00			1/2" Ice	2.39	1.90	75.35
			0.00			1" Ice	2.59	2.09	98.71
(2) RRH2X60-PCS (Verizon)	C	From Face	3.00	0.0000	130.00	No Ice	2.20	1.72	55.00
			0.00			1/2" Ice	2.39	1.90	75.35
			0.00			1" Ice	2.59	2.09	98.71
ALU RRH-4X45-1900 (Verizon)	A	From Face	3.00	0.0000	130.00	No Ice	2.50	2.50	69.50
			0.00			1/2" Ice	2.71	2.71	95.23
			0.00			1" Ice	2.93	2.93	124.33
ALU RRH-4X45-1900 (Verizon)	B	From Face	3.00	0.0000	130.00	No Ice	2.50	2.50	69.50
			0.00			1/2" Ice	2.71	2.71	95.23
			0.00			1" Ice	2.93	2.93	124.33
ALU RRH-4X45-1900 (Verizon)	C	From Face	3.00	0.0000	130.00	No Ice	2.50	2.50	69.50
			0.00			1/2" Ice	2.71	2.71	95.23
			0.00			1" Ice	2.93	2.93	124.33
RRH2x60-700 (Verizon)	A	From Face	3.00	0.0000	130.00	No Ice	1.73	1.33	50.00
			0.00			1/2" Ice	1.90	1.48	66.28
			0.00			1" Ice	2.07	1.64	85.25
RRH2x60-700 (Verizon)	B	From Face	3.00	0.0000	130.00	No Ice	1.73	1.33	50.00
			0.00			1/2" Ice	1.90	1.48	66.28
			0.00			1" Ice	2.07	1.64	85.25
RRH2x60-700 (Verizon)	C	From Face	3.00	0.0000	130.00	No Ice	1.73	1.33	50.00
			0.00			1/2" Ice	1.90	1.48	66.28
			0.00			1" Ice	2.07	1.64	85.25
DC6 Dome (Verizon)	A	From Face	3.00	0.0000	130.00	No Ice	1.24	1.24	34.00
			0.00			1/2" Ice	1.94	1.94	56.40
			0.00			1" Ice	2.16	2.16	81.70
DC6 Dome (Verizon)	B	From Face	3.00	0.0000	130.00	No Ice	1.24	1.24	34.00
			0.00			1/2" Ice	1.94	1.94	56.40
			0.00			1" Ice	2.16	2.16	81.70
Pirod 13' Low Profile Platform (Verizon)	A	None		0.0000	130.00	No Ice	15.70	15.70	1300.00
						1/2" Ice	20.10	20.10	1765.00
						1" Ice	24.50	24.50	2230.00
Sabre C10857001C (AT&T)	A	None		0.0000	140.00	No Ice	9.12	5.23	462.00
						1/2" Ice	0.00	0.00	700.00
						1" Ice	0.00	0.00	938.00
Sabre C10857001C (AT&T)	B	None		0.0000	140.00	No Ice	9.12	5.23	462.00
						1/2" Ice	0.00	0.00	700.00
						1" Ice	0.00	0.00	938.00
Sabre C10857001C	C	None		0.0000	140.00	No Ice	9.12	5.23	462.00

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			ft ft ft	°	ft	ft ²	ft ²	lb
(AT&T)					1/2" Ice	0.00	0.00	700.00
					1" Ice	0.00	0.00	938.00

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight	
				ft	°	°	ft	ft	ft ²	lb	
2' dish (Clearwire)	A	Paraboloid w/o Radome	From Face	1.50 0.00 0.00	Worst		126.00	2.00	No Ice 1/2" Ice 1" Ice	3.14 3.41 3.68	15.00 47.50 65.01
2' dish (Clearwire)	C	Paraboloid w/o Radome	From Face	1.50 0.00 0.00	Worst		159.00	2.00	No Ice 1/2" Ice 1" Ice	3.14 3.41 3.68	15.00 47.50 65.01

Tower Pressures - No Ice

$$G_H = 1.100$$

Section Elevation	z	K _z	q _z	A _G	F _a	A _F	A _R	A _{leg}	Leg %	C _{AA} In Face	C _{AA} Out Face
ft	ft		psf	ft ²	c	ft ²	ft ²	ft ²		ft ²	ft ²
L1 179.00-141.25	159.11	1.396	32	90.000	A	0.000	90.000	90.000	100.00	0.000	0.000
					B	0.000	90.000		100.00	5.076	0.000
					C	0.000	90.000		100.00	11.924	0.000
L2 141.25-92.58	115.83	1.305	30	161.818	A	0.000	161.818	161.818	100.00	0.000	0.000
					B	0.000	161.818		100.00	7.544	0.000
					C	0.000	161.818		100.00	66.933	0.000
L3 92.58-45.50	68.50	1.169	27	204.822	A	0.000	204.822	204.822	100.00	0.000	0.000
					B	0.000	204.822		100.00	7.297	0.000
					C	0.000	204.822		100.00	66.901	0.000
L4 45.50-0.00	22.98	0.929	21	242.978	A	0.000	242.978	242.978	100.00	0.000	0.000
					B	0.000	242.978		100.00	6.122	0.000
					C	0.000	242.978		100.00	56.130	0.000

Tower Pressure - With Ice

$$G_H = 1.100$$

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Section Elevation	z	K _Z	q _z	t _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face	C _A A _A Out Face
ft	ft		psf	in	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
L1 179.00-141.25	159.11	1.396	8	2.3407	104.727	A	0.000	104.727	104.727	100.00	0.000	0.000
						B	0.000	104.727		100.00	20.408	0.000
						C	0.000	104.727		100.00	42.762	0.000
L2 141.25-92.58	115.83	1.305	8	2.2676	180.805	A	0.000	180.805	180.805	100.00	0.000	0.000
						B	0.000	180.805		100.00	30.328	0.000
						C	0.000	180.805		100.00	172.955	0.000
L3 92.58-45.50	68.50	1.169	7	2.1515	222.615	A	0.000	222.615	222.615	100.00	0.000	0.000
						B	0.000	222.615		100.00	28.649	0.000
						C	0.000	222.615		100.00	171.627	0.000
L4 45.50-0.00	22.98	0.929	6	1.9289	259.294	A	0.000	259.294	259.294	100.00	0.000	0.000
						B	0.000	259.294		100.00	23.120	0.000
						C	0.000	259.294		100.00	140.099	0.000

Tower Pressure - Service

$G_H = 1.100$

Section Elevation	z	K _Z	q _z	A _G	F a c e	A _F	A _R	A _{leg}	Leg %	C _A A _A In Face	C _A A _A Out Face
ft	ft		psf	ft ²		ft ²	ft ²	ft ²		ft ²	ft ²
L1 179.00-141.25	159.11	1.396	11	90.000	A	0.000	90.000	90.000	100.00	0.000	0.000
					B	0.000	90.000		100.00	5.076	0.000
					C	0.000	90.000		100.00	11.924	0.000
L2 141.25-92.58	115.83	1.305	10	161.818	A	0.000	161.818	161.818	100.00	0.000	0.000
					B	0.000	161.818		100.00	7.544	0.000
					C	0.000	161.818		100.00	66.933	0.000
L3 92.58-45.50	68.50	1.169	9	204.822	A	0.000	204.822	204.822	100.00	0.000	0.000
					B	0.000	204.822		100.00	7.297	0.000
					C	0.000	204.822		100.00	66.901	0.000
L4 45.50-0.00	22.98	0.929	7	242.978	A	0.000	242.978	242.978	100.00	0.000	0.000
					B	0.000	242.978		100.00	6.122	0.000
					C	0.000	242.978		100.00	56.130	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 179.00-141.25	481.17	2846.33	A	1	0.65	32	1	1	90.000	2054.12	54.41	C
			B	1	0.65		1	1	90.000			
			C	1	0.65		1	1	90.000			
L2 141.25-92.58	2107.21	8228.84	A	1	0.712	30	1	1	161.818	3779.36	77.65	A
			B	1	0.65		1	1	161.818			
			C	1	0.65		1	1	161.818			
L3 92.58-45.50	2176.98	10784.95	A	1	0.703	27	1	1	204.822	4217.10	89.57	A
			B	1	0.65		1	1	204.822			
			C	1	0.65		1	1	204.822			
L4 45.50-0.00	1826.48	13249.90	A	1	0.65	21	1	1	242.978	3678.02	80.84	C
			B	1	0.65		1	1	242.978			
			C	1	0.65		1	1	242.978			

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Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
Sum Weight:	6591.84	35110.01						OTM	1138.00 kip-ft	13728.61		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 179.00-141.25	481.17	2846.33	A	1	0.65	32	1	1	90.000	2054.12	54.41	C
			B	1	0.65		1	1	90.000			
			C	1	0.65		1	1	90.000			
L2 141.25-92.58	2107.21	8228.84	A	1	0.65	30	1	1	161.818	3779.36	77.65	B
			B	1	0.712		1	1	161.818			
			C	1	0.65		1	1	161.818			
L3 92.58-45.50	2176.98	10784.95	A	1	0.65	27	1	1	204.822	4217.10	89.57	B
			B	1	0.703		1	1	204.822			
			C	1	0.65		1	1	204.822			
L4 45.50-0.00	1826.48	13249.90	A	1	0.65	21	1	1	242.978	3678.02	80.84	C
			B	1	0.65		1	1	242.978			
			C	1	0.65		1	1	242.978			
Sum Weight:	6591.84	35110.01						OTM	1138.00 kip-ft	13728.61		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 179.00-141.25	481.17	2846.33	A	1	0.65	32	1	1	90.000	2054.12	54.41	C
			B	1	0.65		1	1	90.000			
			C	1	0.65		1	1	90.000			
L2 141.25-92.58	2107.21	8228.84	A	1	0.65	30	1	1	161.818	4067.10	83.56	C
			B	1	0.651		1	1	161.818			
			C	1	0.766		1	1	161.818			
L3 92.58-45.50	2176.98	10784.95	A	1	0.65	27	1	1	204.822	4429.71	94.09	C
			B	1	0.65		1	1	204.822			
			C	1	0.738		1	1	204.822			
L4 45.50-0.00	1826.48	13249.90	A	1	0.65	21	1	1	242.978	3706.99	81.47	C
			B	1	0.65		1	1	242.978			
			C	1	0.655		1	1	242.978			
Sum Weight:	6591.84	35110.01						OTM	1186.55 kip-ft	14257.91		

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Tower Forces - With Ice - Wind Normal To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 179.00-141.25	1485.42	6174.56	A	1	1.2	8	1	1	104.727	1172.48	31.06	C
			B	1	1.2		1	1	104.727			
			C	1	1.2		1	1	104.727			
L2 141.25-92.58	5831.93	13890.20	A	1	1.2	8	1	1	180.805	2493.54	51.23	A
			B	1	1.2		1	1	180.805			
			C	1	1.2		1	1	180.805			
L3 92.58-45.50	5873.12	17482.16	A	1	1.2	7	1	1	222.615	2675.30	56.82	A
			B	1	1.2		1	1	222.615			
			C	1	1.2		1	1	222.615			
L4 45.50-0.00	4699.86	20295.65	A	1	1.2	6	1	1	259.294	1925.32	42.31	C
			B	1	1.2		1	1	259.294			
			C	1	1.2		1	1	259.294			
Sum Weight:	17890.33	57842.57						OTM	702.89 kip-ft	8266.65		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 179.00-141.25	1485.42	6174.56	A	1	1.2	8	1	1	104.727	1172.48	31.06	C
			B	1	1.2		1	1	104.727			
			C	1	1.2		1	1	104.727			
L2 141.25-92.58	5831.93	13890.20	A	1	1.2	8	1	1	180.805	2493.54	51.23	B
			B	1	1.2		1	1	180.805			
			C	1	1.2		1	1	180.805			
L3 92.58-45.50	5873.12	17482.16	A	1	1.2	7	1	1	222.615	2675.30	56.82	B
			B	1	1.2		1	1	222.615			
			C	1	1.2		1	1	222.615			
L4 45.50-0.00	4699.86	20295.65	A	1	1.2	6	1	1	259.294	1925.32	42.31	C
			B	1	1.2		1	1	259.294			
			C	1	1.2		1	1	259.294			
Sum Weight:	17890.33	57842.57						OTM	702.89 kip-ft	8266.65		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 179.00-141.25	1485.42	6174.56	A	1	1.2	8	1	1	104.727	1172.48	31.06	C
			B	1	1.2		1	1	104.727			
			C	1	1.2		1	1	104.727			
L2	5831.93	13890.20	A	1	1.2	8	1	1	180.805	2694.89	55.37	C

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Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
141.25-92.58			B	1	1.2		1	1	180.805			
			C	1	1.2		1	1	180.805			
L3 92.58-45.50	5873.12	17482.16	A	1	1.2	7	1	1	222.615	2840.71	60.34	C
			B	1	1.2		1	1	222.615			
			C	1	1.2		1	1	222.615			
L4 45.50-0.00	4699.86	20295.65	A	1	1.2	6	1	1	259.294	2418.26	53.15	C
			B	1	1.2		1	1	259.294			
			C	1	1.2		1	1	259.294			
Sum Weight:	17890.33	57842.57						OTM	748.87 kip-ft	9126.34		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
L1 179.00-141.25	481.17	2846.33	A	1	0.65	11	1	1	90.000	703.20	18.63	C
			B	1	0.65		1	1	90.000			
			C	1	0.65		1	1	90.000			
L2 141.25-92.58	2107.21	8228.84	A	1	0.712	10	1	1	161.818	1293.82	26.58	A
			B	1	0.65		1	1	161.818			
			C	1	0.65		1	1	161.818			
L3 92.58-45.50	2176.98	10784.95	A	1	0.703	9	1	1	204.822	1443.67	30.66	A
			B	1	0.65		1	1	204.822			
			C	1	0.65		1	1	204.822			
L4 45.50-0.00	1826.48	13249.90	A	1	0.65	7	1	1	242.978	1259.12	27.67	C
			B	1	0.65		1	1	242.978			
			C	1	0.65		1	1	242.978			
Sum Weight:	6591.84	35110.01						OTM	389.58 kip-ft	4699.82		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight lb	Self Weight lb	F a c e	e	C _F	q _z psf	D _F	D _R	A _E ft ²	F lb	w plf	Ctrl. Face
L1 179.00-141.25	481.17	2846.33	A	1	0.65	11	1	1	90.000	703.20	18.63	C
			B	1	0.65		1	1	90.000			
			C	1	0.65		1	1	90.000			
L2 141.25-92.58	2107.21	8228.84	A	1	0.65	10	1	1	161.818	1293.82	26.58	B
			B	1	0.712		1	1	161.818			
			C	1	0.65		1	1	161.818			
L3 92.58-45.50	2176.98	10784.95	A	1	0.65	9	1	1	204.822	1443.67	30.66	B
			B	1	0.703		1	1	204.822			
			C	1	0.65		1	1	204.822			
L4 45.50-0.00	1826.48	13249.90	A	1	0.65	7	1	1	242.978	1259.12	27.67	C
			B	1	0.65		1	1	242.978			
			C	1	0.65		1	1	242.978			

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Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
Sum Weight:	6591.84	35110.01	C	1	0.65		1	1	242.978 389.58 kip-ft	4699.82		

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	F a c e	e	C _F	q _z	D _F	D _R	A _E	F	w	Ctrl. Face
ft	lb	lb				psf			ft ²	lb	plf	
L1 179.00-141.25	481.17	2846.33	A B C	1 1 1	0.65 0.65 0.65	11	1 1 1	1 1 1	90.000 90.000 90.000	703.20	18.63	C
L2 141.25-92.58	2107.21	8228.84	A B C	1 1 1	0.65 0.651 0.766	10	1 1 1	1 1 1	161.818 161.818 161.818	1392.32	28.61	C
L3 92.58-45.50	2176.98	10784.95	A B C	1 1 1	0.65 0.65 0.738	9	1 1 1	1 1 1	204.822 204.822 204.822	1516.45	32.21	C
L4 45.50-0.00	1826.48	13249.90	A B C	1 1 1	0.65 0.65 0.655	7	1 1 1	1 1 1	242.978 242.978 242.978	1269.04	27.89	C
Sum Weight:	6591.84	35110.01						OTM	406.20 kip-ft	4881.02		

Discrete Appurtenance Pressures - No Ice G_H = 1.100

Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _A C _C Front ft ²	C _A C _C Side ft ²
6' x 2" Pipe Mount	300.0000	60.00	-2.57	-1.48	181.00	1.434	33	3.60	3.60
6' x 2" Pipe Mount	60.0000	60.00	2.57	-1.48	181.00	1.434	33	3.60	3.60
6' x 2" Pipe Mount	180.0000	60.00	0.00	2.96	181.00	1.434	33	3.60	3.60
Distribution Box	300.0000	10.00	-2.57	-1.48	181.00	1.434	33	2.33	1.36
Distribution Box	60.0000	10.00	2.57	-1.48	181.00	1.434	33	2.33	1.36
4' Dipole	300.0000	20.00	-2.57	-1.48	183.00	1.437	33	0.79	0.79
10' Omni	60.0000	30.00	2.57	-1.48	188.00	1.446	33	2.00	2.00
4' Omni	180.0000	49.20	0.00	2.96	185.00	1.441	33	2.93	2.93
6' Omni	300.0000	44.60	-2.57	-1.48	186.00	1.442	33	2.37	2.37
6' Omni	60.0000	44.60	2.57	-1.48	186.00	1.442	33	2.37	2.37
TA 702-3	0.0000	339.00	0.00	0.00	181.00	1.434	33	5.64	5.64
ET-X-TU-42-15-37-18-i	300.0000	71.90	-3.48	-2.01	174.00	1.422	33	7.76	4.71
R-ST									
APXVSP18-C	60.0000	82.55	3.48	-2.01	174.00	1.422	33	8.26	6.95
APXVSP18-C	180.0000	82.55	0.00	4.02	174.00	1.422	33	8.26	6.95
APXV9TM14-ALU	300.0000	63.00	-3.48	-2.01	174.00	1.422	33	6.34	3.61
APXV9TM14-ALU	60.0000	63.00	3.48	-2.01	174.00	1.422	33	6.34	3.61
APXV9TM14-ALU	180.0000	63.00	0.00	4.02	174.00	1.422	33	6.34	3.61
TD-RRH8x20-25	300.0000	70.00	-2.18	-1.26	174.00	1.422	33	4.05	1.53

