

March 20, 2018

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

RE: NOTICE OF EXEMPT MODIFICATION
319-321 New Britain Ave., Unionville, CT 06085

Dear Ms. Bachman:

Enclosed please find an original and two (2) copies of a Notice of Exempt Modification including drawings, structural analyses, RF emissions reports, parcel maps, and a check in the amount of six hundred twenty five dollars (\$625.00) for the filing fee. In addition, I have included a single copy of each notification letter to the municipality, the Planning Division, and to the property and tower owner. The proof of delivery is likewise enclosed and consists of a copy of the Certified Mail receipt and a copy of the USPS Tracking Results from the USPS website, acknowledging the date and time of delivery.

I have submitted electronic copies of these documents via email to the CSC today.

Please feel free to contact me with any questions or comments. Thank you for your kind cooperation in this matter.

Respectfully submitted,

Jack Andrews
Zoning Manager, Empire Telecom
o/b/o AT&T Wireless
10130 Donleigh Drive
Columbia, MD 21046
443-286-4006
jandrews@empiretelecomm.com

Enclosures

Jack Andrews
Zoning Manager, Empire Telecom
o/b/o AT&T Wireless
10130 Donleigh Drive
Columbia, MD 21046
443-286-4007
jandrews@empiretelecomm.com

March 15, 2018

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

NOTICE OF EXEMPT MODIFICATION

319-321 New Britain Ave., Unionville (Farmington), CT 06085

Lat: 41-44-59.38 (41.74982778)
Long. 72-52-21.72 (-72.8727)

Dear Ms. Bachman:

AT&T Wireless currently maintains six (6) antennas at the 150-foot level of an existing 190-foot monopole tower located at 319-321 New Britain Ave, in Unionville (Farmington), CT. The tower is owned by the Town of Farmington. The property is owned by the Town of Farmington. AT&T Wireless now seeks to replace three (3) antennas and install three (3) additional antennas at the 150-foot level of the tower, to be mounted on the existing tower, as well as install one (1) new DC6 surge suppression dome, install three (3) new RRUS-32 Remote Radio Units (“RRU”), install three (3) new RRUS-32 B2 RRUs on the tower. In addition, the applicant proposes to replace the existing “arm-type” antenna mountings with a new triangular shaped Commscope Mount MTC3607R at the 150-foot level. The new RRUs, existing surge suppression dome and the proposed dome will be mounted to the proposed new Commscope mount. To increase the structural capacity of the tower and foundation, the applicant proposes to install non-shrink grout between tower baseplate and top of tower foundation with minimum strength of 4,000 psi, as referenced in the enclosed Tower Modification Design.

The existing tower was built for the Town of Farmington by Sprint and originally approved by the Town of Farmington. However, Sprint came to the Siting Council with a request for tower sharing in 2002, before the tower was constructed. The tower was approved for tower sharing by the Connecticut Siting Council in TS-Sprint-052-020118 on February 20, 2002. There were no conditions of approval enumerated in the Council’s decision.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies section 16-50j-73 for construction that constitutes an exempt modification pursuant to RCSA section 16-50j-72(b)(2). In accordance with RCSA section 16-50j-73, a copy of this letter and attachments is being sent to

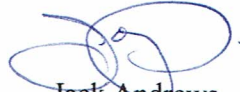
William Warner, the Farmington Town Planner; Kathleen A. Eagen, the Farmington Town Manager; as well as to Paul Melanson, the Chief of Police, on behalf of the tower owner and the property owner. Chief Melanson is our point of contact.

The planned modifications to the facility fall squarely within those activities expressly provided for in RCSA section 50j-72(b)(2).

1. The proposed modifications will not result in an increase in height of the existing structure.
2. The proposed modifications will not require an extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that will exceed state and local limits.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

For the foregoing reasons, AT&T Wireless respectfully submits that the proposed modifications to the above referenced telecommunications facility constitute an exempt modification under RCSA section 16-50j-72(b)(2).

Respectfully submitted,



Jack Andrews
Zoning Manager, Empire Telecom
o/b/o AT&T Wireless
10130 Donleigh Drive
Columbia, MD 21046
443-286-4007
jandrews@empiretelecomm.com

Enclosures

cc: William Warner, the Farmington Town Planner
Kathleen A. Eagen, the Farmington Town Manager
Paul Melanson, the Chief of Police

March 15, 2018

William Warner, Town Planner
Planning and Zoning
1 Monteith Drive
Farmington, CT 06032

RE: AT&T Wireless Modifications to Telecommunication Facility –
319-321 New Britain Ave., Unionville, CT 06085

Dear Mr. Warner:

In order to accommodate technological changes, implement the Uniform Mobile Telecommunications System and enhance system performance in the State of Connecticut, AT&T Wireless (“AT&T”) will be changing its equipment configuration at the above referenced telecommunications facility. AT&T Wireless currently maintains six (6) antennas at the 150-foot level of an existing 190-foot monopole tower located at 319-321 New Britain Ave, in Unionville (Farmington), CT. The tower is owned by the Town of Farmington. The property is owned by the Town of Farmington.

AT&T Wireless now seeks to replace three (3) antennas and install three (3) additional antennas at the 150-foot level of the tower, to be mounted on the existing tower, as well as install one (1) new DC6 surge suppression dome, install three (3) new RRUS-32 Remote Radio Units (“RRU”), install three (3) new RRUS-32 B2 RRUs on the tower. In addition, the applicant proposes to replace the existing “arm-type” antenna mountings with a new triangular shaped Commscope Mount MTC3607R at the 150-foot level. The new RRUs, existing surge suppression dome and the proposed dome will be mounted to the proposed new Commscope mount. To increase the structural capacity of the tower and foundation, the applicant proposes to install non-shrink grout between tower baseplate and top of tower foundation with minimum strength of 4,000 psi, as referenced in the enclosed Tower Modification Design.

This letter is intended to serve as the required notice to the municipality’s Planning Division. As required by the Regulations of Connecticut State Agencies (“RCSA”) section 16-50j-73, the Connecticut Siting Council (“CSC”) has been notified of the proposed changes and will review AT&T’s proposal. Please accept this letter as notification under RCSA section 16-50j-73 of construction which constitutes an exempt modification pursuant to RCSA section 16-50j-72(b)(2).

The enclosed letter and documents to the CSC fully describes AT&T's proposal for the above referenced site. However, if you have any questions or require any additional information concerning our plans or the CSC procedures, please contact me at 443-677-0144 or contact Melanie Bachman, Acting Executive Director of the CSC at 860-872-2935.

Respectfully submitted,



Jack Andrews
Zoning Manager, Empire Telecom
o/b/o AT&T Wireless
10130 Donleigh Drive
Columbia, MD 21046
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jandrews@empiretelecomm.com

Enclosures

cc: Melanie Bachman, Connecticut Siting Council

March 15, 2018

Kathleen A. Eagen
Town Manager's Office
1 Monteith Drive
Farmington, CT 06032

RE: AT&T Wireless Modifications to Telecommunication Facility –
319-321 New Britain Ave., Unionville, CT 06085

Dear Ms. Eagen:

In order to accommodate technological changes, implement the Uniform Mobile Telecommunications System and enhance system performance in the State of Connecticut, AT&T Wireless ("AT&T") will be changing its equipment configuration at the above referenced telecommunications facility. AT&T Wireless currently maintains six (6) antennas at the 150-foot level of an existing 190-foot monopole tower located at 319-321 New Britain Ave, in Unionville (Farmington), CT. The tower is owned by the Town of Farmington. The property is owned by the Town of Farmington.

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Enclosures

cc: Melanie Bachman, Connecticut Siting Council

March 15, 2018

Police Chief Paul Melanson
Farmington Police Department
319 New Britain Avenue
Unionville, CT 06085

RE: AT&T Wireless Modifications to Telecommunication Facility –
319-321 New Britain Ave., Unionville, CT 06085

Dear Chief Melanson:

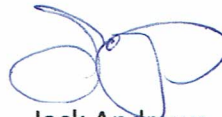
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This letter is intended to serve as the required notice to the tower owner and the property owner. As required by the Regulations of Connecticut State Agencies ("RCSA") section 16-50j-73, the Connecticut Siting Council ("CSC") has been notified of the proposed changes and will review AT&T's proposal. Please accept this letter as notification under RCSA section 16-50j-73 of construction which constitutes an exempt modification pursuant to RCSA section 16-50j-72(b)(2).

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Respectfully submitted,



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o/b/o AT&T Wireless
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Columbia, MD 21046
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jandrews@empiretelecomm.com

Enclosures

cc: Melanie Bachman, Connecticut Siting Council



Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT5404

Unionville - Farmington
319-321 New Britain Avenue
Farmington, CT 06085

December 13, 2017

Centerline Communications Project Number: 950006-064

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	10.98 %



December 13, 2017

AT&T Mobility – New England
Attn: John Benedetto, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT5404 – Unionville - Farmington**

Centerline Communications, LLC (“Centerline”) was directed to analyze the proposed AT&T facility located at **319-321 New Britain Avenue, Farmington, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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

Population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



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

Additional details can be found in FCC OET 65.



CALCULATIONS

Calculations were performed for the proposed AT&T Wireless antenna facility located at **319-321 New Britain Avenue, Farmington, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

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

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	2	30
UMTS	1900 MHz (PCS)	2	30
LTE	700 MHz	2	60
LTE	1900 MHz (PCS)	4	60
LTE	2300 MHz (WCS)	2	60

Table 1: Channel Data Table



The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Kathrein 800-10121	150
A	2	CCI OPA-65R-LCUU-H8	150
A	3	CCI TPA-65R-LCUUUU-H8	150
B	1	Kathrein 800-10121	150
B	2	CCI OPA-65R-LCUU-H8	150
B	3	CCI TPA-65R-LCUUUU-H8	150
C	1	Kathrein 800-10121	150
C	2	CCI OPA-65R-LCUU-H8	150
C	3	CCI TPA-65R-LCUUUU-H8	150

Table 2: Antenna Data

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



RESULTS

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

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Kathrein 800-10121	850 MHz / 1900 MHz (PCS)	11.45 / 14.35	4	120	2,471.44	0.54
Antenna A2	CCI OPA-65R-LCUU-H8	700 MHz / 1900 MHz (PCS)	12.55 / 14.85	6	360	9,490.46	2.07
Antenna A3	CCI TPA-65R-LCUUUU-H8	2300 MHz (WCS)	14.45	2	120	3,343.35	0.58
Sector A Composite MPE%							3.19
Antenna B1	Kathrein 800-10121	850 MHz / 1900 MHz (PCS)	11.45 / 14.35	4	120	2,471.44	0.54
Antenna B2	CCI OPA-65R-LCUU-H8	700 MHz / 1900 MHz (PCS)	12.55 / 14.85	6	360	9,490.46	2.07
Antenna B3	CCI TPA-65R-LCUUUU-H8	2300 MHz (WCS)	14.45	2	120	3,343.35	0.58
Sector B Composite MPE%							3.19
Antenna C1	Kathrein 800-10121	850 MHz / 1900 MHz (PCS)	11.45 / 14.35	4	120	2,471.44	0.54
Antenna C2	CCI OPA-65R-LCUU-H8	700 MHz / 1900 MHz (PCS)	12.55 / 14.85	6	360	9,490.46	2.07
Antenna C3	CCI TPA-65R-LCUUUU-H8	2300 MHz (WCS)	14.45	2	120	3,343.35	0.58
Sector C Composite MPE%							3.19

Table 3: AT&T Emissions Levels



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

Site Composite MPE%	
Carrier	MPE%
AT&T – Max Sector Value	3.19 %
Town	0.23 %
Emergency	0.89 %
Public Works	4.04 %
Clearwire	0.07 %
AT&T	1.86 %
T-Mobile	0.70 %
Site Total MPE %:	10.98 %

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	3.19 %
AT&T Sector B Total:	3.19 %
AT&T Sector C Total:	3.19 %
Site Total:	
	10.98 %

Table 5: Site MPE Summary



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

AT&T _ Frequency Band / Technology (All Sectors)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	418.91	150	1.45	850 MHz	567	0.26%
AT&T 1900 MHz (PCS) UMTS	2	816.81	150	2.83	1900 MHz (PCS)	1000	0.28%
AT&T 700 MHz LTE	2	1,079.32	150	3.74	700 MHz	467	0.80%
AT&T 1900 MHz (PCS) LTE	4	1,832.95	150	12.71	1900 MHz (PCS)	1000	1.27%
AT&T 2300 MHz (WCS) LTE	2	1,671.67	150	5.80	2300 MHz (WCS)	1000	0.58%
						Total:	3.19%

Table 6: AT&T Maximum Sector MPE Power Values



Summary

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

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	3.19 %
Sector B:	3.19 %
Sector C:	3.19 %
AT&T Maximum Total (per sector):	3.19 %
Site Total:	10.98 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **10.98 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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

A handwritten signature in black ink, appearing to read 'Scott Heffernan', is positioned above the printed name.

Scott Heffernan
RF Engineering Director
Centerline Communications, LLC
95 Ryan Drive, Suite 1
Raynham, MA 02767



Multi Carrier Add

Rev 0

Monopole Feasibility Study

Site Name: Enfield – Unionville - Farmington

FA #: 10071289

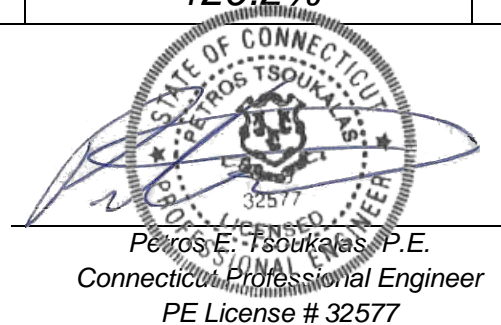
Site Number: CT5404

Site Address: 319-321 New Britain Avenue
Farmington, CT 06085
Hartford County

Maser Project Number: 17963003A

October 19, 2017

Analysis Type	Monopole	Foundation
Pass/Fail	Fail	Pass
Utilization	129.2%	-



Petros E. Tsoukalas P.E.
Connecticut Professional Engineer
PE License # 32577

Objective:

The objective of this report is to determine the capacity of the existing monopole structure at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards.

Introduction:

Maser Consulting Connecticut has performed limited field observations on August 27, 2017 to visually verify the existing condition of the structure from grade and to locate and quantify the existing wireless appurtenances where possible. Maser Consulting Connecticut has reviewed the following documents in completing this report:

- RFDS 1765230 provided by Empire Telecom, dated July 13, 2017
- Previous Structural Analysis prepared by Ramaker & Associates, Inc., dated November 16, 2012

The existing **AT&T** equipment is supported on an existing 190' monopole structure. The existing **AT&T** equipment is supported on a proposed Commscope MTC3607 mount at a centerline of approximately 150'-0" above ground level. This report is based upon this information, as well as the information obtained in the field.

Discrete and Linear Appurtenances:

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

- **(1) Commscope MTC3607 Mount (Proposed)**
- *(3) Kathrein 80010121 Antennas (Existing)*
- **(3) TPA-65R-LCUUUU-H8 Antennas (Proposed)**
- **(3) HPA-65R-BUU-H8 Antennas (Proposed)**
- *(6) TMAs (Existing)*
- *(3) RRUS 11 (Existing)*
- **(3) RRUS 32 (Proposed)**
- **(3) RRUS 32 B2 (Proposed)**
- *(1) DC6 (Existing)*
- **(1) DC6 (Proposed)**

The overall tower and antenna loading is found in the Appendix A of this report.

Codes, Standards and Loading:

Maser Consulting Connecticut utilized the following codes and standards:

- 2016 Connecticut State Building Code, Incorporating The 2012 IBC
- Structural Standards for Antenna Supporting Structures and Antennas ANSI/TIA-222-G
 - Basic Wind Speed – 97 mph, Ice Wind Speed – 40 mph and Ice thickness – 1.0 in
 - Exposure Category – C
 - Structure Class – II
 - Topographic Category - 1

- Specification for Structural Steel Buildings ANSI/AISC 360-10

Analysis Approach & Assumptions:

The analysis approach used in this structural analysis is based on the premise that if the existing monopole structure is structurally adequate to support the existing and proposed equipment per the aforementioned codes and standards, or if the increase in the forces in the structure are deemed to be negligible or acceptable, then the proposed equipment can be installed as intended. Tower Numerics, tnx Tower, a tower 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 utilized in this report:

- Structural Steel for the monopole sections are assumed to be A572-65 Grade.
- Structural Anchor Bolts are assumed to be A615-75 Grade.
- The existing monopole foundations are assumed to have been constructed per the original design drawings. As such the foundation design reactions are used for comparison to the base reactions of this analysis.
- It is assumed that the telecommunication equipment supports, antenna supports, and existing structure have been designed by a registered licensed professional engineer for the existing loads acting on the structure, as required by all applicable codes, prior to the proposed modifications listed within this report.
- It is assumed that information provided by the client regarding the structure itself, the antenna models, feed lines, and other relevant information is current and correct.
- It is assumed all other existing appurtenances, antennas, cables, etc. belonging to others have been installed and supported per code and per specifications so as not to damage any existing structural support members, and that any contributing loads from adjacent equipment has been taken into consideration for their design.
- Proposed equipment and locations should not deviate from the proposed locations noted herein and shown on the associated Maser Consulting Connecticut final Construction Drawings.

Calculations:

The calculations are found in Appendix A of this report.

Conclusion:

The existing monopole was analyzed for the loading in the applicable codes and standards. The monopole has been determined to be structurally **INADEQUATE** to support the proposed and existing antennas, based upon the aforementioned assumptions.

The monopole has been determined to be stressed to a maximum of **98.2%** of its structural capacity and the baseplate is stressed to **129.2%** of its structural capacity. Therefore, the proposed **AT&T** installation **CANNOT** be placed as intended in all sectors, without modifications.

Maser Consulting P.A. has reviewed the original reactions in the previous structural analysis and did a comparative analysis. It is assumed that the tower foundations have been constructed to support the original design reactions that are on the TNX output in the referenced structural analysis. Based on the comparison of the original design reactions to the base reactions of this analysis, the existing concrete foundations have been determined to have **ADEQUATE** structural capacity.

Please see the table below for the comparison of the design base reactions in the previous structural analysis and the base reactions of this analysis.

Base Reactions Summary:

	Maser Consulting, PA (G-Code)	Original Design Reactions*
Moment (Kip-Ft)	5638 kip-ft	4673.6*1.35= 6309.36
Shear (Kips)	44.48	36.7*1.35 = 49.55
Axial (Kips)	56.02	46.1*1.35= 62.24

*The TIA-222-G code in section 15.5.1 specifies to multiply original ASD reactions by 1.35 when comparing them with reactions determined using the TIA-222-G code.

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.

Sincerely,
Maser Consulting Connecticut



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



Lauren Luzier
Engineer

DESIGNED APPURTENANCE LOADING

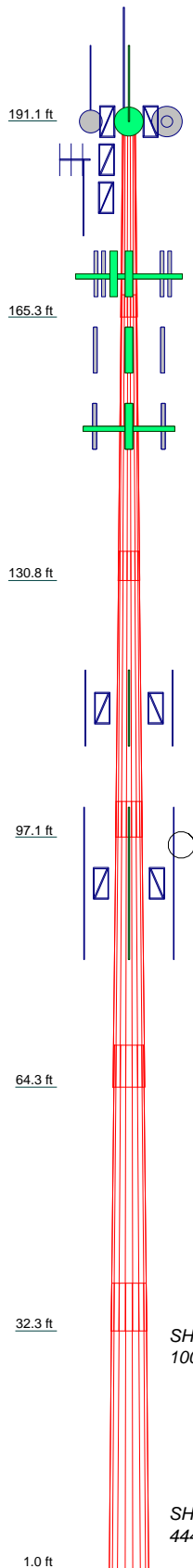
TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 2"x15' (Farmington)	198.5	LNx-6515DS-VTM (T-Mobile)	161
5' Sector Frame T-arm (Farmington)	191	(2) AIR 21 B4A/B2P (T-Mobile)	161
5' Sector Frame T-arm (Farmington)	191	HPA-65R-BUU-H8 (ATI)	151
5' Sector Frame T-arm (Farmington)	191	HPA-65R-BUU-H8 (ATI)	151
6'8"x4" Pipe Mount (Farmington)	191	(2) LGP 17201 (Front Shielded by Antenna) (ATI)	151
11' Omni (Farmington)	191	(2) LGP 17201 (Front Shielded by Antenna) (ATI)	151
11' Omni (Farmington)	191	(2) LGP 17201 (Front Shielded by Antenna) (ATI)	151
3' dish	191	(2) LGP 17201 (Front Shielded by Antenna) (ATI)	151
4' dish	191	(2) LGP 17201 (Front Shielded by Antenna) (ATI)	151
Kathrein Scala PR-950	191	RRUS 32 (ATI)	151
1.5' dish	191	RRUS 32 (ATI)	151
5' Sector Frame T-arm (Farmington)	186	RRUS 32 (ATI)	151
Yagi 3' (Farmington)	186	RRUS 32 B2 (ATI)	151
5' Sector Frame T-arm (Farmington)	181	RRUS 32 B2 (ATI)	151
11' Omni (Farmington)	181	RRUS 32 B2 (ATI)	151
(2) RRH partially shielded by antenna (Sprint)	171	RRUS-11 (ATI)	151
(2) RRH partially shielded by antenna (Sprint)	171	RRUS-11 (ATI)	151
4' Panel Antenna (Sprint)	171	RRUS-11 (ATI)	151
4' Panel Antenna (Sprint)	171	MTC3607R - w.o pipes shielded by wind (ATI)	151
4' Panel Antenna (Sprint)	171	TPA-65R-LCUIIU-H8 w/ 8' pipe (ATI)	151
Small 12' platform (Sprint)	171	TPA-65R-LCUIIU-H8 w/ 8' pipe (ATI)	151
APXVSP18-C-A20 w/ 8' pipe (Sprint)	171	TPA-65R-LCUIIU-H8 w/ 8' pipe (ATI)	151
APXVSP18-C-A20 w/ 8' pipe (Sprint)	171	DC6-48-06-18-8F (att)	151
APXVSP18-C-A20 w/ 8' pipe (Sprint)	171	DC6-48-06-18-8F (att)	151
(2) RRH partially shielded by antenna (Sprint)	171	Kathrein 80010121 w/6ft 2.0 Std pipe (ATI)	151
(2) AIR 21 B4A/B2P (T-Mobile)	161	Kathrein 80010121 w/6ft 2.0 Std pipe (ATI)	151
(2) AIR 21 B4A/B2P (T-Mobile)	161	Kathrein 80010121 w/6ft 2.0 Std pipe (ATI)	151
RRUS11 B12 (Partial Shielded by 11.9" Antenna) (T-Mobile)	161	HPA-65R-BUU-H8 (ATI)	151
RRUS11 B12 (Partial Shielded by 11.9" Antenna) (T-Mobile)	161	Pirod 5' Side Mount Standoff (1)	114
RRUS11 B12 (Partial Shielded by 11.9" Antenna) (T-Mobile)	161	Pirod 5' Side Mount Standoff (1)	114
RRUS11 B12 (Partial Shielded by 11.9" Antenna) (T-Mobile)	161	Pirod 5' Side Mount Standoff (1)	114
LGP 17201 (Front Shielded by Antenna) (T-Mobile)	161	10' Omni	114
LGP 17201 (Front Shielded by Antenna) (T-Mobile)	161	10' Omni	114
LGP 17201 (Front Shielded by Antenna) (T-Mobile)	161	10' Omni	114
LGP 17201 (Front Shielded by Antenna) (T-Mobile)	161	Pirod 5' Side Mount Standoff (1)	91
LGP 17201 (Front Shielded by Antenna) (T-Mobile)	161	Pirod 5' Side Mount Standoff (1)	91
LGP 17201 (Front Shielded by Antenna) (T-Mobile)	161	Pirod 5' Side Mount Standoff (1)	91
Small 12' platform (T-Mobile)	161	18' omni	91
LNx-6515DS-VTM (T-Mobile)	161	18' omni	91
LNx-6515DS-VTM (T-Mobile)	161	18' omni	91

MATERIAL STRENGTH

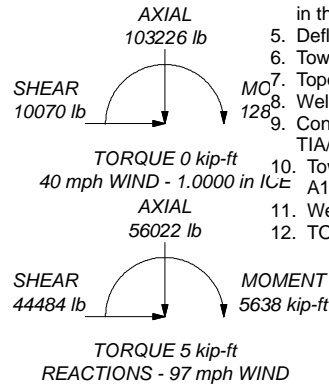
GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

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 40 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: 98.2%

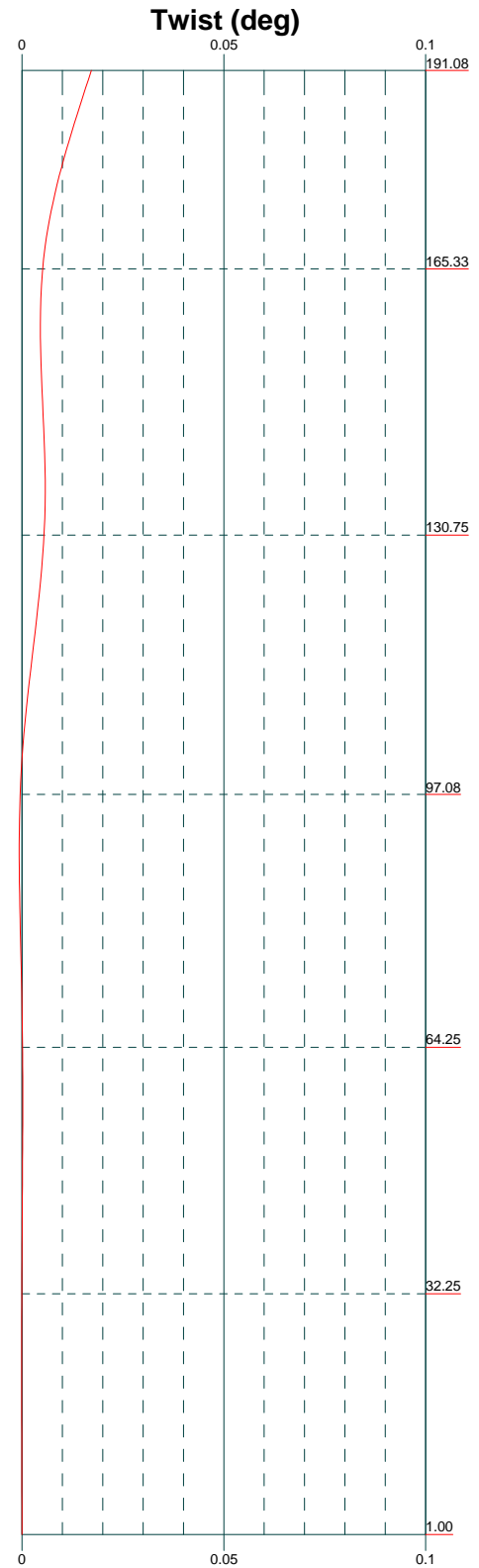
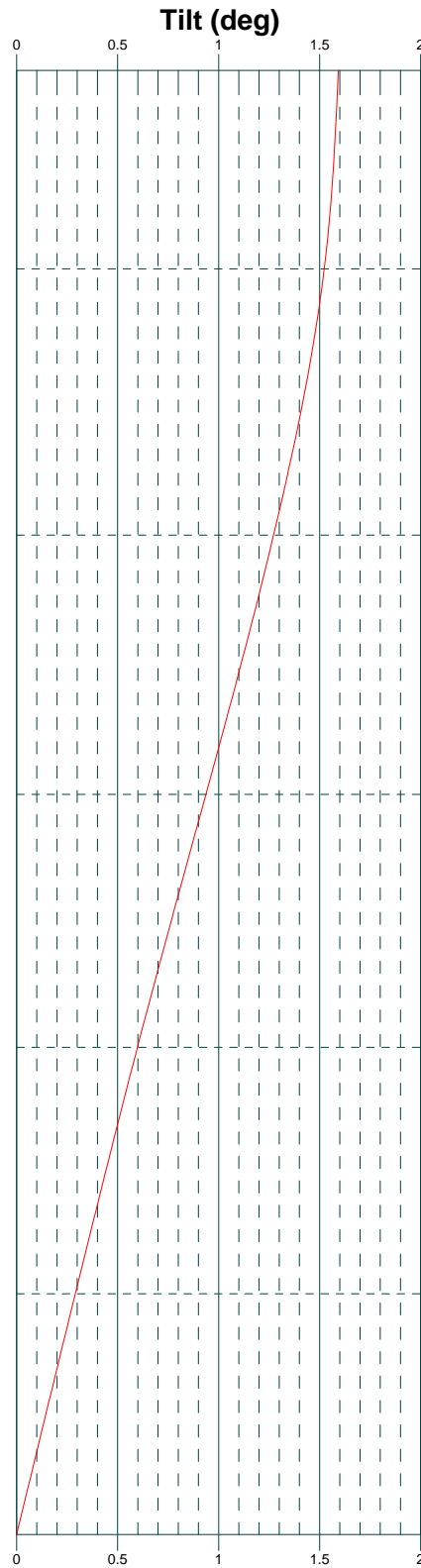
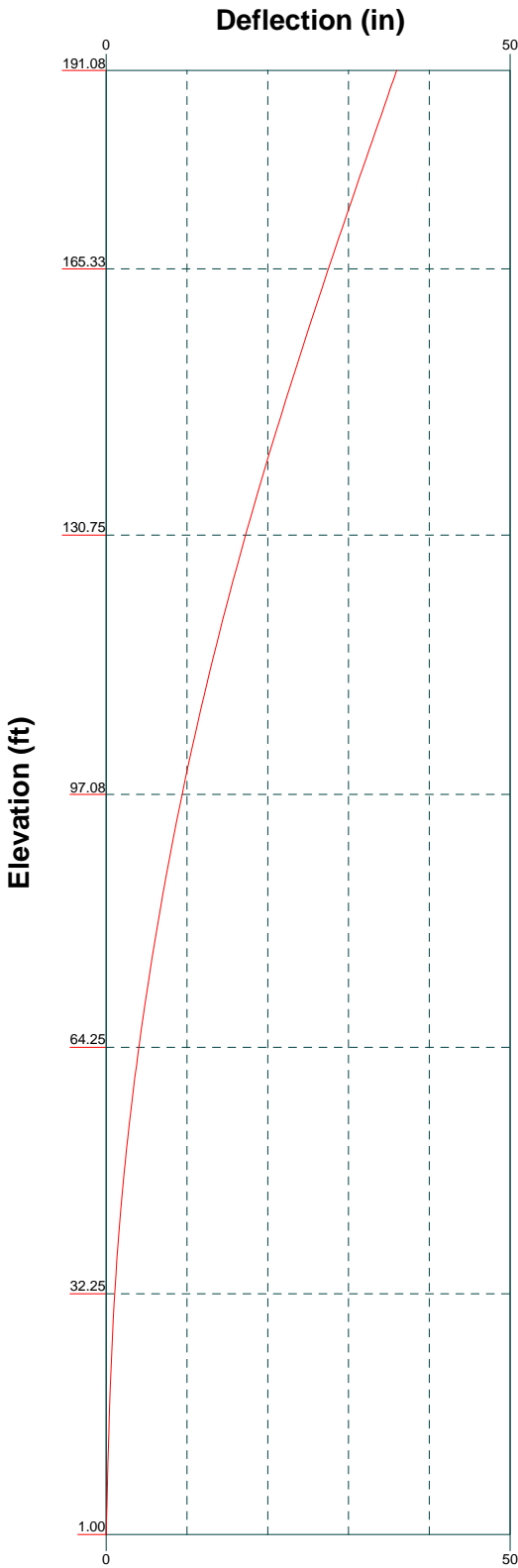


ALL REACTIONS
ARE FACTORED



Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (lb)
1	25.75	18	0.2500	2.92	19.5625	26.0000	A572-65	1566.6
2	37.50	18	0.3125	3.83	24.7700	34.0052	A572-65	3680.0
3	37.50	18	0.3750	4.67	32.4370	41.0625	A572-65	5524.6
4	37.50	18	0.3750	5.50	39.2383	49.0052	A572-65	6644.3
5	37.50	18	0.3750	6.25	46.8227	56.0104	A572-65	7752.3
6	37.50	18	0.3750	53.7291	62.0781		A572-65	8737.5
								33905.3

Maser Consulting		Job: 17963003A	
2000 Midlantic Drive, Suite 100		Project: CT5404 Enfield Unionville Farmington	
Mt. Laurel, NJ		Client: AT&T	Drawn by:
Phone: 856 797-0412		Code: TIA-222-G	Date: 10/19/17
FAX: 856 722-1120		Path:	Scale: NTS
		Dwg No. E-1	

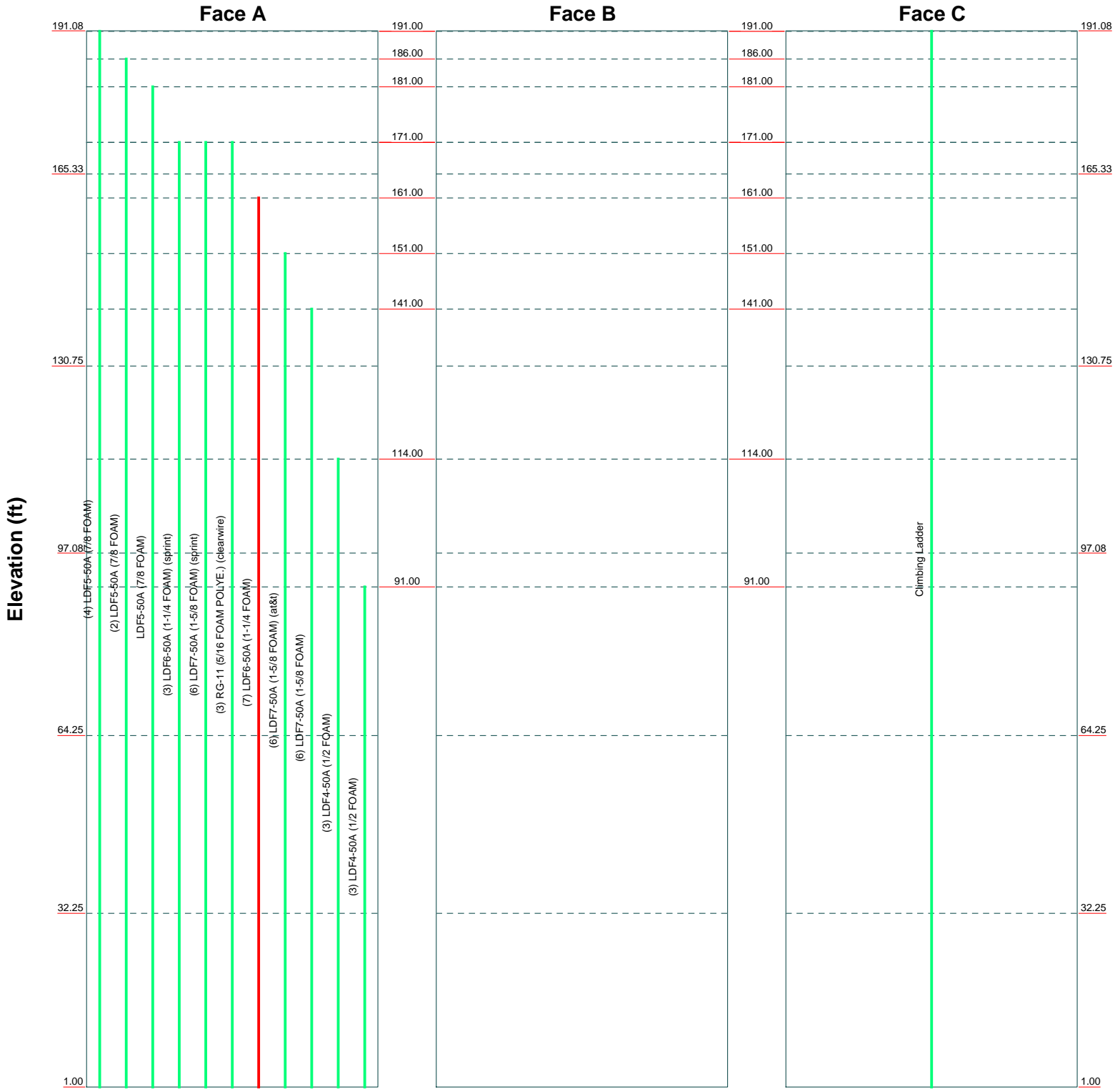


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		Project: CT5404 Enfield Unionville Farmington	
Client: AT&T	Drawn by:	App'd:	
Code: TIA-222-G	Date: 10/19/17	Scale: NTS	
Path:	Dwg No. E-5		

Feed Line Distribution Chart

1' - 191'31/32"

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



Maser Consulting		Job: 17963003A	
2000 Midlantic Drive, Suite 100		Project: CT5404 Enfield Unionville Farmington	
Mt. Laurel, NJ		Client: AT&T	Drawn by:
Phone: 856 797-0412		Code: TIA-222-G	Date: 10/19/17
FAX: 856 722-1120		Path:	App'd:
		Scale: NTS	
		Dwg No. E-7	

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	Client AT&T	Designed by

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.

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 40 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

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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	191.08-165.33	25.75	2.92	18	19.5625	26.0000	0.2500	1.0000	A572-65 (65 ksi)
L2	165.33-130.75	37.50	3.83	18	24.7700	34.0052	0.3125	1.2500	A572-65 (65 ksi)
L3	130.75-97.08	37.50	4.67	18	32.4370	41.0625	0.3750	1.5000	A572-65 (65 ksi)
L4	97.08-64.25	37.50	5.50	18	39.2383	49.0052	0.3750	1.5000	A572-65 (65 ksi)
L5	64.25-32.25	37.50	6.25	18	46.8227	56.0104	0.3750	1.5000	A572-65 (65 ksi)
L6	32.25-1.00	37.50		18	53.7291	62.0781	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	19.8643	15.3245	722.1042	6.8559	9.9377	72.6627	1445.1586	7.6637	3.0030	12.012
	26.4011	20.4326	1711.6544	9.1412	13.2080	129.5922	3425.5610	10.2183	4.1360	16.544
L2	25.8823	24.2588	1833.2875	8.6824	12.5832	145.6937	3668.9873	12.1317	3.8095	12.19
	34.5298	33.4189	4792.9383	11.9609	17.2746	277.4552	9592.1833	16.7126	5.4349	17.392
L3	33.8319	38.1618	4956.1743	11.3820	16.4780	300.7755	9918.8702	19.0845	5.0489	13.464
	41.6960	48.4283	10128.8154	14.4441	20.8597	485.5674	20270.9586	24.2188	6.5670	17.512
L4	41.0787	46.2571	8826.6486	13.7965	19.9331	442.8142	17664.9116	23.1329	6.2459	16.656
	49.7612	57.8821	17293.9344	17.2637	24.8946	694.6850	34610.6246	28.9465	7.9649	21.24
L5	48.9134	55.2844	15068.4649	16.4889	23.7859	633.5029	30156.7572	27.6475	7.5808	20.215
	56.8745	66.2200	25895.7972	19.7506	28.4533	910.1163	51825.6687	33.1163	9.1978	24.528
L6	55.9709	63.5047	22839.1296	18.9407	27.2944	836.7700	45708.3115	31.7584	8.7963	23.457
	63.0358	73.4421	35326.1730	21.9046	31.5357	1120.1971	70698.8291	36.7280	10.2657	27.375

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 191.08-165.33				1	1	1			
L2 165.33-130.75				1	1	1			
L3 130.75-97.08				1	1	1			
L4 97.08-64.25				1	1	1			
L5 64.25-32.25				1	1	1			
L6 32.25-1.00				1	1	1			

Monopole Base Plate Data

Base Plate Data

Base plate is square
 Base plate is grouted
 Anchor bolt grade A615-75
 Anchor bolt size 1.2500 in

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	Client	AT&T	Designed by	

Base Plate Data	
Number of bolts	44
Embedment length	51.5000 in
f _c	4 ksi
Grout space	2.0000 in
Base plate grade	A572-50
Base plate thickness	1.5000 in
Bolt circle diameter	68.0000 in
Outer diameter	74.0000 in
Inner diameter	62.0000 in
Base plate type	Stiffened Plate
Bolts per stiffener	1
Stiffener thickness	0.5000 in
Stiffener height	6.0000 in

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement	Total Number	Number Per Row	Start/End Position	Width or Diameter	Perimeter	Weight
			<i>ft</i>				<i>in</i>	<i>in</i>	<i>plf</i>
LDF6-50A (1-1/4 FOAM)	A	Surface Ar (CaAa)	161.00 - 1.00	7	7	0.000 0.000	1.2500		0.66

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number		C _{AA}	Weight
				<i>ft</i>			<i>ft²/ft</i>	<i>plf</i>
Climbing Ladder	C	No	Inside Pole	191.00 - 1.00	1	No Ice	0.00	7.90
						1/2" Ice	0.00	7.90
						1" Ice	0.00	7.90
LDF5-50A (7/8 FOAM)	A	No	Inside Pole	191.00 - 1.00	4	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
LDF5-50A (7/8 FOAM)	A	No	Inside Pole	186.00 - 1.00	2	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
LDF5-50A (7/8 FOAM)	A	No	Inside Pole	181.00 - 1.00	1	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
LDF6-50A (1-1/4 FOAM) (sprint)	A	No	Inside Pole	171.00 - 1.00	3	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
LDF7-50A (1-5/8 FOAM) (sprint)	A	No	Inside Pole	171.00 - 1.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
RG-11 (5/16 FOAM POLYE.) (clearwire)	A	No	Inside Pole	171.00 - 1.00	3	No Ice	0.00	0.09
						1/2" Ice	0.00	0.09
						1" Ice	0.00	0.09
LDF7-50A (1-5/8 FOAM) (at&t)	A	No	Inside Pole	151.00 - 1.00	6	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)	A	No	Inside Pole	141.00 - 1.00	6	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
LDF4-50A (1/2 FOAM)	A	No	Inside Pole	114.00 - 1.00	3	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15

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Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _{AA}	Weight	
						ft ² /ft	plf	
LDF4-50A (1/2 FOAM)	A	No	Inside Pole	91.00 - 1.00	3	No Ice	0.00	0.15
						1/2" Ice	0.00	0.15
						1" Ice	0.00	0.15

Feed Line/Linear Appurtenances Section Areas

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
L1	191.08-165.33	A	0.000	0.000	0.000	0.000	93.35
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	202.79
L2	165.33-130.75	A	0.000	0.000	26.469	0.000	617.63
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	273.18
L3	130.75-97.08	A	0.000	0.000	29.461	0.000	813.67
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	265.99
L4	97.08-64.25	A	0.000	0.000	28.726	0.000	812.76
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	259.36
L5	64.25-32.25	A	0.000	0.000	28.000	0.000	794.88
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	252.80
L6	32.25-1.00	A	0.000	0.000	27.344	0.000	776.25
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	246.88

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	191.08-165.33	A	2.367	0.000	0.000	0.000	0.000	93.35
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	202.79
L2	165.33-130.75	A	2.323	0.000	0.000	50.983	0.000	1375.22
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	273.18
L3	130.75-97.08	A	2.263	0.000	0.000	56.378	0.000	1637.60
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	265.99
L4	97.08-64.25	A	2.186	0.000	0.000	54.480	0.000	1590.65
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	259.36
L5	64.25-32.25	A	2.077	0.000	0.000	52.488	0.000	1521.64
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	252.80
L6	32.25-1.00	A	1.868	0.000	0.000	50.406	0.000	1443.11
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	246.88

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	Client AT&T	Designed by

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	8	LDF6-50A (1-1/4 FOAM)	165.33 - 161.00	1.0000	1.0000
L2	8	LDF6-50A (1-1/4 FOAM)	130.75 - 161.00	1.0000	1.0000
L3	8	LDF6-50A (1-1/4 FOAM)	97.08 - 130.75	1.0000	1.0000
L4	8	LDF6-50A (1-1/4 FOAM)	64.25 - 97.08	1.0000	1.0000
L5	8	LDF6-50A (1-1/4 FOAM)	32.25 - 64.25	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert	Azimuth Adjustment °	Placement ft	C _{AA} Front	C _{AA} Side	Weight lb
			ft ft ft			ft ²	ft ²	
Lightning Rod 2"x15' (Farmington)	A	From Face	0.00	0.0000	198.50	No Ice	3.00	80.00
			0.00			1/2" Ice	4.53	103.14
			0.00			1" Ice	6.07	135.79
5' Sector Frame T-arm (Farmington)	A	From Face	2.50	0.0000	191.00	No Ice	2.72	50.00
			0.00			1/2" Ice	4.91	89.00
			0.00			1" Ice	7.10	128.00
5' Sector Frame T-arm (Farmington)	B	From Face	2.50	0.0000	191.00	No Ice	2.72	50.00
			0.00			1/2" Ice	4.91	89.00
			0.00			1" Ice	7.10	128.00
5' Sector Frame T-arm (Farmington)	C	From Face	2.50	0.0000	191.00	No Ice	2.72	50.00
			0.00			1/2" Ice	4.91	89.00
			0.00			1" Ice	7.10	128.00
6'8"x4" Pipe Mount (Farmington)	B	From Face	5.00	0.0000	191.00	No Ice	2.02	72.00
			0.00			1/2" Ice	3.01	93.13
			0.00			1" Ice	3.42	118.95
11' Omni (Farmington)	A	From Face	5.00	0.0000	191.00	No Ice	2.20	30.00
			0.00			1/2" Ice	3.33	47.03
			5.00			1" Ice	4.47	71.13
11' Omni (Farmington)	C	From Face	5.00	0.0000	191.00	No Ice	2.20	30.00
			0.00			1/2" Ice	3.33	47.03
			5.00			1" Ice	4.47	71.13
5' Sector Frame T-arm (Farmington)	A	From Face	2.50	0.0000	186.00	No Ice	2.72	50.00
			0.00			1/2" Ice	4.91	89.00
			0.00			1" Ice	7.10	128.00
Yagi 3' (Farmington)	A	From Face	5.00	0.0000	186.00	No Ice	0.52	10.00
			0.00			1/2" Ice	0.71	14.81
			0.00			1" Ice	0.90	21.81
5' Sector Frame T-arm (Farmington)	A	From Face	2.50	0.0000	181.00	No Ice	2.72	50.00
			0.00			1/2" Ice	4.91	89.00
			0.00			1" Ice	7.10	128.00
11' Omni (Farmington)	A	From Face	6.00	0.0000	181.00	No Ice	2.20	30.00
			0.00			1/2" Ice	3.33	47.03
			0.00			1" Ice	4.47	71.13
APXVSP18-C-A20 w/ 8'	A	From Face	4.00	0.0000	171.00	No Ice	8.50	86.20

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral					
pipe (Sprint)			2.00			1/2" Ice	9.16	8.46	156.82
APXVSPP18-C-A20 w/ 8' pipe (Sprint)	B	From Face	0.00			1" Ice	9.79	9.60	235.60
			4.00	0.0000	171.00	No Ice	8.50	7.18	86.20
			2.00			1/2" Ice	9.16	8.46	156.82
APXVSPP18-C-A20 w/ 8' pipe (Sprint)	C	From Face	0.00			1" Ice	9.79	9.60	235.60
			4.00	0.0000	171.00	No Ice	8.50	7.18	86.20
			2.00			1/2" Ice	9.16	8.46	156.82
(2) RRH partially shielded by antenna (Sprint)	A	From Face	0.00			1" Ice	9.79	9.60	235.60
			1.00	0.0000	171.00	No Ice	0.88	1.18	60.00
			0.00			1/2" Ice	1.02	1.33	69.98
(2) RRH partially shielded by antenna (Sprint)	B	From Face	0.00			1" Ice	1.16	1.48	82.23
			4.00	0.0000	171.00	No Ice	0.88	1.18	60.00
			0.00			1/2" Ice	1.02	1.33	69.98
(2) RRH partially shielded by antenna (Sprint)	C	From Face	0.00			1" Ice	1.16	1.48	82.23
			4.00	0.0000	171.00	No Ice	0.88	1.18	60.00
			0.00			1/2" Ice	1.02	1.33	69.98
4' Panel Antenna (Sprint)	A	From Face	0.00			1" Ice	1.16	1.48	82.23
			4.00	0.0000	171.00	No Ice	3.85	4.80	36.95
			0.00			1/2" Ice	4.22	5.42	79.30
4' Panel Antenna (Sprint)	B	From Face	0.00			1" Ice	4.59	6.04	127.47
			4.00	0.0000	171.00	No Ice	3.85	4.80	36.95
			0.00			1/2" Ice	4.22	5.42	79.30
4' Panel Antenna (Sprint)	C	From Face	0.00			1" Ice	4.59	6.04	127.47
			4.00	0.0000	171.00	No Ice	3.85	4.80	36.95
			0.00			1/2" Ice	4.22	5.42	79.30
Small 12' platform (Sprint)	C	None	0.00			1" Ice	4.59	6.04	127.47
				0.0000	171.00	No Ice	20.00	20.00	400.00
						1/2" Ice	30.00	30.00	450.00
						1" Ice	40.00	40.00	500.00
LNX-6515DS-VTM (T-Mobile)	A	From Face	4.00	0.0000	161.00	No Ice	11.45	9.60	79.50
			0.00			1/2" Ice	12.06	11.02	166.47
			0.00			1" Ice	12.69	12.29	263.19
LNX-6515DS-VTM (T-Mobile)	B	From Face	4.00	0.0000	161.00	No Ice	11.45	9.60	79.50
			0.00			1/2" Ice	12.06	11.02	166.47
			0.00			1" Ice	12.69	12.29	263.19
LNX-6515DS-VTM (T-Mobile)	C	From Face	4.00	0.0000	161.00	No Ice	11.45	9.60	79.50
			0.00			1/2" Ice	12.06	11.02	166.47
			0.00			1" Ice	12.69	12.29	263.19
(2) AIR 21 B4A/B2P (T-Mobile)	A	From Face	4.00	0.0000	161.00	No Ice	5.96	4.26	126.00
			0.00			1/2" Ice	6.33	4.62	167.04
			0.00			1" Ice	6.71	4.97	213.17
(2) AIR 21 B4A/B2P (T-Mobile)	B	From Face	4.00	0.0000	161.00	No Ice	5.96	4.26	126.00
			0.00			1/2" Ice	6.33	4.62	167.04
			0.00			1" Ice	6.71	4.97	213.17
(2) AIR 21 B4A/B2P (T-Mobile)	C	From Face	4.00	0.0000	161.00	No Ice	5.96	4.26	126.00
			0.00			1/2" Ice	6.33	4.62	167.04
			0.00			1" Ice	6.71	4.97	213.17
RRUS11 B12 (Partial Shielded by 11.9" Antenna) (T-Mobile)	A	From Face	4.00	0.0000	161.00	No Ice	0.88	1.18	50.70
			0.00			1/2" Ice	1.02	1.33	60.68
			0.00			1" Ice	1.16	1.48	72.93
RRUS11 B12 (Partial Shielded by 11.9" Antenna) (T-Mobile)	B	From Face	4.00	0.0000	161.00	No Ice	0.88	1.18	50.70
			0.00			1/2" Ice	1.02	1.33	60.68
			0.00			1" Ice	1.16	1.48	72.93
RRUS11 B12 (Partial Shielded by 11.9" Antenna) (T-Mobile)	C	From Face	4.00	0.0000	161.00	No Ice	0.88	1.18	50.70
			0.00			1/2" Ice	1.02	1.33	60.68
			0.00			1" Ice	1.16	1.48	72.93
LGP 17201 (Front Shielded)	A	From Face	4.00	0.0000	161.00	No Ice	0.02	0.41	20.00

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb
by Antenna (T-Mobile)			0.00 0.00			1/2" Ice 0.12 1" Ice 0.20	0.50 0.59	22.16 25.56
LGP 17201 (Front Shielded by Antenna (T-Mobile)	B	From Face	4.00 0.00 0.00	0.0000	161.00	No Ice 0.02 1/2" Ice 0.12 1" Ice 0.20	0.41 0.50 0.59	20.00 22.16 25.56
LGP 17201 (Front Shielded by Antenna (T-Mobile)	C	From Face	4.00 0.00 0.00	0.0000	161.00	No Ice 0.02 1/2" Ice 0.12 1" Ice 0.20	0.41 0.50 0.59	20.00 22.16 25.56
Small 12' platform (T-Mobile)	C	None		0.0000	161.00	No Ice 20.00 1/2" Ice 30.00 1" Ice 40.00	20.00 30.00 40.00	400.00 450.00 500.00
Kathrein 80010121 w/6ft 2.0 Std pipe (AT&T)	A	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 5.51 1/2" Ice 5.98 1" Ice 6.43	4.72 5.56 6.29	68.20 116.99 172.24
Kathrein 80010121 w/6ft 2.0 Std pipe (AT&T)	B	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 5.51 1/2" Ice 5.98 1" Ice 6.43	4.72 5.56 6.29	68.20 116.99 172.24
Kathrein 80010121 w/6ft 2.0 Std pipe (AT&T)	C	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 5.51 1/2" Ice 5.98 1" Ice 6.43	4.72 5.56 6.29	68.20 116.99 172.24
HPA-65R-BUU-H8 (AT&T)	A	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 13.05 1/2" Ice 13.66 1" Ice 14.27	9.42 10.82 12.07	97.20 192.07 296.65
HPA-65R-BUU-H8 (AT&T)	B	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 13.05 1/2" Ice 13.66 1" Ice 14.27	9.42 10.82 12.07	97.20 192.07 296.65
HPA-65R-BUU-H8 (AT&T)	C	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 13.05 1/2" Ice 13.66 1" Ice 14.27	9.42 10.82 12.07	97.20 192.07 296.65
(2) LGP 17201 (Front Shielded by Antenna (AT&T)	A	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 0.02 1/2" Ice 0.12 1" Ice 0.20	0.41 0.50 0.59	20.00 22.16 25.56
(2) LGP 17201 (Front Shielded by Antenna (AT&T)	B	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 0.02 1/2" Ice 0.12 1" Ice 0.20	0.41 0.50 0.59	20.00 22.16 25.56
(2) LGP 17201 (Front Shielded by Antenna (AT&T)	C	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 0.02 1/2" Ice 0.12 1" Ice 0.20	0.41 0.50 0.59	20.00 22.16 25.56
RRUS 32 (AT&T)	A	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 3.31 1/2" Ice 3.56 1" Ice 3.81	2.42 2.64 2.86	92.00 119.93 151.47
RRUS 32 (AT&T)	B	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 3.31 1/2" Ice 3.56 1" Ice 3.81	2.42 2.64 2.86	92.00 119.93 151.47
RRUS 32 (AT&T)	C	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 3.31 1/2" Ice 3.56 1" Ice 3.81	2.42 2.64 2.86	92.00 119.93 151.47
RRUS 32 B2 (AT&T)	A	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 3.31 1/2" Ice 3.56 1" Ice 3.81	2.42 2.64 2.86	67.90 95.83 127.37
RRUS 32 B2 (AT&T)	B	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 3.31 1/2" Ice 3.56 1" Ice 3.81	2.42 2.64 2.86	67.90 95.83 127.37
RRUS 32 B2 (AT&T)	C	From Face	4.00 0.00 0.00	0.0000	151.00	No Ice 3.31 1/2" Ice 3.56 1" Ice 3.81	2.42 2.64 2.86	67.90 95.83 127.37
RRUS-11	A	From Face	4.00	0.0000	151.00	No Ice 2.52	1.02	55.00

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	lb
(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	4.00		0.0000	No Ice	2.52	1.02	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	4.00		0.0000	No Ice	2.52	1.02	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
MTC3607R - w.o pipes & shielded by wind	C	None			0.0000	No Ice	20.44	20.44	1815.00
(AT&T)						1/2" Ice	24.53	24.53	2178.00
						1" Ice	29.43	29.43	2613.90
TPA-65R-LCUUU-H8 w/ 8' pipe	A	From Face	4.00		0.0000	No Ice	13.30	10.72	123.40
(AT&T)			0.00			1/2" Ice	13.90	12.15	223.96
			0.00			1" Ice	14.50	13.43	334.50
TPA-65R-LCUUU-H8 w/ 8' pipe	B	From Face	4.00		0.0000	No Ice	13.30	10.72	123.40
(AT&T)			0.00			1/2" Ice	13.90	12.15	223.96
			0.00			1" Ice	14.50	13.43	334.50
TPA-65R-LCUUU-H8 w/ 8' pipe	C	From Face	4.00		0.0000	No Ice	13.30	10.72	123.40
(AT&T)			0.00			1/2" Ice	13.90	12.15	223.96
			0.00			1" Ice	14.50	13.43	334.50
Pirod 5' Side Mount Standoff (1)	A	From Face	2.50		0.0000	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	0.00	0.00	65.00
			0.00			1" Ice	0.00	0.00	80.00
Pirod 5' Side Mount Standoff (1)	B	From Face	2.50		0.0000	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	0.00	0.00	65.00
			0.00			1" Ice	0.00	0.00	80.00
Pirod 5' Side Mount Standoff (1)	C	From Face	2.50		0.0000	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	0.00	0.00	65.00
			0.00			1" Ice	0.00	0.00	80.00
10' Omni	A	From Face	5.00		0.0000	No Ice	2.00	2.00	30.00
			0.00			1/2" Ice	3.02	3.02	45.50
			0.00			1" Ice	4.07	4.07	67.47
10' Omni	B	From Face	5.00		0.0000	No Ice	2.00	2.00	30.00
			0.00			1/2" Ice	3.02	3.02	45.50
			0.00			1" Ice	4.07	4.07	67.47
10' Omni	C	From Face	5.00		0.0000	No Ice	2.00	2.00	30.00
			0.00			1/2" Ice	3.02	3.02	45.50
			0.00			1" Ice	4.07	4.07	67.47
Pirod 5' Side Mount Standoff (1)	A	From Face	2.50		0.0000	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	0.00	0.00	65.00
			0.00			1" Ice	0.00	0.00	80.00
Pirod 5' Side Mount Standoff (1)	B	From Face	2.50		0.0000	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	0.00	0.00	65.00
			0.00			1" Ice	0.00	0.00	80.00
Pirod 5' Side Mount Standoff (1)	C	From Face	2.50		0.0000	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	0.00	0.00	65.00
			0.00			1" Ice	0.00	0.00	80.00
18' omni	A	From Face	5.00		0.0000	No Ice	5.37	5.37	44.60
			0.00			1/2" Ice	7.44	7.44	88.57
			0.00			1" Ice	9.54	9.54	145.23
18' omni	B	From Face	5.00		0.0000	No Ice	5.37	5.37	44.60
			0.00			1/2" Ice	7.44	7.44	88.57
			0.00			1" Ice	9.54	9.54	145.23
18' omni	C	From Face	5.00		0.0000	No Ice	5.37	5.37	44.60
			0.00			1/2" Ice	7.44	7.44	88.57
			0.00			1" Ice	9.54	9.54	145.23
DC6-48-06-18-8F	A	From Face	2.00		0.0000	No Ice	1.20	1.20	32.00

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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)			0.00		1/2" Ice	1.88	1.88	53.81
			0.00		1" Ice	2.09	2.09	78.48
DC6-48-06-18-8F	B	From Face	2.00	0.0000	151.00	No Ice	1.20	1.20
(at&t)			0.00		1/2" Ice	1.88	1.88	53.81
			0.00		1" Ice	2.09	2.09	78.48

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	ft	ft ²	lb	
3' dish	A	Paraboloid w/Shroud (HP)	From Face	5.00 0.00 0.00	Worst		191.00	3.00	No Ice 1/2" Ice 1" Ice	9.00 9.51 10.01	50.00 98.82 147.64
4' dish	B	Paraboloid w/o Radome	From Face	5.00 0.00 0.00	Worst		191.00	4.00	No Ice 1/2" Ice 1" Ice	12.57 13.10 13.62	0.00 0.00 0.00
Kathrein Scala PR-950	C	Grid	From Face	5.00 0.00 0.00	Worst		191.00		No Ice 1/2" Ice 1" Ice	12.56 13.09 13.62	38.00 43.00 50.00
1.5' dish	B	Paraboloid w/o Radome	From Face	5.00 0.00 0.00	Worst		191.00	1.50	No Ice 1/2" Ice 1" Ice	1.77 1.97 2.17	10.00 20.11 30.23

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	e	ft ²	ft ²	ft ²		ft ²	ft ²
L1 191.08-165.33	177.60	1.428	33	49.639	A	0.000	49.639	49.639	100.00	0.000	0.000
					B	0.000	49.639		100.00	0.000	0.000
					C	0.000	49.639		100.00	0.000	0.000
L2 165.33-130.75	147.32	1.373	31	87.044	A	0.000	87.044	87.044	100.00	26.469	0.000
					B	0.000	87.044		100.00	0.000	0.000
					C	0.000	87.044		100.00	0.000	0.000
L3 130.75-97.08	113.46	1.3	30	105.959	A	0.000	105.959	105.959	100.00	29.461	0.000
					B	0.000	105.959		100.00	0.000	0.000
					C	0.000	105.959		100.00	0.000	0.000
L4 97.08-64.25	80.32	1.209	28	124.261	A	0.000	124.261	124.261	100.00	28.726	0.000
					B	0.000	124.261		100.00	0.000	0.000
					C	0.000	124.261		100.00	0.000	0.000
L5 64.25-32.25	48.13	1.085	25	141.050	A	0.000	141.050	141.050	100.00	28.000	0.000

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	Client	AT&T	Designed by	

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
L6 32.25-1.00	16.71	0.868	20	154.957	B	0.000	141.050	154.957	100.00	0.000	0.000
					C	0.000	141.050				
					A	0.000	154.957				
					B	0.000	154.957				
					C	0.000	154.957				

Tower Pressure - With Ice

$G_H = 1.100$

Section Elevation ft	z ft	K _Z	q _z psf	t _z in	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
L1 191.08-165.33	177.60	1.428	6	2.3666	59.795	A	0.000	59.795	59.795	100.00	0.000	0.000
						B	0.000	59.795				
						C	0.000	59.795				
L2 165.33-130.75	147.32	1.373	5	2.3228	100.683	A	0.000	100.683	100.683	100.00	50.983	0.000
						B	0.000	100.683				
						C	0.000	100.683				
L3 130.75-97.08	113.46	1.3	5	2.2629	118.994	A	0.000	118.994	118.994	100.00	56.378	0.000
						B	0.000	118.994				
						C	0.000	118.994				
L4 97.08-64.25	80.32	1.209	5	2.1860	136.643	A	0.000	136.643	136.643	100.00	54.480	0.000
						B	0.000	136.643				
						C	0.000	136.643				
L5 64.25-32.25	48.13	1.085	4	2.0769	152.709	A	0.000	152.709	152.709	100.00	52.488	0.000
						B	0.000	152.709				
						C	0.000	152.709				
L6 32.25-1.00	16.71	0.868	3	1.8684	165.774	A	0.000	165.774	165.774	100.00	50.406	0.000
						B	0.000	165.774				
						C	0.000	165.774				

Tower Pressure - Service

$G_H = 1.100$

Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F a c e	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
L1 191.08-165.33	177.60	1.428	11	49.639	A	0.000	49.639	49.639	100.00	0.000	0.000
					B	0.000	49.639				
					C	0.000	49.639				
L2 165.33-130.75	147.32	1.373	11	87.044	A	0.000	87.044	87.044	100.00	26.469	0.000
					B	0.000	87.044				
					C	0.000	87.044				
L3 130.75-97.08	113.46	1.3	10	105.959	A	0.000	105.959	105.959	100.00	29.461	0.000
					B	0.000	105.959				
					C	0.000	105.959				
L4 97.08-64.25	80.32	1.209	9	124.261	A	0.000	124.261	124.261	100.00	28.726	0.000
					B	0.000	124.261				

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Section Elevation ft	z ft	K _Z	q _z psf	A _G ft ²	F _{a c e}	A _F ft ²	A _R ft ²	A _{leg} ft ²	Leg %	C _{AA} In Face ft ²	C _{AA} Out Face ft ²
L5 64.25-32.25	48.13	1.085	8	141.050	C	0.000	124.261	141.050	100.00	0.000	0.000
					A	0.000	141.050		100.00	28.000	0.000
					B	0.000	141.050		100.00	0.000	0.000
L6 32.25-1.00	16.71	0.868	7	154.957	C	0.000	154.957	100.00	100.00	0.000	0.000
					A	0.000		154.957	100.00	27.344	0.000
					B	0.000		154.957	100.00	0.000	0.000
					C	0.000	154.957	100.00	100.00	0.000	0.000

Tower Forces - No Ice - 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 191.08-165.33	296.14	1566.55	A	1	0.65	33	1	1	49.639	1159.98	45.05	C
			B	1	0.65							
			C	1	0.65							
L2 165.33-130.75	890.82	3679.97	A	1	0.65	31	1	1	87.044	1954.74	56.53	C
			B	1	0.65							
			C	1	0.65							
L3 130.75-97.08	1079.67	5524.65	A	1	0.65	30	1	1	105.959	2251.64	66.87	C
			B	1	0.65							
			C	1	0.65							
L4 97.08-64.25	1072.12	6644.32	A	1	0.65	28	1	1	124.261	2453.78	74.74	C
			B	1	0.65							
			C	1	0.65							
L5 64.25-32.25	1047.68	7752.27	A	1	0.65	25	1	1	141.050	2495.07	77.97	C
			B	1	0.65							
			C	1	0.65							
L6 32.25-1.00	1023.13	8737.53	A	1	0.65	20	1	1	154.957	2265.80	72.51	C
			B	1	0.65							
			C	1	0.65							
Sum Weight:	5409.55	33905.30						OTM	1091.91 kip-ft	12581.01		

Tower Forces - No Ice - 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 191.08-165.33	296.14	1566.55	A	1	0.65	33	1	1	49.639	1159.98	45.05	C
			B	1	0.65							
			C	1	0.65							
L2 165.33-130.75	890.82	3679.97	A	1	0.65	31	1	1	87.044	1954.74	56.53	C
			B	1	0.65							
			C	1	0.65							
L3 130.75-97.08	1079.67	5524.65	A	1	0.65	30	1	1	105.959	2251.64	66.87	C
			B	1	0.65							
			C	1	0.65							
L4	1072.12	6644.32	A	1	0.65	28	1	1	124.261	2453.78	74.74	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
97.08-64.25			B	1	0.65		1	1	124.261			
			C	1	0.65		1	1	124.261			
L5 64.25-32.25	1047.68	7752.27	A	1	0.65	25	1	1	141.050	2495.07	77.97	C
			B	1	0.65		1	1	141.050			
			C	1	0.65		1	1	141.050			
L6 32.25-1.00	1023.13	8737.53	A	1	0.65	20	1	1	154.957	2265.80	72.51	C
			B	1	0.65		1	1	154.957			
			C	1	0.65		1	1	154.957			
Sum Weight:	5409.55	33905.30						OTM	1091.91 kip-ft	12581.01		

Tower Forces - No Ice - Wind 90 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 191.08-165.33	296.14	1566.55	A	1	0.65	33	1	1	49.639	1159.98	45.05	C
			B	1	0.65		1	1	49.639			
			C	1	0.65		1	1	49.639			
L2 165.33-130.75	890.82	3679.97	A	1	1.2	31	1	1	87.044	4523.23	130.80	A
			B	1	0.65		1	1	87.044			
			C	1	0.65		1	1	87.044			
L3 130.75-97.08	1079.67	5524.65	A	1	0.816	30	1	1	105.959	2828.25	84.00	A
			B	1	0.65		1	1	105.959			
			C	1	0.65		1	1	105.959			
L4 97.08-64.25	1072.12	6644.32	A	1	0.756	28	1	1	124.261	2852.16	86.88	A
			B	1	0.65		1	1	124.261			
			C	1	0.65		1	1	124.261			
L5 64.25-32.25	1047.68	7752.27	A	1	0.713	25	1	1	141.050	2737.14	85.54	A
			B	1	0.65		1	1	141.050			
			C	1	0.65		1	1	141.050			
L6 32.25-1.00	1023.13	8737.53	A	1	0.684	20	1	1	154.957	2385.71	76.34	A
			B	1	0.65		1	1	154.957			
			C	1	0.65		1	1	154.957			
Sum Weight:	5409.55	33905.30						OTM	1577.47 kip-ft	16486.47		