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Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _{AAc} Front ft ²	C _{AAc} Side ft ²
TD-RRH8x20-25	300.0000	70.00	-2.18	-1.26	174.00	1.422	33	4.05	1.53
TD-RRH8x20-25	300.0000	70.00	-2.18	-1.26	174.00	1.422	33	4.05	1.53
TA 602-3	0.0000	774.00	0.00	0.00	174.00	1.422	33	11.59	11.59
RRH-2X50-800	60.0000	53.00	2.22	-1.28	170.00	1.415	32	2.06	1.36
ALU RRH-4X45-1900	180.0000	69.50	0.00	2.56	170.00	1.415	32	2.50	2.50
RRH-2X50-800	60.0000	53.00	2.22	-1.28	170.00	1.415	32	2.06	1.36
ALU RRH-4X45-1900	180.0000	69.50	0.00	2.56	170.00	1.415	32	2.50	2.50
RRH-2X50-800	60.0000	53.00	2.22	-1.28	170.00	1.415	32	2.06	1.36
ALU RRH-4X45-1900	180.0000	69.50	0.00	2.56	170.00	1.415	32	2.50	2.50
Ring Mount	0.0000	90.00	0.00	0.00	170.00	1.415	32	1.40	1.40
RRUS-11	300.0000	55.00	-2.06	-1.19	142.00	1.363	31	2.52	1.02
RRUS-11	60.0000	55.00	2.06	-1.19	142.00	1.363	31	2.52	1.02
RRUS-11	180.0000	55.00	0.00	2.38	142.00	1.363	31	2.52	1.02
RRUS 32 B2	300.0000	52.90	-2.06	-1.19	142.00	1.363	31	2.72	1.67
RRUS 32 B2	60.0000	52.90	2.06	-1.19	142.00	1.363	31	2.72	1.67
RRUS 32 B2	180.0000	52.90	0.00	2.38	142.00	1.363	31	2.72	1.67
RRUS 32 B66	300.0000	50.70	-2.06	-1.19	140.00	1.359	31	2.72	1.67
RRUS 32 B66	60.0000	50.70	2.06	-1.19	140.00	1.359	31	2.72	1.67
RRUS 32 B66	180.0000	50.70	0.00	2.38	140.00	1.359	31	2.72	1.67
RRUS 32	300.0000	52.90	-2.06	-1.19	140.00	1.359	31	2.72	1.67
RRUS 32	60.0000	52.90	2.06	-1.19	140.00	1.359	31	2.72	1.67
RRUS 32	180.0000	52.90	0.00	2.38	140.00	1.359	31	2.72	1.67
RRUS 4478	300.0000	59.40	-2.06	-1.19	140.00	1.359	31	2.02	1.25
RRUS 4478	60.0000	59.40	2.06	-1.19	140.00	1.359	31	2.02	1.25
RRUS 4478	180.0000	59.40	0.00	2.38	140.00	1.359	31	2.02	1.25
LGP21401	300.0000	70.00	-2.93	-1.69	140.00	1.359	31	3.31	0.89
LGP21401	60.0000	70.00	2.93	-1.69	140.00	1.359	31	3.31	0.89
LGP21401	180.0000	70.00	0.00	3.38	140.00	1.359	31	3.31	0.89
HPA-65R-BUU-H8	300.0000	68.00	-3.79	-2.19	140.00	1.359	31	12.98	7.52
HPA-65R-BUU-H8	60.0000	68.00	3.79	-2.19	140.00	1.359	31	12.98	7.52
TPA-65R-LCUUUU-H8	300.0000	75.00	-3.79	-2.19	140.00	1.359	31	13.30	8.82
TPA-65R-LCUUUU-H8	60.0000	75.00	3.79	-2.19	140.00	1.359	31	13.30	8.82
7770	300.0000	35.00	-3.79	-2.19	140.00	1.359	31	5.51	2.93
7770	60.0000	35.00	3.79	-2.19	140.00	1.359	31	5.51	2.93
7770	180.0000	35.00	0.00	4.38	140.00	1.359	31	5.51	2.93
80010966	300.0000	158.40	-3.79	-2.19	140.00	1.359	31	17.36	9.40
80010966	60.0000	158.40	3.79	-2.19	140.00	1.359	31	17.36	9.40
80010964	180.0000	35.00	0.00	4.38	140.00	1.359	31	10.00	4.10
SBNHH-1D65A	180.0000	67.00	0.00	4.38	140.00	1.359	31	11.77	7.73
8' x 2" Mount Pipe	300.0000	120.00	-3.79	-2.19	140.00	1.359	31	6.40	6.40
8' x 2" Mount Pipe	60.0000	120.00	3.79	-2.19	140.00	1.359	31	6.40	6.40
8' x 2" Mount Pipe	180.0000	120.00	0.00	4.38	140.00	1.359	31	6.40	6.40
DC6 Dome	300.0000	34.00	-2.93	-1.69	140.00	1.359	31	1.24	1.24
DC6 Dome	60.0000	34.00	2.93	-1.69	140.00	1.359	31	1.24	1.24
DC6 Dome	180.0000	34.00	0.00	3.38	140.00	1.359	31	1.24	1.24
TPX070821	0.0000	15.00	0.00	-4.38	140.00	1.359	31	0.94	0.20
TPX070821	120.0000	15.00	3.79	2.19	140.00	1.359	31	0.94	0.20
AIR 21 B2A/B4P With mount Pipe	300.0000	226.80	-3.70	-2.14	152.00	1.382	32	12.82	11.38
AIR 21 B2A/B4P With mount Pipe	60.0000	226.80	3.70	-2.14	152.00	1.382	32	12.82	11.38
AIR 21 B2A/B4P With mount Pipe	180.0000	226.80	0.00	4.28	152.00	1.382	32	12.82	11.38
LNx-6515DS-VTM	300.0000	79.50	-3.70	-2.14	152.00	1.382	32	11.45	9.60
LNx-6515DS-VTM	60.0000	79.50	3.70	-2.14	152.00	1.382	32	11.45	9.60
LNx-6515DS-VTM	180.0000	79.50	0.00	4.28	152.00	1.382	32	11.45	9.60
RRUS-11	300.0000	55.00	-2.84	-1.64	151.00	1.380	32	2.52	1.02
RRUS-11	60.0000	55.00	2.84	-1.64	151.00	1.380	32	2.52	1.02
RRUS-11	180.0000	55.00	0.00	3.28	151.00	1.380	32	2.52	1.02
TMA	300.0000	20.00	-2.84	-1.64	151.00	1.380	32	0.78	0.29
TMA	60.0000	20.00	2.84	-1.64	151.00	1.380	32	0.78	0.29

tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ 08054 Phone: (856) 797-0412 FAX:	Job 17963030A	Page 18 of 32
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	Client AT&T	Designed by CLuengas

Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _{AAc} Front ft ²	C _{AAc} Side ft ²
TMA	180.0000	20.00	0.00	3.28	151.00	1.380	32	0.78	0.29
8' x 2" Mount Pipe	180.0000	30.00	0.00	2.28	151.00	1.380	32	1.60	1.60
8' x 2" Mount Pipe	180.0000	30.00	0.00	2.28	151.00	1.380	32	1.60	1.60
8' x 2" Mount Pipe	180.0000	30.00	0.00	2.28	151.00	1.380	32	1.60	1.60
BXA-80063/4CF	300.0000	9.90	-3.89	-2.25	130.00	1.337	31	4.71	2.25
BXA-80063/4CF	60.0000	9.90	3.89	-2.25	130.00	1.337	31	4.71	2.25
BXA-80063/4CF	180.0000	9.90	0.00	4.49	130.00	1.337	31	4.71	2.25
BXA-80063/6CF	300.0000	14.90	-3.89	-2.25	130.00	1.337	31	7.58	3.76
BXA-80063/6CF	60.0000	14.90	3.89	-2.25	130.00	1.337	31	7.58	3.76
BXA-80063/6CF	180.0000	14.90	0.00	4.49	130.00	1.337	31	7.58	3.76
SBNHH-1D65B	300.0000	149.46	-3.89	-2.25	130.00	1.337	31	16.40	13.77
SBNHH-1D65B	60.0000	149.46	3.89	-2.25	130.00	1.337	31	16.40	13.77
SBNHH-1D65B	180.0000	149.46	0.00	4.49	130.00	1.337	31	16.40	13.77
6' x 2" Pipe Mount	300.0000	80.00	-3.89	-2.25	130.00	1.337	31	4.80	4.80
6' x 2" Pipe Mount	60.0000	80.00	3.89	-2.25	130.00	1.337	31	4.80	4.80
6' x 2" Pipe Mount	180.0000	80.00	0.00	4.49	130.00	1.337	31	4.80	4.80
RRH2X60-PCS	300.0000	110.00	-3.89	-2.25	130.00	1.337	31	4.40	3.45
RRH2X60-PCS	60.0000	110.00	3.89	-2.25	130.00	1.337	31	4.40	3.45
RRH2X60-PCS	180.0000	110.00	0.00	4.49	130.00	1.337	31	4.40	3.45
ALU RRH-4X45-1900	300.0000	69.50	-3.89	-2.25	130.00	1.337	31	2.50	2.50
ALU RRH-4X45-1900	60.0000	69.50	3.89	-2.25	130.00	1.337	31	2.50	2.50
ALU RRH-4X45-1900	180.0000	69.50	0.00	4.49	130.00	1.337	31	2.50	2.50
RRH2x60-700	300.0000	50.00	-3.89	-2.25	130.00	1.337	31	1.73	1.33
RRH2x60-700	60.0000	50.00	3.89	-2.25	130.00	1.337	31	1.73	1.33
RRH2x60-700	180.0000	50.00	0.00	4.49	130.00	1.337	31	1.73	1.33
DC6 Dome	300.0000	34.00	-3.89	-2.25	130.00	1.337	31	1.24	1.24
DC6 Dome	60.0000	34.00	3.89	-2.25	130.00	1.337	31	1.24	1.24
Pirod 13' Low Profile Platform	0.0000	1300.00	0.00	0.00	130.00	1.337	31	15.70	15.70
Sabre C10857001C	0.0000	462.00	0.00	0.00	140.00	1.359	31	9.12	5.23
Sabre C10857001C	0.0000	462.00	0.00	0.00	140.00	1.359	31	9.12	5.23
Sabre C10857001C	0.0000	462.00	0.00	0.00	140.00	1.359	31	9.12	5.23
Sum Weight:		10358.58							

Discrete Appurtenance Pressures - With Ice *G_H = 1.100*

Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _{AAc} Front ft ²	C _{AAc} Side ft ²	t _z in
6' x 2" Pipe Mount	300.0000	321.50	-2.57	-1.48	181.00	1.434	9	9.71	9.71	2.3711
6' x 2" Pipe Mount	60.0000	321.50	2.57	-1.48	181.00	1.434	9	9.71	9.71	2.3711
6' x 2" Pipe Mount	180.0000	321.50	0.00	2.96	181.00	1.434	9	9.71	9.71	2.3711
Distribution Box	300.0000	87.44	-2.57	-1.48	181.00	1.434	9	3.37	2.21	2.3711
Distribution Box	60.0000	87.44	2.57	-1.48	181.00	1.434	9	3.37	2.21	2.3711
4' Dipole	300.0000	80.37	-2.57	-1.48	183.00	1.437	9	2.03	2.03	2.3711
10' Omni	60.0000	77.42	2.57	-1.48	188.00	1.446	9	6.84	6.84	2.3711
4' Omni	180.0000	297.86	0.00	2.96	185.00	1.441	9	8.07	8.07	2.3711
6' Omni	300.0000	211.97	-2.57	-1.48	186.00	1.442	9	5.53	5.53	2.3711
6' Omni	60.0000	211.97	2.57	-1.48	186.00	1.442	9	5.53	5.53	2.3711
TA 702-3	0.0000	765.79	0.00	0.00	181.00	1.434	9	9.96	9.96	2.3711
ET-X-TU-42-15-37-18-i	300.0000	441.52	-3.48	-2.01	174.00	1.422	9	10.18	8.14	2.3617
R-ST										
APXVSP18-C	60.0000	496.96	3.48	-2.01	174.00	1.422	9	10.82	11.53	2.3617
APXVSP18-C	180.0000	496.96	0.00	4.02	174.00	1.422	9	10.82	11.53	2.3617
APXV9TM14-ALU	300.0000	302.89	-3.48	-2.01	174.00	1.422	9	8.18	5.35	2.3617
APXV9TM14-ALU	60.0000	302.89	3.48	-2.01	174.00	1.422	9	8.18	5.35	2.3617
APXV9TM14-ALU	180.0000	302.89	0.00	4.02	174.00	1.422	9	8.18	5.35	2.3617

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Client	AT&T	Designed by	CLuengas

Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _{AAc} Front ft ²	C _{AAc} Side ft ²	t _z in
TD-RRH8x20-25	300.0000	235.97	-2.18	-1.26	174.00	1.422	9	5.31	2.45	2.3617
TD-RRH8x20-25	300.0000	235.97	-2.18	-1.26	174.00	1.422	9	5.31	2.45	2.3617
TD-RRH8x20-25	300.0000	235.97	-2.18	-1.26	174.00	1.422	9	5.31	2.45	2.3617
TA 602-3	0.0000	1794.28	0.00	0.00	174.00	1.422	9	29.78	29.78	2.3617
RRH-2X50-800	60.0000	169.77	2.22	-1.28	170.00	1.415	9	2.99	2.18	2.3563
ALU RRH-4X45-1900	180.0000	226.77	0.00	2.56	170.00	1.415	9	3.56	3.56	2.3563
RRH-2X50-800	60.0000	169.77	2.22	-1.28	170.00	1.415	9	2.99	2.18	2.3563
ALU RRH-4X45-1900	180.0000	226.77	0.00	2.56	170.00	1.415	9	3.56	3.56	2.3563
RRH-2X50-800	60.0000	169.77	2.22	-1.28	170.00	1.415	9	2.99	2.18	2.3563
ALU RRH-4X45-1900	180.0000	226.77	0.00	2.56	170.00	1.415	9	3.56	3.56	2.3563
Ring Mount	0.0000	278.50	0.00	0.00	170.00	1.415	9	6.11	6.11	2.3563
RRUS-11	300.0000	174.37	-2.06	-1.19	142.00	1.363	8	3.50	1.73	2.3142
RRUS-11	60.0000	174.37	2.06	-1.19	142.00	1.363	8	3.50	1.73	2.3142
RRUS-11	180.0000	174.37	0.00	2.38	142.00	1.363	8	3.50	1.73	2.3142
RRUS 32 B2	300.0000	182.62	-2.06	-1.19	142.00	1.363	8	3.82	2.60	2.3142
RRUS 32 B2	60.0000	182.62	2.06	-1.19	142.00	1.363	8	3.82	2.60	2.3142
RRUS 32 B2	180.0000	182.62	0.00	2.38	142.00	1.363	8	3.82	2.60	2.3142
RRUS 32 B66	300.0000	180.15	-2.06	-1.19	140.00	1.359	8	3.81	2.60	2.3110
RRUS 32 B66	60.0000	180.15	2.06	-1.19	140.00	1.359	8	3.81	2.60	2.3110
RRUS 32 B66	180.0000	180.15	0.00	2.38	140.00	1.359	8	3.81	2.60	2.3110
RRUS 32	300.0000	182.35	-2.06	-1.19	140.00	1.359	8	3.81	2.60	2.3110
RRUS 32	60.0000	182.35	2.06	-1.19	140.00	1.359	8	3.81	2.60	2.3110
RRUS 32	180.0000	182.35	0.00	2.38	140.00	1.359	8	3.81	2.60	2.3110
RRUS 4478	300.0000	169.26	-2.06	-1.19	140.00	1.359	8	2.92	2.01	2.3110
RRUS 4478	60.0000	169.26	2.06	-1.19	140.00	1.359	8	2.92	2.01	2.3110
RRUS 4478	180.0000	169.26	0.00	2.38	140.00	1.359	8	2.92	2.01	2.3110
LGP21401	300.0000	217.96	-2.93	-1.69	140.00	1.359	8	4.93	1.93	2.3110
LGP21401	60.0000	217.96	2.93	-1.69	140.00	1.359	8	4.93	1.93	2.3110
LGP21401	180.0000	217.96	0.00	3.38	140.00	1.359	8	4.93	1.93	2.3110
HPA-65R-BUU-H8	300.0000	483.12	-3.79	-2.19	140.00	1.359	8	15.73	10.23	2.3110
HPA-65R-BUU-H8	60.0000	483.12	3.79	-2.19	140.00	1.359	8	15.73	10.23	2.3110
TPA-65R-LCUUUU-H8	300.0000	519.09	-3.79	-2.19	140.00	1.359	8	16.13	11.66	2.3110
TPA-65R-LCUUUU-H8	60.0000	519.09	3.79	-2.19	140.00	1.359	8	16.13	11.66	2.3110
7770	300.0000	233.37	-3.79	-2.19	140.00	1.359	8	7.23	4.58	2.3110
7770	60.0000	233.37	3.79	-2.19	140.00	1.359	8	7.23	4.58	2.3110
7770	180.0000	233.37	0.00	4.38	140.00	1.359	8	7.23	4.58	2.3110
80010966	300.0000	791.97	-3.79	-2.19	140.00	1.359	8	20.33	15.02	2.3110
80010966	60.0000	791.97	3.79	-2.19	140.00	1.359	8	20.33	15.02	2.3110
80010964	180.0000	363.04	0.00	4.38	140.00	1.359	8	12.03	5.88	2.3110
SBNHH-1D65A	180.0000	526.56	0.00	4.38	140.00	1.359	8	15.26	11.04	2.3110
8' x 2" Mount Pipe	300.0000	555.06	-3.79	-2.19	140.00	1.359	8	18.22	18.22	2.3110
8' x 2" Mount Pipe	60.0000	555.06	3.79	-2.19	140.00	1.359	8	18.22	18.22	2.3110
8' x 2" Mount Pipe	180.0000	555.06	0.00	4.38	140.00	1.359	8	18.22	18.22	2.3110
DC6 Dome	300.0000	166.70	-2.93	-1.69	140.00	1.359	8	2.79	2.79	2.3110
DC6 Dome	60.0000	166.70	2.93	-1.69	140.00	1.359	8	2.79	2.79	2.3110
DC6 Dome	180.0000	166.70	0.00	3.38	140.00	1.359	8	2.79	2.79	2.3110
TPX070821	0.0000	76.68	0.00	-4.38	140.00	1.359	8	1.91	0.78	2.3110
TPX070821	120.0000	76.68	3.79	2.19	140.00	1.359	8	1.91	0.78	2.3110
AIR 21 B2A/B4P With mount Pipe	300.0000	916.47	-3.70	-2.14	152.00	1.382	8	17.24	18.58	2.3285
AIR 21 B2A/B4P With mount Pipe	60.0000	916.47	3.70	-2.14	152.00	1.382	8	17.24	18.58	2.3285
AIR 21 B2A/B4P With mount Pipe	180.0000	916.47	0.00	4.28	152.00	1.382	8	17.24	18.58	2.3285
LNx-6515DS-VTM	300.0000	592.37	-3.70	-2.14	152.00	1.382	8	14.35	15.27	2.3285
LNx-6515DS-VTM	60.0000	592.37	3.70	-2.14	152.00	1.382	8	14.35	15.27	2.3285
LNx-6515DS-VTM	180.0000	592.37	0.00	4.28	152.00	1.382	8	14.35	15.27	2.3285
RRUS-11	300.0000	175.45	-2.84	-1.64	151.00	1.380	8	3.51	1.73	2.3285
RRUS-11	60.0000	175.45	2.84	-1.64	151.00	1.380	8	3.51	1.73	2.3285
RRUS-11	180.0000	175.45	0.00	3.28	151.00	1.380	8	3.51	1.73	2.3285
TMA	300.0000	66.57	-2.84	-1.64	151.00	1.380	8	1.34	0.71	2.3285

tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ 08054 Phone: (856) 797-0412 FAX:	Job 17963030A	Page 20 of 32
	Project CT5122	Date 17:44:36 12/06/18
	Client AT&T	Designed by CLuengas

Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _{AAc} Front ft ²	C _{AAc} Side ft ²	t _z in
TMA	60.0000	66.57	2.84	-1.64	151.00	1.380	8	1.34	0.71	2.3285
TMA	180.0000	66.57	0.00	3.28	151.00	1.380	8	1.34	0.71	2.3285
8' x 2" Mount Pipe	180.0000	140.28	0.00	2.28	151.00	1.380	8	4.57	4.57	2.3285
8' x 2" Mount Pipe	180.0000	140.28	0.00	2.28	151.00	1.380	8	4.57	4.57	2.3285
8' x 2" Mount Pipe	180.0000	140.28	0.00	2.28	151.00	1.380	8	4.57	4.57	2.3285
BXA-80063/4CF	300.0000	179.39	-3.89	-2.25	130.00	1.337	8	6.23	3.68	2.2939
BXA-80063/4CF	60.0000	179.39	3.89	-2.25	130.00	1.337	8	6.23	3.68	2.2939
BXA-80063/4CF	180.0000	179.39	0.00	4.49	130.00	1.337	8	6.23	3.68	2.2939
BXA-80063/6CF	300.0000	257.41	-3.89	-2.25	130.00	1.337	8	9.70	5.82	2.2939
BXA-80063/6CF	60.0000	257.41	3.89	-2.25	130.00	1.337	8	9.70	5.82	2.2939
BXA-80063/6CF	180.0000	257.41	0.00	4.49	130.00	1.337	8	9.70	5.82	2.2939
SBNHH-1D65B	300.0000	934.27	-3.89	-2.25	130.00	1.337	8	21.03	22.23	2.2939
SBNHH-1D65B	60.0000	934.27	3.89	-2.25	130.00	1.337	8	21.03	22.23	2.2939
SBNHH-1D65B	180.0000	934.27	0.00	4.49	130.00	1.337	8	21.03	22.23	2.2939
6' x 2" Pipe Mount	300.0000	407.99	-3.89	-2.25	130.00	1.337	8	12.69	12.69	2.2939
6' x 2" Pipe Mount	60.0000	407.99	3.89	-2.25	130.00	1.337	8	12.69	12.69	2.2939
6' x 2" Pipe Mount	180.0000	407.99	0.00	4.49	130.00	1.337	8	12.69	12.69	2.2939
RRH2X60-PCS	300.0000	356.80	-3.89	-2.25	130.00	1.337	8	6.30	5.22	2.2939
RRH2X60-PCS	60.0000	356.80	3.89	-2.25	130.00	1.337	8	6.30	5.22	2.2939
RRH2X60-PCS	180.0000	356.80	0.00	4.49	130.00	1.337	8	6.30	5.22	2.2939
ALU RRH-4X45-1900	300.0000	220.93	-3.89	-2.25	130.00	1.337	8	3.53	3.53	2.2939
ALU RRH-4X45-1900	60.0000	220.93	3.89	-2.25	130.00	1.337	8	3.53	3.53	2.2939
ALU RRH-4X45-1900	180.0000	220.93	0.00	4.49	130.00	1.337	8	3.53	3.53	2.2939
RRH2x60-700	300.0000	151.70	-3.89	-2.25	130.00	1.337	8	2.57	2.10	2.2939
RRH2x60-700	60.0000	151.70	3.89	-2.25	130.00	1.337	8	2.57	2.10	2.2939
RRH2x60-700	180.0000	151.70	0.00	4.49	130.00	1.337	8	2.57	2.10	2.2939
DC6 Dome	300.0000	165.33	-3.89	-2.25	130.00	1.337	8	2.78	2.78	2.2939
DC6 Dome	60.0000	165.33	3.89	-2.25	130.00	1.337	8	2.78	2.78	2.2939
Pirod 13' Low Profile Platform	0.0000	3433.32	0.00	0.00	130.00	1.337	8	35.89	35.89	2.2939
Sabre C10857001C	0.0000	1562.01	0.00	0.00	140.00	1.359	8	0.00	0.00	2.3110
Sabre C10857001C	0.0000	1562.01	0.00	0.00	140.00	1.359	8	0.00	0.00	2.3110
Sabre C10857001C	0.0000	1562.01	0.00	0.00	140.00	1.359	8	0.00	0.00	2.3110
Sum		41564.95								
Weight:										

Discrete Appurtenance Pressures - Service G_H = 1.100

Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _{AAc} Front ft ²	C _{AAc} Side ft ²
6' x 2" Pipe Mount	300.0000	60.00	-2.57	-1.48	181.00	1.434	11	3.60	3.60
6' x 2" Pipe Mount	60.0000	60.00	2.57	-1.48	181.00	1.434	11	3.60	3.60
6' x 2" Pipe Mount	180.0000	60.00	0.00	2.96	181.00	1.434	11	3.60	3.60
Distribution Box	300.0000	10.00	-2.57	-1.48	181.00	1.434	11	2.33	1.36
Distribution Box	60.0000	10.00	2.57	-1.48	181.00	1.434	11	2.33	1.36
4' Dipole	300.0000	20.00	-2.57	-1.48	183.00	1.437	11	0.79	0.79
10' Omni	60.0000	30.00	2.57	-1.48	188.00	1.446	11	2.00	2.00
4' Omni	180.0000	49.20	0.00	2.96	185.00	1.441	11	2.93	2.93
6' Omni	300.0000	44.60	-2.57	-1.48	186.00	1.442	11	2.37	2.37
6' Omni	60.0000	44.60	2.57	-1.48	186.00	1.442	11	2.37	2.37
TA 702-3	0.0000	339.00	0.00	0.00	181.00	1.434	11	5.64	5.64
ET-X-TU-42-15-37-18-i	300.0000	71.90	-3.48	-2.01	174.00	1.422	11	7.76	4.71
R-ST									
APXVSP18-C	60.0000	82.55	3.48	-2.01	174.00	1.422	11	8.26	6.95
APXVSP18-C	180.0000	82.55	0.00	4.02	174.00	1.422	11	8.26	6.95
APXV9TM14-ALU	300.0000	63.00	-3.48	-2.01	174.00	1.422	11	6.34	3.61
APXV9TM14-ALU	60.0000	63.00	3.48	-2.01	174.00	1.422	11	6.34	3.61

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Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _{AAc} Front ft ²	C _{AAc} Side ft ²
APXV9TM14-ALU	180.0000	63.00	0.00	4.02	174.00	1.422	11	6.34	3.61
TD-RRH8x20-25	300.0000	70.00	-2.18	-1.26	174.00	1.422	11	4.05	1.53
TD-RRH8x20-25	300.0000	70.00	-2.18	-1.26	174.00	1.422	11	4.05	1.53
TD-RRH8x20-25	300.0000	70.00	-2.18	-1.26	174.00	1.422	11	4.05	1.53
TA 602-3	0.0000	774.00	0.00	0.00	174.00	1.422	11	11.59	11.59
RRH-2X50-800	60.0000	53.00	2.22	-1.28	170.00	1.415	11	2.06	1.36
ALU RRH-4X45-1900	180.0000	69.50	0.00	2.56	170.00	1.415	11	2.50	2.50
RRH-2X50-800	60.0000	53.00	2.22	-1.28	170.00	1.415	11	2.06	1.36
ALU RRH-4X45-1900	180.0000	69.50	0.00	2.56	170.00	1.415	11	2.50	2.50
RRH-2X50-800	60.0000	53.00	2.22	-1.28	170.00	1.415	11	2.06	1.36
ALU RRH-4X45-1900	180.0000	69.50	0.00	2.56	170.00	1.415	11	2.50	2.50
Ring Mount	0.0000	90.00	0.00	0.00	170.00	1.415	11	1.40	1.40
RRUS-11	300.0000	55.00	-2.06	-1.19	142.00	1.363	11	2.52	1.02
RRUS-11	60.0000	55.00	2.06	-1.19	142.00	1.363	11	2.52	1.02
RRUS-11	180.0000	55.00	0.00	2.38	142.00	1.363	11	2.52	1.02
RRUS 32 B2	300.0000	52.90	-2.06	-1.19	142.00	1.363	11	2.72	1.67
RRUS 32 B2	60.0000	52.90	2.06	-1.19	142.00	1.363	11	2.72	1.67
RRUS 32 B2	180.0000	52.90	0.00	2.38	142.00	1.363	11	2.72	1.67
RRUS 32 B66	300.0000	50.70	-2.06	-1.19	140.00	1.359	11	2.72	1.67
RRUS 32 B66	60.0000	50.70	2.06	-1.19	140.00	1.359	11	2.72	1.67
RRUS 32 B66	180.0000	50.70	0.00	2.38	140.00	1.359	11	2.72	1.67
RRUS 32	300.0000	52.90	-2.06	-1.19	140.00	1.359	11	2.72	1.67
RRUS 32	60.0000	52.90	2.06	-1.19	140.00	1.359	11	2.72	1.67
RRUS 32	180.0000	52.90	0.00	2.38	140.00	1.359	11	2.72	1.67
RRUS 4478	300.0000	59.40	-2.06	-1.19	140.00	1.359	11	2.02	1.25
RRUS 4478	60.0000	59.40	2.06	-1.19	140.00	1.359	11	2.02	1.25
RRUS 4478	180.0000	59.40	0.00	2.38	140.00	1.359	11	2.02	1.25
LGP21401	300.0000	70.00	-2.93	-1.69	140.00	1.359	11	3.31	0.89
LGP21401	60.0000	70.00	2.93	-1.69	140.00	1.359	11	3.31	0.89
LGP21401	180.0000	70.00	0.00	3.38	140.00	1.359	11	3.31	0.89
HPA-65R-BUU-H8	300.0000	68.00	-3.79	-2.19	140.00	1.359	11	12.98	7.52
HPA-65R-BUU-H8	60.0000	68.00	3.79	-2.19	140.00	1.359	11	12.98	7.52
TPA-65R-LCUUUU-H8	300.0000	75.00	-3.79	-2.19	140.00	1.359	11	13.30	8.82
TPA-65R-LCUUUU-H8	60.0000	75.00	3.79	-2.19	140.00	1.359	11	13.30	8.82
7770	300.0000	35.00	-3.79	-2.19	140.00	1.359	11	5.51	2.93
7770	60.0000	35.00	3.79	-2.19	140.00	1.359	11	5.51	2.93
7770	180.0000	35.00	0.00	4.38	140.00	1.359	11	5.51	2.93
80010966	300.0000	158.40	-3.79	-2.19	140.00	1.359	11	17.36	9.40
80010966	60.0000	158.40	3.79	-2.19	140.00	1.359	11	17.36	9.40
80010964	180.0000	35.00	0.00	4.38	140.00	1.359	11	10.00	4.10
SBNHH-1D65A	180.0000	67.00	0.00	4.38	140.00	1.359	11	11.77	7.73
8' x 2" Mount Pipe	300.0000	120.00	-3.79	-2.19	140.00	1.359	11	6.40	6.40
8' x 2" Mount Pipe	60.0000	120.00	3.79	-2.19	140.00	1.359	11	6.40	6.40
8' x 2" Mount Pipe	180.0000	120.00	0.00	4.38	140.00	1.359	11	6.40	6.40
DC6 Dome	300.0000	34.00	-2.93	-1.69	140.00	1.359	11	1.24	1.24
DC6 Dome	60.0000	34.00	2.93	-1.69	140.00	1.359	11	1.24	1.24
DC6 Dome	180.0000	34.00	0.00	3.38	140.00	1.359	11	1.24	1.24
TPX070821	0.0000	15.00	0.00	-4.38	140.00	1.359	11	0.94	0.20
TPX070821	120.0000	15.00	3.79	2.19	140.00	1.359	11	0.94	0.20
AIR 21 B2A/B4P With mount Pipe	300.0000	226.80	-3.70	-2.14	152.00	1.382	11	12.82	11.38
AIR 21 B2A/B4P With mount Pipe	60.0000	226.80	3.70	-2.14	152.00	1.382	11	12.82	11.38
AIR 21 B2A/B4P With mount Pipe	180.0000	226.80	0.00	4.28	152.00	1.382	11	12.82	11.38
LNx-6515DS-VTM	300.0000	79.50	-3.70	-2.14	152.00	1.382	11	11.45	9.60
LNx-6515DS-VTM	60.0000	79.50	3.70	-2.14	152.00	1.382	11	11.45	9.60
LNx-6515DS-VTM	180.0000	79.50	0.00	4.28	152.00	1.382	11	11.45	9.60
RRUS-11	300.0000	55.00	-2.84	-1.64	151.00	1.380	11	2.52	1.02
RRUS-11	60.0000	55.00	2.84	-1.64	151.00	1.380	11	2.52	1.02
RRUS-11	180.0000	55.00	0.00	3.28	151.00	1.380	11	2.52	1.02

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Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	z ft	K _z	q _z psf	C _{AAc} Front ft ²	C _{AAc} Side ft ²
TMA	300.0000	20.00	-2.84	-1.64	151.00	1.380	11	0.78	0.29
TMA	60.0000	20.00	2.84	-1.64	151.00	1.380	11	0.78	0.29
TMA	180.0000	20.00	0.00	3.28	151.00	1.380	11	0.78	0.29
8' x 2" Mount Pipe	180.0000	30.00	0.00	2.28	151.00	1.380	11	1.60	1.60
8' x 2" Mount Pipe	180.0000	30.00	0.00	2.28	151.00	1.380	11	1.60	1.60
8' x 2" Mount Pipe	180.0000	30.00	0.00	2.28	151.00	1.380	11	1.60	1.60
BXA-80063/4CF	300.0000	9.90	-3.89	-2.25	130.00	1.337	10	4.71	2.25
BXA-80063/4CF	60.0000	9.90	3.89	-2.25	130.00	1.337	10	4.71	2.25
BXA-80063/4CF	180.0000	9.90	0.00	4.49	130.00	1.337	10	4.71	2.25
BXA-80063/6CF	300.0000	14.90	-3.89	-2.25	130.00	1.337	10	7.58	3.76
BXA-80063/6CF	60.0000	14.90	3.89	-2.25	130.00	1.337	10	7.58	3.76
BXA-80063/6CF	180.0000	14.90	0.00	4.49	130.00	1.337	10	7.58	3.76
SBNHH-1D65B	300.0000	149.46	-3.89	-2.25	130.00	1.337	10	16.40	13.77
SBNHH-1D65B	60.0000	149.46	3.89	-2.25	130.00	1.337	10	16.40	13.77
SBNHH-1D65B	180.0000	149.46	0.00	4.49	130.00	1.337	10	16.40	13.77
6' x 2" Pipe Mount	300.0000	80.00	-3.89	-2.25	130.00	1.337	10	4.80	4.80
6' x 2" Pipe Mount	60.0000	80.00	3.89	-2.25	130.00	1.337	10	4.80	4.80
6' x 2" Pipe Mount	180.0000	80.00	0.00	4.49	130.00	1.337	10	4.80	4.80
RRH2X60-PCS	300.0000	110.00	-3.89	-2.25	130.00	1.337	10	4.40	3.45
RRH2X60-PCS	60.0000	110.00	3.89	-2.25	130.00	1.337	10	4.40	3.45
RRH2X60-PCS	180.0000	110.00	0.00	4.49	130.00	1.337	10	4.40	3.45
ALU RRH-4X45-1900	300.0000	69.50	-3.89	-2.25	130.00	1.337	10	2.50	2.50
ALU RRH-4X45-1900	60.0000	69.50	3.89	-2.25	130.00	1.337	10	2.50	2.50
ALU RRH-4X45-1900	180.0000	69.50	0.00	4.49	130.00	1.337	10	2.50	2.50
RRH2x60-700	300.0000	50.00	-3.89	-2.25	130.00	1.337	10	1.73	1.33
RRH2x60-700	60.0000	50.00	3.89	-2.25	130.00	1.337	10	1.73	1.33
RRH2x60-700	180.0000	50.00	0.00	4.49	130.00	1.337	10	1.73	1.33
DC6 Dome	300.0000	34.00	-3.89	-2.25	130.00	1.337	10	1.24	1.24
DC6 Dome	60.0000	34.00	3.89	-2.25	130.00	1.337	10	1.24	1.24
Pirod 13' Low Profile Platform	0.0000	1300.00	0.00	0.00	130.00	1.337	10	15.70	15.70
Sabre C10857001C	0.0000	462.00	0.00	0.00	140.00	1.359	11	9.12	5.23
Sabre C10857001C	0.0000	462.00	0.00	0.00	140.00	1.359	11	9.12	5.23
Sabre C10857001C	0.0000	462.00	0.00	0.00	140.00	1.359	11	9.12	5.23
Sum Weight:		10358.58							

Dish Pressures - No Ice

Elevation ft	Dish Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	K _z	A _A ft ²	q _z psf
126.00	2' dish	300.0000	15.00	-2.63	-1.52	1.329	3.14	30
159.00	2' dish	180.0000	15.00	0.00	2.69	1.395	3.14	32
	Sum		30.00					
	Weight:							

Dish Pressures - With Ice

Elevation ft	Dish Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	K _z	A _A ft ²	q _z psf	t _z in
126.00	2' dish	300.0000	110.06	-2.63	-1.52	1.329	4.36	8	2.2867
159.00	2' dish	180.0000	111.94	0.00	2.69	1.395	4.39	8	2.3406
	Sum		222.00						

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Elevation ft	Dish Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	K _z	A _A ft ²	q _z psf	t _z in
		Weight:							