Tower Forces - With Ice - 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 191.08-165.33	296.14	3458.17	A	1	1.2	6	1	1	59.795	438.67	17.04	C
			B	1	1.2		1	1	59.795			
			C	1	1.2		1	1	59.795			
L2 165.33-130.75	1648.40	6859.49	A	1	1.2	5	1	1	100.683	709.83	20.53	C
			B	1	1.2		1	1	100.683			

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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
L3 130.75-97.08	1903.59	9235.05	C	1	1.2	5	1	1	100.683	793.83	23.58	C
			A	1	1.2		1	1	118.994			
			B	1	1.2		1	1	118.994			
L4 97.08-64.25	1850.01	10800.41	C	1	1.2	5	1	1	118.994	847.09	25.80	C
			A	1	1.2		1	1	136.643			
			B	1	1.2		1	1	136.643			
L5 64.25-32.25	1774.44	12195.92	C	1	1.2	4	1	1	136.643	848.04	26.50	C
			A	1	1.2		1	1	152.709			
			B	1	1.2		1	1	152.709			
L6 32.25-1.00	1689.99	13095.46	C	1	1.2	3	1	1	152.709	760.98	24.35	C
			A	1	1.2		1	1	165.774			
			B	1	1.2		1	1	165.774			
Sum Weight:	9162.58	55644.49	C	1	1.2		1	1	165.774	389.72	4398.45	kip-ft

Tower Forces - With Ice - 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 191.08-165.33	296.14	3458.17	A	1	1.2	6	1	1	59.795	438.67	17.04	C
			B	1	1.2		1	1	59.795			
			C	1	1.2		1	1	59.795			
L2 165.33-130.75	1648.40	6859.49	A	1	1.2	5	1	1	100.683	709.83	20.53	C
			B	1	1.2		1	1	100.683			
			C	1	1.2		1	1	100.683			
L3 130.75-97.08	1903.59	9235.05	A	1	1.2	5	1	1	118.994	793.83	23.58	C
			B	1	1.2		1	1	118.994			
			C	1	1.2		1	1	118.994			
L4 97.08-64.25	1850.01	10800.41	A	1	1.2	5	1	1	136.643	847.09	25.80	C
			B	1	1.2		1	1	136.643			
			C	1	1.2		1	1	136.643			
L5 64.25-32.25	1774.44	12195.92	A	1	1.2	4	1	1	152.709	848.04	26.50	C
			B	1	1.2		1	1	152.709			
			C	1	1.2		1	1	152.709			
L6 32.25-1.00	1689.99	13095.46	A	1	1.2	3	1	1	165.774	760.98	24.35	C
			B	1	1.2		1	1	165.774			
			C	1	1.2		1	1	165.774			
Sum Weight:	9162.58	55644.49	C	1	1.2		1	1	165.774	389.72	4398.45	kip-ft

Tower Forces - With Ice - Wind 90 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
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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
L1 191.08-165.33	296.14	3458.17	A	1	1.2	6	1	1	59.795	438.67	17.04	C
			B	1	1.2	1	1	59.795				
			C	1	1.2	1	1	59.795				
L2 165.33-130.75	1648.40	6859.49	A	1	1.2	5	1	1	100.683	1159.75	33.54	A
			B	1	1.2	1	1	100.683				
			C	1	1.2	1	1	100.683				
L3 130.75-97.08	1903.59	9235.05	A	1	1.2	5	1	1	118.994	1261.96	37.48	A
			B	1	1.2	1	1	118.994				
			C	1	1.2	1	1	118.994				
L4 97.08-64.25	1850.01	10800.41	A	1	1.2	5	1	1	136.643	1264.15	38.51	A
			B	1	1.2	1	1	136.643				
			C	1	1.2	1	1	136.643				
L5 64.25-32.25	1774.44	12195.92	A	1	1.2	4	1	1	152.709	1204.23	37.63	A
			B	1	1.2	1	1	152.709				
			C	1	1.2	1	1	152.709				
L6 32.25-1.00	1689.99	13095.46	A	1	1.2	3	1	1	165.774	1039.38	33.26	A
			B	1	1.2	1	1	165.774				
			C	1	1.2	1	1	165.774				
Sum Weight:	9162.58	55644.49						OTM	562.44 kip-ft	6368.15		

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 191.08-165.33	296.14	1566.55	A	1	0.65	11	1	1	49.639	397.11	15.42	C
			B	1	0.65	1	1	49.639				
			C	1	0.65	1	1	49.639				
L2 165.33-130.75	890.82	3679.97	A	1	0.65	11	1	1	87.044	669.18	19.35	C
			B	1	0.65	1	1	87.044				
			C	1	0.65	1	1	87.044				
L3 130.75-97.08	1079.67	5524.65	A	1	0.65	10	1	1	105.959	770.82	22.89	C
			B	1	0.65	1	1	105.959				
			C	1	0.65	1	1	105.959				
L4 97.08-64.25	1072.12	6644.32	A	1	0.65	9	1	1	124.261	840.02	25.59	C
			B	1	0.65	1	1	124.261				
			C	1	0.65	1	1	124.261				
L5 64.25-32.25	1047.68	7752.27	A	1	0.65	8	1	1	141.050	854.16	26.69	C
			B	1	0.65	1	1	141.050				
			C	1	0.65	1	1	141.050				
L6 32.25-1.00	1023.13	8737.53	A	1	0.65	7	1	1	154.957	775.67	24.82	C
			B	1	0.65	1	1	154.957				
			C	1	0.65	1	1	154.957				
Sum Weight:	5409.55	33905.30						OTM	373.80 kip-ft	4306.95		

Tower Forces - Service - Wind 60 To Face

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Section Elevation	Add Weight	Self Weight	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 191.08-165.33	296.14	1566.55	A	1	0.65	11	1	1	49.639	397.11	15.42	C
			B	1	0.65		1	1	49.639			
			C	1	0.65		1	1	49.639			
L2 165.33-130.75	890.82	3679.97	A	1	0.65	11	1	1	87.044	669.18	19.35	C
			B	1	0.65		1	1	87.044			
			C	1	0.65		1	1	87.044			
L3 130.75-97.08	1079.67	5524.65	A	1	0.65	10	1	1	105.959	770.82	22.89	C
			B	1	0.65		1	1	105.959			
			C	1	0.65		1	1	105.959			
L4 97.08-64.25	1072.12	6644.32	A	1	0.65	9	1	1	124.261	840.02	25.59	C
			B	1	0.65		1	1	124.261			
			C	1	0.65		1	1	124.261			
L5 64.25-32.25	1047.68	7752.27	A	1	0.65	8	1	1	141.050	854.16	26.69	C
			B	1	0.65		1	1	141.050			
			C	1	0.65		1	1	141.050			
L6 32.25-1.00	1023.13	8737.53	A	1	0.65	7	1	1	154.957	775.67	24.82	C
			B	1	0.65		1	1	154.957			
			C	1	0.65		1	1	154.957			
Sum Weight:	5409.55	33905.30						OTM	373.80 kip-ft	4306.95		

Tower Forces - Service - Wind 90 To Face

Section Elevation	Add Weight	Self Weight	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 191.08-165.33	296.14	1566.55	A	1	0.65	11	1	1	49.639	397.11	15.42	C
			B	1	0.65		1	1	49.639			
			C	1	0.65		1	1	49.639			
L2 165.33-130.75	890.82	3679.97	A	1	1.2	11	1	1	87.044	1548.47	44.78	A
			B	1	0.65		1	1	87.044			
			C	1	0.65		1	1	87.044			
L3 130.75-97.08	1079.67	5524.65	A	1	0.816	10	1	1	105.959	968.22	28.76	A
			B	1	0.65		1	1	105.959			
			C	1	0.65		1	1	105.959			
L4 97.08-64.25	1072.12	6644.32	A	1	0.756	9	1	1	124.261	976.40	29.74	A
			B	1	0.65		1	1	124.261			
			C	1	0.65		1	1	124.261			
L5 64.25-32.25	1047.68	7752.27	A	1	0.713	8	1	1	141.050	937.03	29.28	A
			B	1	0.65		1	1	141.050			
			C	1	0.65		1	1	141.050			
L6 32.25-1.00	1023.13	8737.53	A	1	0.684	7	1	1	154.957	816.72	26.13	A
			B	1	0.65		1	1	154.957			
			C	1	0.65		1	1	154.957			
Sum Weight:	5409.55	33905.30						OTM	540.03 kip-ft	5643.94		

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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 _{AAc} Front ft ²	C _{AAc} Side ft ²
Lightning Rod 2"x15'	300.0000	80.00	-0.71	-0.41	198.50	1.462	33	3.00	3.00
5' Sector Frame T-arm	300.0000	50.00	-2.87	-1.66	191.00	1.450	33	2.72	2.72
5' Sector Frame T-arm	60.0000	50.00	2.87	-1.66	191.00	1.450	33	2.72	2.72
5' Sector Frame T-arm	180.0000	50.00	0.00	3.32	191.00	1.450	33	2.72	2.72
6'8"x4" Pipe Mount	60.0000	72.00	5.04	-2.91	191.00	1.450	33	2.02	2.02
11' Omni	300.0000	30.00	-5.04	-2.91	196.00	1.458	33	2.20	2.20
11' Omni	180.0000	30.00	0.00	5.82	196.00	1.458	33	2.20	2.20
5' Sector Frame T-arm	300.0000	50.00	-2.92	-1.68	186.00	1.442	33	2.72	2.72
Yagi 3'	300.0000	10.00	-5.08	-2.93	186.00	1.442	33	0.52	0.52
5' Sector Frame T-arm	300.0000	50.00	-2.96	-1.71	181.00	1.434	33	2.72	2.72
11' Omni	300.0000	30.00	-5.99	-3.46	181.00	1.434	33	2.20	2.20
APXVSP18-C-A20 w/ 8' pipe	300.0000	86.20	-3.35	-4.24	171.00	1.417	32	8.50	7.18
APXVSP18-C-A20 w/ 8' pipe	60.0000	86.20	5.35	-0.78	171.00	1.417	32	8.50	7.18
APXVSP18-C-A20 w/ 8' pipe	180.0000	86.20	-2.00	5.02	171.00	1.417	32	8.50	7.18
RRH partially shielded by antenna	300.0000	120.00	-1.75	-1.01	171.00	1.417	32	1.76	2.36
RRH partially shielded by antenna	60.0000	120.00	4.35	-2.51	171.00	1.417	32	1.76	2.36
RRH partially shielded by antenna	180.0000	120.00	0.00	5.02	171.00	1.417	32	1.76	2.36
4' Panel Antenna	300.0000	36.95	-4.35	-2.51	171.00	1.417	32	3.85	4.80
4' Panel Antenna	60.0000	36.95	4.35	-2.51	171.00	1.417	32	3.85	4.80
4' Panel Antenna	180.0000	36.95	0.00	5.02	171.00	1.417	32	3.85	4.80
Small 12' platform	0.0000	400.00	0.00	0.00	171.00	1.417	32	20.00	20.00
LNX-6515DS-VTM	300.0000	79.50	-4.42	-2.55	161.00	1.399	32	11.45	9.60
LNX-6515DS-VTM	60.0000	79.50	4.42	-2.55	161.00	1.399	32	11.45	9.60
LNX-6515DS-VTM	180.0000	79.50	0.00	5.11	161.00	1.399	32	11.45	9.60
AIR 21 B4A/B2P	300.0000	252.00	-4.42	-2.55	161.00	1.399	32	11.93	8.53
AIR 21 B4A/B2P	60.0000	252.00	4.42	-2.55	161.00	1.399	32	11.93	8.53
AIR 21 B4A/B2P	180.0000	252.00	0.00	5.11	161.00	1.399	32	11.93	8.53
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	300.0000	50.70	-4.42	-2.55	161.00	1.399	32	0.88	1.18
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	60.0000	50.70	4.42	-2.55	161.00	1.399	32	0.88	1.18
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	180.0000	50.70	0.00	5.11	161.00	1.399	32	0.88	1.18
LGP 17201 (Front Shielded by Antenna)	300.0000	20.00	-4.42	-2.55	161.00	1.399	32	0.02	0.41
LGP 17201 (Front Shielded by Antenna)	60.0000	20.00	4.42	-2.55	161.00	1.399	32	0.02	0.41
LGP 17201 (Front Shielded by Antenna)	180.0000	20.00	0.00	5.11	161.00	1.399	32	0.02	0.41
Small 12' platform	0.0000	400.00	0.00	0.00	161.00	1.399	32	20.00	20.00
Kathrein 80010121 w/6ft 2.0 Std pipe	300.0000	68.20	-4.51	-2.60	151.00	1.380	32	5.51	4.72
Kathrein 80010121 w/6ft 2.0 Std pipe	60.0000	68.20	4.51	-2.60	151.00	1.380	32	5.51	4.72
Kathrein 80010121 w/6ft 2.0 Std pipe	180.0000	68.20	0.00	5.21	151.00	1.380	32	5.51	4.72
HPA-65R-BUU-H8	300.0000	97.20	-4.51	-2.60	151.00	1.380	32	13.05	9.42
HPA-65R-BUU-H8	60.0000	97.20	4.51	-2.60	151.00	1.380	32	13.05	9.42
HPA-65R-BUU-H8	180.0000	97.20	0.00	5.21	151.00	1.380	32	13.05	9.42

tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120	Job 17963003A	Page 17 of 32
	Project CT5404 Enfield Unionville Farmington	Date 17:01:42 10/19/17
	Client AT&T	Designed by

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
LGP 17201 (Front Shielded by Antenna)	300.0000	40.00	-4.51	-2.60	151.00	1.380	32	0.03	0.81
LGP 17201 (Front Shielded by Antenna)	60.0000	40.00	4.51	-2.60	151.00	1.380	32	0.03	0.81
LGP 17201 (Front Shielded by Antenna)	180.0000	40.00	0.00	5.21	151.00	1.380	32	0.03	0.81
RRUS 32	300.0000	92.00	-4.51	-2.60	151.00	1.380	32	3.31	2.42
RRUS 32	60.0000	92.00	4.51	-2.60	151.00	1.380	32	3.31	2.42
RRUS 32	180.0000	92.00	0.00	5.21	151.00	1.380	32	3.31	2.42
RRUS 32 B2	300.0000	67.90	-4.51	-2.60	151.00	1.380	32	3.31	2.42
RRUS 32 B2	60.0000	67.90	4.51	-2.60	151.00	1.380	32	3.31	2.42
RRUS 32 B2	180.0000	67.90	0.00	5.21	151.00	1.380	32	3.31	2.42
RRUS-11	300.0000	55.00	-4.51	-2.60	151.00	1.380	32	2.52	1.02
RRUS-11	60.0000	55.00	4.51	-2.60	151.00	1.380	32	2.52	1.02
RRUS-11	180.0000	55.00	0.00	5.21	151.00	1.380	32	2.52	1.02
MTC3607R - w.o pipes & shielded by wind	0.0000	1815.00	0.00	0.00	151.00	1.380	32	20.44	20.44
TPA-65R-LCUUU-H8 w/ 8' pipe	300.0000	123.40	-4.51	-2.60	151.00	1.380	32	13.30	10.72
TPA-65R-LCUUU-H8 w/ 8' pipe	60.0000	123.40	4.51	-2.60	151.00	1.380	32	13.30	10.72
TPA-65R-LCUUU-H8 w/ 8' pipe	180.0000	123.40	0.00	5.21	151.00	1.380	32	13.30	10.72
Pirod 5' Side Mount Standoff (1)	300.0000	50.00	-3.51	-2.02	114.00	1.301	30	2.72	2.72
Pirod 5' Side Mount Standoff (1)	60.0000	50.00	3.51	-2.02	114.00	1.301	30	2.72	2.72
Pirod 5' Side Mount Standoff (1)	180.0000	50.00	0.00	4.05	114.00	1.301	30	2.72	2.72
10' Omni	300.0000	30.00	-5.67	-3.27	114.00	1.301	30	2.00	2.00
10' Omni	60.0000	30.00	5.67	-3.27	114.00	1.301	30	2.00	2.00
10' Omni	180.0000	30.00	0.00	6.55	114.00	1.301	30	2.00	2.00
Pirod 5' Side Mount Standoff (1)	300.0000	50.00	-3.68	-2.13	91.00	1.241	28	2.72	2.72
Pirod 5' Side Mount Standoff (1)	60.0000	50.00	3.68	-2.13	91.00	1.241	28	2.72	2.72
Pirod 5' Side Mount Standoff (1)	180.0000	50.00	0.00	4.25	91.00	1.241	28	2.72	2.72
18' omni	300.0000	44.60	-5.85	-3.38	91.00	1.241	28	5.37	5.37
18' omni	60.0000	44.60	5.85	-3.38	91.00	1.241	28	5.37	5.37
18' omni	180.0000	44.60	0.00	6.75	91.00	1.241	28	5.37	5.37
DC6-48-06-18-8F	300.0000	32.00	-2.78	-1.60	151.00	1.380	32	1.20	1.20
DC6-48-06-18-8F	60.0000	32.00	2.78	-1.60	151.00	1.380	32	1.20	1.20
Sum Weight:		7271.95							

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
Lightning Rod 2"x15'	300.0000	291.18	-0.71	-0.41	198.50	1.462	6	10.12	10.12	2.3931
5' Sector Frame T-arm	300.0000	235.94	-2.87	-1.66	191.00	1.450	6	13.16	13.16	2.3839
5' Sector Frame T-arm	60.0000	235.94	2.87	-1.66	191.00	1.450	6	13.16	13.16	2.3839
5' Sector Frame T-arm	180.0000	235.94	0.00	3.32	191.00	1.450	6	13.16	13.16	2.3839
6'8"x4" Pipe Mount	60.0000	222.76	5.04	-2.91	191.00	1.450	6	4.64	4.64	2.3839
11' Omni	300.0000	185.65	-5.04	-2.91	196.00	1.458	6	7.04	7.04	2.3839
11' Omni	180.0000	185.65	0.00	5.82	196.00	1.458	6	7.04	7.04	2.3839

<p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120</p>	<p style="text-align: center;">Job</p> <p style="text-align: center;">17963003A</p>	<p style="text-align: center;">Page</p> <p style="text-align: center;">18 of 32</p>
	<p style="text-align: center;">Project</p> <p style="text-align: center;">CT5404 Enfield Unionville Farmington</p>	<p style="text-align: center;">Date</p> <p style="text-align: center;">17:01:42 10/19/17</p>
	<p style="text-align: center;">Client</p> <p style="text-align: center;">AT&T</p>	<p style="text-align: center;">Designed by</p>

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
5' Sector Frame T-arm	300.0000	235.45	-2.92	-1.68	186.00	1.442	6	13.13	13.13	2.3776
Yagi 3'	300.0000	57.21	-5.08	-2.93	186.00	1.442	6	1.50	1.50	2.3776
5' Sector Frame T-arm	300.0000	234.94	-2.96	-1.71	181.00	1.434	6	13.11	13.11	2.3711
11' Omni	300.0000	184.17	-5.99	-3.46	181.00	1.434	6	7.02	7.02	2.3711
APXVSP18-C-A20 w/ 8' pipe	300.0000	515.23	-3.35	-4.24	171.00	1.417	6	11.44	12.25	2.3576
APXVSP18-C-A20 w/ 8' pipe	60.0000	515.23	5.35	-0.78	171.00	1.417	6	11.44	12.25	2.3576
APXVSP18-C-A20 w/ 8' pipe	180.0000	515.23	-2.00	5.02	171.00	1.417	6	11.44	12.25	2.3576
RRH partially shielded by antenna	300.0000	264.37	-1.75	-1.01	171.00	1.417	6	3.20	3.93	2.3576
RRH partially shielded by antenna	60.0000	264.37	4.35	-2.51	171.00	1.417	6	3.20	3.93	2.3576
RRH partially shielded by antenna	180.0000	264.37	0.00	5.02	171.00	1.417	6	3.20	3.93	2.3576
4' Panel Antenna	300.0000	305.34	-4.35	-2.51	171.00	1.417	6	5.67	7.84	2.3576
4' Panel Antenna	60.0000	305.34	4.35	-2.51	171.00	1.417	6	5.67	7.84	2.3576
4' Panel Antenna	180.0000	305.34	0.00	5.02	171.00	1.417	6	5.67	7.84	2.3576
Small 12' platform	0.0000	635.76	0.00	0.00	171.00	1.417	6	67.15	67.15	2.3576
LNx-6515DS-VTM	300.0000	597.04	-4.42	-2.55	161.00	1.399	5	14.37	15.30	2.3435
LNx-6515DS-VTM	60.0000	597.04	4.42	-2.55	161.00	1.399	5	14.37	15.30	2.3435
LNx-6515DS-VTM	180.0000	597.04	0.00	5.11	161.00	1.399	5	14.37	15.30	2.3435
AIR 21 B4A/B2P	300.0000	741.32	-4.42	-2.55	161.00	1.399	5	15.52	11.94	2.3435
AIR 21 B4A/B2P	60.0000	741.32	4.42	-2.55	161.00	1.399	5	15.52	11.94	2.3435
AIR 21 B4A/B2P	180.0000	741.32	0.00	5.11	161.00	1.399	5	15.52	11.94	2.3435
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	300.0000	122.18	-4.42	-2.55	161.00	1.399	5	1.59	1.96	2.3435
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	60.0000	122.18	4.42	-2.55	161.00	1.399	5	1.59	1.96	2.3435
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	180.0000	122.18	0.00	5.11	161.00	1.399	5	1.59	1.96	2.3435
LGP 17201 (Front Shielded by Antenna)	300.0000	44.75	-4.42	-2.55	161.00	1.399	5	0.45	0.91	2.3435
LGP 17201 (Front Shielded by Antenna)	60.0000	44.75	4.42	-2.55	161.00	1.399	5	0.45	0.91	2.3435
LGP 17201 (Front Shielded by Antenna)	180.0000	44.75	0.00	5.11	161.00	1.399	5	0.45	0.91	2.3435
Small 12' platform	0.0000	634.35	0.00	0.00	161.00	1.399	5	66.87	66.87	2.3435
Kathrein 80010121 w/6ft 2.0 Std pipe	300.0000	369.00	-4.51	-2.60	151.00	1.380	5	7.68	8.28	2.3285
Kathrein 80010121 w/6ft 2.0 Std pipe	60.0000	369.00	4.51	-2.60	151.00	1.380	5	7.68	8.28	2.3285
Kathrein 80010121 w/6ft 2.0 Std pipe	180.0000	369.00	0.00	5.21	151.00	1.380	5	7.68	8.28	2.3285
HPA-65R-BUU-H8	300.0000	646.38	-4.51	-2.60	151.00	1.380	5	15.93	14.99	2.3285
HPA-65R-BUU-H8	60.0000	646.38	4.51	-2.60	151.00	1.380	5	15.93	14.99	2.3285
HPA-65R-BUU-H8	180.0000	646.38	0.00	5.21	151.00	1.380	5	15.93	14.99	2.3285
LGP 17201 (Front Shielded by Antenna)	300.0000	88.81	-4.51	-2.60	151.00	1.380	5	0.89	1.80	2.3285
LGP 17201 (Front Shielded by Antenna)	60.0000	88.81	4.51	-2.60	151.00	1.380	5	0.89	1.80	2.3285
LGP 17201 (Front Shielded by Antenna)	180.0000	88.81	0.00	5.21	151.00	1.380	5	0.89	1.80	2.3285
RRUS 32	300.0000	259.20	-4.51	-2.60	151.00	1.380	5	4.52	3.49	2.3285
RRUS 32	60.0000	259.20	4.51	-2.60	151.00	1.380	5	4.52	3.49	2.3285
RRUS 32	180.0000	259.20	0.00	5.21	151.00	1.380	5	4.52	3.49	2.3285
RRUS 32 B2	300.0000	235.10	-4.51	-2.60	151.00	1.380	5	4.52	3.49	2.3285

<p>tnxTower</p> <p>Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120</p>	<p>Job</p> <p>17963003A</p>	<p>Page</p> <p>19 of 32</p>
	<p>Project</p> <p>CT5404 Enfield Unionville Farmington</p>	<p>Date</p> <p>17:01:42 10/19/17</p>
	<p>Client</p> <p>AT&T</p>	<p>Designed by</p>

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
RRUS 32 B2	60.0000	235.10	4.51	-2.60	151.00	1.380	5	4.52	3.49	2.3285
RRUS 32 B2	180.0000	235.10	0.00	5.21	151.00	1.380	5	4.52	3.49	2.3285
RRUS-11	300.0000	175.45	-4.51	-2.60	151.00	1.380	5	3.51	1.73	2.3285
RRUS-11	60.0000	175.45	4.51	-2.60	151.00	1.380	5	3.51	1.73	2.3285
RRUS-11	180.0000	175.45	0.00	5.21	151.00	1.380	5	3.51	1.73	2.3285
MTC3607R - w.o pipes & shielded by wind	0.0000	4427.73	0.00	0.00	151.00	1.380	5	49.86	49.86	2.3285
TPA-65R-LCUUU-H8 w/ 8' pipe	300.0000	701.80	-4.51	-2.60	151.00	1.380	5	16.16	16.42	2.3285
TPA-65R-LCUUU-H8 w/ 8' pipe	60.0000	701.80	4.51	-2.60	151.00	1.380	5	16.16	16.42	2.3285
TPA-65R-LCUUU-H8 w/ 8' pipe	180.0000	701.80	0.00	5.21	151.00	1.380	5	16.16	16.42	2.3285
Pirod 5' Side Mount Standoff (1)	300.0000	117.92	-3.51	-2.02	114.00	1.301	5	0.00	0.00	2.2640
Pirod 5' Side Mount Standoff (1)	60.0000	117.92	3.51	-2.02	114.00	1.301	5	0.00	0.00	2.2640
Pirod 5' Side Mount Standoff (1)	180.0000	117.92	0.00	4.05	114.00	1.301	5	0.00	0.00	2.2640
10' Omni	300.0000	159.41	-5.67	-3.27	114.00	1.301	5	6.04	6.04	2.2640
10' Omni	60.0000	159.41	5.67	-3.27	114.00	1.301	5	6.04	6.04	2.2640
10' Omni	180.0000	159.41	0.00	6.55	114.00	1.301	5	6.04	6.04	2.2640
Pirod 5' Side Mount Standoff (1)	300.0000	116.41	-3.68	-2.13	91.00	1.241	5	0.00	0.00	2.2135
Pirod 5' Side Mount Standoff (1)	60.0000	116.41	3.68	-2.13	91.00	1.241	5	0.00	0.00	2.2135
Pirod 5' Side Mount Standoff (1)	180.0000	116.41	0.00	4.25	91.00	1.241	5	0.00	0.00	2.2135
18' omni	300.0000	351.43	-5.85	-3.38	91.00	1.241	5	14.62	14.62	2.2135
18' omni	60.0000	351.43	5.85	-3.38	91.00	1.241	5	14.62	14.62	2.2135
18' omni	180.0000	351.43	0.00	6.75	91.00	1.241	5	14.62	14.62	2.2135
DC6-48-06-18-8F	300.0000	162.90	-2.78	-1.60	151.00	1.380	5	2.72	2.72	2.3285
DC6-48-06-18-8F	60.0000	162.90	2.78	-1.60	151.00	1.380	5	2.72	2.72	2.3285
Sum Weight:		25761.92								

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
Lightning Rod 2"x15'	300.0000	80.00	-0.71	-0.41	198.50	1.462	11	3.00	3.00
5' Sector Frame T-arm	300.0000	50.00	-2.87	-1.66	191.00	1.450	11	2.72	2.72
5' Sector Frame T-arm	60.0000	50.00	2.87	-1.66	191.00	1.450	11	2.72	2.72
5' Sector Frame T-arm	180.0000	50.00	0.00	3.32	191.00	1.450	11	2.72	2.72
6'8"x4" Pipe Mount	60.0000	72.00	5.04	-2.91	191.00	1.450	11	2.02	2.02
11' Omni	300.0000	30.00	-5.04	-2.91	196.00	1.458	11	2.20	2.20
11' Omni	180.0000	30.00	0.00	5.82	196.00	1.458	11	2.20	2.20
5' Sector Frame T-arm	300.0000	50.00	-2.92	-1.68	186.00	1.442	11	2.72	2.72
Yagi 3'	300.0000	10.00	-5.08	-2.93	186.00	1.442	11	0.52	0.52
5' Sector Frame T-arm	300.0000	50.00	-2.96	-1.71	181.00	1.434	11	2.72	2.72
11' Omni	300.0000	30.00	-5.99	-3.46	181.00	1.434	11	2.20	2.20
APXVSP18-C-A20 w/ 8' pipe	300.0000	86.20	-3.35	-4.24	171.00	1.417	11	8.50	7.18
APXVSP18-C-A20 w/ 8' pipe	60.0000	86.20	5.35	-0.78	171.00	1.417	11	8.50	7.18
APXVSP18-C-A20 w/ 8' pipe	180.0000	86.20	-2.00	5.02	171.00	1.417	11	8.50	7.18

tnxTower

Maser Consulting
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 Mt. Laurel, NJ
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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
RRH partially shielded by antenna	300.0000	120.00	-1.75	-1.01	171.00	1.417	11	1.76	2.36
RRH partially shielded by antenna	60.0000	120.00	4.35	-2.51	171.00	1.417	11	1.76	2.36
RRH partially shielded by antenna	180.0000	120.00	0.00	5.02	171.00	1.417	11	1.76	2.36
4' Panel Antenna	300.0000	36.95	-4.35	-2.51	171.00	1.417	11	3.85	4.80
4' Panel Antenna	60.0000	36.95	4.35	-2.51	171.00	1.417	11	3.85	4.80
4' Panel Antenna	180.0000	36.95	0.00	5.02	171.00	1.417	11	3.85	4.80
Small 12' platform	0.0000	400.00	0.00	0.00	171.00	1.417	11	20.00	20.00
LNx-6515DS-VTM	300.0000	79.50	-4.42	-2.55	161.00	1.399	11	11.45	9.60
LNx-6515DS-VTM	60.0000	79.50	4.42	-2.55	161.00	1.399	11	11.45	9.60
LNx-6515DS-VTM	180.0000	79.50	0.00	5.11	161.00	1.399	11	11.45	9.60
AIR 21 B4A/B2P	300.0000	252.00	-4.42	-2.55	161.00	1.399	11	11.93	8.53
AIR 21 B4A/B2P	60.0000	252.00	4.42	-2.55	161.00	1.399	11	11.93	8.53
AIR 21 B4A/B2P	180.0000	252.00	0.00	5.11	161.00	1.399	11	11.93	8.53
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	300.0000	50.70	-4.42	-2.55	161.00	1.399	11	0.88	1.18
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	60.0000	50.70	4.42	-2.55	161.00	1.399	11	0.88	1.18
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	180.0000	50.70	0.00	5.11	161.00	1.399	11	0.88	1.18
LGP 17201 (Front Shielded by Antenna)	300.0000	20.00	-4.42	-2.55	161.00	1.399	11	0.02	0.41
LGP 17201 (Front Shielded by Antenna)	60.0000	20.00	4.42	-2.55	161.00	1.399	11	0.02	0.41
LGP 17201 (Front Shielded by Antenna)	180.0000	20.00	0.00	5.11	161.00	1.399	11	0.02	0.41
Small 12' platform	0.0000	400.00	0.00	0.00	161.00	1.399	11	20.00	20.00
Kathrein 80010121 w/6ft 2.0 Std pipe	300.0000	68.20	-4.51	-2.60	151.00	1.380	11	5.51	4.72
Kathrein 80010121 w/6ft 2.0 Std pipe	60.0000	68.20	4.51	-2.60	151.00	1.380	11	5.51	4.72
Kathrein 80010121 w/6ft 2.0 Std pipe	180.0000	68.20	0.00	5.21	151.00	1.380	11	5.51	4.72
HPA-65R-BUU-H8	300.0000	97.20	-4.51	-2.60	151.00	1.380	11	13.05	9.42
HPA-65R-BUU-H8	60.0000	97.20	4.51	-2.60	151.00	1.380	11	13.05	9.42
HPA-65R-BUU-H8	180.0000	97.20	0.00	5.21	151.00	1.380	11	13.05	9.42
LGP 17201 (Front Shielded by Antenna)	300.0000	40.00	-4.51	-2.60	151.00	1.380	11	0.03	0.81
LGP 17201 (Front Shielded by Antenna)	60.0000	40.00	4.51	-2.60	151.00	1.380	11	0.03	0.81
LGP 17201 (Front Shielded by Antenna)	180.0000	40.00	0.00	5.21	151.00	1.380	11	0.03	0.81
RRUS 32	300.0000	92.00	-4.51	-2.60	151.00	1.380	11	3.31	2.42
RRUS 32	60.0000	92.00	4.51	-2.60	151.00	1.380	11	3.31	2.42
RRUS 32	180.0000	92.00	0.00	5.21	151.00	1.380	11	3.31	2.42
RRUS 32 B2	300.0000	67.90	-4.51	-2.60	151.00	1.380	11	3.31	2.42
RRUS 32 B2	60.0000	67.90	4.51	-2.60	151.00	1.380	11	3.31	2.42
RRUS 32 B2	180.0000	67.90	0.00	5.21	151.00	1.380	11	3.31	2.42
RRUS-11	300.0000	55.00	-4.51	-2.60	151.00	1.380	11	2.52	1.02
RRUS-11	60.0000	55.00	4.51	-2.60	151.00	1.380	11	2.52	1.02
RRUS-11	180.0000	55.00	0.00	5.21	151.00	1.380	11	2.52	1.02
MTC3607R - w.o pipes & shielded by wind	0.0000	1815.00	0.00	0.00	151.00	1.380	11	20.44	20.44
TPA-65R-LCUUU-H8 w/ 8' pipe	300.0000	123.40	-4.51	-2.60	151.00	1.380	11	13.30	10.72
TPA-65R-LCUUU-H8	60.0000	123.40	4.51	-2.60	151.00	1.380	11	13.30	10.72