Dish Pressures - Service

Elevation ft	Dish Description	Aiming Azimuth °	Weight lb	Offset _x ft	Offset _z ft	K _z	A _A ft ²	q _z psf
126.00	2' dish	300.0000	15.00	-2.63	-1.52	1.329	3.14	10
159.00	2' dish	180.0000	15.00	0.00	2.69	1.395	3.14	11
	Sum		30.00					
	Weight:							

Force Totals

Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M _x kip-ft	Sum of Overturning Moments, M _z kip-ft	Sum of Torques kip-ft
Leg Weight	35110.01					
Bracing Weight	0.00					
Total Member Self-Weight	35110.01			1.52	0.03	
Total Weight	52090.43			1.52	0.03	
Wind 0 deg - No Ice		-100.06	-27319.97	-3168.61	17.18	-0.19
Wind 30 deg - No Ice		13794.89	-23609.76	-2735.32	-1604.62	-0.92
Wind 60 deg - No Ice		23993.51	-13573.33	-1568.70	-2796.46	-1.40
Wind 90 deg - No Ice		28935.87	100.06	18.66	-3347.14	-1.51
Wind 120 deg - No Ice		24650.83	14068.38	1631.24	-2865.22	-1.21
Wind 150 deg - No Ice		13970.06	23713.05	2755.88	-1634.53	-0.59
Wind 180 deg - No Ice		100.06	27319.97	3171.66	-17.11	0.19
Wind 210 deg - No Ice		-13794.89	23609.76	2738.37	1604.69	0.92
Wind 240 deg - No Ice		-23993.51	13573.33	1571.74	2796.52	1.40
Wind 270 deg - No Ice		-28935.87	-100.06	-15.62	3347.21	1.51
Wind 300 deg - No Ice		-24650.83	-14068.38	-1628.20	2865.29	1.21
Wind 330 deg - No Ice		-13970.06	-23713.05	-2752.84	1634.60	0.59
Member Ice	22732.56					
Total Weight Ice	117519.86			16.80	0.00	
Wind 0 deg - Ice		-33.81	-13041.57	-1462.27	5.77	0.05
Wind 30 deg - Ice		6543.82	-11277.43	-1261.23	-742.97	-0.22
Wind 60 deg - Ice		11368.04	-6491.51	-717.75	-1292.62	-0.43
Wind 90 deg - Ice		15202.98	33.81	22.56	-1652.39	-0.53
Wind 120 deg - Ice		12438.56	7148.61	816.57	-1394.07	-0.48
Wind 150 deg - Ice		6602.38	11311.24	1300.60	-752.95	-0.31
Wind 180 deg - Ice		33.81	13041.57	1495.87	-5.76	-0.05
Wind 210 deg - Ice		-6543.82	11277.43	1294.83	742.97	0.22
Wind 240 deg - Ice		-11368.04	6491.51	751.34	1292.62	0.43
Wind 270 deg - Ice		-15202.98	-33.81	11.04	1652.39	0.53
Wind 300 deg - Ice		-12438.56	-7148.61	-782.97	1394.08	0.48
Wind 330 deg - Ice		-6602.38	-11311.24	-1267.00	752.95	0.31
Total Weight	52090.43			1.52	0.03	
Wind 0 deg - Service		-34.25	-9352.65	-1086.09	5.89	-0.07
Wind 30 deg - Service		4722.51	-8082.50	-937.76	-549.31	-0.31
Wind 60 deg - Service		8213.87	-4646.66	-538.38	-957.32	-0.48
Wind 90 deg - Service		9905.83	34.25	5.03	-1145.84	-0.52
Wind 120 deg - Service		8438.90	4816.13	557.07	-980.86	-0.41
Wind 150 deg - Service		4782.47	8117.86	942.08	-559.55	-0.20

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Load Case	Vertical Forces lb	Sum of Forces X lb	Sum of Forces Z lb	Sum of Overturning Moments, M_x kip-ft	Sum of Overturning Moments, M_z kip-ft	Sum of Torques kip-ft
Wind 180 deg - Service		34.25	9352.65	1084.42	-5.84	0.07
Wind 210 deg - Service		-4722.51	8082.50	936.09	549.36	0.31
Wind 240 deg - Service		-8213.87	4646.66	536.71	957.37	0.48
Wind 270 deg - Service		-9905.83	-34.25	-6.71	1145.89	0.52
Wind 300 deg - Service		-8438.90	-4816.13	-558.75	980.91	0.41
Wind 330 deg - Service		-4782.47	-8117.86	-943.76	559.60	0.20

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
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

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Comb. No.	Description
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 Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	179 - 141.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-22960.79	-0.15	-2.13
			Max. Mx	20	-7147.83	235.75	4.03
			Max. My	14	-7214.69	-4.26	-226.50
			Max. Vy	8	12236.06	-235.71	-4.60
			Max. Vx	14	11895.74	-4.26	-226.50
			Max. Torque	18			1.43
L2	141.25 - 92.58	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71748.83	-0.28	-2.47
			Max. Mx	20	-25354.41	1530.51	12.29
			Max. My	2	-25533.90	12.15	1469.83
			Max. Vy	8	33914.33	-1530.50	-12.01
			Max. Vx	14	32286.59	-12.16	-1469.43
			Max. Torque	9			2.37
L3	92.58 - 45.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-97146.72	-0.17	-9.92
			Max. Mx	20	-40733.16	3223.59	19.10
			Max. My	14	-40864.96	-19.82	-3069.94
			Max. Vy	20	-40431.90	3223.59	19.10
			Max. Vx	14	37973.14	-19.82	-3069.94
			Max. Torque	9			2.37
L4	45.5 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-130445.13	-0.02	-18.13
			Max. Mx	20	-62477.23	5535.36	26.66
			Max. My	14	-62480.52	-28.50	-5245.67
			Max. Vy	20	-46339.61	5535.36	26.66
			Max. Vx	14	43751.96	-28.50	-5245.67
			Max. Torque	9			2.36

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	30	130445.13	-15203.01	-33.81
	Max. H _x	20	62508.52	46297.40	160.09
	Max. H _z	2	62508.52	160.09	43711.96
	Max. M _x	2	5241.94	160.09	43711.96
	Max. M _z	8	5535.28	-46297.40	-160.09
	Max. Torsion	9	2.36	-46297.40	-160.09
	Min. Vert	5	46881.39	-22071.82	37775.62
	Min. H _x	8	62508.52	-46297.40	-160.09
	Min. H _z	14	62508.52	-160.09	-43711.96
	Min. M _x	14	-5245.67	-160.09	-43711.96

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Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Min. M _z	20	-5535.36	46297.40	160.09
	Min. Torsion	21	-2.35	46297.40	160.09

Tower Mast Reaction Summary

Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	52090.43	0.00	0.00	1.52	0.03	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	62508.52	-160.09	-43711.96	-5241.94	28.58	-0.30
0.9 Dead+1.6 Wind 0 deg - No Ice	46881.39	-160.09	-43711.96	-5196.99	28.27	-0.30
1.2 Dead+1.6 Wind 30 deg - No Ice	62508.52	22071.82	-37775.62	-4525.13	-2654.35	-1.43
0.9 Dead+1.6 Wind 30 deg - No Ice	46881.39	22071.82	-37775.62	-4486.41	-2631.34	-1.44
1.2 Dead+1.6 Wind 60 deg - No Ice	62508.52	38389.61	-21717.33	-2595.24	-4625.91	-2.19
0.9 Dead+1.6 Wind 60 deg - No Ice	46881.39	38389.61	-21717.33	-2573.26	-4585.77	-2.20
1.2 Dead+1.6 Wind 90 deg - No Ice	62508.52	46297.40	160.09	30.42	-5535.28	-2.34
0.9 Dead+1.6 Wind 90 deg - No Ice	46881.39	46297.40	160.09	29.64	-5487.56	-2.36
1.2 Dead+1.6 Wind 120 deg - No Ice	62508.52	39441.34	22509.41	2697.24	-4738.98	-1.88
0.9 Dead+1.6 Wind 120 deg - No Ice	46881.39	39441.34	22509.41	2673.47	-4697.97	-1.89
1.2 Dead+1.6 Wind 150 deg - No Ice	62508.52	22352.09	37940.87	4557.91	-2704.06	-0.91
0.9 Dead+1.6 Wind 150 deg - No Ice	46881.39	22352.09	37940.87	4517.94	-2680.54	-0.91
1.2 Dead+1.6 Wind 180 deg - No Ice	62508.52	160.09	43711.96	5245.67	-28.50	0.30
0.9 Dead+1.6 Wind 180 deg - No Ice	46881.39	160.09	43711.96	5199.77	-28.22	0.30
1.2 Dead+1.6 Wind 210 deg - No Ice	62508.52	-22071.82	37775.62	4528.86	2654.41	1.43
0.9 Dead+1.6 Wind 210 deg - No Ice	46881.39	-22071.82	37775.62	4489.19	2631.39	1.44
1.2 Dead+1.6 Wind 240 deg - No Ice	62508.52	-38389.61	21717.33	2598.99	4625.98	2.17
0.9 Dead+1.6 Wind 240 deg - No Ice	46881.39	-38389.61	21717.33	2576.06	4585.82	2.19
1.2 Dead+1.6 Wind 270 deg - No Ice	62508.52	-46297.40	-160.09	-26.66	5535.36	2.34
0.9 Dead+1.6 Wind 270 deg - No Ice	46881.39	-46297.40	-160.09	-26.84	5487.62	2.35
1.2 Dead+1.6 Wind 300 deg - No Ice	62508.52	-39441.34	-22509.41	-2693.49	4739.07	1.88
0.9 Dead+1.6 Wind 300 deg - No Ice	46881.39	-39441.34	-22509.41	-2670.67	4698.04	1.89
1.2 Dead+1.6 Wind 330 deg - No Ice	62508.52	-22352.09	-37940.87	-4554.17	2704.15	0.92
0.9 Dead+1.6 Wind 330 deg - No Ice	46881.39	-22352.09	-37940.87	-4515.16	2680.61	0.92

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Load Combination	Vertical lb	Shear _x lb	Shear _z lb	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
1.2 Dead+1.0 Ice+1.0 Temp	130445.13	0.00	0.01	18.13	-0.02	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	130445.13	-33.81	-13041.59	-1601.05	6.41	0.06
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	130445.13	6543.83	-11277.44	-1380.86	-813.57	-0.18
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	130445.13	11368.06	-6491.51	-785.72	-1415.57	-0.37
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	130445.13	15203.01	33.81	24.90	-1805.52	-0.46
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	130445.13	12438.58	7148.62	893.03	-1524.59	-0.42
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	130445.13	6602.39	11311.25	1424.22	-824.71	-0.28
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	130445.13	33.81	13041.59	1637.98	-6.46	-0.06
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	130445.13	-6543.83	11277.44	1417.79	813.52	0.18
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	130445.13	-11368.06	6491.52	822.65	1415.51	0.37
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	130445.13	-15203.01	-33.81	12.03	1805.47	0.46
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	130445.13	-12438.58	-7148.62	-856.10	1524.55	0.42
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	130445.13	-6602.39	-11311.25	-1387.29	824.67	0.28
Dead+Wind 0 deg - Service	52090.43	-34.25	-9352.65	-1114.94	6.11	-0.06
Dead+Wind 30 deg - Service	52090.43	4722.51	-8082.50	-962.32	-565.12	-0.31
Dead+Wind 60 deg - Service	52090.43	8213.87	-4646.66	-551.44	-984.92	-0.47
Dead+Wind 90 deg - Service	52090.43	9905.83	34.25	7.62	-1178.65	-0.51
Dead+Wind 120 deg - Service	52090.43	8438.90	4816.13	575.48	-1009.06	-0.41
Dead+Wind 150 deg - Service	52090.43	4782.47	8117.86	971.62	-575.72	-0.20
Dead+Wind 180 deg - Service	52090.43	34.25	9352.65	1118.04	-6.04	0.06
Dead+Wind 210 deg - Service	52090.43	-4722.51	8082.50	965.42	565.19	0.31
Dead+Wind 240 deg - Service	52090.43	-8213.87	4646.66	554.53	984.99	0.47
Dead+Wind 270 deg - Service	52090.43	-9905.83	-34.25	-4.52	1178.72	0.51
Dead+Wind 300 deg - Service	52090.43	-8438.90	-4816.13	-572.38	1009.12	0.41
Dead+Wind 330 deg - Service	52090.43	-4782.47	-8117.86	-968.53	575.78	0.20

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	-52090.43	0.00	0.00	52090.43	0.00	0.000%
2	-160.09	-62508.52	-43711.96	160.09	62508.52	43711.96	0.000%
3	-160.09	-46881.39	-43711.96	160.09	46881.39	43711.96	0.000%
4	22071.82	-62508.52	-37775.62	-22071.82	62508.52	37775.62	0.000%
5	22071.82	-46881.39	-37775.62	-22071.82	46881.39	37775.62	0.000%
6	38389.61	-62508.52	-21717.33	-38389.61	62508.52	21717.33	0.000%
7	38389.61	-46881.39	-21717.33	-38389.61	46881.39	21717.33	0.000%
8	46297.40	-62508.52	160.09	-46297.40	62508.52	-160.09	0.000%
9	46297.40	-46881.39	160.09	-46297.40	46881.39	-160.09	0.000%
10	39441.34	-62508.52	22509.41	-39441.34	62508.52	-22509.41	0.000%
11	39441.34	-46881.39	22509.41	-39441.34	46881.39	-22509.41	0.000%
12	22352.09	-62508.52	37940.87	-22352.09	62508.52	-37940.87	0.000%
13	22352.09	-46881.39	37940.87	-22352.09	46881.39	-37940.87	0.000%
14	160.09	-62508.52	43711.96	-160.09	62508.52	-43711.96	0.000%
15	160.09	-46881.39	43711.96	-160.09	46881.39	-43711.96	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX lb	PY lb	PZ lb	PX lb	PY lb	PZ lb	
16	-22071.82	-62508.52	37775.62	22071.82	62508.52	-37775.62	0.000%
17	-22071.82	-46881.39	37775.62	22071.82	46881.39	-37775.62	0.000%
18	-38389.61	-62508.52	21717.33	38389.61	62508.52	-21717.33	0.000%
19	-38389.61	-46881.39	21717.33	38389.61	46881.39	-21717.33	0.000%
20	-46297.40	-62508.52	-160.09	46297.40	62508.52	160.09	0.000%
21	-46297.40	-46881.39	-160.09	46297.40	46881.39	160.09	0.000%
22	-39441.34	-62508.52	-22509.41	39441.34	62508.52	22509.41	0.000%
23	-39441.34	-46881.39	-22509.41	39441.34	46881.39	22509.41	0.000%
24	-22352.09	-62508.52	-37940.87	22352.09	62508.52	37940.87	0.000%
25	-22352.09	-46881.39	-37940.87	22352.09	46881.39	37940.87	0.000%
26	0.00	-130445.13	0.00	-0.00	130445.13	-0.01	0.000%
27	-33.81	-130445.13	-13041.57	33.81	130445.13	13041.59	0.000%
28	6543.82	-130445.13	-11277.43	-6543.83	130445.13	11277.44	0.000%
29	11368.04	-130445.13	-6491.51	-11368.06	130445.13	6491.51	0.000%
30	15202.98	-130445.13	33.81	-15203.01	130445.13	-33.81	0.000%
31	12438.56	-130445.13	7148.61	-12438.58	130445.13	-7148.62	0.000%
32	6602.38	-130445.13	11311.24	-6602.39	130445.13	-11311.25	0.000%
33	33.81	-130445.13	13041.57	-33.81	130445.13	-13041.59	0.000%
34	-6543.82	-130445.13	11277.43	6543.83	130445.13	-11277.44	0.000%
35	-11368.04	-130445.13	6491.51	11368.06	130445.13	-6491.52	0.000%
36	-15202.98	-130445.13	-33.81	15203.01	130445.13	33.81	0.000%
37	-12438.56	-130445.13	-7148.61	12438.58	130445.13	7148.62	0.000%
38	-6602.38	-130445.13	-11311.24	6602.39	130445.13	11311.25	0.000%
39	-34.25	-52090.43	-9352.65	34.25	52090.43	9352.65	0.000%
40	4722.51	-52090.43	-8082.50	-4722.51	52090.43	8082.50	0.000%
41	8213.87	-52090.43	-4646.66	-8213.87	52090.43	4646.66	0.000%
42	9905.83	-52090.43	34.25	-9905.83	52090.43	-34.25	0.000%
43	8438.90	-52090.43	4816.13	-8438.90	52090.43	-4816.13	0.000%
44	4782.47	-52090.43	8117.86	-4782.47	52090.43	-8117.86	0.000%
45	34.25	-52090.43	9352.65	-34.25	52090.43	-9352.65	0.000%
46	-4722.51	-52090.43	8082.50	4722.51	52090.43	-8082.50	0.000%
47	-8213.87	-52090.43	4646.66	8213.87	52090.43	-4646.66	0.000%
48	-9905.83	-52090.43	-34.25	9905.83	52090.43	34.25	0.000%
49	-8438.90	-52090.43	-4816.13	8438.90	52090.43	4816.13	0.000%
50	-4782.47	-52090.43	-8117.86	4782.47	52090.43	8117.86	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.0000001	0.0000001
2	Yes	5	0.0000001	0.00000933
3	Yes	5	0.0000001	0.00000403
4	Yes	6	0.0000001	0.00001581
5	Yes	6	0.0000001	0.00000507
6	Yes	6	0.0000001	0.00001656
7	Yes	6	0.0000001	0.00000533
8	Yes	5	0.0000001	0.00001375
9	Yes	5	0.0000001	0.00000630
10	Yes	6	0.0000001	0.00001660
11	Yes	6	0.0000001	0.00000525
12	Yes	6	0.0000001	0.00001669
13	Yes	6	0.0000001	0.00000534
14	Yes	5	0.0000001	0.00000771
15	Yes	5	0.0000001	0.00000320
16	Yes	6	0.0000001	0.00001628