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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
w/ 8' pipe TPA-65R-LCUUU-H8	180.0000	123.40	0.00	5.21	151.00	1.380	11	13.30	10.72
w/ 8' pipe Pirod 5' Side Mount Standoff (1)	300.0000	50.00	-3.51	-2.02	114.00	1.301	10	2.72	2.72
Pirod 5' Side Mount Standoff (1)	60.0000	50.00	3.51	-2.02	114.00	1.301	10	2.72	2.72
Pirod 5' Side Mount Standoff (1)	180.0000	50.00	0.00	4.05	114.00	1.301	10	2.72	2.72
10' Omni	300.0000	30.00	-5.67	-3.27	114.00	1.301	10	2.00	2.00
10' Omni	60.0000	30.00	5.67	-3.27	114.00	1.301	10	2.00	2.00
10' Omni	180.0000	30.00	0.00	6.55	114.00	1.301	10	2.00	2.00
Pirod 5' Side Mount Standoff (1)	300.0000	50.00	-3.68	-2.13	91.00	1.241	10	2.72	2.72
Pirod 5' Side Mount Standoff (1)	60.0000	50.00	3.68	-2.13	91.00	1.241	10	2.72	2.72
Pirod 5' Side Mount Standoff (1)	180.0000	50.00	0.00	4.25	91.00	1.241	10	2.72	2.72
18' omni	300.0000	44.60	-5.85	-3.38	91.00	1.241	10	5.37	5.37
18' omni	60.0000	44.60	5.85	-3.38	91.00	1.241	10	5.37	5.37
18' omni	180.0000	44.60	0.00	6.75	91.00	1.241	10	5.37	5.37
DC6-48-06-18-8F	300.0000	32.00	-2.78	-1.60	151.00	1.380	11	1.20	1.20
DC6-48-06-18-8F	60.0000	32.00	2.78	-1.60	151.00	1.380	11	1.20	1.20
Sum Weight:		7271.95							

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
191.00	3' dish	300.0000	50.00	-5.04	-2.91	1.450	9.00	33
191.00	4' dish	60.0000	0.00	5.04	-2.91	1.450	12.57	33
191.00	Kathrein Scala PR-950	180.0000	38.00	0.00	5.82	1.450	12.56	33
191.00	1.5' dish	60.0000	10.00	5.04	-2.91	1.450	1.77	33
	Sum Weight:		98.00					

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
191.00	3' dish	300.0000	282.75	-5.04	-2.91	1.450	11.42	6	2.3839
191.00	4' dish	60.0000	0.00	5.04	-2.91	1.450	15.09	6	2.3839
191.00	Kathrein Scala PR-950	180.0000	62.30	0.00	5.82	1.450	15.09	6	2.3839
191.00	1.5' dish	60.0000	58.21	5.04	-2.91	1.450	2.73	6	2.3839
	Sum Weight:		403.27						

Dish Pressures - Service

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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
191.00	3' dish	300.0000	50.00	-5.04	-2.91	1.450	9.00	11
191.00	4' dish	60.0000	0.00	5.04	-2.91	1.450	12.57	11
191.00	Kathrein Scala PR-950	180.0000	38.00	0.00	5.82	1.450	12.56	11
191.00	1.5' dish	60.0000	10.00	5.04	-2.91	1.450	1.77	11
	Sum		98.00					
	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	33905.30					
Bracing Weight	0.00					
Total Member Self-Weight	33905.30			-0.33	0.26	
Total Weight	46684.80			-0.33	0.26	
Wind 0 deg - No Ice		0.00	-23897.07	-2895.92	0.26	1.21
Wind 30 deg - No Ice		13901.27	-24077.70	-2928.49	-1690.31	-0.38
Wind 60 deg - No Ice		20695.47	-11948.54	-1448.12	-2507.39	-1.86
Wind 90 deg - No Ice		23897.07	0.00	-0.33	-2895.32	-2.85
Wind 120 deg - No Ice		20695.47	11948.54	1447.46	-2507.39	-3.07
Wind 150 deg - No Ice		11948.54	20695.47	2507.31	-1447.53	-2.47
Wind 180 deg - No Ice		0.00	23897.07	2895.25	0.26	-1.21
Wind 210 deg - No Ice		-13901.27	24077.70	2927.82	1690.83	0.38
Wind 240 deg - No Ice		-20695.47	11948.54	1447.46	2507.91	1.86
Wind 270 deg - No Ice		-23897.07	0.00	-0.33	2895.84	2.85
Wind 300 deg - No Ice		-20695.47	-11948.54	-1448.12	2507.91	3.07
Wind 330 deg - No Ice		-11948.54	-20695.47	-2507.98	1448.05	2.47
Member Ice	21739.19					
Total Weight Ice	90972.25			-2.59	3.24	
Wind 0 deg - Ice		0.00	-8100.38	-992.96	3.24	-0.38
Wind 30 deg - Ice		5035.04	-8720.95	-1009.85	-578.31	-0.49
Wind 60 deg - Ice		7015.14	-4050.19	-497.77	-854.45	-0.48
Wind 90 deg - Ice		8100.38	0.00	-2.59	-987.13	-0.33
Wind 120 deg - Ice		7015.14	4050.19	492.60	-854.45	-0.10
Wind 150 deg - Ice		4050.19	7015.14	855.10	-491.95	0.16
Wind 180 deg - Ice		0.00	8100.38	987.79	3.24	0.38
Wind 210 deg - Ice		-5035.04	8720.95	1004.68	584.79	0.49
Wind 240 deg - Ice		-7015.14	4050.19	492.60	860.93	0.48
Wind 270 deg - Ice		-8100.38	0.00	-2.59	993.61	0.33
Wind 300 deg - Ice		-7015.14	-4050.19	-497.77	860.93	0.10
Wind 330 deg - Ice		-4050.19	-7015.14	-860.27	498.43	-0.16
Total Weight	46684.80			-0.33	0.26	
Wind 0 deg - Service		0.00	-8180.86	-991.60	0.26	0.41
Wind 30 deg - Service		4758.92	-8242.70	-1002.75	-578.49	-0.13
Wind 60 deg - Service		7084.83	-4090.43	-495.97	-858.20	-0.64
Wind 90 deg - Service		8180.86	0.00	-0.33	-991.01	-0.98
Wind 120 deg - Service		7084.83	4090.43	495.30	-858.20	-1.05
Wind 150 deg - Service		4090.43	7084.83	858.13	-495.37	-0.85
Wind 180 deg - Service		0.00	8180.86	990.93	0.26	-0.41
Wind 210 deg - Service		-4758.92	8242.70	1002.08	579.01	0.13
Wind 240 deg - Service		-7084.83	4090.43	495.30	858.72	0.64
Wind 270 deg - Service		-8180.86	0.00	-0.33	991.53	0.98
Wind 300 deg - Service		-7084.83	-4090.43	-495.97	858.72	1.05
Wind 330 deg - Service		-4090.43	-7084.83	-858.80	495.89	0.85

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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
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

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	191.08 - 165.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-10576.46	3.35	2.15
			Max. Mx	20	-3084.80	116.56	-0.14
			Max. My	2	-3084.76	0.50	116.53
			Max. Vy	20	-8695.36	116.56	-0.14
			Max. Vx	2	-8695.37	0.50	116.53
			Max. Torque	10			4.74
L2	165.33 - 130.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38046.53	3.56	2.86
			Max. Mx	20	-13253.28	676.95	0.16
			Max. My	2	-13253.17	0.43	677.04
			Max. Vy	20	-22521.41	676.95	0.16
			Max. Vx	4	-22767.00	-366.77	636.15
			Max. Torque	11			4.88
L3	130.75 - 97.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51157.96	3.76	3.02
			Max. Mx	20	-21232.63	1483.55	0.29
			Max. My	2	-21232.56	0.38	1483.64
			Max. Vy	20	-26763.50	1483.55	0.29
			Max. Vx	4	-27609.10	-845.82	1465.94
			Max. Torque	11			4.87
L4	97.08 - 64.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-66800.09	3.81	3.07
			Max. Mx	20	-30825.17	2419.84	0.36
			Max. My	4	-30282.38	-1401.57	2428.57
			Max. Vy	20	-31393.98	2419.84	0.36
			Max. Vx	4	-32197.71	-1401.57	2428.57
			Max. Torque	11			4.86
L5	64.25 - 32.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-82694.98	3.81	3.07
			Max. Mx	20	-41538.83	3456.86	0.39
			Max. My	4	-41219.30	-2013.75	3488.91
			Max. Vy	20	-34864.68	3456.86	0.39
			Max. Vx	4	-35519.68	-2013.75	3488.91
			Max. Torque	11			4.85
L6	32.25 - 1	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-103226.29	3.81	3.07
			Max. Mx	20	-56000.30	4832.31	0.38
			Max. My	4	-55992.63	-2818.32	4882.47
			Max. Vy	20	-38266.75	4832.31	0.38
			Max. Vx	4	-38556.08	-2818.32	4882.47
			Max. Torque	11			4.84

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	28	103226.29	-5035.04	8720.95
	Max. H _x	21	42016.32	38235.32	0.00
	Max. H _z	5	42016.32	-22242.03	38524.32
	Max. M _x	4	4882.47	-22242.03	38524.32
	Max. M _z	8	4831.64	-38235.32	0.00
	Max. Torsion	11	4.84	-33112.76	-19117.66
	Min. Vert	25	42016.32	19117.66	33112.76

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Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
	Min. H _x	8	56021.76	-38235.32	0.00
	Min. H _z	17	42016.32	22242.03	-38524.32
	Min. M _x	16	-4881.62	22242.03	-38524.32
	Min. M _z	20	-4832.31	38235.32	0.00
	Min. Torsion	23	-4.84	33112.76	19117.66

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	46684.80	0.00	0.00	-0.33	0.26	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	56021.76	0.00	-38235.32	-4832.40	0.36	1.91
0.9 Dead+1.6 Wind 0 deg - No Ice	42016.32	0.00	-38235.32	-4778.54	0.26	1.91
1.2 Dead+1.6 Wind 30 deg - No Ice	56021.76	22242.03	-38524.32	-4882.47	-2818.32	-0.59
0.9 Dead+1.6 Wind 30 deg - No Ice	42016.32	22242.03	-38524.32	-4828.55	-2787.34	-0.59
1.2 Dead+1.6 Wind 60 deg - No Ice	56021.76	33112.76	-19117.66	-2416.39	-4184.29	-2.93
0.9 Dead+1.6 Wind 60 deg - No Ice	42016.32	33112.76	-19117.66	-2389.41	-4137.83	-2.93
1.2 Dead+1.6 Wind 90 deg - No Ice	56021.76	38235.32	-0.00	-0.38	-4831.64	-4.48
0.9 Dead+1.6 Wind 90 deg - No Ice	42016.32	38235.32	-0.00	-0.28	-4777.98	-4.49
1.2 Dead+1.6 Wind 120 deg - No Ice	56021.76	33112.76	19117.66	2415.61	-4184.25	-4.84
0.9 Dead+1.6 Wind 120 deg - No Ice	42016.32	33112.76	19117.66	2388.83	-4137.80	-4.84
1.2 Dead+1.6 Wind 150 deg - No Ice	56021.76	19117.66	33112.76	4184.21	-2415.61	-3.89
0.9 Dead+1.6 Wind 150 deg - No Ice	42016.32	19117.66	33112.76	4137.77	-2388.84	-3.90
1.2 Dead+1.6 Wind 180 deg - No Ice	56021.76	0.00	38235.32	4831.54	0.36	-1.91
0.9 Dead+1.6 Wind 180 deg - No Ice	42016.32	0.00	38235.32	4777.91	0.26	-1.91
1.2 Dead+1.6 Wind 210 deg - No Ice	56021.76	-22242.03	38524.32	4881.62	2818.98	0.59
0.9 Dead+1.6 Wind 210 deg - No Ice	42016.32	-22242.03	38524.32	4827.92	2787.83	0.59
1.2 Dead+1.6 Wind 240 deg - No Ice	56021.76	-33112.76	19117.66	2415.58	4184.93	2.93
0.9 Dead+1.6 Wind 240 deg - No Ice	42016.32	-33112.76	19117.66	2388.82	4138.30	2.93
1.2 Dead+1.6 Wind 270 deg - No Ice	56021.76	-38235.32	-0.00	-0.38	4832.31	4.48
0.9 Dead+1.6 Wind 270 deg - No Ice	42016.32	-38235.32	-0.00	-0.28	4778.47	4.49
1.2 Dead+1.6 Wind 300 deg - No Ice	56021.76	-33112.76	-19117.66	-2416.37	4184.97	4.84
0.9 Dead+1.6 Wind 300 deg - No Ice	42016.32	-33112.76	-19117.66	-2389.39	4138.33	4.84
1.2 Dead+1.6 Wind 330 deg - No Ice	56021.76	-19117.66	-33112.76	-4185.02	2416.36	3.89

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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
No Ice						
0.9 Dead+1.6 Wind 330 deg - No Ice	42016.32	-19117.66	-33112.76	-4138.36	2389.39	3.90
1.2 Dead+1.0 Ice+1.0 Temp	103226.29	-0.01	-0.01	-3.07	3.81	0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	103226.29	-0.00	-8100.39	-1100.73	4.03	-0.38
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	103226.29	5035.04	-8720.95	-1115.74	-638.27	-0.49
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	103226.29	7015.14	-4050.19	-551.99	-946.42	-0.48
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	103226.29	8100.39	-0.00	-3.24	-1093.46	-0.33
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	103226.29	7015.14	4050.19	545.51	-946.42	-0.10
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	103226.29	4050.19	7015.14	947.21	-544.71	0.16
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	103226.29	-0.00	8100.39	1094.25	4.03	0.38
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	103226.29	-5035.04	8720.95	1109.26	646.34	0.49
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	103226.29	-7015.14	4050.19	545.51	954.49	0.48
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	103226.29	-8100.39	-0.00	-3.24	1101.52	0.33
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	103226.29	-7015.14	-4050.19	-551.99	954.49	0.10
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	103226.29	-4050.19	-7015.14	-953.70	552.78	-0.16
Dead+Wind 0 deg - Service	46684.80	0.00	-8180.86	-1028.30	0.28	0.41
Dead+Wind 30 deg - Service	46684.80	4758.92	-8242.70	-1039.57	-599.71	-0.13
Dead+Wind 60 deg - Service	46684.80	7084.83	-4090.43	-514.33	-889.95	-0.64
Dead+Wind 90 deg - Service	46684.80	8180.86	-0.00	-0.36	-1027.67	-0.97
Dead+Wind 120 deg - Service	46684.80	7084.83	4090.43	513.62	-889.95	-1.05
Dead+Wind 150 deg - Service	46684.80	4090.43	7084.83	889.87	-513.69	-0.85
Dead+Wind 180 deg - Service	46684.80	0.00	8180.86	1027.59	0.28	-0.41
Dead+Wind 210 deg - Service	46684.80	-4758.92	8242.70	1038.85	600.27	0.13
Dead+Wind 240 deg - Service	46684.80	-7084.83	4090.43	513.62	890.51	0.64
Dead+Wind 270 deg - Service	46684.80	-8180.86	-0.00	-0.36	1028.23	0.97
Dead+Wind 300 deg - Service	46684.80	-7084.83	-4090.43	-514.33	890.51	1.05
Dead+Wind 330 deg - Service	46684.80	-4090.43	-7084.83	-890.59	514.25	0.85

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	-46684.80	0.00	0.00	46684.80	0.00	0.000%
2	0.00	-56021.76	-38235.32	-0.00	56021.76	38235.32	0.000%
3	0.00	-42016.32	-38235.32	-0.00	42016.32	38235.32	0.000%
4	22242.03	-56021.76	-38524.32	-22242.03	56021.76	38524.32	0.000%
5	22242.03	-42016.32	-38524.32	-22242.03	42016.32	38524.32	0.000%
6	33112.76	-56021.76	-19117.66	-33112.76	56021.76	19117.66	0.000%
7	33112.76	-42016.32	-19117.66	-33112.76	42016.32	19117.66	0.000%
8	38235.32	-56021.76	0.00	-38235.32	56021.76	0.00	0.000%
9	38235.32	-42016.32	0.00	-38235.32	42016.32	0.00	0.000%
10	33112.76	-56021.76	19117.66	-33112.76	56021.76	-19117.66	0.000%
11	33112.76	-42016.32	19117.66	-33112.76	42016.32	-19117.66	0.000%
12	19117.66	-56021.76	33112.76	-19117.66	56021.76	-33112.76	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	
13	19117.66	-42016.32	33112.76	-19117.66	42016.32	-33112.76	0.000%
14	0.00	-56021.76	38235.32	-0.00	56021.76	-38235.32	0.000%
15	0.00	-42016.32	38235.32	-0.00	42016.32	-38235.32	0.000%
16	-22242.03	-56021.76	38524.32	22242.03	56021.76	-38524.32	0.000%
17	-22242.03	-42016.32	38524.32	22242.03	42016.32	-38524.32	0.000%
18	-33112.76	-56021.76	19117.66	33112.76	56021.76	-19117.66	0.000%
19	-33112.76	-42016.32	19117.66	33112.76	42016.32	-19117.66	0.000%
20	-38235.32	-56021.76	0.00	38235.32	56021.76	0.00	0.000%
21	-38235.32	-42016.32	0.00	38235.32	42016.32	0.00	0.000%
22	-38235.32	-56021.76	-19117.66	33112.76	56021.76	19117.66	0.000%
23	-33112.76	-42016.32	-19117.66	33112.76	42016.32	19117.66	0.000%
24	-19117.66	-56021.76	-33112.76	19117.66	56021.76	33112.76	0.000%
25	-19117.66	-42016.32	-33112.76	19117.66	42016.32	33112.76	0.000%
26	0.00	-103226.29	0.00	0.01	103226.29	0.01	0.000%
27	0.00	-103226.29	-8100.38	0.00	103226.29	8100.39	0.000%
28	5035.04	-103226.29	-8720.95	-5035.04	103226.29	8720.95	0.000%
29	7015.14	-103226.29	-4050.19	-7015.14	103226.29	4050.19	0.000%
30	8100.38	-103226.29	0.00	-8100.39	103226.29	0.00	0.000%
31	7015.14	-103226.29	4050.19	-7015.14	103226.29	-4050.19	0.000%
32	4050.19	-103226.29	7015.14	-4050.19	103226.29	-7015.14	0.000%
33	0.00	-103226.29	8100.38	0.00	103226.29	-8100.39	0.000%
34	-5035.04	-103226.29	8720.95	5035.04	103226.29	-8720.95	0.000%
35	-7015.14	-103226.29	4050.19	7015.14	103226.29	-4050.19	0.000%
36	-8100.38	-103226.29	0.00	8100.39	103226.29	0.00	0.000%
37	-7015.14	-103226.29	-4050.19	7015.14	103226.29	4050.19	0.000%
38	-4050.19	-103226.29	-7015.14	4050.19	103226.29	7015.14	0.000%
39	0.00	-46684.80	-8180.86	-0.00	46684.80	8180.86	0.000%
40	4758.92	-46684.80	-8242.70	-4758.92	46684.80	8242.70	0.000%
41	7084.83	-46684.80	-4090.43	-7084.83	46684.80	4090.43	0.000%
42	8180.86	-46684.80	0.00	-8180.86	46684.80	0.00	0.000%
43	7084.83	-46684.80	4090.43	-7084.83	46684.80	-4090.43	0.000%
44	4090.43	-46684.80	7084.83	-4090.43	46684.80	-7084.83	0.000%
45	0.00	-46684.80	8180.86	-0.00	46684.80	-8180.86	0.000%
46	-4758.92	-46684.80	8242.70	4758.92	46684.80	-8242.70	0.000%
47	-7084.83	-46684.80	4090.43	7084.83	46684.80	-4090.43	0.000%
48	-8180.86	-46684.80	0.00	8180.86	46684.80	0.00	0.000%
49	-7084.83	-46684.80	-4090.43	7084.83	46684.80	4090.43	0.000%
50	-4090.43	-46684.80	-7084.83	4090.43	46684.80	7084.83	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	6	0.00000001	0.00000607
3	Yes	5	0.00000001	0.00005628
4	Yes	7	0.00000001	0.00000652
5	Yes	6	0.00000001	0.00004100
6	Yes	7	0.00000001	0.00000601
7	Yes	6	0.00000001	0.00003914
8	Yes	6	0.00000001	0.00001395
9	Yes	6	0.00000001	0.00000505
10	Yes	7	0.00000001	0.00000535
11	Yes	6	0.00000001	0.00003461
12	Yes	7	0.00000001	0.00000611
13	Yes	6	0.00000001	0.00003982

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14	Yes	6	0.0000001	0.0000607
15	Yes	5	0.0000001	0.00005629
16	Yes	7	0.0000001	0.0000662
17	Yes	6	0.0000001	0.00004167
18	Yes	7	0.0000001	0.0000550
19	Yes	6	0.0000001	0.00003558
20	Yes	6	0.0000001	0.00001394
21	Yes	6	0.0000001	0.00000454
22	Yes	7	0.0000001	0.00000621
23	Yes	6	0.0000001	0.00004049
24	Yes	7	0.0000001	0.00000542
25	Yes	6	0.0000001	0.00003508
26	Yes	4	0.0000001	0.00008174
27	Yes	7	0.0000001	0.00001683
28	Yes	7	0.0000001	0.00002439
29	Yes	7	0.0000001	0.00002087
30	Yes	7	0.0000001	0.00001659
31	Yes	7	0.0000001	0.00002042
32	Yes	7	0.0000001	0.00002040
33	Yes	7	0.0000001	0.00001662
34	Yes	7	0.0000001	0.00002486
35	Yes	7	0.0000001	0.00002068
36	Yes	7	0.0000001	0.00001685
37	Yes	7	0.0000001	0.00002110
38	Yes	7	0.0000001	0.00002112
39	Yes	5	0.0000001	0.00000823
40	Yes	5	0.0000001	0.00005111
41	Yes	5	0.0000001	0.00004066
42	Yes	5	0.0000001	0.00001613
43	Yes	5	0.0000001	0.00003165
44	Yes	5	0.0000001	0.00004280
45	Yes	5	0.0000001	0.00000822
46	Yes	5	0.0000001	0.00005307
47	Yes	5	0.0000001	0.00003213
48	Yes	5	0.0000001	0.00001615
49	Yes	5	0.0000001	0.00004527
50	Yes	5	0.0000001	0.00003192

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	191.08 - 165.33	35.963	40	1.5925	0.0161
L2	168.25 - 130.75	28.453	40	1.5338	0.0080
L3	134.58 - 97.08	18.297	40	1.3049	0.0037
L4	101.75 - 64.25	10.343	40	0.9840	0.0020
L5	69.75 - 32.25	4.794	40	0.6527	0.0010
L6	38.5 - 1	1.452	40	0.3479	0.0005

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
198.50	Lightning Rod 2"x15'	40	35.963	1.5925	0.0161	60173

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Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
191.00	3' dish	40	35.936	1.5924	0.0161	60173
186.00	5' Sector Frame T-arm	40	34.276	1.5831	0.0141	59226
181.00	5' Sector Frame T-arm	40	32.620	1.5728	0.0121	29848
171.00	APXVSPP18-C-A20 w/ 8' pipe	40	29.342	1.5443	0.0088	15004
161.00	LNx-6515DS-VTM	40	26.142	1.4990	0.0064	10901
151.00	Kathrein 80010121 w/6ft 2.0 Std pipe	40	23.052	1.4363	0.0050	8542
114.00	Pirot 5' Side Mount Standoff (1)	40	13.049	1.1093	0.0026	5707
91.00	Pirot 5' Side Mount Standoff (1)	40	8.238	0.8721	0.0016	5622

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	191.08 - 165.33	168.482	4	7.4759	0.0747
L2	168.25 - 130.75	133.384	4	7.2032	0.0371
L3	134.58 - 97.08	85.860	4	6.1317	0.0172
L4	101.75 - 64.25	48.570	4	4.6255	0.0091
L5	69.75 - 32.25	22.525	4	3.0681	0.0047
L6	38.5 - 1	6.825	4	1.6349	0.0021

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
198.50	Lightning Rod 2"x15'	4	168.482	7.4759	0.0747	13455
191.00	3' dish	4	168.358	7.4752	0.0745	13455
186.00	5' Sector Frame T-arm	4	160.598	7.4325	0.0653	13243
181.00	5' Sector Frame T-arm	4	152.860	7.3846	0.0563	6673
171.00	APXVSPP18-C-A20 w/ 8' pipe	4	137.541	7.2524	0.0406	3351
161.00	LNx-6515DS-VTM	4	122.577	7.0409	0.0296	2415
151.00	Kathrein 80010121 w/6ft 2.0 Std pipe	4	108.120	6.7475	0.0229	1883
114.00	Pirot 5' Side Mount Standoff (1)	4	61.264	5.2139	0.0118	1239
91.00	Pirot 5' Side Mount Standoff (1)	4	38.694	4.0997	0.0073	1211

Base Plate Design Data

Plate Thickness in	Number of Anchor Bolts	Anchor Bolt Size in	Actual Allowable Ratio Bolt Tension lb	Actual Allowable Ratio Bolt Compression lb	Actual Allowable Ratio Plate Stress ksi	Actual Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
1.5000	44	1.2500	89168.64 69029.14	91713.76 114588.36	35.119 45.000	38.569 45.000	Bolt T	1.29 X

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Plate Thickness	Number of Anchor Bolts	Anchor Bolt Size	Actual Allowable Ratio Bolt Tension lb	Actual Allowable Ratio Bolt Compression lb	Actual Allowable Ratio Plate Stress ksi	Actual Allowable Ratio Stiffener Stress ksi	Controlling Condition	Ratio
in		in	1.29	0.80	0.78	0.86		

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	191.08 - 165.33 (1)	TP26x19.5625x0.25	25.75	0.00	0.0	19.8534	-3084.67	1475010.00	0.002
L2	165.33 - 130.75 (2)	TP34.0052x24.77x0.3125	37.50	0.00	0.0	32.4834	-12548.10	2384690.00	0.005
L3	130.75 - 97.08 (3)	TP41.0625x32.437x0.375	37.50	0.00	0.0	47.1498	-20531.90	3454030.00	0.006
L4	97.08 - 64.25 (4)	TP49.0052x39.2383x0.375	37.50	0.00	0.0	56.1771	-30282.40	3903670.00	0.008
L5	64.25 - 32.25 (5)	TP56.0104x46.8227x0.375	37.50	0.00	0.0	64.3974	-41219.30	4253940.00	0.010
L6	32.25 - 1 (6)	TP62.0781x53.7291x0.375	37.50	0.00	0.0	73.4421	-55992.60	4574150.00	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	191.08 - 165.33 (1)	TP26x19.5625x0.25	116.66	757.28	0.154	0.00	757.28	0.000
L2	165.33 - 130.75 (2)	TP34.0052x24.77x0.3125	734.30	1603.26	0.458	0.00	1603.26	0.000
L3	130.75 - 97.08 (3)	TP41.0625x32.437x0.375	1692.46	2809.11	0.602	0.00	2809.11	0.000
L4	97.08 - 64.25 (4)	TP49.0052x39.2383x0.375	2803.98	3788.35	0.740	0.00	3788.35	0.000
L5	64.25 - 32.25 (5)	TP56.0104x46.8227x0.375	4028.36	4737.12	0.850	0.00	4737.12	0.000
L6	32.25 - 1 (6)	TP62.0781x53.7291x0.375	5637.50	5814.04	0.970	0.00	5814.04	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 $\frac{T_u}{\phi T_n}$
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	Project CT5404 Enfield Unionville Farmington	Date 17:01:42 10/19/17
	Client AT&T	Designed by

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	191.08 - 165.33 (1)	TP26x19.5625x0.25	8695.41	737503.00	0.012	4.74	1516.41	0.003
L2	165.33 - 130.75 (2)	TP34.0052x24.77x0.3125	26288.40	1192350.00	0.022	0.59	3210.44	0.000
L3	130.75 - 97.08 (3)	TP41.0625x32.437x0.375	31879.80	1727020.00	0.018	0.59	5625.09	0.000
L4	97.08 - 64.25 (4)	TP49.0052x39.2383x0.375	37178.40	1951840.00	0.019	0.59	7585.96	0.000
L5	64.25 - 32.25 (5)	TP56.0104x46.8227x0.375	41014.40	2126970.00	0.019	0.59	9485.83	0.000
L6	32.25 - 1 (6)	TP62.0781x53.7291x0.375	44520.70	2287070.00	0.019	0.59	11642.33	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio P_u ϕP_n	Ratio M_{ux} ϕM_{nx}	Ratio M_{uy} ϕM_{ny}	Ratio V_u ϕV_n	Ratio T_u ϕT_n	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	191.08 - 165.33 (1)	0.002	0.154	0.000	0.012	0.003	0.156	1.000	4.8.2 ✓
L2	165.33 - 130.75 (2)	0.005	0.458	0.000	0.022	0.000	0.464	1.000	4.8.2 ✓
L3	130.75 - 97.08 (3)	0.006	0.602	0.000	0.018	0.000	0.609	1.000	4.8.2 ✓
L4	97.08 - 64.25 (4)	0.008	0.740	0.000	0.019	0.000	0.748	1.000	4.8.2 ✓
L5	64.25 - 32.25 (5)	0.010	0.850	0.000	0.019	0.000	0.860	1.000	4.8.2 ✓
L6	32.25 - 1 (6)	0.012	0.970	0.000	0.019	0.000	0.982	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
L1	191.08 - 165.33	Pole	TP26x19.5625x0.25	1	-3084.67	1475010.00	15.6	Pass
L2	165.33 - 130.75	Pole	TP34.0052x24.77x0.3125	2	-12548.10	2384690.00	46.4	Pass
L3	130.75 - 97.08	Pole	TP41.0625x32.437x0.375	3	-20531.90	3454030.00	60.9	Pass
L4	97.08 - 64.25	Pole	TP49.0052x39.2383x0.375	4	-30282.40	3903670.00	74.8	Pass
L5	64.25 - 32.25	Pole	TP56.0104x46.8227x0.375	5	-41219.30	4253940.00	86.0	Pass
L6	32.25 - 1	Pole	TP62.0781x53.7291x0.375	6	-55992.60	4574150.00	98.2	Pass
Summary								
Pole (L6)							98.2	Pass
Base Plate							129.2	Fail ✗
RATING =							129.2	Fail ✗

<p><i>tnxTower</i></p> <p>Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120</p>	Job 17963003A	Page 32 of 32
	Project CT5404 Enfield Unionville Farmington	Date 17:01:42 10/19/17
	Client AT&T	Designed by



MASER CONSULTING
— CONNECTICUT —

Tower Modification Design

FOR
CT5404: Enfield – Unionville - Farmington

FA #10071289
319-321 New Britain Avenue
Farmington, CT 06085
Hartford County

Tower Utilization: 97.7%

January 17, 2018

Prepared For

AT&T

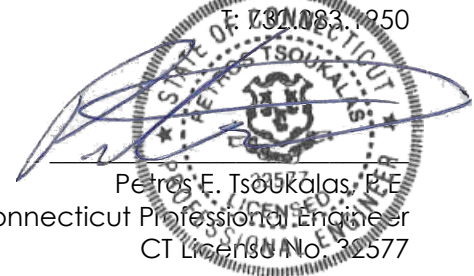
550 Cochituate Road
Framingham, MA 01701

Prepared By

Maser Consulting Connecticut

331 Newman Springs Road, Suite 203
Red Bank, NJ, 07701

F: 731.083.250



Petros E. Tsoukalas, P.E.
Connecticut Professional Engineer
CT License No. 32577

MC Project No. 17963003A



January 17, 2018

Mr. Stephen Smith

Empire Telecom
1150 First Avenue, Suite 600
King of Prussia, PA 19406

Re: **AT&T**: Site ID: CT5404
FA ID: 10071289
Site Name: Enfield – Unionville - Farmington
319-321 New Britain Avenue
Farmington, CT 06085
Hartford County
MC Project No: 17963003A

Dear Mr. Smith,

In accordance with your request, Maser Consulting Connecticut has prepared a modification design of the existing monopole for the **AT&T** equipment at the above referenced address.

Maser Consulting Connecticut has previously analyzed the existing monopole structure, Project Number 17963003A, dated October 19, 2017. This structural modification design is only valid for the appurtenances included in the referenced analysis.

The proposed modifications to the existing monopole consist of:

- Adding non-shrink grout between tower baseplate and top of tower foundation with minimum strength of 4,000 psi

Maser Consulting Connecticut has determined that the existing monopole with existing and proposed **AT&T** equipment, with the proposed modifications, is stressed to **97.7%** of its structural capacity, with the maximum usage occurring at the tower baseplate. The proposed modifications do not increase the foundation reactions and thus **ADEQUATE** to support the proposed installation. Therefore, once the proposed modifications are installed and the existing **AT&T** antenna mounts found to be adequate under a separate report, the proposed **AT&T** installation can be installed as intended.

Maser Consulting Connecticut reserves the right to amend this report if additional information about the existing tower structure and connections is provided. No structural qualifications are made or implied by this document for the capacity of the existing structure and foundation. The conclusions reached by Maser Consulting Connecticut in this report are only valid for the appurtenances listed in the referenced report. Any change to the installation will require a revision to this structural analysis.