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17	Yes	6	0.0000001	0.00000524
18	Yes	6	0.0000001	0.00001576
19	Yes	6	0.0000001	0.00000504
20	Yes	5	0.0000001	0.00002636
21	Yes	5	0.0000001	0.00001207
22	Yes	6	0.0000001	0.00001732
23	Yes	6	0.0000001	0.00000551
24	Yes	6	0.0000001	0.00001631
25	Yes	6	0.0000001	0.00000521
26	Yes	4	0.0000001	0.00003377
27	Yes	6	0.0000001	0.00004551
28	Yes	6	0.0000001	0.00005852
29	Yes	6	0.0000001	0.00005893
30	Yes	6	0.0000001	0.00004973
31	Yes	6	0.0000001	0.00006537
32	Yes	6	0.0000001	0.00006073
33	Yes	6	0.0000001	0.00004634
34	Yes	6	0.0000001	0.00005967
35	Yes	6	0.0000001	0.00005983
36	Yes	6	0.0000001	0.00004970
37	Yes	6	0.0000001	0.00006449
38	Yes	6	0.0000001	0.00005926
39	Yes	4	0.0000001	0.00002687
40	Yes	5	0.0000001	0.00000485
41	Yes	5	0.0000001	0.00000554
42	Yes	4	0.0000001	0.00003740
43	Yes	5	0.0000001	0.00000518
44	Yes	5	0.0000001	0.00000545
45	Yes	4	0.0000001	0.00002671
46	Yes	5	0.0000001	0.00000530
47	Yes	5	0.0000001	0.00000478
48	Yes	4	0.0000001	0.00004008
49	Yes	5	0.0000001	0.00000590
50	Yes	5	0.0000001	0.00000509

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	179 - 141.25	22.584	48	1.0308	0.0012
L2	145.58 - 92.58	15.564	48	0.9518	0.0014
L3	98.5 - 45.5	7.241	48	0.6952	0.0007
L4	53 - 0	2.104	48	0.3631	0.0003

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
181.00	(3) 6' x 2" Pipe Mount	48	22.584	1.0308	0.0012	95677
174.00	ET-X-TU-42-15-37-18-iR-ST	48	21.511	1.0218	0.0013	95677
170.00	RRH-2X50-800	48	20.655	1.0144	0.0013	53154
159.00	2' dish	48	18.323	0.9909	0.0014	23919
151.00	(2) AIR 21 B2A/B4P With mount Pipe	48	16.664	0.9694	0.0015	17084

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Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
142.00	RRUS-11	48	14.851	0.9386	0.0014	13645
140.00	RRUS 32 B66	48	14.457	0.9307	0.0014	13292
130.00	BXA-80063/4CF	48	12.545	0.8854	0.0013	11784
126.00	2' dish	48	11.807	0.8649	0.0012	11273

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	179 - 141.25	106.097	20	4.8456	0.0057
L2	145.58 - 92.58	73.127	20	4.4753	0.0063
L3	98.5 - 45.5	34.026	20	3.2684	0.0032
L4	53 - 0	9.885	20	1.7064	0.0012

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
181.00	(3) 6' x 2" Pipe Mount	20	106.097	4.8456	0.0063	20670
174.00	ET-X-TU-42-15-37-18-iR-ST	20	101.058	4.8035	0.0066	20670
170.00	RRH-2X50-800	20	97.036	4.7685	0.0068	11483
159.00	2' dish	20	86.087	4.6589	0.0072	5165
151.00	(2) AIR 21 B2A/B4P With mount Pipe	20	78.292	4.5580	0.0073	3688
142.00	RRUS-11	20	69.776	4.4131	0.0071	2943
140.00	RRUS 32 B66	20	67.927	4.3757	0.0070	2865
130.00	BXA-80063/4CF	20	58.944	4.1627	0.0063	2534
126.00	2' dish	20	55.481	4.0663	0.0060	2421

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u lb	φP _n lb	Ratio $\frac{P_u}{\phi P_n}$
L1	179 - 141.25	TP33.249x23.1x0.25	37.75	0.00	0.0	25.2610	-7152.90	1748390.00	0.004
L2	141.25 - 92.58	TP45.834x31.5849x0.375	53.00	0.00	0.0	52.2132	-25354.40	3714610.00	0.007
L3	92.58 - 45.5 (3)	TP57.742x43.4924x0.375	53.00	0.00	0.0	65.8810	-40733.20	4311140.00	0.009
L4	45.5 - 0 (4)	TP69.225x54.9755x0.375	53.00	0.00	0.0	81.9487	-62477.20	4812990.00	0.013

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Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	179 - 141.25 (1)	TP33.249x23.1x0.25	237.19	1144.56	0.207	0.00	1144.56	0.000
L2	141.25 - 92.58 (2)	TP45.834x31.5849x0.375	1530.56	3348.51	0.457	0.00	3348.51	0.000
L3	92.58 - 45.5 (3)	TP57.742x43.4924x0.375	3223.65	4912.18	0.656	0.00	4912.18	0.000
L4	45.5 - 0 (4)	TP69.225x54.9755x0.375	5535.43	6830.50	0.810	0.00	6830.50	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u lb	ϕV_n lb	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	179 - 141.25 (1)	TP33.249x23.1x0.25	12275.80	874196.00	0.014	1.03	2291.92	0.000
L2	141.25 - 92.58 (2)	TP45.834x31.5849x0.375	33914.80	1857310.00	0.018	2.35	6705.20	0.000
L3	92.58 - 45.5 (3)	TP57.742x43.4924x0.375	40432.30	2155570.00	0.019	2.34	9836.33	0.000
L4	45.5 - 0 (4)	TP69.225x54.9755x0.375	46339.90	2406490.00	0.019	2.34	13677.67	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	179 - 141.25 (1)	0.004	0.207	0.000	0.014	0.000	0.212	1.000	4.8.2 ✓
L2	141.25 - 92.58 (2)	0.007	0.457	0.000	0.018	0.000	0.464	1.000	4.8.2 ✓
L3	92.58 - 45.5 (3)	0.009	0.656	0.000	0.019	0.000	0.666	1.000	4.8.2 ✓
L4	45.5 - 0 (4)	0.013	0.810	0.000	0.019	0.000	0.824	1.000	4.8.2 ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	ϕP_{allow} lb	% Capacity	Pass Fail
-------------	-----------------	-------------------	------	---------------------	---------	------------------------	---------------	--------------

tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ 08054 Phone: (856) 797-0412 FAX:	Job	17963030A	Page	32 of 32
	Project	CT5122	Date	17:44:36 12/06/18
	Client	AT&T	Designed by	CLuengas

Section No.	Elevation ft	Component Type	Size	Critical Element	P lb	$\emptyset P_{allow}$ lb	% Capacity	Pass Fail	
L1	179 - 141.25	Pole	TP33.249x23.1x0.25	1	-7152.90	1748390.00	21.2	Pass	
L2	141.25 - 92.58	Pole	TP45.834x31.5849x0.375	2	-25354.40	3714610.00	46.4	Pass	
L3	92.58 - 45.5	Pole	TP57.742x43.4924x0.375	3	-40733.20	4311140.00	66.6	Pass	
L4	45.5 - 0	Pole	TP69.225x54.9755x0.375	4	-62477.20	4812990.00	82.4	Pass	
							Summary		
							Pole (L4)	82.4	Pass
							RATING =	82.4	Pass

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

- Assumptions:**
- 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
 - 2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
 - 3) Clear space between bottom of leveling nut and top of concrete **not** exceeding $(1) \times (\text{Rod Diameter})$

Site Data

BU#: _____
 Site Name: CT5122
 App #: _____

Anchor Rod Data

Eta Factor, η	0.5	TIA G (Fig. 4-4)
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, F_y :	75	ksi
Strength, F_u :	100	ksi
Bolt Circle:	76	in
Anchor Spacing:	6	in

Plate Data

W=Side:	82	in
Thick:	2.25	in
Grade:	60	ksi
Clip Distance:	16	in

Stiffener Data (Welding at both sides)

Configuration:	Unstiffened	
Weld Type:		**
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data

Diam:	69.225	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round

Base Reactions

TIA Revision:	G	
Factored Moment, M_u :	5535	ft-kips
Factored Axial, P_u :	62.5	kips
Factored Shear, V_u :	46.3	kips

Anchor Rod Results

TIA G --> Max Rod ($C_u + V_u/\eta$): 228.2 Kips
 Axial Design Strength, $\Phi * F_u * A_{net}$: 260.0 Kips
 Anchor Rod Stress Ratio: 87.8% **Pass**

Base Plate Results

Base Plate Stress: 48.1 ksi
 PL Design Bending Strength, $\Phi * F_y$: 54.0 ksi
 Base Plate Stress Ratio: 89.0% **Pass**

Flexural Check

PL Ref. Data

Yield Line (in):	40.35
Max PL Length:	46.74

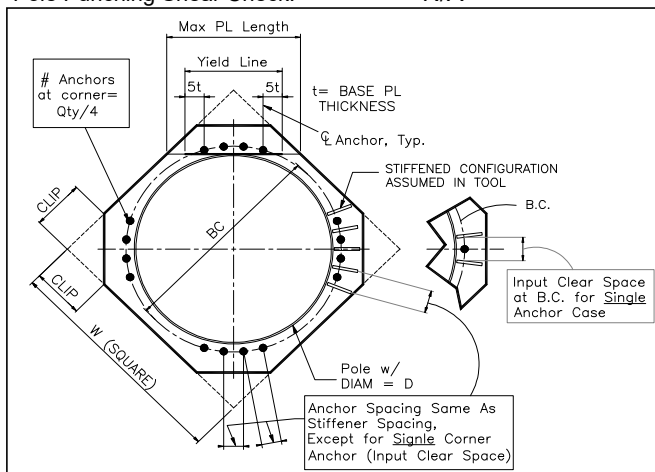
N/A - Unstiffened

Stiffener Results

Horizontal Weld : N/A
 Vertical Weld: N/A
 Plate Flex+Shear, $f_b/F_b + (f_v/F_v)^2$: N/A
 Plate Tension+Shear, $f_t/F_t + (f_v/F_v)^2$: N/A
 Plate Comp. (AISC Bracket): N/A

Pole Results

Pole Punching Shear Check: N/A



** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes



**SITE NAME: WETHERSFIELD NORTH
PROJECT: LTE - 4C/5C
FA NUMBER: 10092829
SITE NUMBER: CT5122
23 KELLEHER COURT
WETHERSFIELD, CT 06109
HARTFORD COUNTY
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NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701



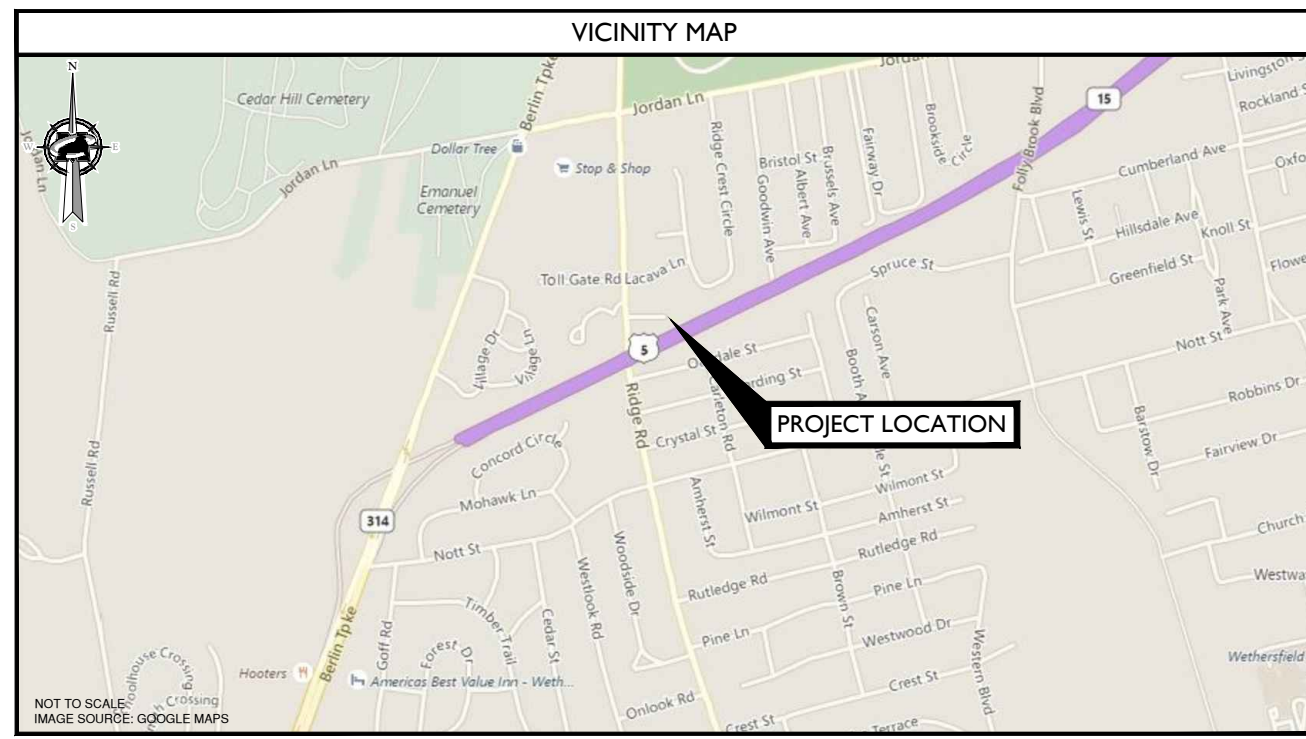
16 ESQUIRE ROAD
BILLERICA, MA 01862



FOR STATE SPECIFIC DIRECT PHONE NUMBERS VISIT:
WWW.CALL811.COM

PROJECT TEAM	
CLIENT REPRESENTATIVE	
COMPANY:	EMPIRE TELECOM
ADDRESS:	16 ESQUIRE ROAD
CITY, STATE, ZIP:	BILLERICA, MA 01862
CONTACT:	DAVID COOPER
E-MAIL:	DCOOPER@EMPIRETEL.COM
ENGINEER	
COMPANY:	MASER CONSULTING CONNECTICUT
ADDRESS:	331 NEWMAN SPRINGS ROAD, SUITE 203
CITY, STATE, ZIP:	RED BANK, NJ 07701
CONTACT:	MICHAEL CLEARY
PHONE:	(856) 717-0412 x4105
E-MAIL:	MCCLEARY@MASERCONSULTING.COM
RF ENGINEER	
COMPANY:	NEW CINGULAR WIRELESS PCS, LLC
ADDRESS:	550 COCHITUATE ROAD
CITY, STATE, ZIP:	FRAMINGHAM, MA 01701
CONTACT:	RAHI MUDDIN MOHAMMED
E-MAIL:	RX855W@ATT.COM

SITE INFORMATION	
APPLICANT/LESSEE	
NEW CINGULAR WIRELESS PCS, LLC 550 COCHITUATE RD. FRAMINGHAM, MA 01701	
TOWER OWNER:	
NAME:	TOWN OF WETHERSFIELD
ADDRESS:	
CITY, STATE, ZIP:	
LATITUDE:	41.7153919° N
LONGITUDE:	72.6905989° W
LAT/LONG. TYPE:	NAD 83
AREA OF CONSTRUCTION:	EXISTING OUTDOOR EQUIPMENT AND MONOPOLE
ZONING/JURISDICTION:	TOWN OF WETHERSFIELD
CURRENT USE/PROPOSED USE:	UNMANNED TELECOMMUNICATIONS FACILITY
HANDICAP REQUIREMENTS:	FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED.
CONSTRUCTION TYPE:	IIB
USE GROUP:	U



DRIVING DIRECTIONS	
DIRECTIONS FROM AT&T OFFICE AT 550 COCHITUATE ROAD, FRAMINGHAM, MA:	
DEPART RT-30 WEST/COCHITUATE ROAD TOWARD BURR STREET. TURN BACK ON RT-30 EAST/COCHITUATE ROAD. TAKE RAMP RIGHT FOR I-90 WEST TOWARD SPRINGFIELD/WORCESTER. AT EXIT 9, TAKE RAMP RIGHT FOR I-84 TOWARD HARTFORD/NEW YORK CITY. AT EXIT 57, TAKE RAMP LEFT FOR CT-15 SOUTH TOWARD CHARTER OAK BRIDGE/N.Y. CITY. KEEP STRAIGHT ONTO US-5 SOUTH/CT-15 SOUTH. AT EXIT 85, TAKE RAMP RIGHT FOR CT-99 SOUTH TOWARD ROCKY HILL/WETHERSFIELD. KEEP STRAIGHT ONTO CT-99 SOUTH/SILAS DEANE HIGHWAY. TURN RIGHT ONTO NOTT STREET. TURN RIGHT ONTO RIDGE ROAD. TURN RIGHT ONTO KELLEHER COURT.	

CODE COMPLIANCE	
ALL WORK AND MATERIALS SHALL BE PERFORMED AND 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 THE LATEST EDITIONS OF THE FOLLOWING CODES.	
1. 2016 CONNECTICUT STATE BUILDING CODE, INCORPORATING THE 2012 IBC	7. IATIA-222 REVISION G
2. 2014 NATIONAL ELECTRICAL CODE-NFPA 70	8. TIA 607 FOR GROUNDING
3. 2012 NFPA 101	9. INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS 81
4. LIGHTNING PROTECTION CODE 2011	10. IEEE C2 LATEST EDITION
5. AMERICAN CONCRETE INSTITUTE 318	11. TELCORDIA GR-1275
6. AMERICAN INSTITUTE OF STEEL CONSTRUCTION 360-10	12. ANSI T1.311

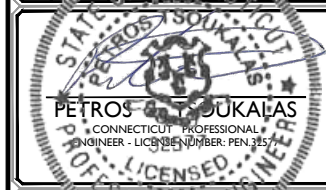
GENERAL CONTRACTOR NOTES	
DO NOT SCALE DRAWINGS	
CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ARCHITECT/ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.	

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

SHEET	DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
A-1	COMPOUND AND EQUIPMENT PLAN
A-2	ELEVATION VIEW, DETAILS AND ANTENNA SCHEDULE
A-3	ANTENNA LAYOUTS
A-4	DETAILS
A-5	DETAILS
A-6	RF PLUMBING DIAGRAMS
G-1	GROUNDING DETAILS

PROJECT DESCRIPTION/SCOPE OF WORK	
THIS PROJECT WILL BE COMPRISED OF:	
<ul style="list-style-type: none"> INSTALL (3) NEW AT&T ANTENNAS, (1) PER SECTOR INSTALL (3) NEW RRUS-B14 4478, (1) PER SECTOR INSTALL (3) NEW RRUS-32 866, (1) PER SECTOR INSTALL (1) NEW DC-6 SURGE SUPPRESSION DOME INSTALL (2) NEW 6/C DC POWER CABLE ADD 2ND XMU 	

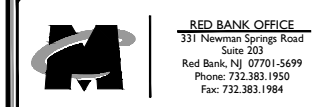
SCALE:	JOB NUMBER:
AS SHOWN	17963030A



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

SITE NAME:

WETHERSFIELD NORTH
FA#:10092829
SITE #: CT5122
23 KELLEHER COURT
WETHERSFIELD, CT 06109
HARTFORD COUNTY



RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701-5699
Phone: 732.383.1950
Fax: 732.383.1984

SHEET TITLE:	TITLE SHEET
SHEET NUMBER:	T-1

GENERAL NOTES:

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GESS) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 50 HNS OR LESS.
4. THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
5. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
6. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
7. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
8. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
9. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
10. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
11. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
12. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
13. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELD CONNECTIONS.
14. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
15. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
16. APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
17. ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
18. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
19. BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
20. GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
21. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.
22. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR - EMPIRE TELECOM
 SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER - AT&T (NEW CINGULAR WIRELESS PCS, LLC)
23. ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
24. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
25. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK.
26. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

27. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
28. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
29. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
30. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
31. THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
32. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
33. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
34. THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION.
35. SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
36. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
37. THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
38. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
39. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
40. THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
41. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
42. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
43. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND TI CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
44. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
45. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
46. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
47. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
48. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
49. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION, ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
50. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN ALERT OF DANGEROUS EXPOSURE LEVELS.