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



MASER CONSULTING
— CONNECTICUT —

1/17/2018
Page 3 of 3
Prepared by DX
Checked by PET

Very truly yours,
Maser Consulting Connecticut

Petros E. Tsoukalas, P.E.
Connecticut Professional Engineer
PE License # 32577

Dejian Xu, P.E.
Telecommunications Project Engineer

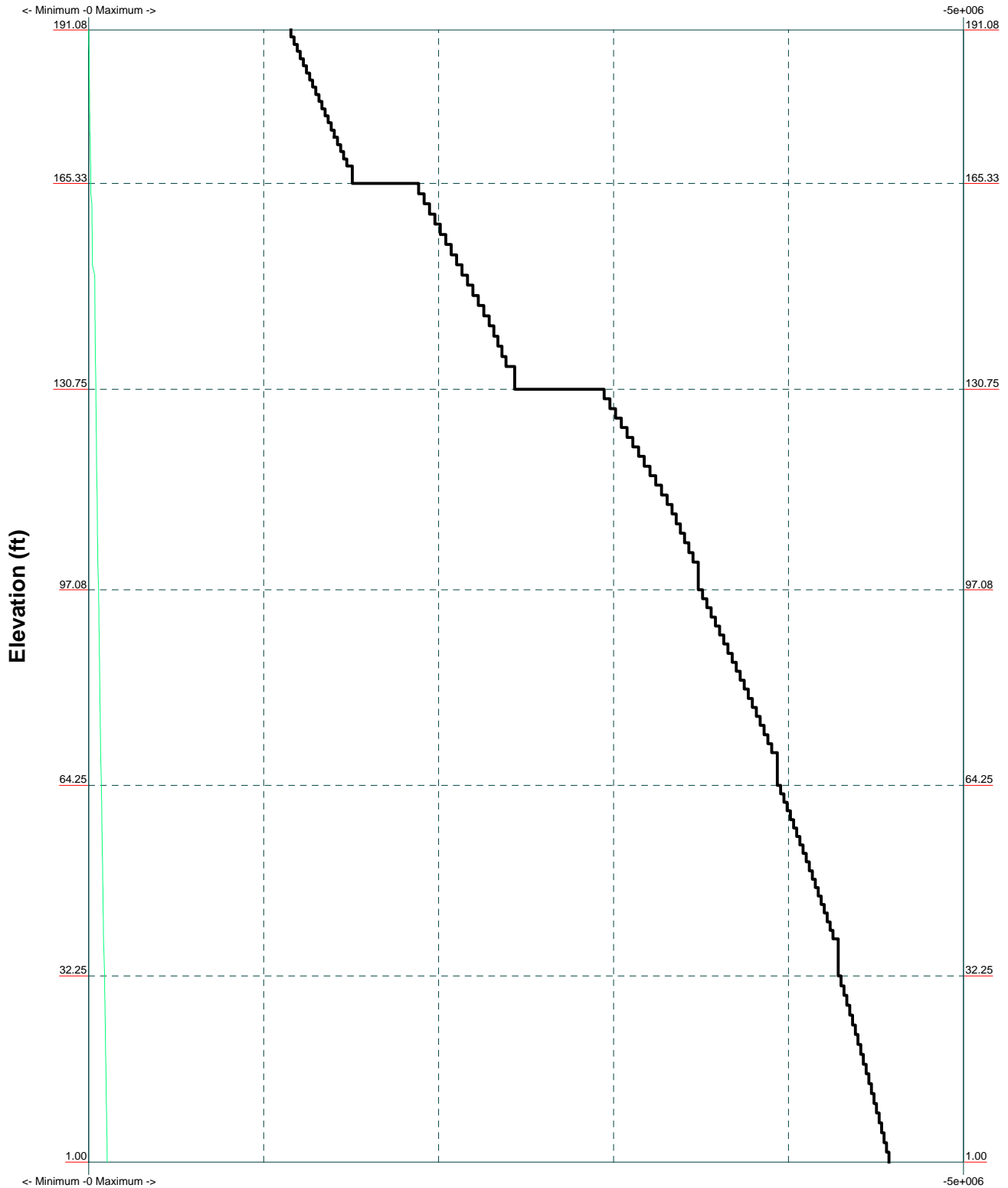
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APPENDIX A

TIA-222-G - 97 mph/40 mph 1.0000 in Ice Exposure C

Leg Capacity ——— Leg Compression (lb)



Maser Consulting Connecticut
 331 Newman Springs Road, Suite 203
 Red Bank, NJ 07701
 Phone: (732) 7383-1950
 FAX:

Job: 17963003A		
Project: CT5404 Enfield Unionville Farmington		
Client: AT&T	Drawn by: dxu	App'd:
Code: TIA-222-G	Date: 01/17/18	Scale: NTS
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Vx

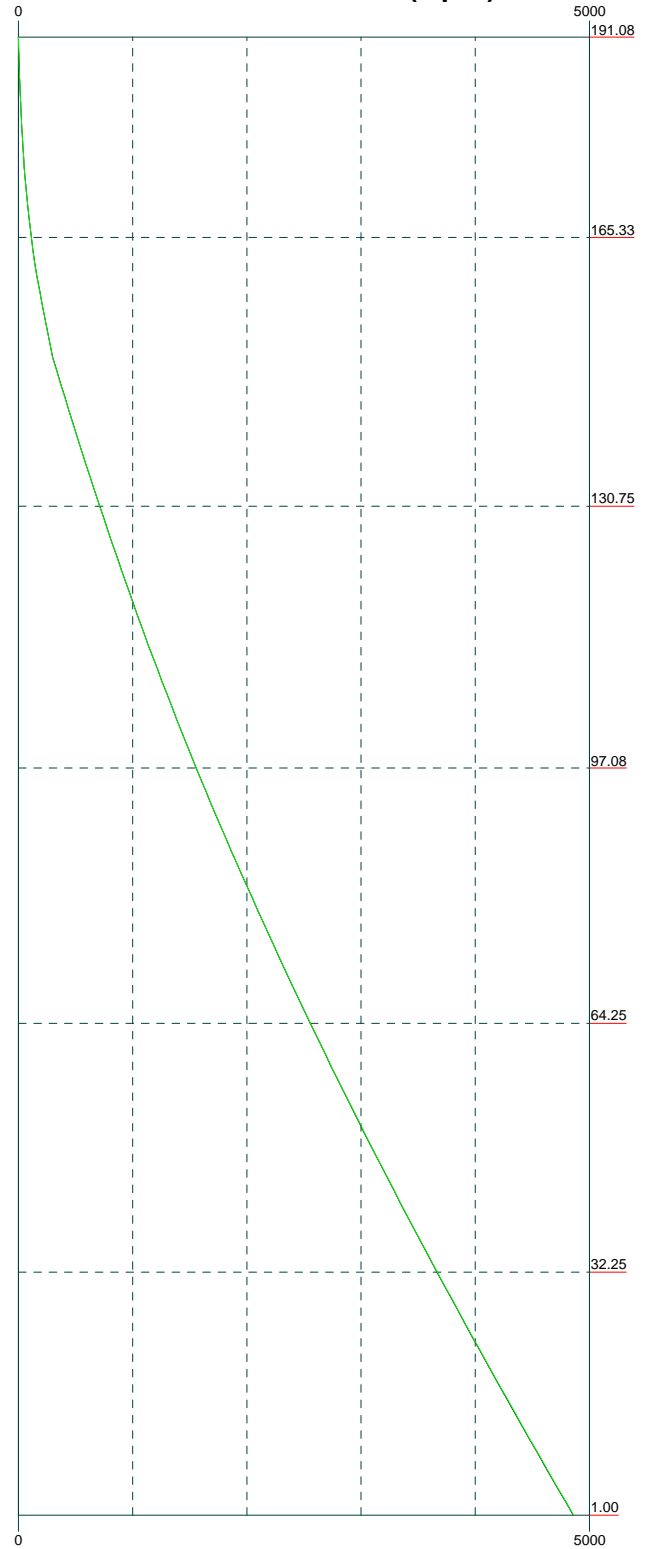
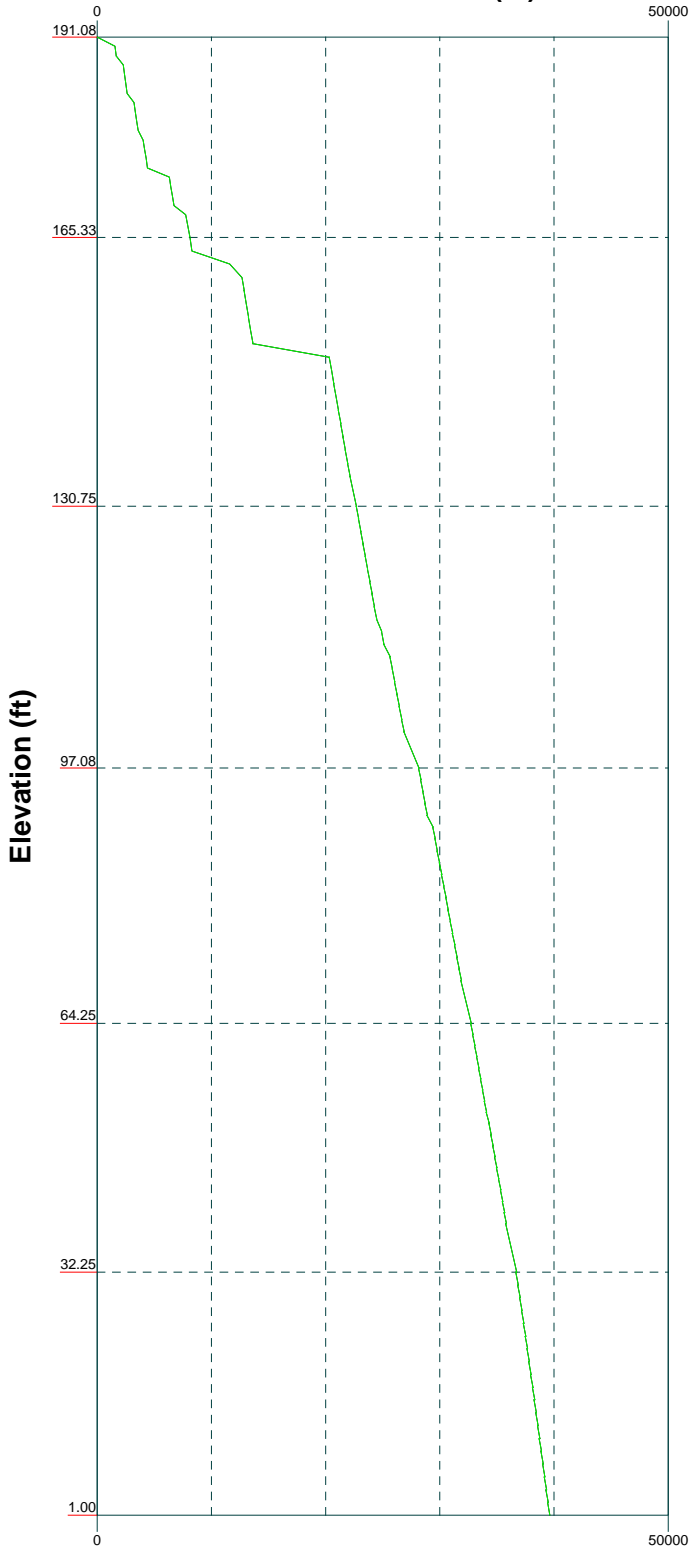
Vz

Mx

Mz

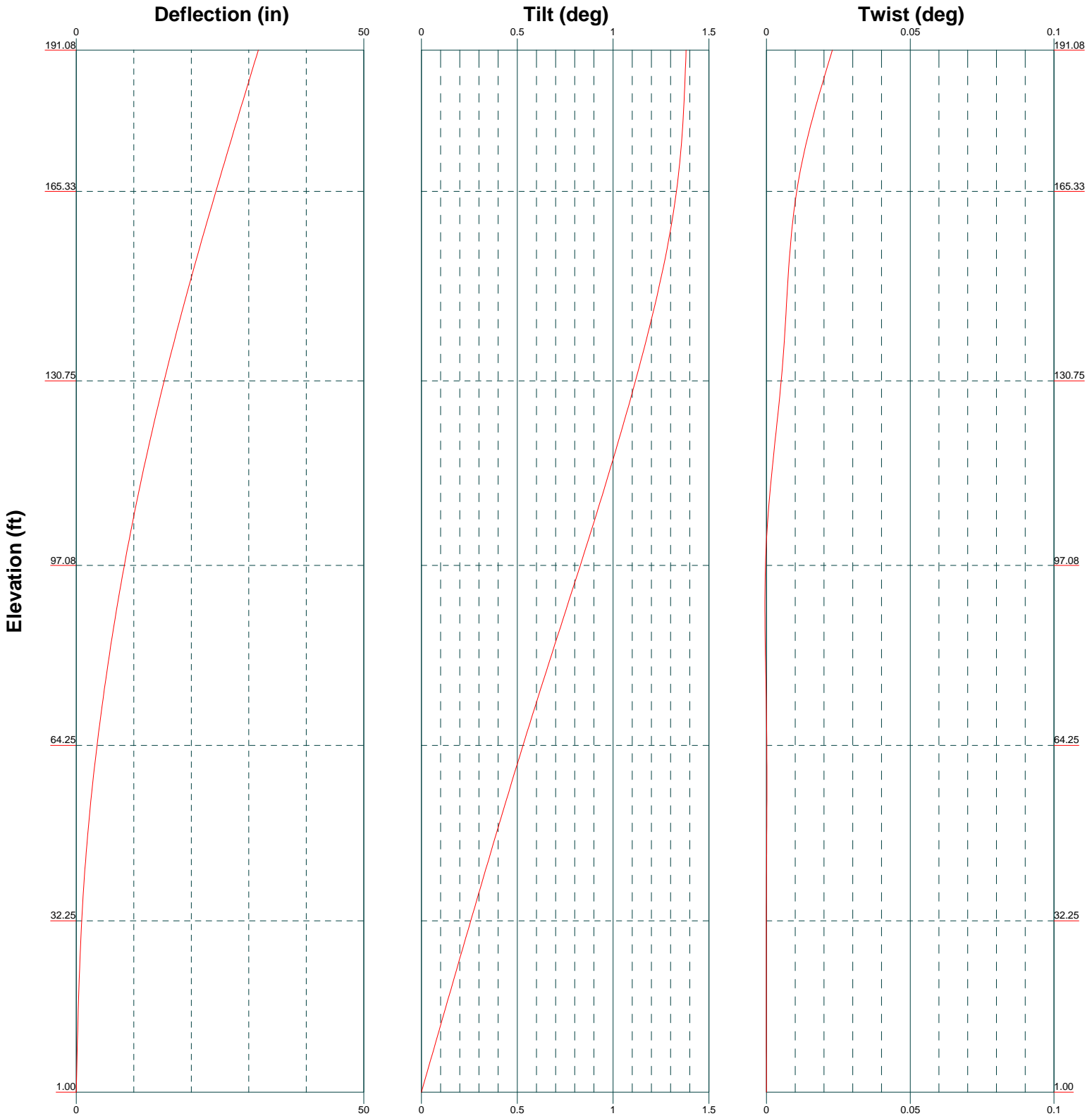
Global Mast Shear (lb)


Global Mast Moment (kip-ft)



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 Phone: (732) 7383-1950
 FAX:

Job: 17963003A		
Project: CT5404 Enfield Unionville Farmington		
Client: AT&T	Drawn by: dxu	App'd:
Code: TIA-222-G	Date: 01/17/18	Scale: NTS
Path: <small>R:\Projects\2017\17963000A\17963003A\Structural\Tower Analysis\Rev 1 - MOD\TNC\CT5404.ed</small>		Dwg No. E-4

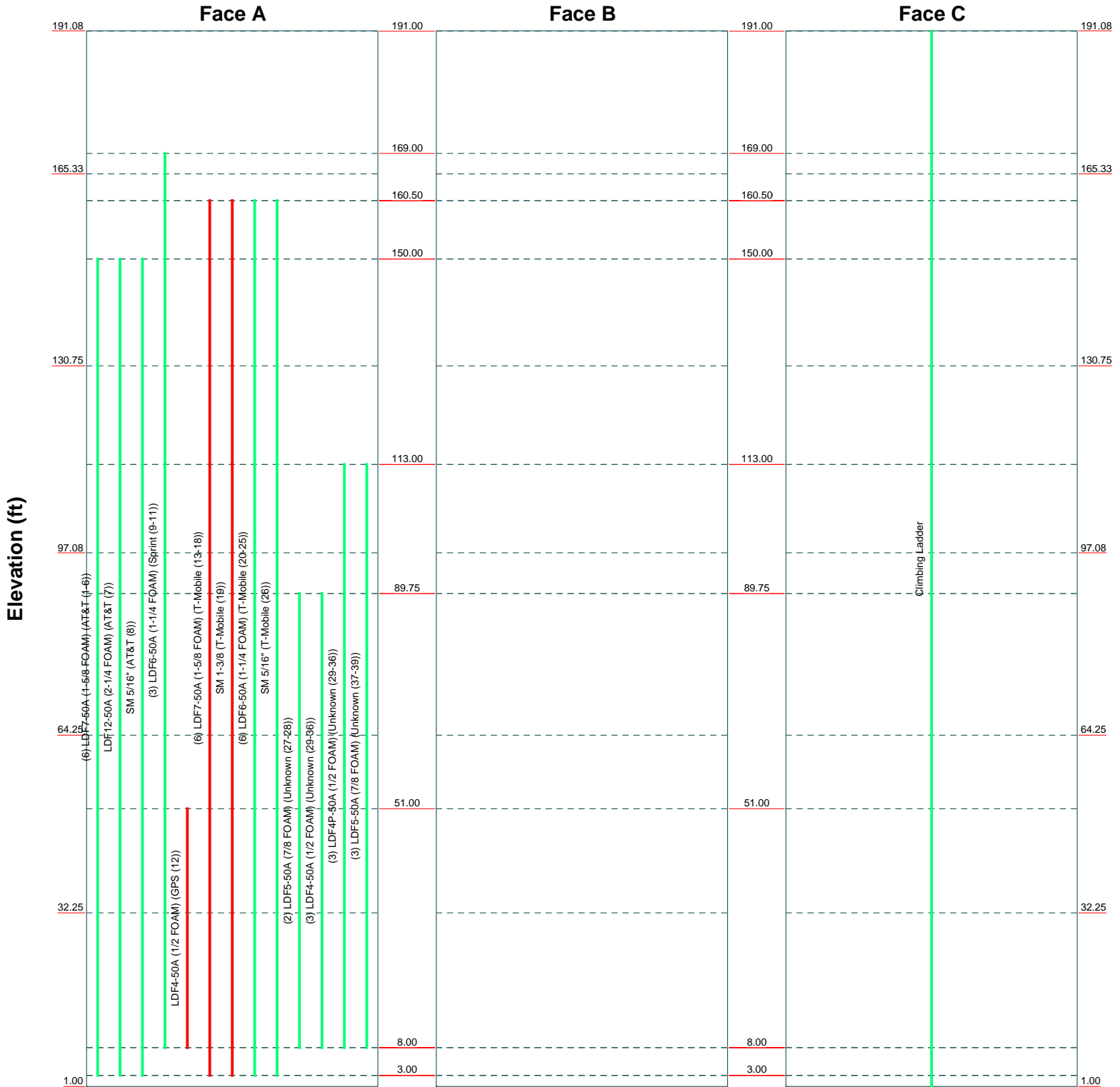



 <p>Maser Consulting Connecticut 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: (732) 7383-1950 FAX:</p>	Job: 17963003A		
	Project: CT5404 Enfield Unionville Farmington		
	Client: AT&T	Drawn by: dxu	App'd:
	Code: TIA-222-G	Date: 01/17/18	Scale: NTS
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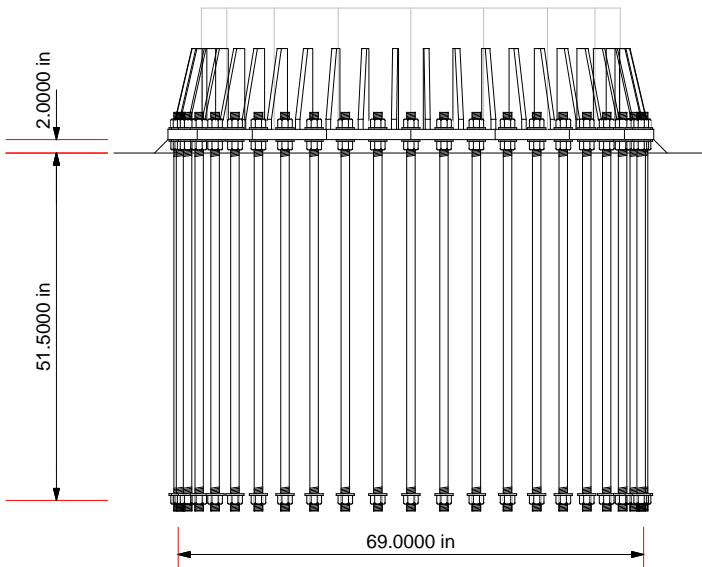
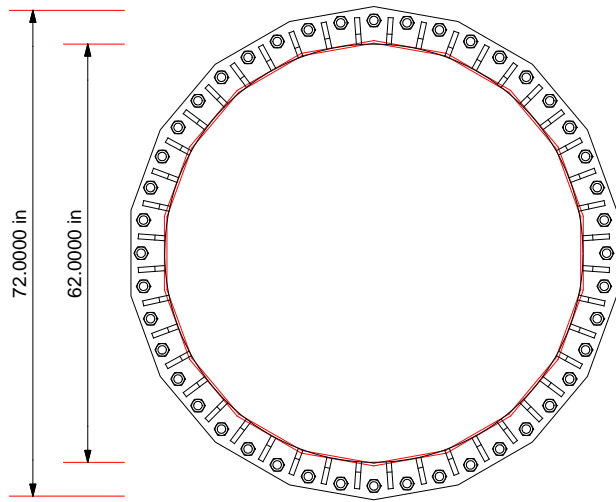
Feed Line Distribution Chart

1' - 191'31/32"

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




 Maser Consulting Connecticut 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: (732) 7383-1950 FAX:	Job: 17963003A	
	Project: CT5404 Enfield Unionville Farmington	
	Client: AT&T	Drawn by: dxu
	Code: TIA-222-G	Date: 01/17/18
Path:	R:\Projects\2017\17963000A\17963003A\Structural\Tower Analysis\Rev 1 - MOD\TNC\CT5404.dwg	App'd: Scale: NTS Dwg No. E-7



FOUNDATION NOTES

1. Plate thickness is 1.5000 in.
2. Plate grade is A572-50.
3. Anchor bolt grade is A615-75.
4. fc is 4 ksi.

 <p>Maser Consulting Connecticut 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: (732) 7383-1950 FAX:</p>	Job: 17963003A		
	Project: CT5404 Enfield Unionville Farmington		
	Client: AT&T	Drawn by: dxu	App'd:
	Code: TIA-222-G	Date: 01/17/18	Scale: NTS
	Path: <small>R:\Projects\2017\17963000A\17963003A\StructuralTower Analysis\Rev.1 - MOD\TX\CT5404.en</small>		Dwg No. F-1

tnxTower Maser Consulting Connecticut 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: (732) 7383-1950 FAX:	Job 17963003A	Page 1 of 33
	Project CT5404 Enfield Unionville Farmington	Date 16:02:00 01/17/18
	Client AT&T	Designed by dxu

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.

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 40 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
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Tapered Pole Section Geometry

tnxTower Maser Consulting Connecticut 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: (732) 7383-1950 FAX:	Job 17963003A	Page 2 of 33
	Project CT5404 Enfield Unionville Farmington	Date 16:02:00 01/17/18
	Client AT&T	Designed by dxu

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	191.08-165.33	25.75	2.92	18	19.5625	26.0000	0.2500	1.0000	A572-65 (65 ksi)
L2	165.33-130.75	37.50	3.83	18	24.7700	34.0052	0.3125	1.2500	A572-65 (65 ksi)
L3	130.75-97.08	37.50	4.67	18	32.4370	41.0625	0.3750	1.5000	A572-65 (65 ksi)
L4	97.08-64.25	37.50	5.50	18	39.2383	49.0052	0.3750	1.5000	A572-65 (65 ksi)
L5	64.25-32.25	37.50	6.25	18	46.8227	56.0104	0.3750	1.5000	A572-65 (65 ksi)
L6	32.25-1.00	37.50		18	53.7291	62.0781	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	19.8643	15.3245	722.1042	6.8559	9.9377	72.6627	1445.1586	7.6637	3.0030	12.012
	26.4011	20.4326	1711.6544	9.1412	13.2080	129.5922	3425.5610	10.2183	4.1360	16.544
L2	25.8823	24.2588	1833.2875	8.6824	12.5832	145.6937	3668.9873	12.1317	3.8095	12.19
	34.5298	33.4189	4792.9383	11.9609	17.2746	277.4552	9592.1833	16.7126	5.4349	17.392
L3	33.8319	38.1618	4956.1743	11.3820	16.4780	300.7755	9918.8702	19.0845	5.0489	13.464
	41.6960	48.4283	10128.8154	14.4441	20.8597	485.5674	20270.9586	24.2188	6.5670	17.512
L4	41.0787	46.2571	8826.6486	13.7965	19.9331	442.8142	17664.9116	23.1329	6.2459	16.656
	49.7612	57.8821	17293.9344	17.2637	24.8946	694.6850	34610.6246	28.9465	7.9649	21.24
L5	48.9134	55.2844	15068.4649	16.4889	23.7859	633.5029	30156.7572	27.6475	7.5808	20.215
	56.8745	66.2200	25895.7972	19.7506	28.4533	910.1163	51825.6687	33.1163	9.1978	24.528
L6	55.9709	63.5047	22839.1296	18.9407	27.2944	836.7700	45708.3115	31.7584	8.7963	23.457
	63.0358	73.4421	35326.1730	21.9046	31.5357	1120.1971	70698.8291	36.7280	10.2657	27.375

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 191.08-165.33				1	1	1.05			
L2 165.33-130.75				1	1	1.05			
L3 130.75-97.08				1	1	1.05			
L4 97.08-64.25				1	1	1.05			
L5 64.25-32.25				1	1	1.05			
L6 32.25-1.00				1	1	1.05			

Monopole Base Plate Data

Base Plate Data

Base plate is square	
Base plate is grouted	√
Anchor bolt grade	A615-75
Anchor bolt size	1.2500 in

tnxTower Maser Consulting Connecticut 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: (732) 7383-1950 FAX:	Job	17963003A	Page	3 of 33
	Project	CT5404 Enfield Unionville Farmington	Date	16:02:00 01/17/18
	Client	AT&T	Designed by	dxu

Base Plate Data	
Number of bolts	44
Embedment length	51.5000 in
f _c	4 ksi
Grout space	2.0000 in
Base plate grade	A572-50
Base plate thickness	1.5000 in
Bolt circle diameter	69.0000 in
Outer diameter	72.0000 in
Inner diameter	62.0000 in
Base plate type	Stiffened Plate
Bolts per stiffener	1
Stiffener thickness	0.7500 in
Stiffener height	12.0000 in

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement	Total Number	Number Per Row	Start/End Position	Width or Diameter	Perimeter	Weight
			ft				in	in	plf
LDF4-50A (1/2 FOAM) (GPS (12))	A	Surface Ar (CaAa)	51.00 - 8.00	1	1	0.000 0.000	0.6300		0.15
LDF7-50A (1-5/8 FOAM) (T-Mobile (13-18))	A	Surface Ar (CaAa)	160.50 - 3.00	6	6	0.000 0.000	0.3300		0.82
SM 1-3/8 (T-Mobile (19))	A	Surface Ar (CaAa)	160.50 - 3.00	1	1	0.000 0.000	1.3750		0.82

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement	Total Number	CAAA	Weight
				ft		ft ² /ft	plf
Climbing Ladder	C	No	CaAa (Out Of Face)	191.00 - 1.00	1	No Ice	7.90
						1/2" Ice	10.60
						1" Ice	13.30

LDF7-50A (1-5/8 FOAM) (AT&T (1-6))	A	No	Inside Pole	150.00 - 3.00	6	No Ice 1/2" Ice 1" Ice	0.82 0.82 0.82
LDF12-50A (2-1/4 FOAM) (AT&T (7))	A	No	Inside Pole	150.00 - 3.00	1	No Ice 1/2" Ice 1" Ice	1.22 1.22 1.22
SM 5/16" (AT&T (8))	A	No	Inside Pole	150.00 - 3.00	1	No Ice 1/2" Ice 1" Ice	0.25 0.25 0.25
LDF6-50A (1-1/4 FOAM) (Sprint (9-11))	A	No	Inside Pole	169.00 - 8.00	3	No Ice 1/2" Ice 1" Ice	0.66 0.66 0.66
LDF6-50A (1-1/4 FOAM) (T-Mobile (20-25))	A	No	Inside Pole	160.50 - 3.00	6	No Ice 1/2" Ice 1" Ice	0.66 0.66 0.66
SM 5/16" (T-Mobile (26))	A	No	Inside Pole	160.50 - 3.00	1	No Ice 1/2" Ice 1" Ice	0.25 0.25 0.25
LDF5-50A (7/8 FOAM) (Unknown (27-28))	A	No	Inside Pole	89.75 - 8.00	2	No Ice 1/2" Ice 1" Ice	0.33 0.33 0.33
LDF4-50A (1/2 FOAM)	A	No	Inside Pole	89.75 - 8.00	3	No Ice	0.15

tnxTower Maser Consulting Connecticut 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: (732) 7383-1950 FAX:	Job	17963003A	Page	4 of 33
	Project	CT5404 Enfield Unionville Farmington	Date	16:02:00 01/17/18
	Client	AT&T	Designed by	dxu

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	C _{AA}	Weight
						ft ² /ft	plf
(Unknown (29-36))						1/2" Ice	0.15
						1" Ice	0.15
LDF4P-50A (1/2 FOAM) (Unknown (29-36))	A	No	Inside Pole	113.00 - 8.00	3	No Ice	0.15
						1/2" Ice	0.15
						1" Ice	0.15
LDF5-50A (7/8 FOAM) (Unknown (37-39))	A	No	Inside Pole	113.00 - 8.00	3	No Ice	0.33
						1/2" Ice	0.33
						1" Ice	0.33

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
			ft ²	ft ²	ft ²	ft ²	lb
L1	191.08-165.33	A	0.000	0.000	0.000	0.000	7.27
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	7.444	202.79
L2	165.33-130.75	A	0.000	0.000	9.981	0.000	487.49
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	10.028	273.18
L3	130.75-97.08	A	0.000	0.000	11.296	0.000	639.76
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	9.764	265.99
L4	97.08-64.25	A	0.000	0.000	11.014	0.000	677.03
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	9.521	259.36
L5	64.25-32.25	A	0.000	0.000	11.917	0.000	670.65
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	9.280	252.80
L6	32.25-1.00	A	0.000	0.000	11.341	0.000	591.43
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	9.063	246.88

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R	A _F	C _{AA} In Face	C _{AA} Out Face	Weight
			in	ft ²	ft ²	ft ²	ft ²	lb
L1	191.08-165.33	A	2.367	0.000	0.000	0.000	0.000	7.27
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	39.034	530.84
L2	165.33-130.75	A	2.323	0.000	0.000	43.136	0.000	1132.99
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	52.583	715.10
L3	130.75-97.08	A	2.263	0.000	0.000	48.156	0.000	1348.44
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	50.432	688.31
L4	97.08-64.25	A	2.186	0.000	0.000	46.070	0.000	1339.38
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	48.152	660.53
L5	64.25-32.25	A	2.077	0.000	0.000	53.178	0.000	1422.27
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	45.656	630.55
L6	32.25-1.00	A	1.868	0.000	0.000	50.200	0.000	1272.14
		B		0.000	0.000	0.000	0.000	0.00

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Tower Section	Tower Elevation ft	Face or Leg C	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
		C		0.000	0.000	0.000	42.812	597.36

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
L1	191.08-165.33	-0.3218	0.1858	-0.9745	0.5626
L2	165.33-130.75	-0.6321	-0.0166	-1.4983	0.0434
L3	130.75-97.08	-0.6906	-0.0414	-1.7177	-0.0088
L4	97.08-64.25	-0.7065	-0.0402	-1.8679	-0.0049
L5	64.25-32.25	-0.7557	-0.0639	-2.1129	-0.1203
L6	32.25-1.00	-0.7511	-0.0551	-2.1772	-0.1174

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
L1	8	LDF7-50A (1-5/8 FOAM)	165.33 - 160.50	1.0000	1.0000
L1	9	SM 1-3/8	165.33 - 160.50	1.0000	1.0000
L2	8	LDF7-50A (1-5/8 FOAM)	130.75 - 160.50	1.0000	1.0000
L2	9	SM 1-3/8	130.75 - 160.50	1.0000	1.0000
L3	8	LDF7-50A (1-5/8 FOAM)	97.08 - 130.75	1.0000	1.0000
L3	9	SM 1-3/8	97.08 - 130.75	1.0000	1.0000
L4	7	LDF4-50A (1/2 FOAM)	64.25 - 51.00	1.0000	1.0000
L4	8	LDF7-50A (1-5/8 FOAM)	64.25 - 97.08	1.0000	1.0000
L4	9	SM 1-3/8	64.25 - 97.08	1.0000	1.0000
L5	7	LDF4-50A (1/2 FOAM)	32.25 - 51.00	1.0000	1.0000
L5	8	LDF7-50A (1-5/8 FOAM)	32.25 - 64.25	1.0000	1.0000
L5	9	SM 1-3/8	32.25 - 64.25	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _{AA} Front ft ²	C _{AA} Side ft ²	Weight lb
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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					
Kathrein 80010121 w/6ft 2.0 Std pipe (AT&T)	A	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	5.51 5.98 6.43	4.72 5.56 6.29	68.20 116.99 172.24
Kathrein 80010121 w/6ft 2.0 Std pipe (AT&T)	B	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	5.51 5.98 6.43	4.72 5.56 6.29	68.20 116.99 172.24
Kathrein 80010121 w/6ft 2.0 Std pipe (AT&T)	C	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	5.51 5.98 6.43	4.72 5.56 6.29	68.20 116.99 172.24
HPA-65R-BUU-H8 (AT&T)	A	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	13.05 13.66 14.27	9.42 10.82 12.07	97.20 192.07 296.65
HPA-65R-BUU-H8 (AT&T)	B	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	13.05 13.66 14.27	9.42 10.82 12.07	97.20 192.07 296.65
HPA-65R-BUU-H8 (AT&T)	C	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	13.05 13.66 14.27	9.42 10.82 12.07	97.20 192.07 296.65
(2) LGP 17201 (Front Shielded by Antenna) (AT&T)	A	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.02 0.12 0.20	0.41 0.50 0.59	20.00 22.16 25.56
(2) LGP 17201 (Front Shielded by Antenna) (AT&T)	B	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.02 0.12 0.20	0.41 0.50 0.59	20.00 22.16 25.56
(2) LGP 17201 (Front Shielded by Antenna) (AT&T)	C	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	0.02 0.12 0.20	0.41 0.50 0.59	20.00 22.16 25.56
RRUS 32 (AT&T)	A	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	92.00 119.93 151.47
RRUS 32 (AT&T)	B	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	92.00 119.93 151.47
RRUS 32 (AT&T)	C	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	92.00 119.93 151.47
RRUS 32 B2 (AT&T)	A	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	67.90 95.83 127.37
RRUS 32 B2 (AT&T)	B	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	67.90 95.83 127.37
RRUS 32 B2 (AT&T)	C	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	3.31 3.56 3.81	2.42 2.64 2.86	67.90 95.83 127.37
RRUS-11 (AT&T)	A	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	2.52 2.72 2.92	1.02 1.16 1.30	55.00 74.32 96.56
RRUS-11 (AT&T)	B	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	2.52 2.72 2.92	1.02 1.16 1.30	55.00 74.32 96.56
RRUS-11 (AT&T)	C	From Face	4.00 0.00 0.00	0.0000	150.00	No Ice 1/2" Ice 1" Ice	2.52 2.72 2.92	1.02 1.16 1.30	55.00 74.32 96.56
MTC3607R - w.o pipes & shilded by wind (AT&T)	C	None		0.0000	150.00	No Ice 1/2" Ice 1" Ice	20.44 24.53 29.43	20.44 24.53 29.43	1815.00 2178.00 2613.90

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	Client	AT&T	Designed by	dxu

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	lb
TPA-65R-LCUUU-H8 w/ 8' pipe (AT&T)	A	From Face	4.00	0.00	0.0000	150.00	No Ice 13.30	10.72	123.40
			0.00	0.00			1/2" Ice 13.90	12.15	223.96
			0.00	0.00			1" Ice 14.50	13.43	334.50
TPA-65R-LCUUU-H8 w/ 8' pipe (AT&T)	B	From Face	4.00	0.00	0.0000	150.00	No Ice 13.30	10.72	123.40
			0.00	0.00			1/2" Ice 13.90	12.15	223.96
			0.00	0.00			1" Ice 14.50	13.43	334.50
TPA-65R-LCUUU-H8 w/ 8' pipe (AT&T)	C	From Face	4.00	0.00	0.0000	150.00	No Ice 13.30	10.72	123.40
			0.00	0.00			1/2" Ice 13.90	12.15	223.96
			0.00	0.00			1" Ice 14.50	13.43	334.50
DC6-48-06-18-8F (AT&T)	A	From Face	2.00	0.00	0.0000	150.00	No Ice 1.20	1.20	32.00
			0.00	0.00			1/2" Ice 1.88	1.88	53.81
			0.00	0.00			1" Ice 2.09	2.09	78.48
DC6-48-06-18-8F (AT&T)	B	From Face	2.00	0.00	0.0000	150.00	No Ice 1.20	1.20	32.00
			0.00	0.00			1/2" Ice 1.88	1.88	53.81
			0.00	0.00			1" Ice 2.09	2.09	78.48

GPS	C	From Leg	3.50	0.00	0.0000	52.00	No Ice 0.26	0.31	24.87
			0.00	0.00			1/2" Ice 0.37	0.44	30.02
			0.00	0.00			1" Ice 0.49	0.60	36.75
3.5" pipe x 42" long	C	From Leg	0.00	0.00	0.0000	52.00	No Ice 0.93	0.93	26.53
			0.00	0.00			1/2" Ice 1.15	1.15	35.60
			0.00	0.00			1" Ice 1.38	1.38	47.31

Pirol 5' Side Mount Standoff (1)	A	From Face	2.50	0.00	0.0000	89.75	No Ice 2.72	2.72	50.00
			0.00	0.00			1/2" Ice 0.00	0.00	65.00
			0.00	0.00			1" Ice 0.00	0.00	80.00
Pirol 5' Side Mount Standoff (1)	B	From Face	2.50	0.00	0.0000	89.75	No Ice 2.72	2.72	50.00
			0.00	0.00			1/2" Ice 0.00	0.00	65.00
			0.00	0.00			1" Ice 0.00	0.00	80.00
Pirol 5' Side Mount Standoff (1)	C	From Face	2.50	0.00	0.0000	89.75	No Ice 2.72	2.72	50.00
			0.00	0.00			1/2" Ice 0.00	0.00	65.00
			0.00	0.00			1" Ice 0.00	0.00	80.00
15' Omni	A	From Face	5.00	0.00	0.0000	97.25	No Ice 4.62	4.62	44.60
			0.00	0.00			1/2" Ice 6.39	6.39	83.08
			0.00	0.00			1" Ice 8.19	8.19	132.40
15' Omni	B	From Face	5.00	0.00	0.0000	97.25	No Ice 4.62	4.62	44.60
			0.00	0.00			1/2" Ice 6.39	6.39	83.08
			0.00	0.00			1" Ice 8.19	8.19	132.40
15' Omni	C	From Face	5.00	0.00	0.0000	97.25	No Ice 4.62	4.62	44.60
			0.00	0.00			1/2" Ice 6.39	6.39	83.08
			0.00	0.00			1" Ice 8.19	8.19	132.40

Pirol 5' Side Mount Standoff (1)	A	From Face	2.50	0.00	0.0000	113.00	No Ice 2.72	2.72	50.00
			0.00	0.00			1/2" Ice 0.00	0.00	65.00
			0.00	0.00			1" Ice 0.00	0.00	80.00
Pirol 5' Side Mount Standoff (1)	B	From Face	2.50	0.00	0.0000	113.00	No Ice 2.72	2.72	50.00
			0.00	0.00			1/2" Ice 0.00	0.00	65.00
			0.00	0.00			1" Ice 0.00	0.00	80.00
Pirol 5' Side Mount Standoff (1)	C	From Face	2.50	0.00	0.0000	113.00	No Ice 2.72	2.72	50.00
			0.00	0.00			1/2" Ice 0.00	0.00	65.00
			0.00	0.00			1" Ice 0.00	0.00	80.00
4' Omni	A	From Face	5.00	0.00	0.0000	116.00	No Ice 1.76	1.76	44.60
			0.00	0.00			1/2" Ice 2.25	2.25	62.92
			0.00	0.00			1" Ice 2.76	2.76	85.36
4' Omni	B	From Face	5.00	0.00	0.0000	116.00	No Ice 1.76	1.76	44.60
			0.00	0.00			1/2" Ice 2.25	2.25	62.92
			0.00	0.00			1" Ice 2.76	2.76	85.36

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	Client	AT&T	Designed by	dxu

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Vert					
			ft	ft	°	ft	ft ²	ft ²	lb
4' Omni	C	From Face	5.00	0.0000		116.00	No Ice	1.76	44.60
			0.00				1/2" Ice	2.25	62.92
			0.00				1" Ice	2.76	85.36

LNX-6515DS-VTM (T-Mobile)	A	From Face	4.00	0.0000		162.50	No Ice	11.45	79.50
			0.00				1/2" Ice	12.06	166.47
			0.00				1" Ice	12.69	263.19
LNX-6515DS-VTM (T-Mobile)	B	From Face	4.00	0.0000		162.50	No Ice	11.45	79.50
			0.00				1/2" Ice	12.06	166.47
			0.00				1" Ice	12.69	263.19
LNX-6515DS-VTM (T-Mobile)	C	From Face	4.00	0.0000		162.50	No Ice	11.45	79.50
			0.00				1/2" Ice	12.06	166.47
			0.00				1" Ice	12.69	263.19
(2) AIR 21 B4A/B2P (T-Mobile)	A	From Face	4.00	0.0000		162.50	No Ice	5.96	126.00
			0.00				1/2" Ice	6.33	167.04
			0.00				1" Ice	6.71	213.17
(2) AIR 21 B4A/B2P (T-Mobile)	B	From Face	4.00	0.0000		162.50	No Ice	5.96	126.00
			0.00				1/2" Ice	6.33	167.04
			0.00				1" Ice	6.71	213.17
(2) AIR 21 B4A/B2P (T-Mobile)	C	From Face	4.00	0.0000		162.50	No Ice	5.96	126.00
			0.00				1/2" Ice	6.33	167.04
			0.00				1" Ice	6.71	213.17
RRUS11 B12 (Partial Shielded by 11.9" Antenna) (T-Mobile)	A	From Face	4.00	0.0000		162.50	No Ice	0.88	50.70
			0.00				1/2" Ice	1.02	60.68
			0.00				1" Ice	1.16	72.93
RRUS11 B12 (Partial Shielded by 11.9" Antenna) (T-Mobile)	B	From Face	4.00	0.0000		162.50	No Ice	0.88	50.70
			0.00				1/2" Ice	1.02	60.68
			0.00				1" Ice	1.16	72.93
RRUS11 B12 (Partial Shielded by 11.9" Antenna) (T-Mobile)	C	From Face	4.00	0.0000		162.50	No Ice	0.88	50.70
			0.00				1/2" Ice	1.02	60.68
			0.00				1" Ice	1.16	72.93
LGP 17201 (Front Shielded by Antenna) (T-Mobile)	A	From Face	4.00	0.0000		162.50	No Ice	0.02	20.00
			0.00				1/2" Ice	0.12	22.16
			0.00				1" Ice	0.20	25.56
LGP 17201 (Front Shielded by Antenna) (T-Mobile)	B	From Face	4.00	0.0000		162.50	No Ice	0.02	20.00
			0.00				1/2" Ice	0.12	22.16
			0.00				1" Ice	0.20	25.56
LGP 17201 (Front Shielded by Antenna) (T-Mobile)	C	From Face	4.00	0.0000		162.50	No Ice	0.02	20.00
			0.00				1/2" Ice	0.12	22.16
			0.00				1" Ice	0.20	25.56
Small 12' platform (T-Mobile)	C	None		0.0000		160.50	No Ice	20.00	400.00
							1/2" Ice	30.00	450.00
							1" Ice	40.00	500.00

APXVSPP18-C-A20 w/ 8' pipe (Sprint)	A	From Face	4.00	0.0000		173.75	No Ice	8.50	86.20
			2.00				1/2" Ice	9.16	156.82
			0.00				1" Ice	9.79	235.60
APXVSPP18-C-A20 w/ 8' pipe (Sprint)	B	From Face	4.00	0.0000		173.75	No Ice	8.50	86.20
			2.00				1/2" Ice	9.16	156.82
			0.00				1" Ice	9.79	235.60
APXVSPP18-C-A20 w/ 8' pipe (Sprint)	C	From Face	4.00	0.0000		173.75	No Ice	8.50	86.20
			2.00				1/2" Ice	9.16	156.82
			0.00				1" Ice	9.79	235.60
FD-RRH-2X50-800 (Sprint)	A	From Face	1.00	0.0000		173.75	No Ice	2.13	64.00
			0.00				1/2" Ice	2.32	89.77
			0.00				1" Ice	2.51	118.83
FD-RRH-2X50-800	B	From Face	1.00	0.0000		173.75	No Ice	2.13	64.00

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	CAAA Front	CAAA Side	Weight
			Horz	Lateral					
(Sprint)			0.00			1/2" Ice	2.32	2.66	89.77
			0.00			1" Ice	2.51	2.86	118.83
FD-RRH-2X50-800	C	From Face	1.00	0.0000	173.75	No Ice	2.13	2.46	64.00
(Sprint)			0.00			1/2" Ice	2.32	2.66	89.77
			0.00			1" Ice	2.51	2.86	118.83
FD-RRH-4X45-1900	A	From Face	1.00	0.0000	173.75	No Ice	2.38	2.32	60.00
(Sprint)			0.00			1/2" Ice	2.59	2.52	83.96
			0.00			1" Ice	2.80	2.74	111.20
FD-RRH-4X45-1900	B	From Face	1.00	0.0000	173.75	No Ice	2.38	2.32	60.00
(Sprint)			0.00			1/2" Ice	2.59	2.52	83.96
			0.00			1" Ice	2.80	2.74	111.20
FD-RRH-4X45-1900	C	From Face	1.00	0.0000	173.75	No Ice	2.38	2.32	60.00
(Sprint)			0.00			1/2" Ice	2.59	2.52	83.96
			0.00			1" Ice	2.80	2.74	111.20
Small 12' platform	C	None		0.0000	169.00	No Ice	20.00	20.00	400.00
(Sprint)						1/2" Ice	30.00	30.00	450.00
						1" Ice	40.00	40.00	500.00

5' Sector Frame T-arm	B	From Face	2.50	0.0000	178.50	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	4.91	4.91	89.00
			0.00			1" Ice	7.10	7.10	128.00
5' Sector Frame T-arm	C	From Face	2.50	0.0000	178.50	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	4.91	4.91	89.00
			0.00			1" Ice	7.10	7.10	128.00
3' Omni	B	From Face	5.00	0.0000	183.83	No Ice	1.47	1.47	44.60
			0.00			1/2" Ice	1.90	1.90	61.08
			0.00			1" Ice	2.35	2.35	81.08

5' Sector Frame T-arm	B	From Face	1.00	0.0000	183.75	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	4.91	4.91	89.00
			0.00			1" Ice	7.10	7.10	128.00
Yagi 3'	B	From Face	5.00	0.0000	183.75	No Ice	0.52	0.52	10.00
			0.00			1/2" Ice	0.71	0.71	14.81
			0.00			1" Ice	0.90	0.90	21.81
5' Sector Frame T-arm	C	From Face	1.00	0.0000	183.75	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	4.91	4.91	89.00
			0.00			1" Ice	7.10	7.10	128.00
Yagi 3'	C	From Face	5.00	0.0000	183.75	No Ice	0.52	0.52	10.00
			0.00			1/2" Ice	0.71	0.71	14.81
			0.00			1" Ice	0.90	0.90	21.81

5' Sector Frame T-arm	A	From Face	2.50	0.0000	188.00	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	4.91	4.91	89.00
			0.00			1" Ice	7.10	7.10	128.00
5' Sector Frame T-arm	B	From Face	2.50	0.0000	188.00	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	4.91	4.91	89.00
			0.00			1" Ice	7.10	7.10	128.00
5' Sector Frame T-arm	C	From Face	2.50	0.0000	188.00	No Ice	2.72	2.72	50.00
			0.00			1/2" Ice	4.91	4.91	89.00
			0.00			1" Ice	7.10	7.10	128.00
6' Omni	A	From Face	5.00	0.0000	190.00	No Ice	2.37	2.37	44.60
			0.00			1/2" Ice	3.08	3.08	66.58
			0.00			1" Ice	3.70	3.70	93.91
6' Omni	B	From Face	5.00	0.0000	190.00	No Ice	2.37	2.37	44.60
			0.00			1/2" Ice	3.08	3.08	66.58
			0.00			1" Ice	3.70	3.70	93.91
6' Omni	C	From Face	5.00	0.0000	190.00	No Ice	2.37	2.37	44.60

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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
			0.00		1/2" Ice	3.08	3.08	66.58
			0.00		1" Ice	3.70	3.70	93.91
***** 2.0" x 9' long pipe	C	From Leg	0.00	0.0000	188.00	No Ice	2.14	33.00
			0.00		1/2" Ice	3.07	3.07	49.10
			0.00		1" Ice	4.01	4.01	71.08

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	ft	ft ²	lb	
3' dish	C	Paraboloid w/Shroud (HP)	From Face	5.00 0.00 0.00	Worst		192.17	3.00	No Ice 1/2" Ice 1" Ice	9.00 9.51 10.01	50.00 98.82 147.64
Kathrein Scala PR-950	C	Grid	From Face	5.00 0.00 0.00	Worst		190.00		No Ice 1/2" Ice 1" Ice	12.56 13.09 13.62	38.00 43.00 50.00

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 191.08-165.33	177.60	1.428	33	49.639	A	0.000	49.639	49.639	100.00	0.000	0.000
					B	0.000	49.639		100.00	0.000	0.000
					C	0.000	49.639		100.00	0.000	7.444
L2 165.33-130.75	147.32	1.373	31	87.044	A	0.000	87.044	87.044	100.00	9.981	0.000
					B	0.000	87.044		100.00	0.000	0.000
					C	0.000	87.044		100.00	0.000	10.028
L3 130.75-97.08	113.46	1.3	30	105.959	A	0.000	105.959	105.959	100.00	11.296	0.000
					B	0.000	105.959		100.00	0.000	0.000
					C	0.000	105.959		100.00	0.000	9.764
L4 97.08-64.25	80.32	1.209	28	124.261	A	0.000	124.261	124.261	100.00	11.014	0.000
					B	0.000	124.261		100.00	0.000	0.000
					C	0.000	124.261		100.00	0.000	9.521
L5 64.25-32.25	48.13	1.085	25	141.050	A	0.000	141.050	141.050	100.00	11.917	0.000
					B	0.000	141.050		100.00	0.000	0.000
					C	0.000	141.050		100.00	0.000	9.280
L6 32.25-1.00	16.71	0.868	20	154.957	A	0.000	154.957	154.957	100.00	11.341	0.000
					B	0.000	154.957		100.00	0.000	0.000
					C	0.000	154.957		100.00	0.000	9.063

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Tower Pressure - With Ice

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z psf	t_z in	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	C_{AA} In Face ft ²	C_{AA} Out Face ft ²
L1 191.08-165.33	177.60	1.428	6	2.3666	59.795	A	0.000	59.795	59.795	100.00	0.000	0.000
						B	0.000	59.795	100.00	0.000	0.000	
						C	0.000	59.795	100.00	0.000	39.034	
L2 165.33-130.75	147.32	1.373	5	2.3228	100.683	A	0.000	100.683	100.683	100.00	43.136	0.000
						B	0.000	100.683	100.00	0.000	0.000	
						C	0.000	100.683	100.00	0.000	52.583	
L3 130.75-97.08	113.46	1.3	5	2.2629	118.994	A	0.000	118.994	118.994	100.00	48.156	0.000
						B	0.000	118.994	100.00	0.000	0.000	
						C	0.000	118.994	100.00	0.000	50.432	
L4 97.08-64.25	80.32	1.209	5	2.1860	136.643	A	0.000	136.643	136.643	100.00	46.070	0.000
						B	0.000	136.643	100.00	0.000	0.000	
						C	0.000	136.643	100.00	0.000	48.152	
L5 64.25-32.25	48.13	1.085	4	2.0769	152.709	A	0.000	152.709	152.709	100.00	53.178	0.000
						B	0.000	152.709	100.00	0.000	0.000	
						C	0.000	152.709	100.00	0.000	45.656	
L6 32.25-1.00	16.71	0.868	3	1.8684	165.774	A	0.000	165.774	165.774	100.00	50.200	0.000
						B	0.000	165.774	100.00	0.000	0.000	
						C	0.000	165.774	100.00	0.000	42.812	

Tower Pressure - Service

$G_H = 1.100$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft ²	F a c e	A_F ft ²	A_R ft ²	A_{leg} ft ²	Leg %	C_{AA} In Face ft ²	C_{AA} Out Face ft ²
L1 191.08-165.33	177.60	1.428	11	49.639	A	0.000	49.639	49.639	100.00	0.000	0.000
					B	0.000	49.639	100.00	0.000	0.000	
					C	0.000	49.639	100.00	0.000	7.444	
L2 165.33-130.75	147.32	1.373	11	87.044	A	0.000	87.044	87.044	100.00	9.981	0.000
					B	0.000	87.044	100.00	0.000	0.000	
					C	0.000	87.044	100.00	0.000	10.028	
L3 130.75-97.08	113.46	1.3	10	105.959	A	0.000	105.959	105.959	100.00	11.296	0.000
					B	0.000	105.959	100.00	0.000	0.000	
					C	0.000	105.959	100.00	0.000	9.764	
L4 97.08-64.25	80.32	1.209	9	124.261	A	0.000	124.261	124.261	100.00	11.014	0.000
					B	0.000	124.261	100.00	0.000	0.000	
					C	0.000	124.261	100.00	0.000	9.521	
L5 64.25-32.25	48.13	1.085	8	141.050	A	0.000	141.050	141.050	100.00	11.917	0.000
					B	0.000	141.050	100.00	0.000	0.000	
					C	0.000	141.050	100.00	0.000	9.280	
L6 32.25-1.00	16.71	0.868	7	154.957	A	0.000	154.957	154.957	100.00	11.341	0.000
					B	0.000	154.957	100.00	0.000	0.000	
					C	0.000	154.957	100.00	0.000	9.063	

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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 191.08-165.33	210.06	1644.88	A	1	0.699	33	1	1	49.639	1514.54	58.82	C
			B	1	0.699		1	1	49.639			
			C	1	0.699		1	1	49.639			
L2 165.33-130.75	760.67	3863.97	A	1	0.65	31	1	1	87.044	2301.21	66.55	C
			B	1	0.65		1	1	87.044			
			C	1	0.65		1	1	87.044			
L3 130.75-97.08	905.75	5800.88	A	1	0.65	30	1	1	105.959	2570.86	76.35	C
			B	1	0.65		1	1	105.959			
			C	1	0.65		1	1	105.959			
L4 97.08-64.25	936.38	6976.54	A	1	0.65	28	1	1	124.261	2743.02	83.55	C
			B	1	0.65		1	1	124.261			
			C	1	0.65		1	1	124.261			
L5 64.25-32.25	923.45	8139.88	A	1	0.65	25	1	1	141.050	2747.62	85.86	C
			B	1	0.65		1	1	141.050			
			C	1	0.65		1	1	141.050			
L6 32.25-1.00	838.31	9174.41	A	1	0.65	20	1	1	154.957	2469.67	79.03	C
			B	1	0.65		1	1	154.957			
			C	1	0.65		1	1	154.957			
Sum Weight:	4574.63	35600.57						OTM	1279.17 kip-ft	14346.92		

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 191.08-165.33	210.06	1644.88	A	1	0.699	33	1	1	49.639	1514.54	58.82	C
			B	1	0.699		1	1	49.639			
			C	1	0.699		1	1	49.639			
L2 165.33-130.75	760.67	3863.97	A	1	0.65	31	1	1	87.044	2301.21	66.55	C
			B	1	0.65		1	1	87.044			
			C	1	0.65		1	1	87.044			
L3 130.75-97.08	905.75	5800.88	A	1	0.65	30	1	1	105.959	2570.86	76.35	C
			B	1	0.65		1	1	105.959			
			C	1	0.65		1	1	105.959			
L4 97.08-64.25	936.38	6976.54	A	1	0.65	28	1	1	124.261	2743.02	83.55	C
			B	1	0.65		1	1	124.261			
			C	1	0.65		1	1	124.261			
L5 64.25-32.25	923.45	8139.88	A	1	0.65	25	1	1	141.050	2747.62	85.86	C
			B	1	0.65		1	1	141.050			
			C	1	0.65		1	1	141.050			
L6 32.25-1.00	838.31	9174.41	A	1	0.65	20	1	1	154.957	2469.67	79.03	C
			B	1	0.65		1	1	154.957			
			C	1	0.65		1	1	154.957			
Sum Weight:	4574.63	35600.57						OTM	1279.17 kip-ft	14346.92		

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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 191.08-165.33	210.06	1644.88	A	1	0.699	33	1	1	49.639	1514.54	58.82	C
			B	1	0.699		1	1	49.639			
			C	1	0.699		1	1	49.639			
L2 165.33-130.75	760.67	3863.97	A	1	0.791	31	1	1	87.044	2726.10	78.83	A
			B	1	0.65		1	1	87.044			
			C	1	0.65		1	1	87.044			
L3 130.75-97.08	905.75	5800.88	A	1	0.743	30	1	1	105.959	2894.20	85.96	A
			B	1	0.65		1	1	105.959			
			C	1	0.65		1	1	105.959			
L4 97.08-64.25	936.38	6976.54	A	1	0.695	28	1	1	124.261	2911.91	88.70	A
			B	1	0.65		1	1	124.261			
			C	1	0.65		1	1	124.261			
L5 64.25-32.25	923.45	8139.88	A	1	0.661	25	1	1	141.050	2789.32	87.17	A
			B	1	0.65		1	1	141.050			
			C	1	0.65		1	1	141.050			
L6 32.25-1.00	838.31	9174.41	A	1	0.65	20	1	1	154.957	2469.67	79.03	C
			B	1	0.65		1	1	154.957			
			C	1	0.65		1	1	154.957			
Sum Weight:	4574.63	35600.57						OTM	1393.06 kip-ft	15305.73		

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 191.08-165.33	538.11	3536.50	A	1	1.2	6	1	1	59.795	677.31	26.30	C
			B	1	1.2		1	1	59.795			
			C	1	1.2		1	1	59.795			
L2 165.33-130.75	1848.09	7043.48	A	1	1.2	5	1	1	100.683	1060.47	30.67	C
			B	1	1.2		1	1	100.683			
			C	1	1.2		1	1	100.683			
L3 130.75-97.08	2036.75	9511.28	A	1	1.2	5	1	1	118.994	1118.06	33.21	C
			B	1	1.2		1	1	118.994			
			C	1	1.2		1	1	118.994			
L4 97.08-64.25	1999.91	11132.62	A	1	1.2	5	1	1	136.643	1134.57	34.56	C
			B	1	1.2		1	1	136.643			
			C	1	1.2		1	1	136.643			
L5 64.25-32.25	2052.82	12583.53	A	1	1.2	4	1	1	152.709	1092.00	34.12	C
			B	1	1.2		1	1	152.709			
			C	1	1.2		1	1	152.709			
L6 32.25-1.00	1869.49	13532.34	A	1	1.2	3	1	1	165.774	948.22	30.34	C
			B	1	1.2		1	1	165.774			
			C	1	1.2		1	1	165.774			
Sum Weight:	10345.18	57339.75						OTM	556.87 kip-ft	6030.63		

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Tower Forces - With Ice - 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 191.08-165.33	538.11	3536.50	A	1	1.2	6	1	1	59.795	677.31	26.30	C
			B	1	1.2		1	1	59.795			
			C	1	1.2		1	1	59.795			
L2 165.33-130.75	1848.09	7043.48	A	1	1.2	5	1	1	100.683	1060.47	30.67	C
			B	1	1.2		1	1	100.683			
			C	1	1.2		1	1	100.683			
L3 130.75-97.08	2036.75	9511.28	A	1	1.2	5	1	1	118.994	1118.06	33.21	C
			B	1	1.2		1	1	118.994			
			C	1	1.2		1	1	118.994			
L4 97.08-64.25	1999.91	11132.62	A	1	1.2	5	1	1	136.643	1134.57	34.56	C
			B	1	1.2		1	1	136.643			
			C	1	1.2		1	1	136.643			
L5 64.25-32.25	2052.82	12583.53	A	1	1.2	4	1	1	152.709	1092.00	34.12	C
			B	1	1.2		1	1	152.709			
			C	1	1.2		1	1	152.709			
L6 32.25-1.00	1869.49	13532.34	A	1	1.2	3	1	1	165.774	948.22	30.34	C
			B	1	1.2		1	1	165.774			
			C	1	1.2		1	1	165.774			
Sum Weight:	10345.18	57339.75						OTM	556.87 kip-ft	6030.63		

Tower Forces - With Ice - Wind 90 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 191.08-165.33	538.11	3536.50	A	1	1.2	6	1	1	59.795	677.31	26.30	C
			B	1	1.2		1	1	59.795			
			C	1	1.2		1	1	59.795			
L2 165.33-130.75	1848.09	7043.48	A	1	1.2	5	1	1	100.683	1401.90	40.54	A
			B	1	1.2		1	1	100.683			
			C	1	1.2		1	1	100.683			
L3 130.75-97.08	2036.75	9511.28	A	1	1.2	5	1	1	118.994	1478.78	43.92	A
			B	1	1.2		1	1	118.994			
			C	1	1.2		1	1	118.994			
L4 97.08-64.25	1999.91	11132.62	A	1	1.2	5	1	1	136.643	1455.33	44.33	A
			B	1	1.2		1	1	136.643			
			C	1	1.2		1	1	136.643			
L5 64.25-32.25	2052.82	12583.53	A	1	1.2	4	1	1	152.709	1389.67	43.43	A
			B	1	1.2		1	1	152.709			
			C	1	1.2		1	1	152.709			
L6 32.25-1.00	1869.49	13532.34	A	1	1.2	3	1	1	165.774	1172.45	37.52	A
			B	1	1.2		1	1	165.774			
			C	1	1.2		1	1	165.774			
Sum Weight:	10345.18	57339.75						OTM	690.40 kip-ft	7575.46		

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Tower Forces - Service - Wind Normal To Face

Section Elevation <i>ft</i>	Add Weight <i>lb</i>	Self Weight <i>lb</i>	F a c e	<i>e</i>	C_F	q_z <i>psf</i>	D_F	D_R	A_E <i>ft²</i>	F <i>lb</i>	w <i>plf</i>	Ctrl. Face
L1 191.08-165.33	210.06	1644.88	A	1	0.699	11	1	1	49.639	518.48	20.14	C
			B	1	0.699		1	1	49.639			
			C	1	0.699		1	1	49.639			
L2 165.33-130.75	760.67	3863.97	A	1	0.65	11	1	1	87.044	787.79	22.78	C
			B	1	0.65		1	1	87.044			
			C	1	0.65		1	1	87.044			
L3 130.75-97.08	905.75	5800.88	A	1	0.65	10	1	1	105.959	880.10	26.14	C
			B	1	0.65		1	1	105.959			
			C	1	0.65		1	1	105.959			
L4 97.08-64.25	936.38	6976.54	A	1	0.65	9	1	1	124.261	939.04	28.60	C
			B	1	0.65		1	1	124.261			
			C	1	0.65		1	1	124.261			
L5 64.25-32.25	923.45	8139.88	A	1	0.65	8	1	1	141.050	940.61	29.39	C
			B	1	0.65		1	1	141.050			
			C	1	0.65		1	1	141.050			
L6 32.25-1.00	838.31	9174.41	A	1	0.65	7	1	1	154.957	845.46	27.05	C
			B	1	0.65		1	1	154.957			
			C	1	0.65		1	1	154.957			
Sum Weight:	4574.63	35600.57						OTM	437.91 kip-ft	4911.49		

Tower Forces - Service - Wind 60 To Face

Section Elevation <i>ft</i>	Add Weight <i>lb</i>	Self Weight <i>lb</i>	F a c e	<i>e</i>	C_F	q_z <i>psf</i>	D_F	D_R	A_E <i>ft²</i>	F <i>lb</i>	w <i>plf</i>	Ctrl. Face
L1 191.08-165.33	210.06	1644.88	A	1	0.699	11	1	1	49.639	518.48	20.14	C
			B	1	0.699		1	1	49.639			
			C	1	0.699		1	1	49.639			
L2 165.33-130.75	760.67	3863.97	A	1	0.65	11	1	1	87.044	787.79	22.78	C
			B	1	0.65		1	1	87.044			
			C	1	0.65		1	1	87.044			
L3 130.75-97.08	905.75	5800.88	A	1	0.65	10	1	1	105.959	880.10	26.14	C
			B	1	0.65		1	1	105.959			
			C	1	0.65		1	1	105.959			
L4 97.08-64.25	936.38	6976.54	A	1	0.65	9	1	1	124.261	939.04	28.60	C
			B	1	0.65		1	1	124.261			
			C	1	0.65		1	1	124.261			
L5 64.25-32.25	923.45	8139.88	A	1	0.65	8	1	1	141.050	940.61	29.39	C
			B	1	0.65		1	1	141.050			
			C	1	0.65		1	1	141.050			
L6 32.25-1.00	838.31	9174.41	A	1	0.65	7	1	1	154.957	845.46	27.05	C
			B	1	0.65		1	1	154.957			
			C	1	0.65		1	1	154.957			
Sum Weight:	4574.63	35600.57						OTM	437.91	4911.49		

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	Client AT&T	Designed by dxu

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	
									kip-ft			

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 191.08-165.33	210.06	1644.88	A	1	0.699	11	1	1	49.639	518.48	20.14	C
			B	1	0.699		1	1	49.639			
			C	1	0.699		1	1	49.639			
L2 165.33-130.75	760.67	3863.97	A	1	0.791	11	1	1	87.044	933.24	26.99	A
			B	1	0.65		1	1	87.044			
			C	1	0.65		1	1	87.044			
L3 130.75-97.08	905.75	5800.88	A	1	0.743	10	1	1	105.959	990.79	29.43	A
			B	1	0.65		1	1	105.959			
			C	1	0.65		1	1	105.959			
L4 97.08-64.25	936.38	6976.54	A	1	0.695	9	1	1	124.261	996.86	30.36	A
			B	1	0.65		1	1	124.261			
			C	1	0.65		1	1	124.261			
L5 64.25-32.25	923.45	8139.88	A	1	0.661	8	1	1	141.050	954.89	29.84	A
			B	1	0.65		1	1	141.050			
			C	1	0.65		1	1	141.050			
L6 32.25-1.00	838.31	9174.41	A	1	0.65	7	1	1	154.957	845.46	27.05	C
			B	1	0.65		1	1	154.957			
			C	1	0.65		1	1	154.957			
Sum Weight:	4574.63	35600.57						OTM	476.90 kip-ft	5239.72		

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 _{AAC} Front ft ²	C _{AAC} Side ft ²
Kathrein 80010121 w/6ft 2.0 Std pipe	300.0000	68.20	-4.52	-2.61	150.00	1.378	32	5.51	4.72
Kathrein 80010121 w/6ft 2.0 Std pipe	60.0000	68.20	4.52	-2.61	150.00	1.378	32	5.51	4.72
Kathrein 80010121 w/6ft 2.0 Std pipe	180.0000	68.20	0.00	5.22	150.00	1.378	32	5.51	4.72
HPA-65R-BUU-H8	300.0000	97.20	-4.52	-2.61	150.00	1.378	32	13.05	9.42
HPA-65R-BUU-H8	60.0000	97.20	4.52	-2.61	150.00	1.378	32	13.05	9.42
HPA-65R-BUU-H8	180.0000	97.20	0.00	5.22	150.00	1.378	32	13.05	9.42
LGP 17201 (Front Shielded by Antenna)	300.0000	40.00	-4.52	-2.61	150.00	1.378	32	0.03	0.81
LGP 17201 (Front Shielded by Antenna)	60.0000	40.00	4.52	-2.61	150.00	1.378	32	0.03	0.81
LGP 17201 (Front Shielded by Antenna)	180.0000	40.00	0.00	5.22	150.00	1.378	32	0.03	0.81