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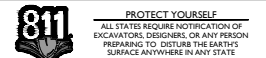
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16 ESQUIRE ROAD
 BILLERICA, MA 01862



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SCALE:	JOB NUMBER:
AS SHOWN	17963030A

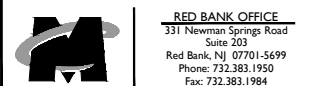
0	02/19/18	FOR CONSTRUCTION	RA	PET
1	01/29/18		AJC	RA
REV	DATE	DESCRIPTION	BY	CHECKED BY



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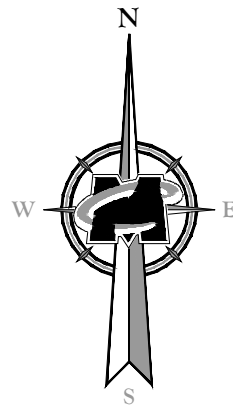
WETHERSFIELD NORTH
 FA#:10092829
 SITE #: CT5122
 23 KELLEHER COURT
 WETHERSFIELD, CT 06109
 HARTFORD COUNTY



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 Suite 203
 Red Bank, NJ 07701-5699
 Phone: 732.383.1950
 Fax: 732.383.1984

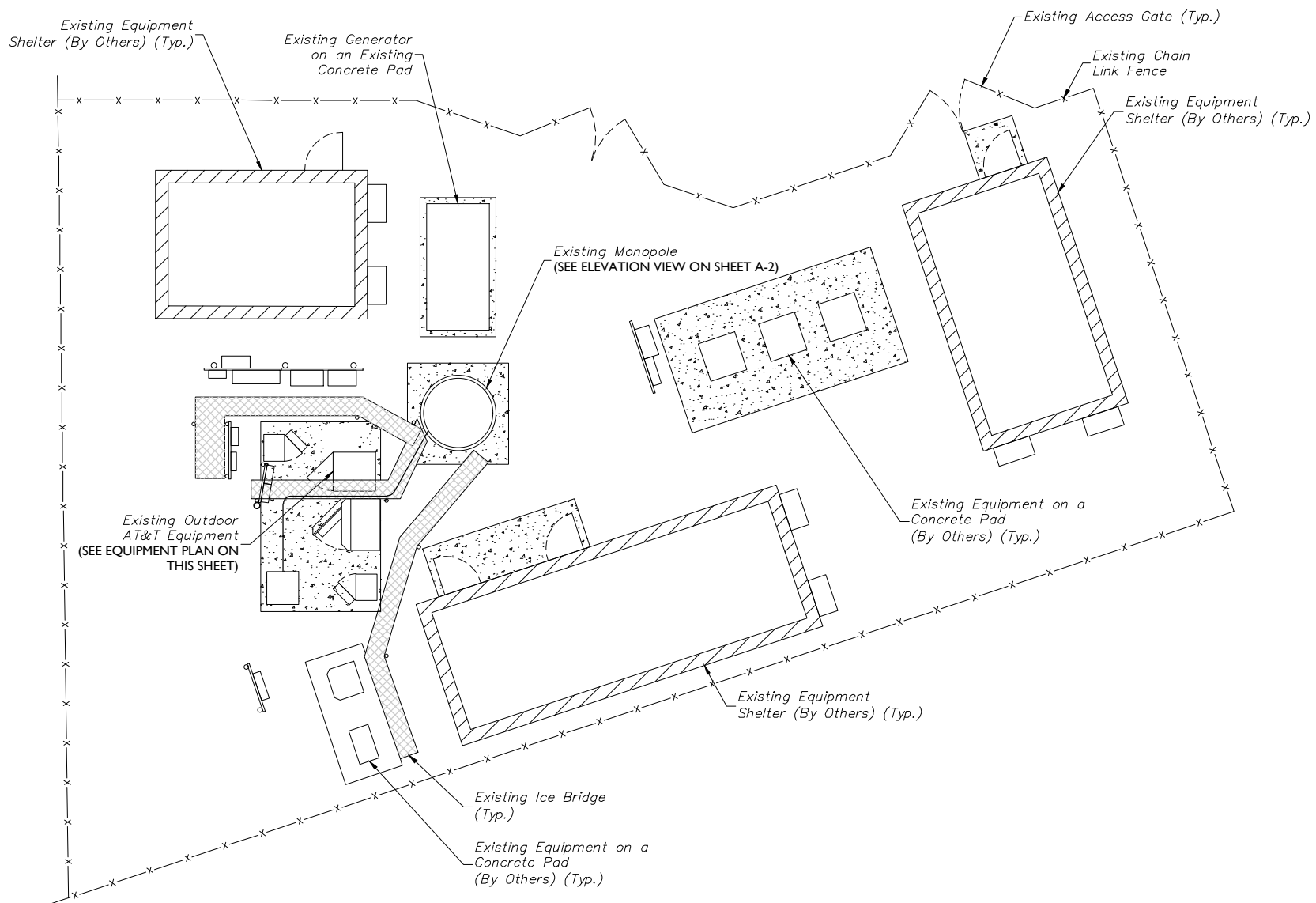
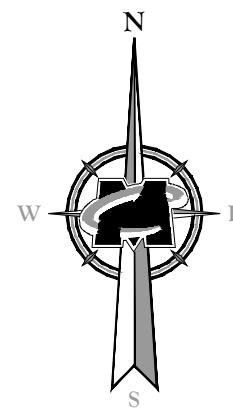
SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
GN-1

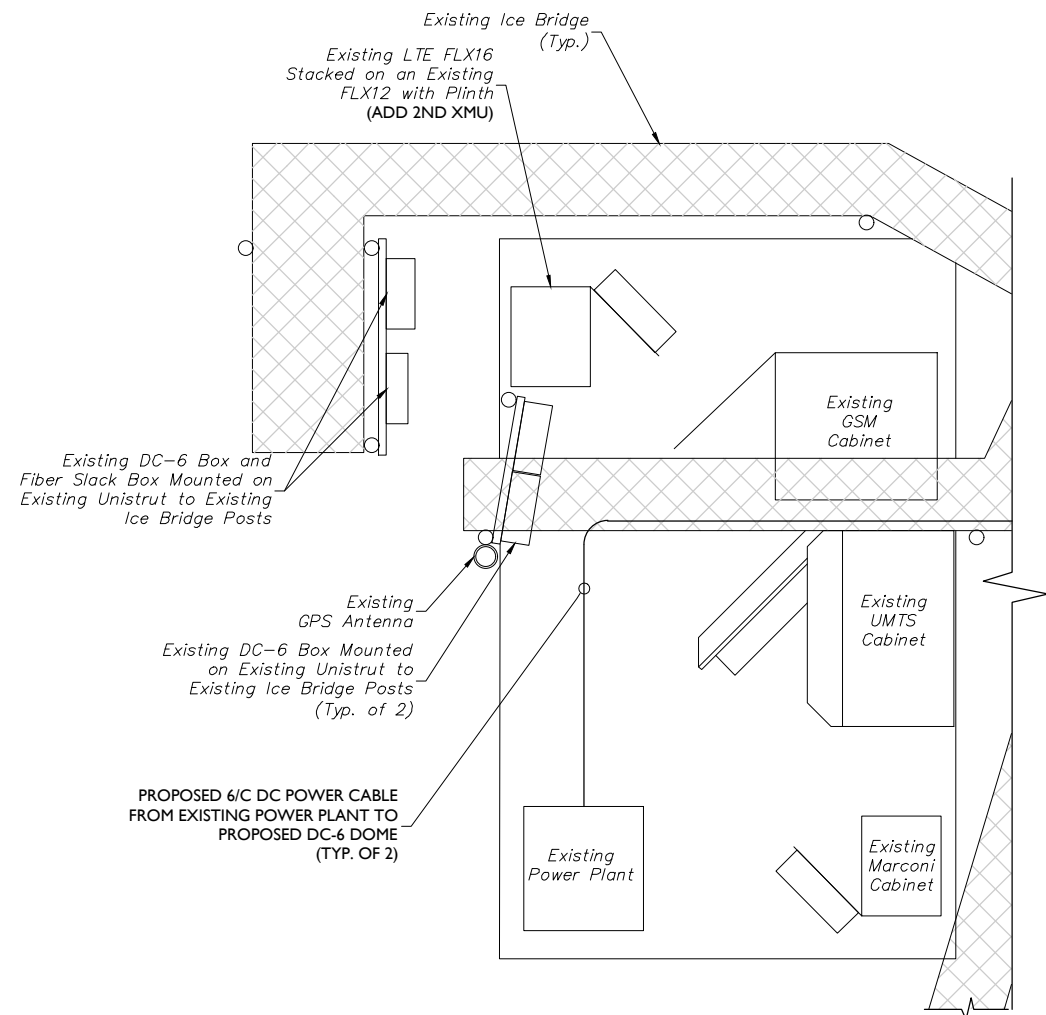


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NOTE:
 SITE INFORMATION OBTAINED FROM THE FOLLOWING:
 A. PLAN ENTITLED "WETHERSFIELD NORTH" PREPARED BY COM EX CONSULTANTS, LAST REVISED 12/14/16.



COMPOUND PLAN
 GRAPHIC SCALE
 (IN FEET)
 SCALE: 1" = 10' FOR 24"X36" DRAWINGS
 (DO NOT SCALE 11"X17" DRAWINGS)



EQUIPMENT PLAN
 GRAPHIC SCALE
 (IN FEET)
 SCALE: 1" = 2' FOR 24"X36" DRAWINGS
 (DO NOT SCALE 11"X17" DRAWINGS)



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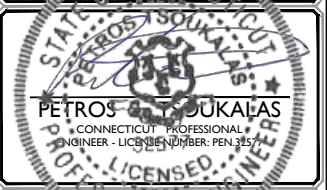
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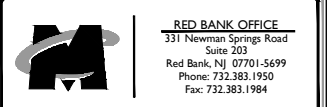
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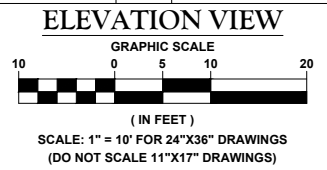
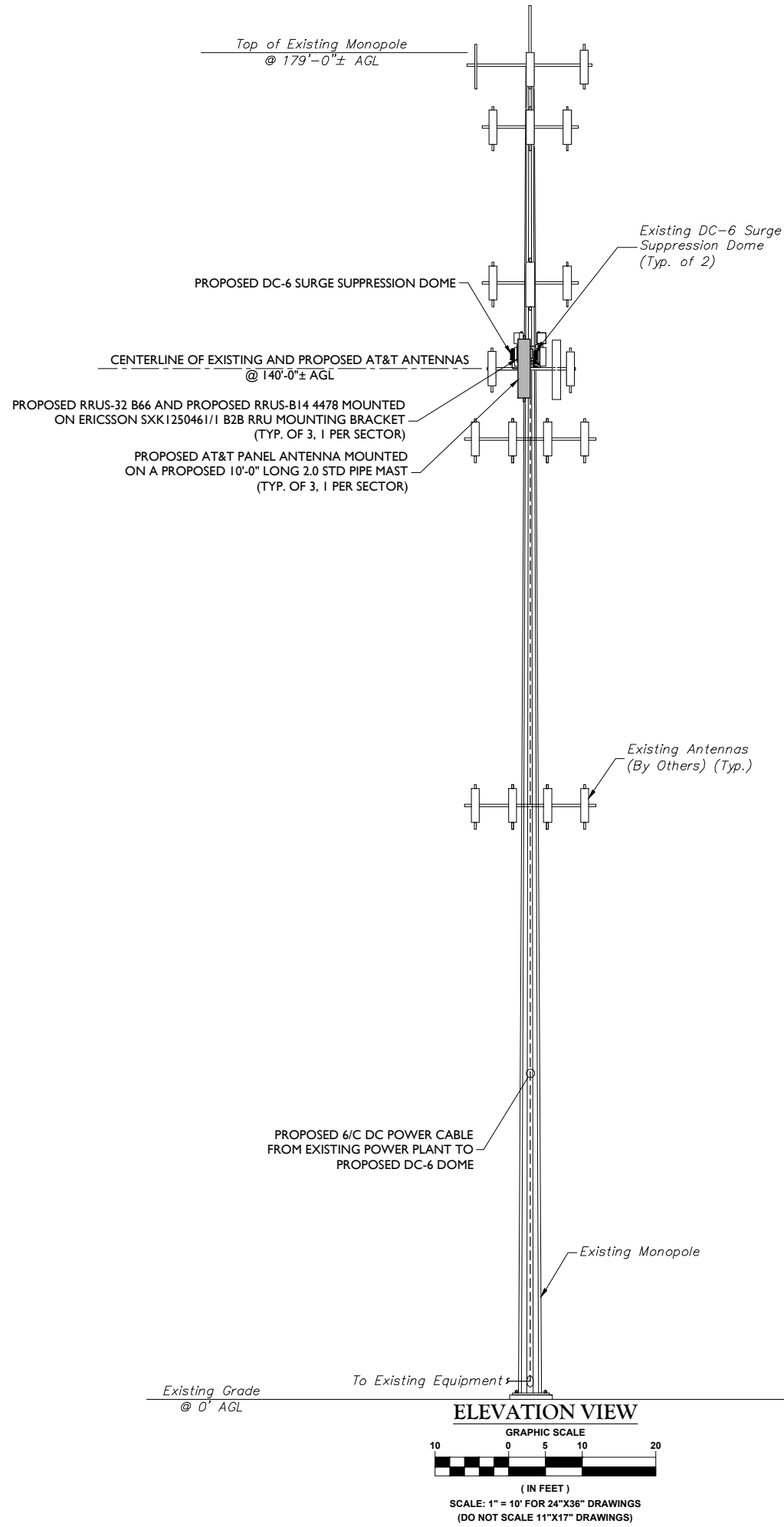
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SHEET TITLE:
COMPOUND AND EQUIPMENT PLAN

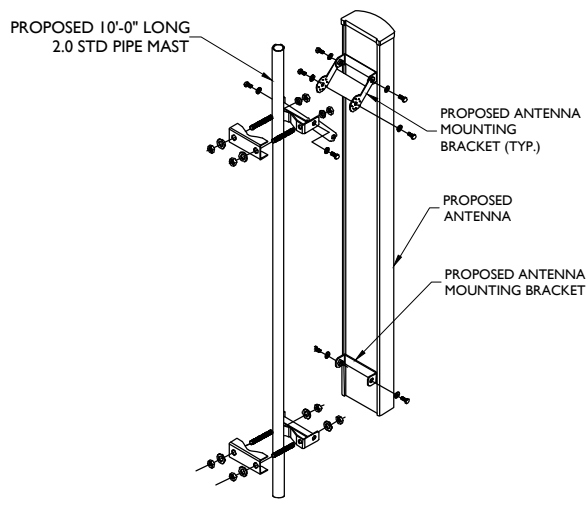
SHEET NUMBER:
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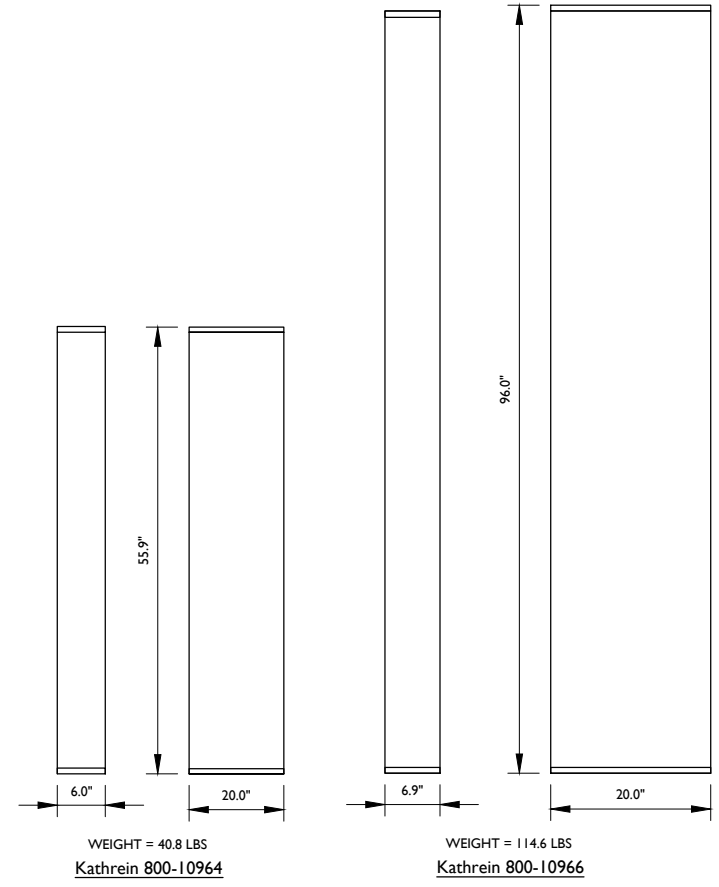
3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS
6 FEET MINIMUM SEPARATION BETWEEN 700BC & 700 DE