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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
RRUS 32	300.0000	92.00	-4.52	-2.61	150.00	1.378	32	3.31	2.42
RRUS 32	60.0000	92.00	4.52	-2.61	150.00	1.378	32	3.31	2.42
RRUS 32	180.0000	92.00	0.00	5.22	150.00	1.378	32	3.31	2.42
RRUS 32 B2	300.0000	67.90	-4.52	-2.61	150.00	1.378	32	3.31	2.42
RRUS 32 B2	60.0000	67.90	4.52	-2.61	150.00	1.378	32	3.31	2.42
RRUS 32 B2	180.0000	67.90	0.00	5.22	150.00	1.378	32	3.31	2.42
RRUS-11	300.0000	55.00	-4.52	-2.61	150.00	1.378	32	2.52	1.02
RRUS-11	60.0000	55.00	4.52	-2.61	150.00	1.378	32	2.52	1.02
RRUS-11	180.0000	55.00	0.00	5.22	150.00	1.378	32	2.52	1.02
MTC3607R - w.o pipes & shielded by wind	0.0000	1815.00	0.00	0.00	150.00	1.378	32	20.44	20.44
TPA-65R-LCUUU-H8 w/ 8' pipe	300.0000	123.40	-4.52	-2.61	150.00	1.378	32	13.30	10.72
TPA-65R-LCUUU-H8 w/ 8' pipe	60.0000	123.40	4.52	-2.61	150.00	1.378	32	13.30	10.72
TPA-65R-LCUUU-H8 w/ 8' pipe	180.0000	123.40	0.00	5.22	150.00	1.378	32	13.30	10.72
DC6-48-06-18-8F	300.0000	32.00	-2.79	-1.61	150.00	1.378	32	1.20	1.20
DC6-48-06-18-8F	60.0000	32.00	2.79	-1.61	150.00	1.378	32	1.20	1.20
GPS	240.0000	24.87	-4.88	2.82	52.00	1.103	25	0.26	0.31
3.5" pipe x 42" long	240.0000	26.53	-1.85	1.07	52.00	1.103	25	0.93	0.93
Pirod 5' Side Mount Standoff (1)	300.0000	50.00	-3.69	-2.13	89.75	1.237	28	2.72	2.72
Pirod 5' Side Mount Standoff (1)	60.0000	50.00	3.69	-2.13	89.75	1.237	28	2.72	2.72
Pirod 5' Side Mount Standoff (1)	180.0000	50.00	0.00	4.27	89.75	1.237	28	2.72	2.72
15' Omni	300.0000	44.60	-5.81	-3.35	97.25	1.258	29	4.62	4.62
15' Omni	60.0000	44.60	5.81	-3.35	97.25	1.258	29	4.62	4.62
15' Omni	180.0000	44.60	0.00	6.71	97.25	1.258	29	4.62	4.62
Pirod 5' Side Mount Standoff (1)	300.0000	50.00	-3.51	-2.03	113.00	1.299	30	2.72	2.72
Pirod 5' Side Mount Standoff (1)	60.0000	50.00	3.51	-2.03	113.00	1.299	30	2.72	2.72
Pirod 5' Side Mount Standoff (1)	180.0000	50.00	0.00	4.06	113.00	1.299	30	2.72	2.72
4' Omni	300.0000	44.60	-5.65	-3.26	116.00	1.306	30	1.76	1.76
4' Omni	60.0000	44.60	5.65	-3.26	116.00	1.306	30	1.76	1.76
4' Omni	180.0000	44.60	0.00	6.53	116.00	1.306	30	1.76	1.76
LNx-6515DS-VTM	300.0000	79.50	-4.41	-2.55	162.50	1.402	32	11.45	9.60
LNx-6515DS-VTM	60.0000	79.50	4.41	-2.55	162.50	1.402	32	11.45	9.60
LNx-6515DS-VTM	180.0000	79.50	0.00	5.09	162.50	1.402	32	11.45	9.60
AIR 21 B4A/B2P	300.0000	252.00	-4.41	-2.55	162.50	1.402	32	11.93	8.53
AIR 21 B4A/B2P	60.0000	252.00	4.41	-2.55	162.50	1.402	32	11.93	8.53
AIR 21 B4A/B2P	180.0000	252.00	0.00	5.09	162.50	1.402	32	11.93	8.53
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	300.0000	50.70	-4.41	-2.55	162.50	1.402	32	0.88	1.18
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	60.0000	50.70	4.41	-2.55	162.50	1.402	32	0.88	1.18
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	180.0000	50.70	0.00	5.09	162.50	1.402	32	0.88	1.18
LGP 17201 (Front Shielded by Antenna)	300.0000	20.00	-4.41	-2.55	162.50	1.402	32	0.02	0.41
LGP 17201 (Front Shielded by Antenna)	60.0000	20.00	4.41	-2.55	162.50	1.402	32	0.02	0.41
LGP 17201 (Front Shielded by Antenna)	180.0000	20.00	0.00	5.09	162.50	1.402	32	0.02	0.41
Small 12' platform	0.0000	400.00	0.00	0.00	160.50	1.398	32	20.00	20.00

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	Project	CT5404 Enfield Unionville Farmington	Date	16:02:00 01/17/18
	Client	AT&T	Designed by	dxu

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
APXVSP18-C-A20 w/ 8' pipe	300.0000	86.20	-3.33	-4.23	173.75	1.422	33	8.50	7.18
APXVSP18-C-A20 w/ 8' pipe	60.0000	86.20	5.33	-0.77	173.75	1.422	33	8.50	7.18
APXVSP18-C-A20 w/ 8' pipe	180.0000	86.20	-2.00	5.00	173.75	1.422	33	8.50	7.18
FD-RRH-2X50-800	300.0000	64.00	-1.73	-1.00	173.75	1.422	33	2.13	2.46
FD-RRH-2X50-800	60.0000	64.00	1.73	-1.00	173.75	1.422	33	2.13	2.46
FD-RRH-2X50-800	180.0000	64.00	0.00	2.00	173.75	1.422	33	2.13	2.46
FD-RRH-4X45-1900	300.0000	60.00	-1.73	-1.00	173.75	1.422	33	2.38	2.32
FD-RRH-4X45-1900	60.0000	60.00	1.73	-1.00	173.75	1.422	33	2.38	2.32
FD-RRH-4X45-1900	180.0000	60.00	0.00	2.00	173.75	1.422	33	2.38	2.32
Small 12' platform	0.0000	400.00	0.00	0.00	169.00	1.413	32	20.00	20.00
5' Sector Frame T-arm	60.0000	50.00	2.98	-1.72	178.50	1.430	33	2.72	2.72
5' Sector Frame T-arm	180.0000	50.00	0.00	3.45	178.50	1.430	33	2.72	2.72
3' Omni	60.0000	44.60	5.10	-2.95	183.83	1.439	33	1.47	1.47
5' Sector Frame T-arm	60.0000	50.00	1.64	-0.95	183.75	1.439	33	2.72	2.72
Yagi 3'	60.0000	10.00	5.10	-2.95	183.75	1.439	33	0.52	0.52
5' Sector Frame T-arm	180.0000	50.00	0.00	1.89	183.75	1.439	33	2.72	2.72
Yagi 3'	180.0000	10.00	0.00	5.89	183.75	1.439	33	0.52	0.52
5' Sector Frame T-arm	300.0000	50.00	-2.90	-1.67	188.00	1.446	33	2.72	2.72
5' Sector Frame T-arm	60.0000	50.00	2.90	-1.67	188.00	1.446	33	2.72	2.72
5' Sector Frame T-arm	180.0000	50.00	0.00	3.35	188.00	1.446	33	2.72	2.72
6' Omni	300.0000	44.60	-5.05	-2.91	190.00	1.449	33	2.37	2.37
6' Omni	60.0000	44.60	5.05	-2.91	190.00	1.449	33	2.37	2.37
6' Omni	180.0000	44.60	0.00	5.83	190.00	1.449	33	2.37	2.37
2.0" x 9' long pipe	240.0000	33.00	-0.73	0.42	188.00	1.446	33	2.14	2.14
Sum		7347.70							
Weight:									

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
Kathrein 80010121 w/6ft 2.0 Std pipe	300.0000	368.70	-4.52	-2.61	150.00	1.378	5	7.68	8.28	2.3270
Kathrein 80010121 w/6ft 2.0 Std pipe	60.0000	368.70	4.52	-2.61	150.00	1.378	5	7.68	8.28	2.3270
Kathrein 80010121 w/6ft 2.0 Std pipe	180.0000	368.70	0.00	5.22	150.00	1.378	5	7.68	8.28	2.3270
HPA-65R-BUU-H8	300.0000	645.87	-4.52	-2.61	150.00	1.378	5	15.93	14.99	2.3270
HPA-65R-BUU-H8	60.0000	645.87	4.52	-2.61	150.00	1.378	5	15.93	14.99	2.3270
HPA-65R-BUU-H8	180.0000	645.87	0.00	5.22	150.00	1.378	5	15.93	14.99	2.3270
LGP 17201 (Front Shielded by Antenna)	300.0000	88.74	-4.52	-2.61	150.00	1.378	5	0.89	1.80	2.3270
LGP 17201 (Front Shielded by Antenna)	60.0000	88.74	4.52	-2.61	150.00	1.378	5	0.89	1.80	2.3270
LGP 17201 (Front Shielded by Antenna)	180.0000	88.74	0.00	5.22	150.00	1.378	5	0.89	1.80	2.3270
RRUS 32	300.0000	259.05	-4.52	-2.61	150.00	1.378	5	4.52	3.49	2.3270
RRUS 32	60.0000	259.05	4.52	-2.61	150.00	1.378	5	4.52	3.49	2.3270
RRUS 32	180.0000	259.05	0.00	5.22	150.00	1.378	5	4.52	3.49	2.3270
RRUS 32 B2	300.0000	234.95	-4.52	-2.61	150.00	1.378	5	4.52	3.49	2.3270
RRUS 32 B2	60.0000	234.95	4.52	-2.61	150.00	1.378	5	4.52	3.49	2.3270
RRUS 32 B2	180.0000	234.95	0.00	5.22	150.00	1.378	5	4.52	3.49	2.3270
RRUS-11	300.0000	175.33	-4.52	-2.61	150.00	1.378	5	3.51	1.73	2.3270
RRUS-11	60.0000	175.33	4.52	-2.61	150.00	1.378	5	3.51	1.73	2.3270

<p>tnxTower</p> <p><i>Maser Consulting Connecticut</i> 331 Newman Springs Road, Suite 203 Red Bank, NJ 07701 Phone: (732) 7383-1950 FAX:</p>	Job 17963003A	Page 19 of 33
	Project CT5404 Enfield Unionville Farmington	Date 16:02:00 01/17/18
	Client AT&T	Designed by dxu

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
RRUS-11	180.0000	175.33	0.00	5.22	150.00	1.378	5	3.51	1.73	2.3270
MTC3607R - w.o pipes & shielded by wind	0.0000	4424.61	0.00	0.00	150.00	1.378	5	49.82	49.82	2.3270
TPA-65R-LCUUU-H8 w/ 8' pipe	300.0000	701.27	-4.52	-2.61	150.00	1.378	5	16.16	16.42	2.3270
TPA-65R-LCUUU-H8 w/ 8' pipe	60.0000	701.27	4.52	-2.61	150.00	1.378	5	16.16	16.42	2.3270
TPA-65R-LCUUU-H8 w/ 8' pipe	180.0000	701.27	0.00	5.22	150.00	1.378	5	16.16	16.42	2.3270
DC6-48-06-18-8F	300.0000	162.78	-2.79	-1.61	150.00	1.378	5	2.72	2.72	2.3270
DC6-48-06-18-8F	60.0000	162.78	2.79	-1.61	150.00	1.378	5	2.72	2.72	2.3270
GPS	240.0000	60.23	-4.88	2.82	52.00	1.103	4	0.82	0.99	2.0930
3.5" pipe x 42" long	240.0000	84.06	-1.85	1.07	52.00	1.103	4	1.92	1.92	2.0930
Pirod 5' Side Mount Standoff (1)	300.0000	116.31	-3.69	-2.13	89.75	1.237	5	0.00	0.00	2.2105
Pirod 5' Side Mount Standoff (1)	60.0000	116.31	3.69	-2.13	89.75	1.237	5	0.00	0.00	2.2105
Pirod 5' Side Mount Standoff (1)	180.0000	116.31	0.00	4.27	89.75	1.237	5	0.00	0.00	2.2105
15' Omni	300.0000	314.95	-5.81	-3.35	97.25	1.258	5	12.50	12.50	2.2283
15' Omni	60.0000	314.95	5.81	-3.35	97.25	1.258	5	12.50	12.50	2.2283
15' Omni	180.0000	314.95	0.00	6.71	97.25	1.258	5	12.50	12.50	2.2283
Pirod 5' Side Mount Standoff (1)	300.0000	117.86	-3.51	-2.03	113.00	1.299	5	0.00	0.00	2.2620
Pirod 5' Side Mount Standoff (1)	60.0000	117.86	3.51	-2.03	113.00	1.299	5	0.00	0.00	2.2620
Pirod 5' Side Mount Standoff (1)	180.0000	117.86	0.00	4.06	113.00	1.299	5	0.00	0.00	2.2620
4' Omni	300.0000	171.91	-5.65	-3.26	116.00	1.306	5	4.15	4.15	2.2679
4' Omni	60.0000	171.91	5.65	-3.26	116.00	1.306	5	4.15	4.15	2.2679
4' Omni	180.0000	171.91	0.00	6.53	116.00	1.306	5	4.15	4.15	2.2679
LNx-6515DS-VTM	300.0000	597.72	-4.41	-2.55	162.50	1.402	5	14.38	15.31	2.3457
LNx-6515DS-VTM	60.0000	597.72	4.41	-2.55	162.50	1.402	5	14.38	15.31	2.3457
LNx-6515DS-VTM	180.0000	597.72	0.00	5.09	162.50	1.402	5	14.38	15.31	2.3457
AIR 21 B4A/B2P	300.0000	741.94	-4.41	-2.55	162.50	1.402	5	15.52	11.95	2.3457
AIR 21 B4A/B2P	60.0000	741.94	4.41	-2.55	162.50	1.402	5	15.52	11.95	2.3457
AIR 21 B4A/B2P	180.0000	741.94	0.00	5.09	162.50	1.402	5	15.52	11.95	2.3457
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	300.0000	122.29	-4.41	-2.55	162.50	1.402	5	1.60	1.96	2.3457
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	60.0000	122.29	4.41	-2.55	162.50	1.402	5	1.60	1.96	2.3457
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	180.0000	122.29	0.00	5.09	162.50	1.402	5	1.60	1.96	2.3457
LGP 17201 (Front Shielded by Antenna)	300.0000	44.80	-4.41	-2.55	162.50	1.402	5	0.45	0.91	2.3457
LGP 17201 (Front Shielded by Antenna)	60.0000	44.80	4.41	-2.55	162.50	1.402	5	0.45	0.91	2.3457
LGP 17201 (Front Shielded by Antenna)	180.0000	44.80	0.00	5.09	162.50	1.402	5	0.45	0.91	2.3457
Small 12' platform	0.0000	634.28	0.00	0.00	160.50	1.398	5	66.86	66.86	2.3428
APXVSP18-C-A20 w/ 8' pipe	300.0000	516.21	-3.33	-4.23	173.75	1.422	6	11.44	12.26	2.3614
APXVSP18-C-A20 w/ 8' pipe	60.0000	516.21	5.33	-0.77	173.75	1.422	6	11.44	12.26	2.3614
APXVSP18-C-A20 w/ 8' pipe	180.0000	516.21	-2.00	5.00	173.75	1.422	6	11.44	12.26	2.3614
FD-RRH-2X50-800	300.0000	221.11	-1.73	-1.00	173.75	1.422	6	3.08	3.46	2.3614
FD-RRH-2X50-800	60.0000	221.11	1.73	-1.00	173.75	1.422	6	3.08	3.46	2.3614

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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	t _z in
FD-RRH-2X50-800	180.0000	221.11	0.00	2.00	173.75	1.422	6	3.08	3.46	2.3614
FD-RRH-4X45-1900	300.0000	208.48	-1.73	-1.00	173.75	1.422	6	3.43	3.36	2.3614
FD-RRH-4X45-1900	60.0000	208.48	1.73	-1.00	173.75	1.422	6	3.43	3.36	2.3614
FD-RRH-4X45-1900	180.0000	208.48	0.00	2.00	173.75	1.422	6	3.43	3.36	2.3614
Small 12' platform	0.0000	635.49	0.00	0.00	169.00	1.413	6	67.10	67.10	2.3549
5' Sector Frame T-arm	60.0000	234.69	2.98	-1.72	178.50	1.430	6	13.09	13.09	2.3678
5' Sector Frame T-arm	180.0000	234.69	0.00	3.45	178.50	1.430	6	13.09	13.09	2.3678
3' Omni	60.0000	167.75	5.10	-2.95	183.83	1.439	6	3.71	3.71	2.3748
5' Sector Frame T-arm	60.0000	235.22	1.64	-0.95	183.75	1.439	6	13.12	13.12	2.3747
Yagi 3'	60.0000	57.10	5.10	-2.95	183.75	1.439	6	1.50	1.50	2.3747
5' Sector Frame T-arm	180.0000	235.22	0.00	1.89	183.75	1.439	6	13.12	13.12	2.3747
Yagi 3'	180.0000	57.10	0.00	5.89	183.75	1.439	6	1.50	1.50	2.3747
5' Sector Frame T-arm	300.0000	235.65	-2.90	-1.67	188.00	1.446	6	13.14	13.14	2.3801
5' Sector Frame T-arm	60.0000	235.65	2.90	-1.67	188.00	1.446	6	13.14	13.14	2.3801
5' Sector Frame T-arm	180.0000	235.65	0.00	3.35	188.00	1.446	6	13.14	13.14	2.3801
6' Omni	300.0000	213.37	-5.05	-2.91	190.00	1.449	6	5.54	5.54	2.3826
6' Omni	60.0000	213.37	5.05	-2.91	190.00	1.449	6	5.54	5.54	2.3826
6' Omni	180.0000	213.37	0.00	5.83	190.00	1.449	6	5.54	5.54	2.3826
2.0" x 9' long pipe	240.0000	171.73	-0.73	0.42	188.00	1.446	6	5.57	5.57	2.3801
Sum Weight:		25847.29								

Discrete Appurtenance Pressures - Service GH = 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
Kathrein 80010121 w/6ft 2.0 Std pipe	300.0000	68.20	-4.52	-2.61	150.00	1.378	11	5.51	4.72
Kathrein 80010121 w/6ft 2.0 Std pipe	60.0000	68.20	4.52	-2.61	150.00	1.378	11	5.51	4.72
Kathrein 80010121 w/6ft 2.0 Std pipe	180.0000	68.20	0.00	5.22	150.00	1.378	11	5.51	4.72
HPA-65R-BUU-H8	300.0000	97.20	-4.52	-2.61	150.00	1.378	11	13.05	9.42
HPA-65R-BUU-H8	60.0000	97.20	4.52	-2.61	150.00	1.378	11	13.05	9.42
HPA-65R-BUU-H8	180.0000	97.20	0.00	5.22	150.00	1.378	11	13.05	9.42
LGP 17201 (Front Shielded by Antenna)	300.0000	40.00	-4.52	-2.61	150.00	1.378	11	0.03	0.81
LGP 17201 (Front Shielded by Antenna)	60.0000	40.00	4.52	-2.61	150.00	1.378	11	0.03	0.81
LGP 17201 (Front Shielded by Antenna)	180.0000	40.00	0.00	5.22	150.00	1.378	11	0.03	0.81
RRUS 32	300.0000	92.00	-4.52	-2.61	150.00	1.378	11	3.31	2.42
RRUS 32	60.0000	92.00	4.52	-2.61	150.00	1.378	11	3.31	2.42
RRUS 32	180.0000	92.00	0.00	5.22	150.00	1.378	11	3.31	2.42
RRUS 32 B2	300.0000	67.90	-4.52	-2.61	150.00	1.378	11	3.31	2.42
RRUS 32 B2	60.0000	67.90	4.52	-2.61	150.00	1.378	11	3.31	2.42
RRUS 32 B2	180.0000	67.90	0.00	5.22	150.00	1.378	11	3.31	2.42
RRUS-11	300.0000	55.00	-4.52	-2.61	150.00	1.378	11	2.52	1.02
RRUS-11	60.0000	55.00	4.52	-2.61	150.00	1.378	11	2.52	1.02
RRUS-11	180.0000	55.00	0.00	5.22	150.00	1.378	11	2.52	1.02
MTC3607R - w.o pipes & shielded by wind	0.0000	1815.00	0.00	0.00	150.00	1.378	11	20.44	20.44
TPA-65R-LCUUU-H8 w/ 8' pipe	300.0000	123.40	-4.52	-2.61	150.00	1.378	11	13.30	10.72
TPA-65R-LCUUU-H8 w/ 8' pipe	60.0000	123.40	4.52	-2.61	150.00	1.378	11	13.30	10.72
TPA-65R-LCUUU-H8	180.0000	123.40	0.00	5.22	150.00	1.378	11	13.30	10.72

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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
w/ 8' pipe									
DC6-48-06-18-8F	300.0000	32.00	-2.79	-1.61	150.00	1.378	11	1.20	1.20
DC6-48-06-18-8F	60.0000	32.00	2.79	-1.61	150.00	1.378	11	1.20	1.20
GPS	240.0000	24.87	-4.88	2.82	52.00	1.103	9	0.26	0.31
3.5" pipe x 42" long	240.0000	26.53	-1.85	1.07	52.00	1.103	9	0.93	0.93
Pirod 5' Side Mount Standoff (1)	300.0000	50.00	-3.69	-2.13	89.75	1.237	10	2.72	2.72
Pirod 5' Side Mount Standoff (1)	60.0000	50.00	3.69	-2.13	89.75	1.237	10	2.72	2.72
Pirod 5' Side Mount Standoff (1)	180.0000	50.00	0.00	4.27	89.75	1.237	10	2.72	2.72
15' Omni	300.0000	44.60	-5.81	-3.35	97.25	1.258	10	4.62	4.62
15' Omni	60.0000	44.60	5.81	-3.35	97.25	1.258	10	4.62	4.62
15' Omni	180.0000	44.60	0.00	6.71	97.25	1.258	10	4.62	4.62
Pirod 5' Side Mount Standoff (1)	300.0000	50.00	-3.51	-2.03	113.00	1.299	10	2.72	2.72
Pirod 5' Side Mount Standoff (1)	60.0000	50.00	3.51	-2.03	113.00	1.299	10	2.72	2.72
Pirod 5' Side Mount Standoff (1)	180.0000	50.00	0.00	4.06	113.00	1.299	10	2.72	2.72
4' Omni	300.0000	44.60	-5.65	-3.26	116.00	1.306	10	1.76	1.76
4' Omni	60.0000	44.60	5.65	-3.26	116.00	1.306	10	1.76	1.76
4' Omni	180.0000	44.60	0.00	6.53	116.00	1.306	10	1.76	1.76
LNx-6515DS-VTM	300.0000	79.50	-4.41	-2.55	162.50	1.402	11	11.45	9.60
LNx-6515DS-VTM	60.0000	79.50	4.41	-2.55	162.50	1.402	11	11.45	9.60
LNx-6515DS-VTM	180.0000	79.50	0.00	5.09	162.50	1.402	11	11.45	9.60
AIR 21 B4A/B2P	300.0000	252.00	-4.41	-2.55	162.50	1.402	11	11.93	8.53
AIR 21 B4A/B2P	60.0000	252.00	4.41	-2.55	162.50	1.402	11	11.93	8.53
AIR 21 B4A/B2P	180.0000	252.00	0.00	5.09	162.50	1.402	11	11.93	8.53
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	300.0000	50.70	-4.41	-2.55	162.50	1.402	11	0.88	1.18
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	60.0000	50.70	4.41	-2.55	162.50	1.402	11	0.88	1.18
RRUS11 B12 (Partial Shielded by 11.9" Antenna)	180.0000	50.70	0.00	5.09	162.50	1.402	11	0.88	1.18
LGP 17201 (Front Shielded by Antenna)	300.0000	20.00	-4.41	-2.55	162.50	1.402	11	0.02	0.41
LGP 17201 (Front Shielded by Antenna)	60.0000	20.00	4.41	-2.55	162.50	1.402	11	0.02	0.41
LGP 17201 (Front Shielded by Antenna)	180.0000	20.00	0.00	5.09	162.50	1.402	11	0.02	0.41
Small 12' platform	0.0000	400.00	0.00	0.00	160.50	1.398	11	20.00	20.00
APXVSP18-C-A20 w/ 8' pipe	300.0000	86.20	-3.33	-4.23	173.75	1.422	11	8.50	7.18
APXVSP18-C-A20 w/ 8' pipe	60.0000	86.20	5.33	-0.77	173.75	1.422	11	8.50	7.18
APXVSP18-C-A20 w/ 8' pipe	180.0000	86.20	-2.00	5.00	173.75	1.422	11	8.50	7.18
FD-RRH-2X50-800	300.0000	64.00	-1.73	-1.00	173.75	1.422	11	2.13	2.46
FD-RRH-2X50-800	60.0000	64.00	1.73	-1.00	173.75	1.422	11	2.13	2.46
FD-RRH-2X50-800	180.0000	64.00	0.00	2.00	173.75	1.422	11	2.13	2.46
FD-RRH-4X45-1900	300.0000	60.00	-1.73	-1.00	173.75	1.422	11	2.38	2.32
FD-RRH-4X45-1900	60.0000	60.00	1.73	-1.00	173.75	1.422	11	2.38	2.32
FD-RRH-4X45-1900	180.0000	60.00	0.00	2.00	173.75	1.422	11	2.38	2.32
Small 12' platform	0.0000	400.00	0.00	0.00	169.00	1.413	11	20.00	20.00
5' Sector Frame T-arm	60.0000	50.00	2.98	-1.72	178.50	1.430	11	2.72	2.72
5' Sector Frame T-arm	180.0000	50.00	0.00	3.45	178.50	1.430	11	2.72	2.72
3' Omni	60.0000	44.60	5.10	-2.95	183.83	1.439	11	1.47	1.47

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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
5' Sector Frame T-arm	60.0000	50.00	1.64	-0.95	183.75	1.439	11	2.72	2.72
Yagi 3'	60.0000	10.00	5.10	-2.95	183.75	1.439	11	0.52	0.52
5' Sector Frame T-arm	180.0000	50.00	0.00	1.89	183.75	1.439	11	2.72	2.72
Yagi 3'	180.0000	10.00	0.00	5.89	183.75	1.439	11	0.52	0.52
5' Sector Frame T-arm	300.0000	50.00	-2.90	-1.67	188.00	1.446	11	2.72	2.72
5' Sector Frame T-arm	60.0000	50.00	2.90	-1.67	188.00	1.446	11	2.72	2.72
5' Sector Frame T-arm	180.0000	50.00	0.00	3.35	188.00	1.446	11	2.72	2.72
6' Omni	300.0000	44.60	-5.05	-2.91	190.00	1.449	11	2.37	2.37
6' Omni	60.0000	44.60	5.05	-2.91	190.00	1.449	11	2.37	2.37
6' Omni	180.0000	44.60	0.00	5.83	190.00	1.449	11	2.37	2.37
2.0" x 9' long pipe	240.0000	33.00	-0.73	0.42	188.00	1.446	11	2.14	2.14
Sum Weight:		7347.70							

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
192.17	3' dish	180.0000	50.00	0.00	5.82	1.452	9.00	33
190.00	Kathrein Scala PR-950	180.0000	38.00	0.00	5.83	1.449	12.56	33
	Sum Weight:		88.00					

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
192.17	3' dish	180.0000	282.89	0.00	5.82	1.452	11.42	6	2.3853
190.00	Kathrein Scala PR-950	180.0000	62.30	0.00	5.83	1.449	15.09	6	2.3826
	Sum Weight:		345.19						

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
192.17	3' dish	180.0000	50.00	0.00	5.82	1.452	9.00	11
190.00	Kathrein Scala PR-950	180.0000	38.00	0.00	5.83	1.449	12.56	11
	Sum Weight:		88.00					

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

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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
Leg Weight	35600.57					
Bracing Weight	0.00					
Total Member Self-Weight	35600.57			0.98	3.41	
Total Weight	47610.89			0.98	3.41	
Wind 0 deg - No Ice		-0.63	-24750.38	-2910.69	3.45	-1.72
Wind 30 deg - No Ice		12853.68	-22264.49	-2619.22	-1509.32	1.26
Wind 60 deg - No Ice		21433.51	-12374.64	-1454.83	-2518.11	3.90
Wind 90 deg - No Ice		24749.65	0.63	1.01	-2908.22	5.49
Wind 120 deg - No Ice		21434.14	12375.73	1456.84	-2518.15	5.61
Wind 150 deg - No Ice		12375.37	21434.77	2522.57	-1452.43	4.23
Wind 180 deg - No Ice		0.63	24750.38	2912.64	3.38	1.72
Wind 210 deg - No Ice		-12853.68	22264.49	2621.17	1516.15	-1.26
Wind 240 deg - No Ice		-21433.51	12374.64	1456.78	2524.94	-3.90
Wind 270 deg - No Ice		-24749.65	-0.63	0.95	2915.04	-5.49
Wind 300 deg - No Ice		-21434.14	-12375.73	-1454.88	2524.98	-5.61
Wind 330 deg - No Ice		-12375.37	-21434.77	-2520.62	1459.26	-4.23
Member Ice	21739.19					
Total Weight Ice	93877.41			1.10	11.39	
Wind 0 deg - Ice		-0.34	-9549.76	-1122.32	11.41	-1.58
Wind 30 deg - Ice		5546.81	-9608.03	-1087.43	-617.05	0.02
Wind 60 deg - Ice		8269.83	-4774.59	-560.59	-961.49	1.61
Wind 90 deg - Ice		9368.95	0.34	1.12	-1095.99	2.77
Wind 120 deg - Ice		8113.92	4684.96	554.81	-947.64	3.19
Wind 150 deg - Ice		4684.77	8114.25	960.15	-542.32	2.75
Wind 180 deg - Ice		0.34	9549.76	1124.52	11.37	1.58
Wind 210 deg - Ice		-5546.81	9608.03	1089.63	639.83	-0.02
Wind 240 deg - Ice		-8269.83	4774.59	562.79	984.27	-1.61
Wind 270 deg - Ice		-9368.95	-0.34	1.08	1118.77	-2.77
Wind 300 deg - Ice		-8113.92	-4684.96	-552.62	970.42	-3.19
Wind 330 deg - Ice		-4684.77	-8114.25	-957.95	565.10	-2.75
Total Weight	47610.89			0.98	3.41	
Wind 0 deg - Service		-0.22	-8472.98	-996.22	-0.30	0.23
Wind 30 deg - Service		4400.30	-7621.97	-896.44	-518.18	0.90
Wind 60 deg - Service		7337.49	-4236.30	-497.82	-863.53	1.33
Wind 90 deg - Service		8472.73	0.22	0.56	-997.07	1.41
Wind 120 deg - Service		7337.71	4236.68	498.95	-863.54	1.10
Wind 150 deg - Service		4236.55	7337.92	863.79	-498.70	0.50
Wind 180 deg - Service		0.22	8472.98	997.33	-0.33	-0.23
Wind 210 deg - Service		-4400.30	7621.97	897.54	517.55	-0.90
Wind 240 deg - Service		-7337.49	4236.30	498.93	862.90	-1.33
Wind 270 deg - Service		-8472.73	-0.22	0.54	996.44	-1.41
Wind 300 deg - Service		-7337.71	-4236.68	-497.84	862.91	-1.10
Wind 330 deg - Service		-4236.55	-7337.92	-862.68	498.07	-0.50

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

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

Maximum Member Forces

<i>Section No.</i>	<i>Elevation ft</i>	<i>Component Type</i>	<i>Condition</i>	<i>Gov. Load Comb.</i>	<i>Axial lb</i>	<i>Major Axis Moment kip-ft</i>	<i>Minor Axis Moment kip-ft</i>
L1	191.08 - 165.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-10811.75	-1.78	-2.77
			Max. Mx	8	-3176.43	-89.86	-0.12
			Max. My	14	-3175.33	-0.31	-90.23
			Max. Vy	20	-7753.00	89.06	-0.12
			Max. Vx	14	7753.11	-0.31	-90.23
			Max. Torque	8			-6.88
L2	165.33 - 130.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-38664.21	0.06	-2.30

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial lb	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L3	130.75 - 97.08	Pole	Max. Mx	20	-13342.25	625.62	-0.36
			Max. My	14	-13342.77	0.22	-626.21
			Max. Vy	20	-22148.97	625.62	-0.36
			Max. Vx	14	22148.69	0.22	-626.21
			Max. Torque	8			-7.02
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-52237.36	2.55	-2.23
			Max. Mx	20	-21423.40	1429.06	-0.63
			Max. My	14	-21424.21	0.94	-1428.98
			Max. Vy	20	-26883.79	1429.06	-0.63
L4	97.08 - 64.25	Pole	Max. Vx	14	26883.20	0.94	-1428.98
			Max. Torque	8			-7.33
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68265.83	5.37	-2.10
			Max. Mx	20	-31202.06	2379.11	-0.82
			Max. My	14	-31202.83	1.80	-2378.25
			Max. Vy	20	-31904.64	2379.11	-0.82
			Max. Vx	14	31903.96	1.80	-2378.25
			Max. Torque	8			-7.72
			Max Tension	1	0.00	0.00	0.00
L5	64.25 - 32.25	Pole	Max. Compression	26	-84985.70	8.97	-2.07
			Max. Mx	20	-42268.20	3440.62	-1.04
			Max. My	14	-42268.69	2.96	-3438.79
			Max. Vy	20	-35842.11	3440.62	-1.04
			Max. Vx	14	35842.74	2.96	-3438.79
			Max. Torque	8			-8.21
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-106316.66	12.89	-1.68
			Max. Mx	20	-57110.71	4861.63	-1.11
			Max. My	14	-57110.72	4.19	-4858.70
L6	32.25 - 1	Pole	Max. Vy	20	-39631.68	4861.63	-1.11
			Max. Vx	14	39632.83	4.19	-4858.70
			Max. Torque	11			-8.89