PROPOSED ANTENNA AND RRUS CONFIGURATION												
SECTOR	EXISTING ANTENNA CONFIGURATION	PROPOSED ANTENNA CONFIGURATION	TECHNOLOGY	ANTENNA STATUS	HEIGHT (ft)	WIDTH (ft)	DEPTH (ft)	WEIGHT (lbs)	ANTENNA AZIMUTH	ANT. CL. ELEV (ft)	RRUS CONFIGURATION	STATUS
ALPHA	A1	Povenave 7770	UMTS	REMAIN	55.00	11.00	5.00	35.00	40°	140'	-	-
	A2	CCI TPA-65R-LCUUUU-H8	LTE	REMAIN	92.70	14.40	7.00	105.00	40°	140'	(1) RRUS-32	REMAIN
	A3	-	LTE	NEW	96.00	20.00	6.90	114.60	40°	140'	(1) RRUS-B14 4478 (1) RRUS-32 B66	NEW NEW
	A4	CCI HPA-65R-BUUU-H8	LTE	REMAIN	92.40	14.80	7.40	68.00	40°	140'	(1) RRUS-11 (1) RRUS-32 B2	REMAIN REMAIN
BETA	B1	Povenave 7770	UMTS	REMAIN	55.00	11.00	5.00	35.00	150°	140'	-	-
	B2	CCI TPA-65R-LCUUUU-H8	LTE	REMAIN	92.70	14.40	7.00	105.00	150°	140'	(1) RRUS-32	REMAIN
	B3	-	LTE	NEW	96.00	20.00	6.90	114.60	150°	140'	(1) RRUS-B14 4478 (1) RRUS-32 B66	NEW NEW
	B4	CCI HPA-65R-BUUU-H8	LTE	REMAIN	92.40	14.80	7.40	68.00	150°	140'	(1) RRUS-11 (1) RRUS-32 B2	REMAIN REMAIN
GAMMA	C1	Povenave 7770	UMTS	REMAIN	55.00	11.00	5.00	35.00	270°	140'	-	-
	C2	AndrewSBNHH-1D65A	LTE	REMAIN	55.00	11.90	7.10	33.50	270°	140'	(1) RRUS-32	REMAIN
	C3	-	LTE	NEW	55.20	11.80	6.00	40.80	270°	140'	(1) RRUS-B14 4478 (1) RRUS-32 B66	NEW NEW
	C4	AndrewSBNHH-1D65A	LTE	REMAIN	55.00	11.90	7.10	33.50	270°	140'	(1) RRUS-11 (1) RRUS-32 B2	REMAIN REMAIN

ANTENNA SCHEDULE



ANTENNA MOUNTING DETAIL
NOT TO SCALE



ANTENNA DETAILS
NOT TO SCALE

- STRUCTURAL NOTES:
- NO CONSTRUCTION OF THE PROPOSED LOADING SHOWN SHALL PROCEED UNTIL ADEQUACY OF THE EXISTING STRUCTURE AND FOUNDATION, INCLUDING THE PROPOSED AT&T ANTENNA MOUNTING CONFIGURATION SHOWN HEREIN, HAS BEEN COMPLETED.
 - THE STRUCTURE ELEVATION IS SHOWN FOR INFORMATIONAL PURPOSES ONLY AND MAY NOT REFLECT AS-BUILT FIELD CONDITIONS FOR ALL EXISTING INVENTORY LOADING/ANTENNAS/APPURTENANCES ON STRUCTURE. REFER TO THE LATEST STRUCTURAL ANALYSIS FOR EXISTING STRUCTURE LOADING AND THE PROPOSED METHOD OF ATTACHMENT OF THE PROPOSED ANTENNAS/CABLES.
 - THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY IMPROVEMENTS AND REINFORCEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, CABLES, SUPPORTS AND APPURTENANCES PROPOSED ON THESE DRAWINGS OR OTHERWISE NOTED IN THE STRUCTURAL ANALYSIS.

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REV	DATE	DESCRIPTION	CHECKED BY
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1	01/29/18		AJC RA

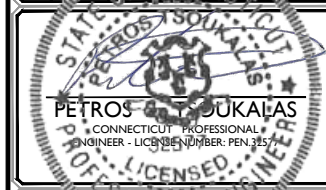
PETROS STOKALAS
CONNECTICUT PROFESSIONAL ENGINEER - LICENSE NUMBER: PEN 3857
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SHEET TITLE:
ELEVATION VIEW, DETAILS AND ANTENNA SCHEDULE

SCALE:	AS SHOWN	JOB NUMBER:	17963030A
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1	01/29/18		AJC RA



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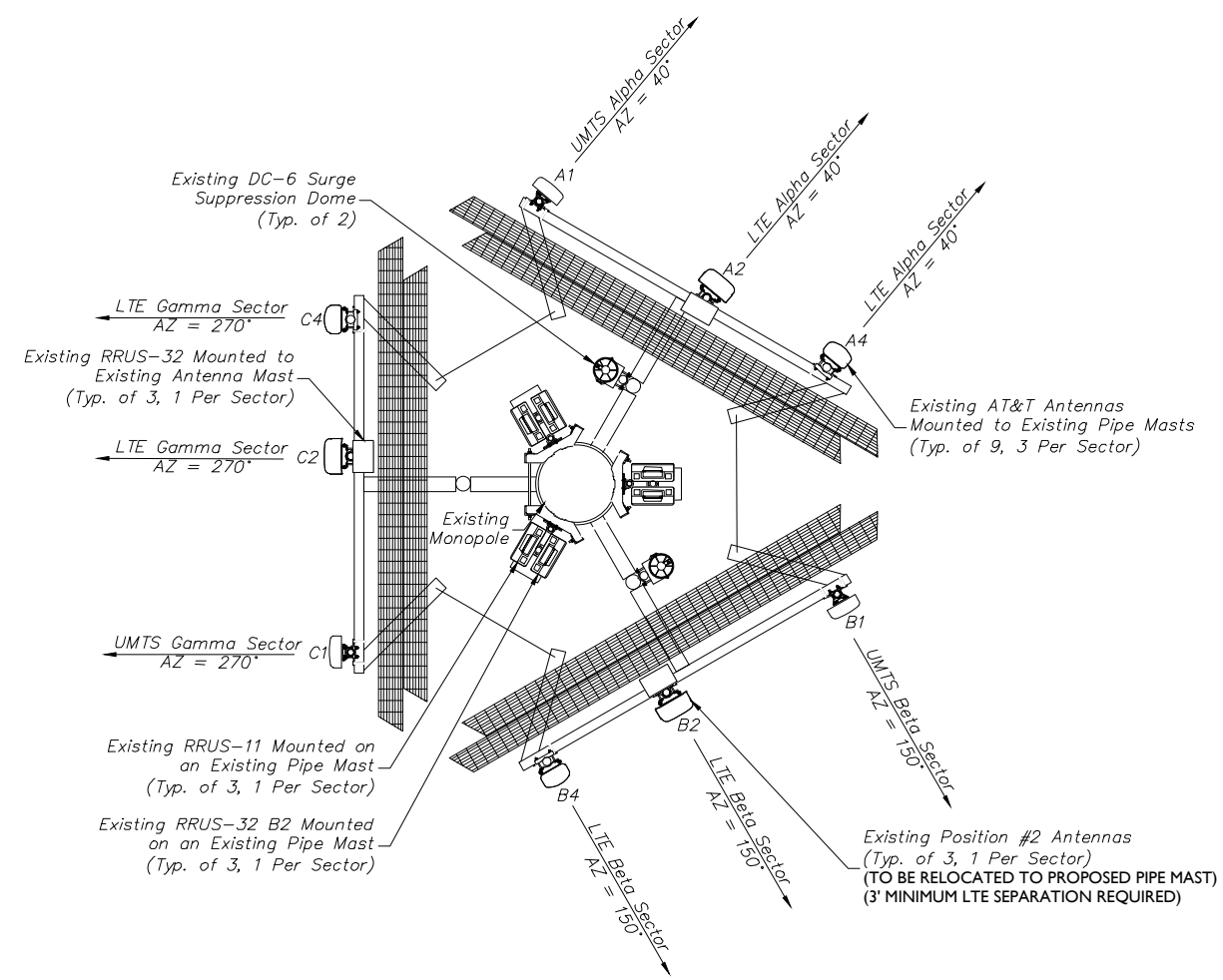
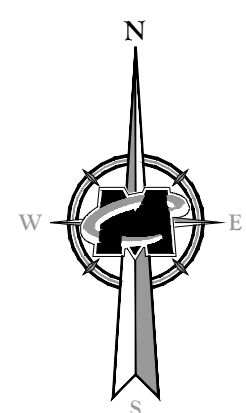
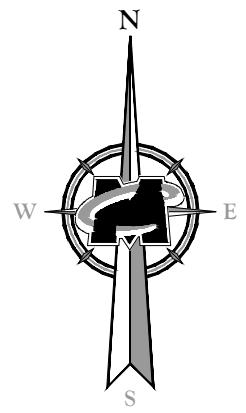
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 Suite 203
 Red Bank, NJ 07701-5699
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SHEET TITLE:
ANTENNA LAYOUTS

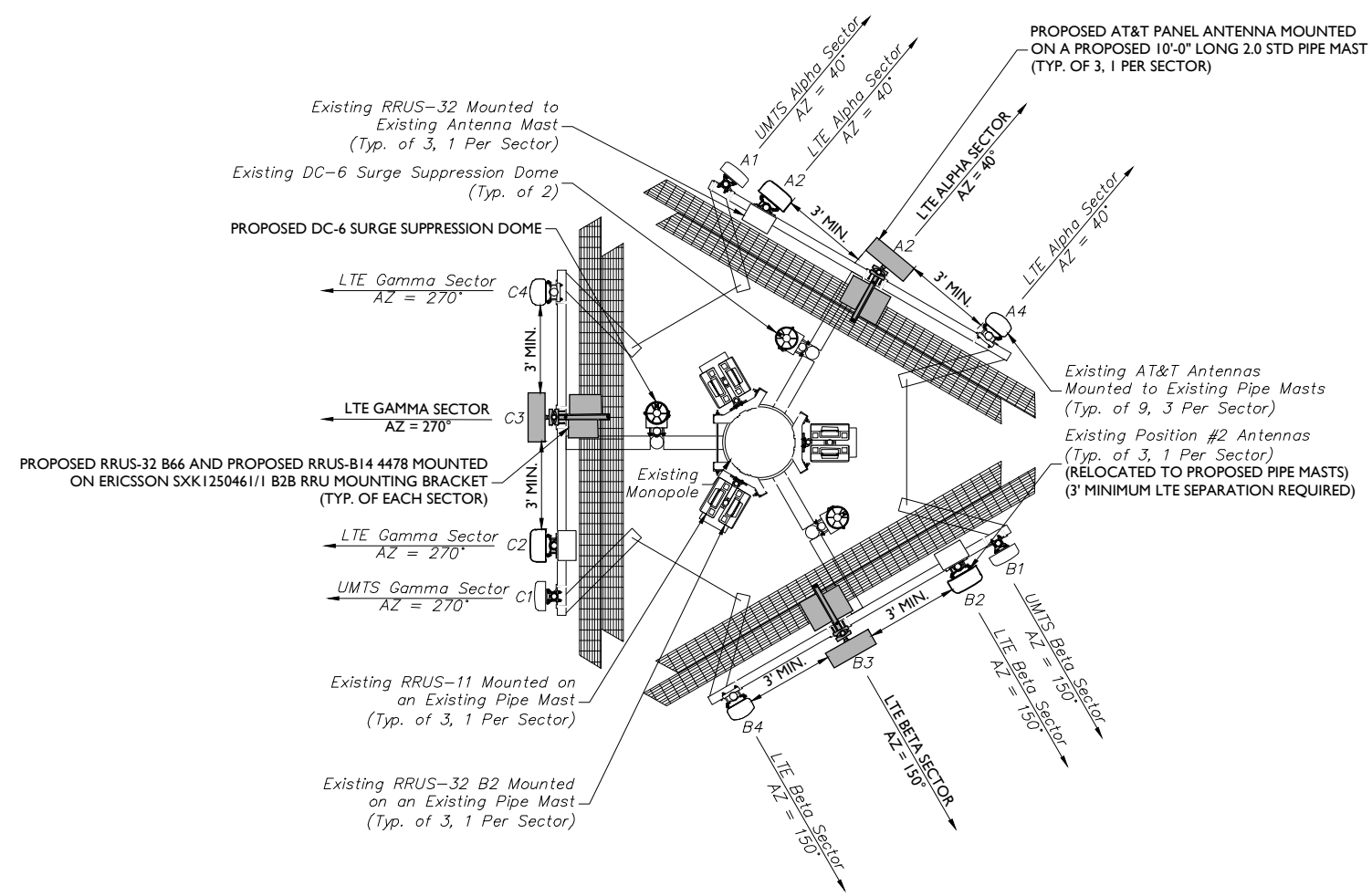
SHEET NUMBER:
A-3

3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS
 6 FEET MINIMUM SEPARATION BETWEEN 700BC & 700 DE

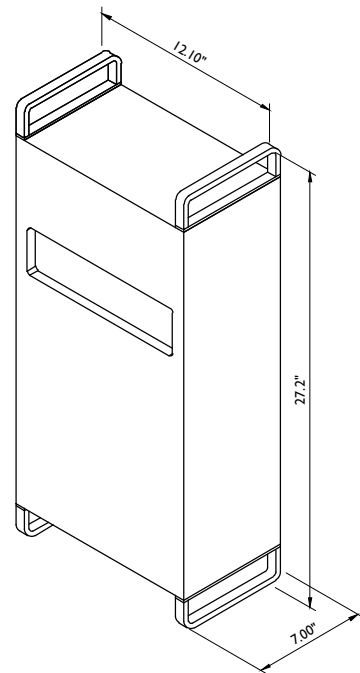
NOTE:
 CONTRACTOR TO SHIFT EXISTING ANTENNAS AS NEEDED TO MEET REQUIRED 3'-0" MINIMUM ANTENNA SEPARATION.



EXISTING - ANTENNA LAYOUT
 NOT TO SCALE



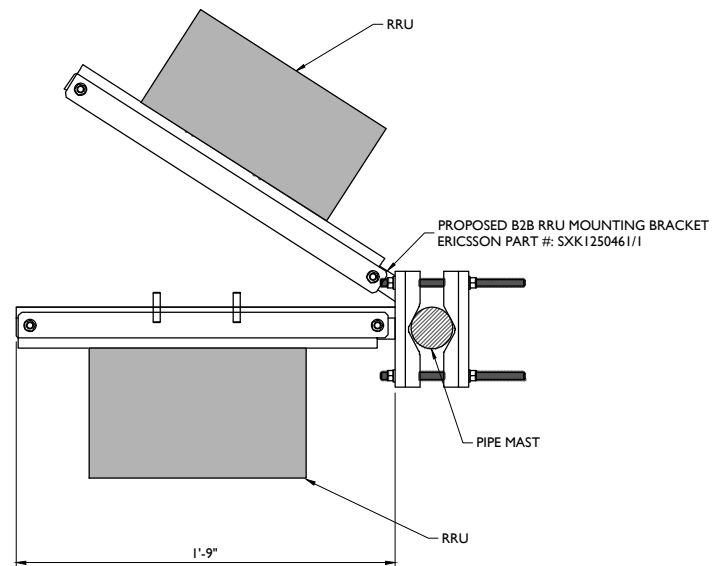
PROPOSED - ANTENNA LAYOUT
 NOT TO SCALE



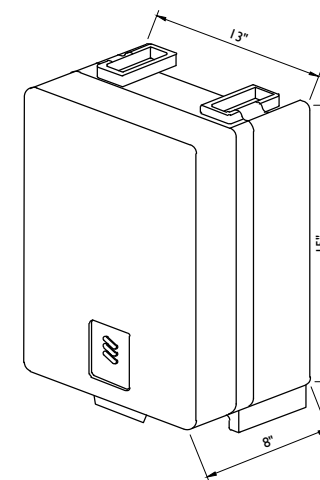
RRUS-32 B66 DIMENSIONS (H X W X D): 27.2' X 12.1' X 7.0'
(INCLUDES HANDLES, FEET AND SUNSHIELD)

WEIGHT: 53 LBS

RRUS-32 B66 DETAIL
NOT TO SCALE

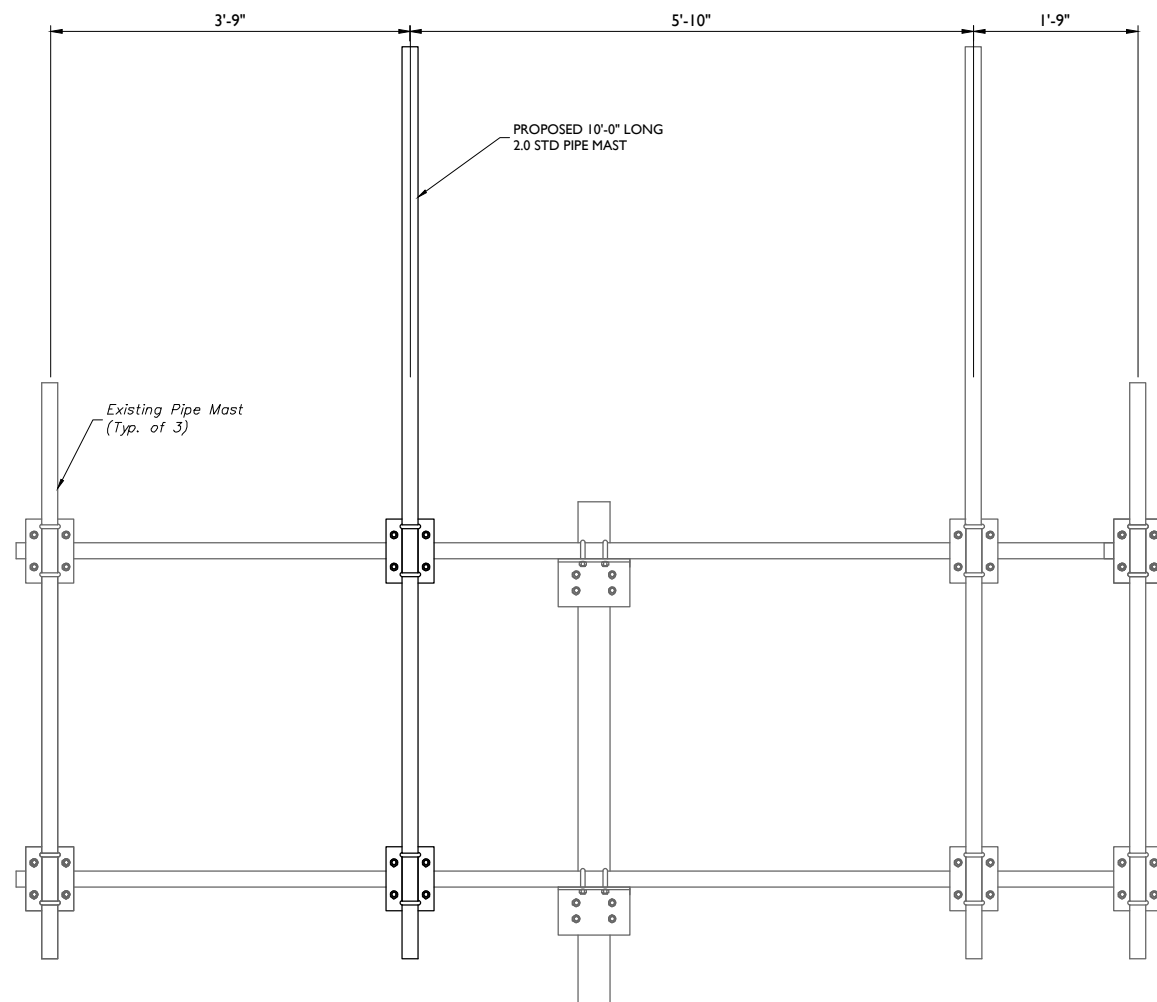


RRU MOUNTING DETAIL
NOT TO SCALE



DIMENSIONS (H X W X D): 15"H X 13"W X 8"D (INCLUDES SUNSHIELD)
WEIGHT: 60 LBS

RRU-4478-B14 DETAIL
NOT TO SCALE



PROPOSED PIPE MAST MOUNTING DETAIL
NOT TO SCALE



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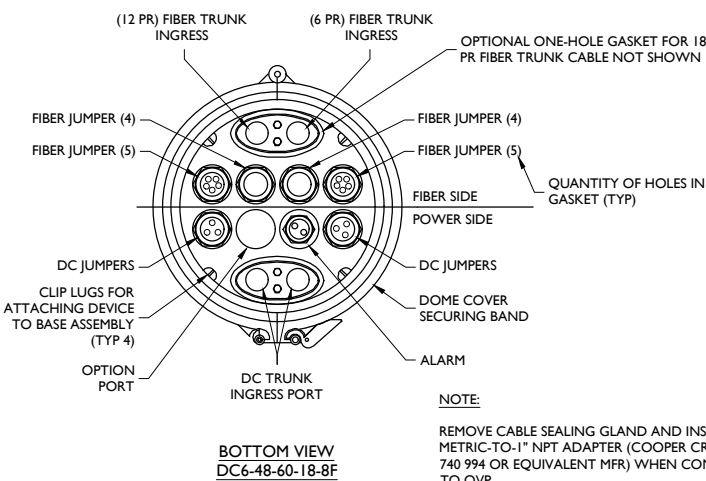
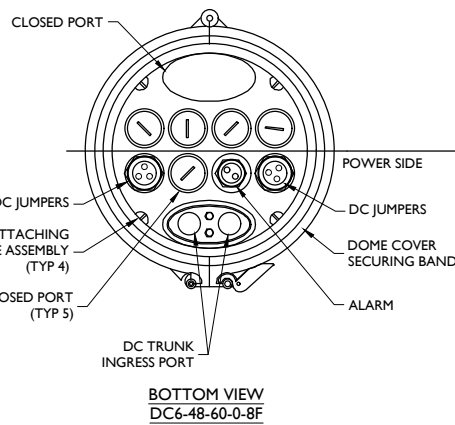
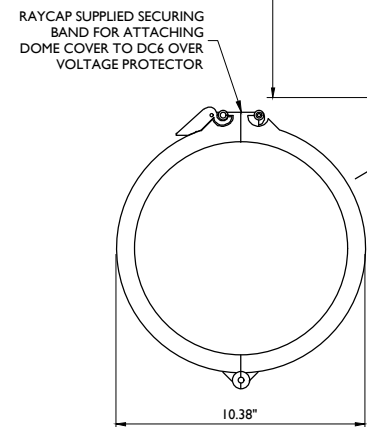
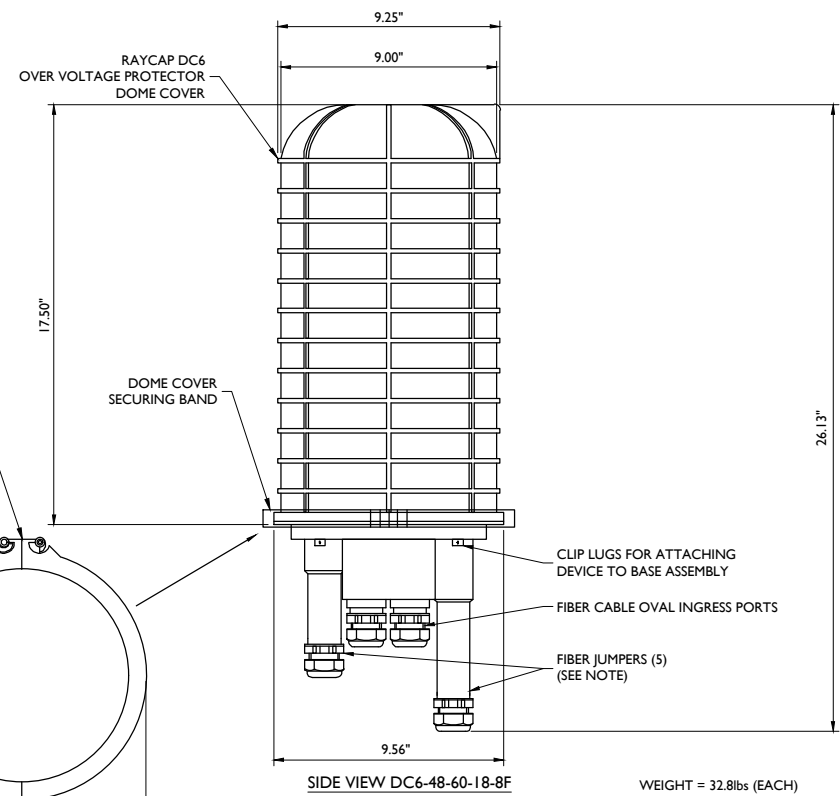
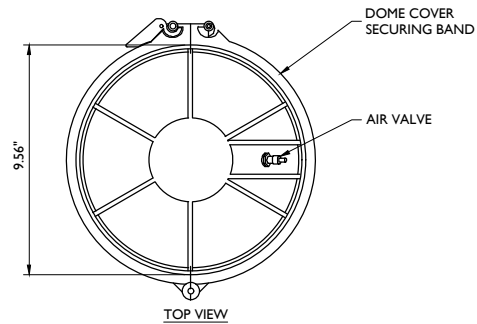
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SHEET TITLE:

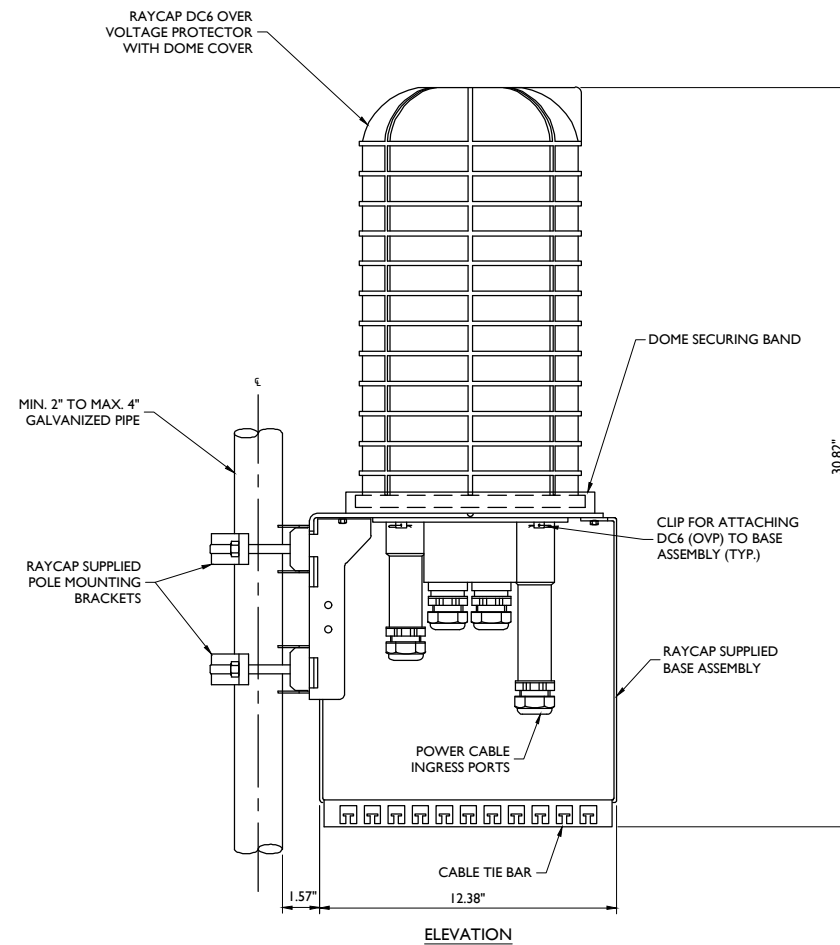
DETAILS

SHEET NUMBER:

A-4



NOTE:
REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP.



NOTES:
RAYCAP VIA AT&T SUPPLIES THE DC6 OVER VOLTAGE PROTECTOR AND PIPE MOUNTING BRACKETS. SUBCONTRACTOR SHALL SUPPLY THE PIPE.

**RAYCAP DC6-48-60-18-8F & DC6-48-60-0-8F
DC POWER OVER VOLTAGE PROTECTOR (OVP)
POLE MOUNT BASE ASSEMBLY**
NOT TO SCALE

DC6 SURGE SUPPRESSION DOME DETAIL

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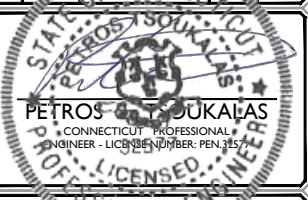


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BILLERICA, MA 01862



SCALE: AS SHOWN JOB NUMBER: 17963030A

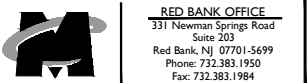
REV	DATE	DESCRIPTION	BY	CHECKED BY
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1	01/29/18		AJC	RA



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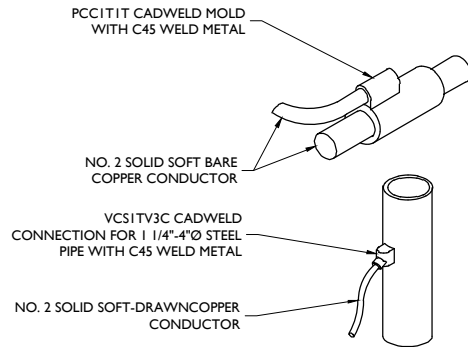
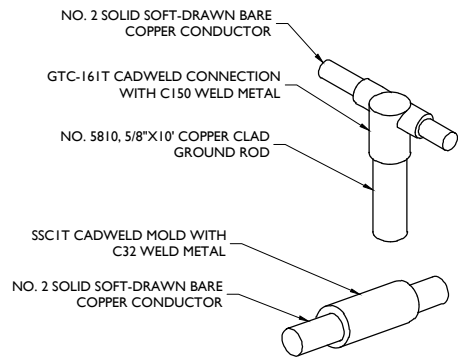
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SHEET TITLE:

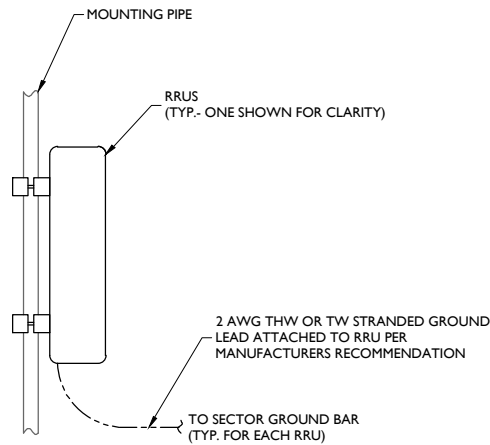
DETAILS

SHEET NUMBER:

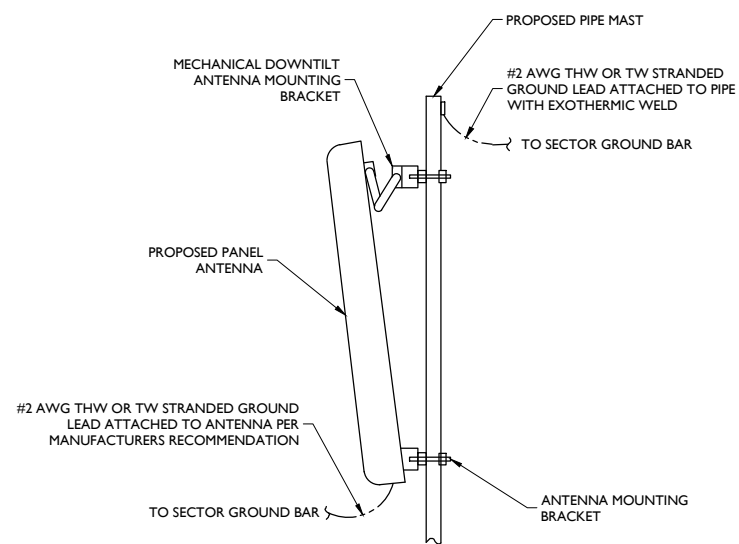
A-5



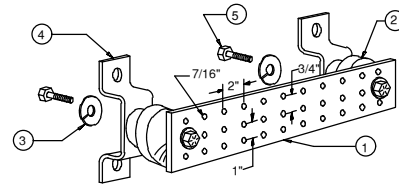
CADWELD DETAILS
NOT TO SCALE



RRU GROUNDING DETAIL
NOT TO SCALE



ANTENNA GROUNDING
NOT TO SCALE



LEGEND

- 1- TINNED COPPER GROUND BAR, 1/4"x4"x20", NEWTON INSTRUMENT CO. CAT. NO. B-6142 OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
- 2- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4
- 3- 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8
- 4- WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT NO. A-5056
- 5- 5/8-11 X 1" HHCS BOLTS, NEWTON INSTRUMENT CO. CAT NO. 3012-1
- 6- EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

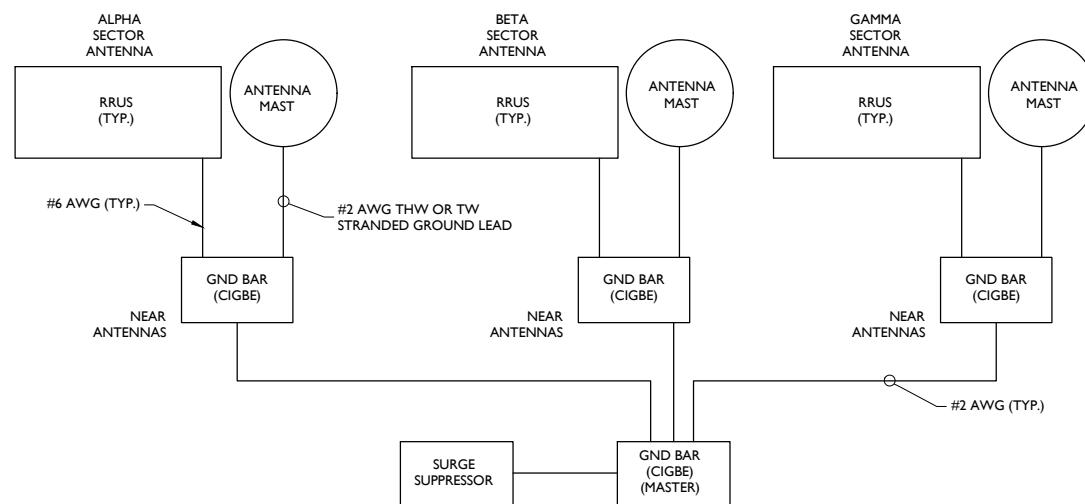
SECTION "P" - SURGE PRODUCERS

- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- GENERATOR FRAMEWORK (IF AVAILABLE) (#2)
- TELCO GROUND BAR
- COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2)
- +24V POWER SUPPLY RETURN BAR (#2)
- 48V POWER SUPPLY RETURN BAR (#2)
- RECTIFIER FRAMES.

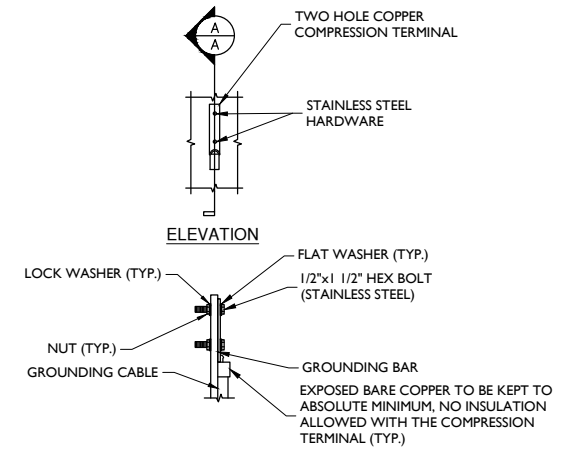
SECTION "A" - SURGE ABSORBERS

- INTERIOR GROUND RING (#2)
- EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2)
- METALLIC COLD WATER PIPE (IF AVAILABLE) (#2)
- BUILDING STEEL (IF AVAILABLE) (#2)

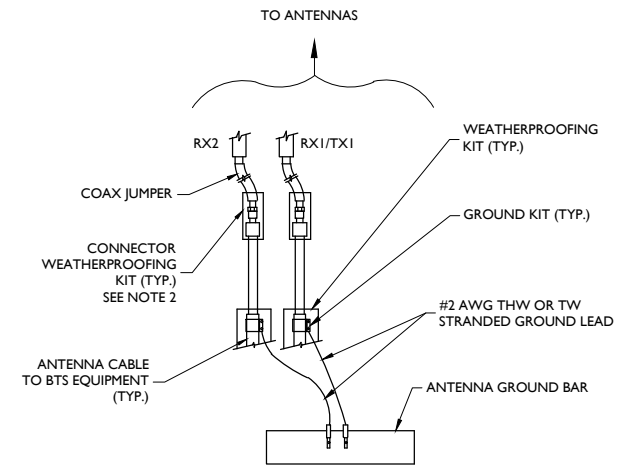
MASTER GROUND BAR
NOT TO SCALE



SCHEMATIC DIAGRAM GROUNDING SYSTEM



TYPICAL GROUND BAR CONNECTION DETAIL
NOT TO SCALE



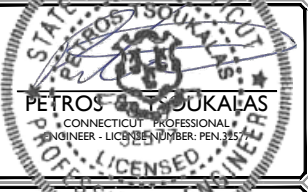
NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

TYPICAL GROUND WIRE TO GROUNDING BAR
NOT TO SCALE

SCALE: AS SHOWN	JOB NUMBER: 17963030A
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0	02/19/18	FOR CONSTRUCTION	RA	PET
1	01/29/18		AJC	RA
REV	DATE	DESCRIPTION	CHECKED BY	



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

SITE NAME:

WETHERSFIELD NORTH
FA#:10092829
SITE #: CT5122
23 KELLEHER COURT
WETHERSFIELD, CT 06109
HARTFORD COUNTY