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical lb	Horizontal, X lb	Horizontal, Z lb
Pole	Max. Vert	34	106316.66	5546.81	-9608.04
	Max. H _x	21	42849.80	39599.44	1.01
	Max. H _z	2	57133.07	1.01	39600.60
	Max. M _x	2	4856.21	1.01	39600.60
	Max. M _z	8	4853.15	-39599.44	-1.01
	Max. Torsion	23	8.89	34294.62	19801.17
	Min. Vert	7	42849.80	-34293.61	19799.43
	Min. H _x	8	57133.07	-39599.44	-1.01
	Min. H _z	14	57133.07	-1.01	-39600.60
	Min. M _x	14	-4858.70	-1.01	-39600.60
	Min. M _z	20	-4861.63	39599.44	1.01
	Min. Torsion	11	-8.89	-34294.62	-19801.17

Tower Mast Reaction Summary

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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
Dead Only	47610.89	0.00	0.00	0.98	3.41	0.00
1.2 Dead+1.6 Wind 0 deg - No Ice	57133.07	-1.01	-39600.60	-4856.21	4.30	-2.71
0.9 Dead+1.6 Wind 0 deg - No Ice	42849.80	-1.01	-39600.60	-4802.99	3.20	-2.72
1.2 Dead+1.6 Wind 30 deg - No Ice	57133.07	20565.89	-35623.18	-4368.91	-2518.76	2.00
0.9 Dead+1.6 Wind 30 deg - No Ice	42849.80	20565.89	-35623.18	-4321.23	-2492.15	1.99
1.2 Dead+1.6 Wind 60 deg - No Ice	57133.07	34293.61	-19799.43	-2427.50	-4202.32	6.17
0.9 Dead+1.6 Wind 60 deg - No Ice	42849.80	34293.61	-19799.43	-2401.04	-4157.05	6.17
1.2 Dead+1.6 Wind 90 deg - No Ice	57133.07	39599.44	1.01	1.22	-4853.15	8.69
0.9 Dead+1.6 Wind 90 deg - No Ice	42849.80	39599.44	1.01	0.91	-4800.70	8.69
1.2 Dead+1.6 Wind 120 deg - No Ice	57133.07	34294.62	19801.17	2429.96	-4202.44	8.88
0.9 Dead+1.6 Wind 120 deg - No Ice	42849.80	34294.62	19801.17	2402.87	-4157.15	8.89
1.2 Dead+1.6 Wind 150 deg - No Ice	57133.07	19800.59	34295.63	4207.93	-2424.53	6.70
0.9 Dead+1.6 Wind 150 deg - No Ice	42849.80	19800.59	34295.63	4161.24	-2398.84	6.70
1.2 Dead+1.6 Wind 180 deg - No Ice	57133.07	1.01	39600.60	4858.70	4.19	2.71
0.9 Dead+1.6 Wind 180 deg - No Ice	42849.80	1.01	39600.60	4804.82	3.10	2.72
1.2 Dead+1.6 Wind 210 deg - No Ice	57133.07	-20565.89	35623.18	4371.35	2527.32	-2.00
0.9 Dead+1.6 Wind 210 deg - No Ice	42849.80	-20565.89	35623.18	4323.03	2498.50	-1.99
1.2 Dead+1.6 Wind 240 deg - No Ice	57133.07	-34293.61	19799.43	2429.86	4210.88	-6.17
0.9 Dead+1.6 Wind 240 deg - No Ice	42849.80	-34293.61	19799.43	2402.78	4163.40	-6.17
1.2 Dead+1.6 Wind 270 deg - No Ice	57133.07	-39599.44	-1.01	1.11	4861.63	-8.69
0.9 Dead+1.6 Wind 270 deg - No Ice	42849.80	-39599.44	-1.01	0.81	4807.00	-8.69
1.2 Dead+1.6 Wind 300 deg - No Ice	57133.07	-34294.62	-19801.17	-2427.59	4210.86	-8.88
0.9 Dead+1.6 Wind 300 deg - No Ice	42849.80	-34294.62	-19801.17	-2401.12	4163.41	-8.89
1.2 Dead+1.6 Wind 330 deg - No Ice	57133.07	-19800.59	-34295.63	-4205.48	2432.95	-6.70
0.9 Dead+1.6 Wind 330 deg - No Ice	42849.80	-19800.59	-34295.63	-4159.43	2405.10	-6.70
1.2 Dead+1.0 Ice+1.0 Temp	106316.66	-0.02	0.01	1.68	12.89	-0.00
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	106316.66	-0.34	-9549.77	-1243.15	13.16	-1.55
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	106316.66	5546.81	-9608.04	-1201.80	-681.68	0.05
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	106316.66	8269.84	-4774.59	-620.71	-1064.91	1.64
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	106316.66	9368.95	0.34	1.72	-1214.31	2.80
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	106316.66	8113.92	4684.96	615.46	-1049.88	3.20

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Load Combination	Vertical	Shear _x	Shear _z	Overturning Moment, M _x	Overturning Moment, M _z	Torque
	lb	lb	lb	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	106316.66	4684.77	8114.26	1064.75	-600.61	2.74
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	106316.66	0.34	9549.77	1246.58	13.12	1.55
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	106316.66	-5546.81	9608.04	1205.23	707.98	-0.06
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	106316.66	-8269.84	4774.59	624.12	1091.21	-1.65
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	106316.66	-9368.95	-0.34	1.68	1240.60	-2.80
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	106316.66	-8113.92	-4684.96	-612.05	1076.16	-3.20
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	106316.66	-4684.77	-8114.26	-1061.32	626.88	-2.74
Dead+Wind 0 deg - Service	47610.89	-0.22	-8472.98	-1032.27	3.54	0.24
Dead+Wind 30 deg - Service	47610.89	4400.30	-7621.97	-928.72	-533.25	0.91
Dead+Wind 60 deg - Service	47610.89	7337.49	-4236.30	-515.61	-891.32	1.34
Dead+Wind 90 deg - Service	47610.89	8472.73	0.22	1.04	-1029.76	1.41
Dead+Wind 120 deg - Service	47610.89	7337.71	4236.68	517.69	-891.33	1.10
Dead+Wind 150 deg - Service	47610.89	4236.55	7337.92	895.90	-513.13	0.50
Dead+Wind 180 deg - Service	47610.89	0.22	8472.98	1034.33	3.52	-0.24
Dead+Wind 210 deg - Service	47610.89	-4400.30	7621.97	930.78	540.31	-0.91
Dead+Wind 240 deg - Service	47610.89	-7337.49	4236.30	517.67	898.38	-1.34
Dead+Wind 270 deg - Service	47610.89	-8472.73	-0.22	1.02	1036.81	-1.41
Dead+Wind 300 deg - Service	47610.89	-7337.71	-4236.68	-515.63	898.38	-1.10
Dead+Wind 330 deg - Service	47610.89	-4236.55	-7337.92	-893.84	520.18	-0.50

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	-47610.89	0.00	0.00	47610.89	0.00	0.000%
2	-1.01	-57133.07	-39600.60	1.01	57133.07	39600.60	0.000%
3	-1.01	-42849.80	-39600.60	1.01	42849.80	39600.60	0.000%
4	20565.89	-57133.07	-35623.18	-20565.89	57133.07	35623.18	0.000%
5	20565.89	-42849.80	-35623.18	-20565.89	42849.80	35623.18	0.000%
6	34293.61	-57133.07	-19799.43	-34293.61	57133.07	19799.43	0.000%
7	34293.61	-42849.80	-19799.43	-34293.61	42849.80	19799.43	0.000%
8	39599.44	-57133.07	1.01	-39599.44	57133.07	-1.01	0.000%
9	39599.44	-42849.80	1.01	-39599.44	42849.80	-1.01	0.000%
10	34294.62	-57133.07	19801.17	-34294.62	57133.07	-19801.17	0.000%
11	34294.62	-42849.80	19801.17	-34294.62	42849.80	-19801.17	0.000%
12	19800.59	-57133.07	34295.63	-19800.59	57133.07	-34295.63	0.000%
13	19800.59	-42849.80	34295.63	-19800.59	42849.80	-34295.63	0.000%
14	1.01	-57133.07	39600.60	-1.01	57133.07	-39600.60	0.000%
15	1.01	-42849.80	39600.60	-1.01	42849.80	-39600.60	0.000%
16	-20565.89	-57133.07	35623.18	20565.89	57133.07	-35623.18	0.000%
17	-20565.89	-42849.80	35623.18	20565.89	42849.80	-35623.18	0.000%
18	-34293.61	-57133.07	19799.43	34293.61	57133.07	-19799.43	0.000%
19	-34293.61	-42849.80	19799.43	34293.61	42849.80	-19799.43	0.000%
20	-39599.44	-57133.07	-1.01	39599.44	57133.07	1.01	0.000%
21	-39599.44	-42849.80	-1.01	39599.44	42849.80	1.01	0.000%
22	-34294.62	-57133.07	-19801.17	34294.62	57133.07	19801.17	0.000%
23	-34294.62	-42849.80	-19801.17	34294.62	42849.80	19801.17	0.000%
24	-19800.59	-57133.07	-34295.63	19800.59	57133.07	34295.63	0.000%
25	-19800.59	-42849.80	-34295.63	19800.59	42849.80	34295.63	0.000%
26	0.00	-106316.66	0.00	0.02	106316.66	-0.01	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	
27	-0.34	-106316.66	-9549.76	0.34	106316.66	9549.77	0.000%
28	5546.81	-106316.66	-9608.03	-5546.81	106316.66	9608.04	0.000%
29	8269.83	-106316.66	-4774.59	-8269.84	106316.66	4774.59	0.000%
30	9368.95	-106316.66	0.34	-9368.95	106316.66	-0.34	0.000%
31	8113.92	-106316.66	4684.96	-8113.92	106316.66	-4684.96	0.000%
32	4684.77	-106316.66	8114.25	-4684.77	106316.66	-8114.26	0.000%
33	0.34	-106316.66	9549.76	-0.34	106316.66	-9549.77	0.000%
34	-5546.81	-106316.66	9608.03	5546.81	106316.66	-9608.04	0.000%
35	-8269.83	-106316.66	4774.59	8269.84	106316.66	-4774.59	0.000%
36	-9368.95	-106316.66	-0.34	9368.95	106316.66	0.34	0.000%
37	-8113.92	-106316.66	-4684.96	8113.92	106316.66	4684.96	0.000%
38	-4684.77	-106316.66	-8114.25	4684.77	106316.66	8114.26	0.000%
39	-0.22	-47610.89	-8472.98	0.22	47610.89	8472.98	0.000%
40	4400.30	-47610.89	-7621.97	-4400.30	47610.89	7621.97	0.000%
41	7337.49	-47610.89	-4236.30	-7337.49	47610.89	4236.30	0.000%
42	8472.73	-47610.89	0.22	-8472.73	47610.89	-0.22	0.000%
43	7337.71	-47610.89	4236.68	-7337.71	47610.89	-4236.68	0.000%
44	4236.55	-47610.89	7337.92	-4236.55	47610.89	-7337.92	0.000%
45	0.22	-47610.89	8472.98	-0.22	47610.89	-8472.98	0.000%
46	-4400.30	-47610.89	7621.97	4400.30	47610.89	-7621.97	0.000%
47	-7337.49	-47610.89	4236.30	7337.49	47610.89	-4236.30	0.000%
48	-8472.73	-47610.89	-0.22	8472.73	47610.89	0.22	0.000%
49	-7337.71	-47610.89	-4236.68	7337.71	47610.89	4236.68	0.000%
50	-4236.55	-47610.89	-7337.92	4236.55	47610.89	7337.92	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	0.00005690
3	Yes	5	0.0000001	0.00002479
4	Yes	7	0.0000001	0.00000621
5	Yes	6	0.0000001	0.00004012
6	Yes	7	0.0000001	0.00000519
7	Yes	6	0.0000001	0.00003351
8	Yes	6	0.0000001	0.00002330
9	Yes	6	0.0000001	0.00000768
10	Yes	7	0.0000001	0.00000634
11	Yes	6	0.0000001	0.00004137
12	Yes	7	0.0000001	0.00000533
13	Yes	6	0.0000001	0.00003442
14	Yes	5	0.0000001	0.00005687
15	Yes	5	0.0000001	0.00002478
16	Yes	7	0.0000001	0.00000564
17	Yes	6	0.0000001	0.00003623
18	Yes	7	0.0000001	0.00000630
19	Yes	6	0.0000001	0.00004105
20	Yes	6	0.0000001	0.00002331
21	Yes	6	0.0000001	0.00000768
22	Yes	7	0.0000001	0.00000516
23	Yes	6	0.0000001	0.00003330
24	Yes	7	0.0000001	0.00000607
25	Yes	6	0.0000001	0.00003953
26	Yes	4	0.0000001	0.00008912
27	Yes	7	0.0000001	0.00001974

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28	Yes	7	0.00000001	0.00002914
29	Yes	7	0.00000001	0.00002509
30	Yes	7	0.00000001	0.00002016
31	Yes	7	0.00000001	0.00002641
32	Yes	7	0.00000001	0.00002488
33	Yes	7	0.00000001	0.00001990
34	Yes	7	0.00000001	0.00002927
35	Yes	7	0.00000001	0.00002701
36	Yes	7	0.00000001	0.00002049
37	Yes	7	0.00000001	0.00002511
38	Yes	7	0.00000001	0.00002613
39	Yes	5	0.00000001	0.00000612
40	Yes	5	0.00000001	0.00004432
41	Yes	5	0.00000001	0.00003040
42	Yes	5	0.00000001	0.00002244
43	Yes	5	0.00000001	0.00004315
44	Yes	5	0.00000001	0.00003052
45	Yes	5	0.00000001	0.00000614
46	Yes	5	0.00000001	0.00003306
47	Yes	5	0.00000001	0.00004651
48	Yes	5	0.00000001	0.00002257
49	Yes	5	0.00000001	0.00003000
50	Yes	5	0.00000001	0.00003702

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	191.08 - 165.33	31.648	46	1.3821	0.0216
L2	168.25 - 130.75	25.104	46	1.3429	0.0108
L3	134.58 - 97.08	16.192	46	1.1473	0.0049
L4	101.75 - 64.25	9.185	46	0.8693	0.0026
L5	69.75 - 32.25	4.272	46	0.5796	0.0014
L6	38.5 - 1	1.298	46	0.3104	0.0006

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.17	3' dish	46	31.648	1.3821	0.0216	80207
190.00	Kathrein Scala PR-950	46	31.336	1.3811	0.0210	80207
188.00	5' Sector Frame T-arm	46	30.757	1.3791	0.0200	80207
183.83	3' Omni	46	29.553	1.3746	0.0178	55315
183.75	5' Sector Frame T-arm	46	29.530	1.3745	0.0177	54711
178.50	5' Sector Frame T-arm	46	28.020	1.3671	0.0151	31878
173.75	APXVSPP18-C-A20 w/ 8' pipe	46	26.662	1.3579	0.0130	23141
169.00	Small 12' platform	46	25.315	1.3453	0.0111	18184
162.50	LNx-6515DS-VTM	46	23.497	1.3212	0.0090	14178
160.50	Small 12' platform	46	22.944	1.3123	0.0085	13286
150.00	Kathrein 80010121 w/6ft 2.0 Std pipe	46	20.107	1.2551	0.0065	9924
116.00	4' Omni	46	11.988	0.9952	0.0035	6621
113.00	Pirot 5' Side Mount Standoff (1)	46	11.366	0.9692	0.0033	6536
97.25	15' Omni	46	8.379	0.8286	0.0024	6328

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	Client	AT&T	Designed by	dxu

Elevation	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
89.75	Pirod 5' Side Mount Standoff (1)	46	7.122	0.7605	0.0021	6488
52.00	GPS	46	2.343	0.4248	0.0009	5932

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	191.08 - 165.33	148.214	16	6.4753	0.1061
L2	168.25 - 130.75	117.638	16	6.2998	0.0551
L3	134.58 - 97.08	75.936	16	5.3865	0.0266
L4	101.75 - 64.25	43.097	16	4.0825	0.0148
L5	69.75 - 32.25	20.050	16	2.7219	0.0080
L6	38.5 - 1	6.093	16	1.4573	0.0037

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
192.17	3' dish	16	148.214	6.4753	0.1061	18163
190.00	Kathrein Scala PR-950	16	146.755	6.4708	0.1034	18163
188.00	5' Sector Frame T-arm	16	144.054	6.4624	0.0984	18163
183.83	3' Omni	16	138.429	6.4428	0.0881	12525
183.75	5' Sector Frame T-arm	16	138.321	6.4424	0.0879	12389
178.50	5' Sector Frame T-arm	16	131.265	6.4099	0.0756	7217
173.75	APXVSP18-C-A20 w/ 8' pipe	16	124.919	6.3683	0.0654	5238
169.00	Small 12' platform	16	118.626	6.3106	0.0564	4108
162.50	LNx-6515DS-VTM	16	110.125	6.1995	0.0466	3162
160.50	Small 12' platform	16	107.540	6.1580	0.0442	2952
150.00	Kathrein 80010121 w/6ft 2.0 Std pipe	16	94.266	5.8915	0.0345	2179
116.00	4' Omni	16	56.238	4.6735	0.0194	1433
113.00	Pirod 5' Side Mount Standoff (1)	16	53.325	4.5514	0.0183	1413
97.25	15' Omni	16	39.320	3.8916	0.0136	1362
89.75	Pirod 5' Side Mount Standoff (1)	16	33.424	3.5715	0.0118	1394
52.00	GPS	16	10.998	1.9947	0.0054	1266

Base Plate Design Data

Plate Thickness	Number of Anchor Bolts	Anchor Bolt Size	Actual Allowable Bolt Tension lb	Actual Allowable Concrete Stress ksi	Actual Allowable Plate Stress ksi	Actual Allowable Stiffener Stress ksi	Controlling Condition	Critical Ratio
in		in						
1.5000	44	1.2500	64030.00	3.986	20.766	6.933	Conc fc	0.98

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Plate Thickness	Number of Anchor Bolts	Anchor Bolt Size	Actual Allowable Ratio Bolt Tension lb	Actual Allowable Ratio Concrete Stress ksi	Actual Allowable Ratio Plate Stress ksi	Actual Allowable Ratio Stiffener Stress ksi	Controlling Condition	Critical Ratio
in		in	69029.14	4.080	45.000	45.000		✓
			0.93	0.98	0.46	0.15		

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	191.08 - 165.33 (1)	TP26x19.5625x0.25	25.75	0.00	0.0	19.8534	-3175.63	1475010.00	0.002
L2	165.33 - 130.75 (2)	TP34.0052x24.77x0.3125	37.50	0.00	0.0	32.4834	-13220.00	2384690.00	0.006
L3	130.75 - 97.08 (3)	TP41.0625x32.437x0.375	37.50	0.00	0.0	47.1498	-21276.50	3454030.00	0.006
L4	97.08 - 64.25 (4)	TP49.0052x39.2383x0.375	37.50	0.00	0.0	56.1771	-31078.30	3903670.00	0.008
L5	64.25 - 32.25 (5)	TP56.0104x46.8227x0.375	37.50	0.00	0.0	64.3974	-42194.30	4253940.00	0.010
L6	32.25 - 1 (6)	TP62.0781x53.7291x0.375	37.50	0.00	0.0	73.4421	-57108.90	4574150.00	0.012

Pole Bending Design Data

Section No.	Elevation ft	Size	M _{ux} kip-ft	φM _{ux} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{ux}}$	M _{uy} kip-ft	φM _{uy} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{uy}}$
L1	191.08 - 165.33 (1)	TP26x19.5625x0.25	90.33	757.28	0.119	0.00	757.28	0.000
L2	165.33 - 130.75 (2)	TP34.0052x24.77x0.3125	635.93	1603.26	0.397	0.00	1603.26	0.000
L3	130.75 - 97.08 (3)	TP41.0625x32.437x0.375	1468.93	2809.11	0.523	0.00	2809.11	0.000
L4	97.08 - 64.25 (4)	TP49.0052x39.2383x0.375	2461.45	3788.35	0.650	0.00	3788.35	0.000
L5	64.25 - 32.25 (5)	TP56.0104x46.8227x0.375	3570.48	4737.12	0.754	0.00	4737.12	0.000
L6	32.25 - 1 (6)	TP62.0781x53.7291x0.375	5049.36	5814.04	0.868	0.00	5814.04	0.000

Pole Shear Design Data

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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	191.08 - 165.33 (1)	TP26x19.5625x0.25	7752.99	737503.00	0.011	2.63	1516.41	0.002
L2	165.33 - 130.75 (2)	TP34.0052x24.77x0.3125	22782.10	1192350.00	0.019	3.82	3210.44	0.001
L3	130.75 - 97.08 (3)	TP41.0625x32.437x0.375	28054.10	1727020.00	0.016	3.44	5625.09	0.001
L4	97.08 - 64.25 (4)	TP49.0052x39.2383x0.375	33376.90	1951840.00	0.017	3.02	7585.96	0.000
L5	64.25 - 32.25 (5)	TP56.0104x46.8227x0.375	37403.00	2126970.00	0.018	2.50	9485.83	0.000
L6	32.25 - 1 (6)	TP62.0781x53.7291x0.375	41167.00	2287070.00	0.018	2.02	11642.33	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	191.08 - 165.33 (1)	0.002	0.119	0.000	0.011	0.002	0.122	1.000	4.8.2 ✓
L2	165.33 - 130.75 (2)	0.006	0.397	0.000	0.019	0.001	0.403	1.000	4.8.2 ✓
L3	130.75 - 97.08 (3)	0.006	0.523	0.000	0.016	0.001	0.529	1.000	4.8.2 ✓
L4	97.08 - 64.25 (4)	0.008	0.650	0.000	0.017	0.000	0.658	1.000	4.8.2 ✓
L5	64.25 - 32.25 (5)	0.010	0.754	0.000	0.018	0.000	0.764	1.000	4.8.2 ✓
L6	32.25 - 1 (6)	0.012	0.868	0.000	0.018	0.000	0.881	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
L1	191.08 - 165.33	Pole	TP26x19.5625x0.25	1	-3175.63	1475010.00	12.2	Pass
L2	165.33 - 130.75	Pole	TP34.0052x24.77x0.3125	2	-13220.00	2384690.00	40.3	Pass
L3	130.75 - 97.08	Pole	TP41.0625x32.437x0.375	3	-21276.50	3454030.00	52.9	Pass
L4	97.08 - 64.25	Pole	TP49.0052x39.2383x0.375	4	-31078.30	3903670.00	65.8	Pass
L5	64.25 - 32.25	Pole	TP56.0104x46.8227x0.375	5	-42194.30	4253940.00	76.4	Pass
L6	32.25 - 1	Pole	TP62.0781x53.7291x0.375	6	-57108.90	4574150.00	88.1	Pass
Summary								
Pole (L6)							88.1	Pass
Base Plate							97.7	Pass
RATING =							97.7	Pass

<i>tnxTower</i> <i>Maser Consulting Connecticut</i> <i>331 Newman Springs Road, Suite 203</i> <i>Red Bank, NJ 07701</i> <i>Phone: (732) 7383-1950</i> <i>FAX:</i>	Job 17963003A	Page 33 of 33
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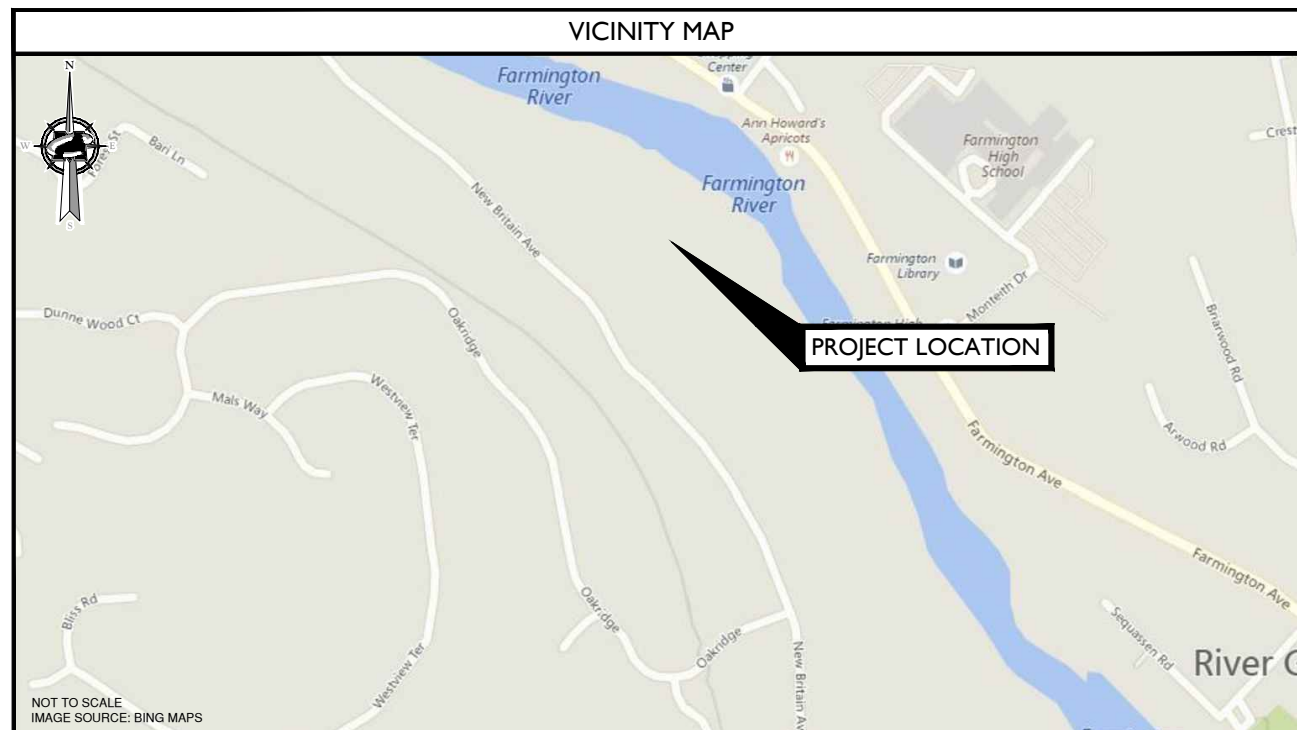


SITE NAME: ENFIELD - UNIONVILLE - FARMINGTON
PROJECT: MULTI CARRIER ADD
FA NUMBER: 10071289
SITE NUMBER: CT5404
319-321 NEW BRITAIN AVENUE
FARMINGTON, CT 06085
HARTFORD COUNTY

FIRSTNET
RETROFIT

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:	MAZHAR BHATTI
E-MAIL:	MB497J@ATT.COM

SITE INFORMATION	
APPLICANT/LESSEE	
NEW CINGULAR WIRELESS PCS, LLC 550 COCHITUATE RD. FRAMINGHAM, MA 01701	
PROPERTY/TOWER OWNER:	
NAME:	TBD
ADDRESS:	TBD
CITY, STATE, ZIP:	TBD
LATITUDE:	41.7497919° N
LONGITUDE:	72.8726989° W
LAT./LONG. TYPE:	NAD 83
AREA OF CONSTRUCTION:	EXISTING EQUIPMENT SHELTER AND TOWER
ZONING/JURISDICTION:	HARTFORD COUNTY
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 RD 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 NEW YORK CITY/HARTFORD. AT EXIT 38, TAKE RAMP RIGHT FOR US-6 WEST TOWARD BRISTOL. KEEP STRAIGHT ONTO US-6 WEST/COLT HWY. TURN RIGHT ONTO NEW BRITAIN AVENUE. THE SITE WILL BE ON THE RIGHT HAND SIDE.

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. CONNECTICUT STATE BUILDING CODE (2016) & ALL SUBSEQUENT AMENDMENTS	7. EIA/TIA-222 REVISION G
2. NATIONAL FIRE PROTECTION ASSOCIATION 70 - 2015	8. TIA 607 FOR GROUNDING
3. NATIONAL ELECTRIC CODE 2014	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 PLAN
A-2	EQUIPMENT PLAN
A-3	ELEVATION VIEW AND ANTENNA SCHEDULE
A-4	ANTENNA LAYOUTS
A-5	DETAILS - 1
A-6	DETAILS - 2
A-7	RF PLUMBING DIAGRAMS
G-1	GROUNDING DETAILS
S-1	MODIFICATION DETAILS

PROJECT DESCRIPTION/SCOPE OF WORK	
THIS PROJECT WILL BE COMPRISED OF:	
<ul style="list-style-type: none"> REPLACE (3) EXISTING ANTENNAS WITH (3) NEW ANTENNAS, (1) PER SECTOR ADD (3) NEW ANTENNAS, (1) PER SECTOR ADD (1) DC6 DOME ADD (3) RRUS-32 ADD (3) RRUS-32 B2 UPGRADE DUS TO 5216 ADD XMU REMOVE RXAIT REPLACE EXISTING ANTENNA MOUNT WITH NEW COMMSCOPE MOUNT MTC3607R 	

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NEW CINGULAR WIRELESS PCS, LLC
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

16 ESQUIRE ROAD
BILLERICA, MA 01862

ALL STATES REQUIRE NOTIFICATION OF EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE SURFACE ANYWHERE IN ANY STATE

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

SCALE:	JOB NUMBER:
AS SHOWN	17963003A

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

SITE NAME:
UNIONVILLE - FARMINGTON
FA10071289
CT5404
319-321 NEW BRITAIN AVENUE
FARMINGTON, CT 06085
HARTFORD COUNTY

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:


- 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.
- ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
- 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 HMS OR LESS.
- 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.
- 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.
- 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.
- 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.
- 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.
- ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- 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.
- EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- 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.
- COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
- ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
- APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
- BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
- 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.
- 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.
- 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)
- ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
- DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- 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.
- ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- 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.
- 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.
- THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY 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.
- 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.

- 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.
- 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.
- 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.
- THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
- IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
- 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.
- SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 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.
- ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
- ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
- 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.
- CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
- 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.
- 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.
- 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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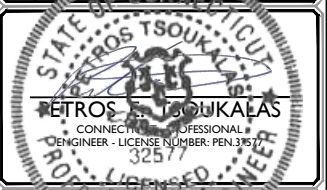
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AS SHOWN	17963003A

REV	DATE	DESCRIPTION	DRAWN	CHECKED
0	01/18/18	FOR CONSTRUCTION	AJC	PET
1	09/12/17	ISSUED FOR REVIEW	AN	MPC



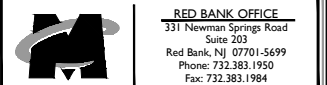
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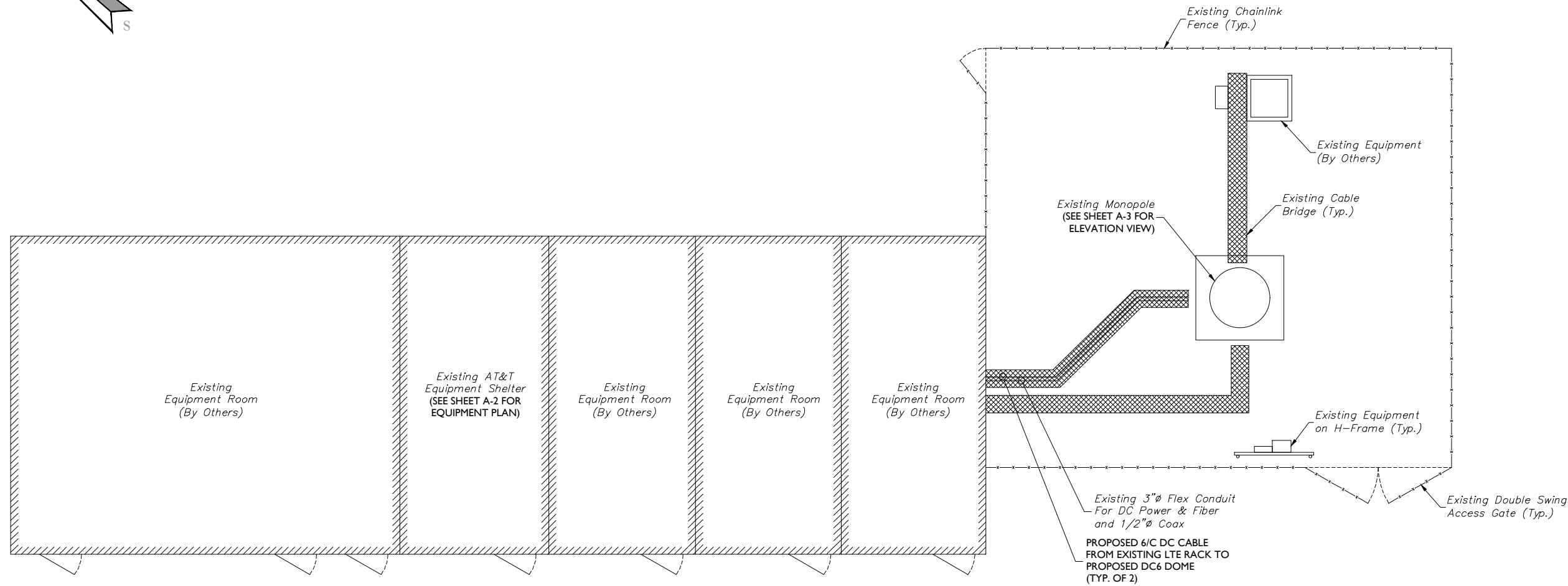
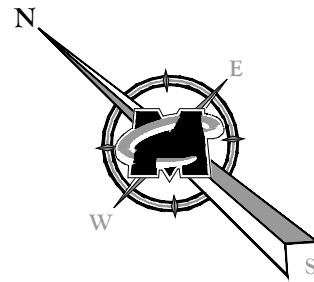
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SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
GN-1



COMPOUND PLAN
 GRAPHIC SCALE
 5 0 2.5 5 10
 (IN FEET)
 SCALE: 1" = 5' FOR 24"X36" DRAWINGS
 (DO NOT SCALE 11"X17" DRAWINGS)

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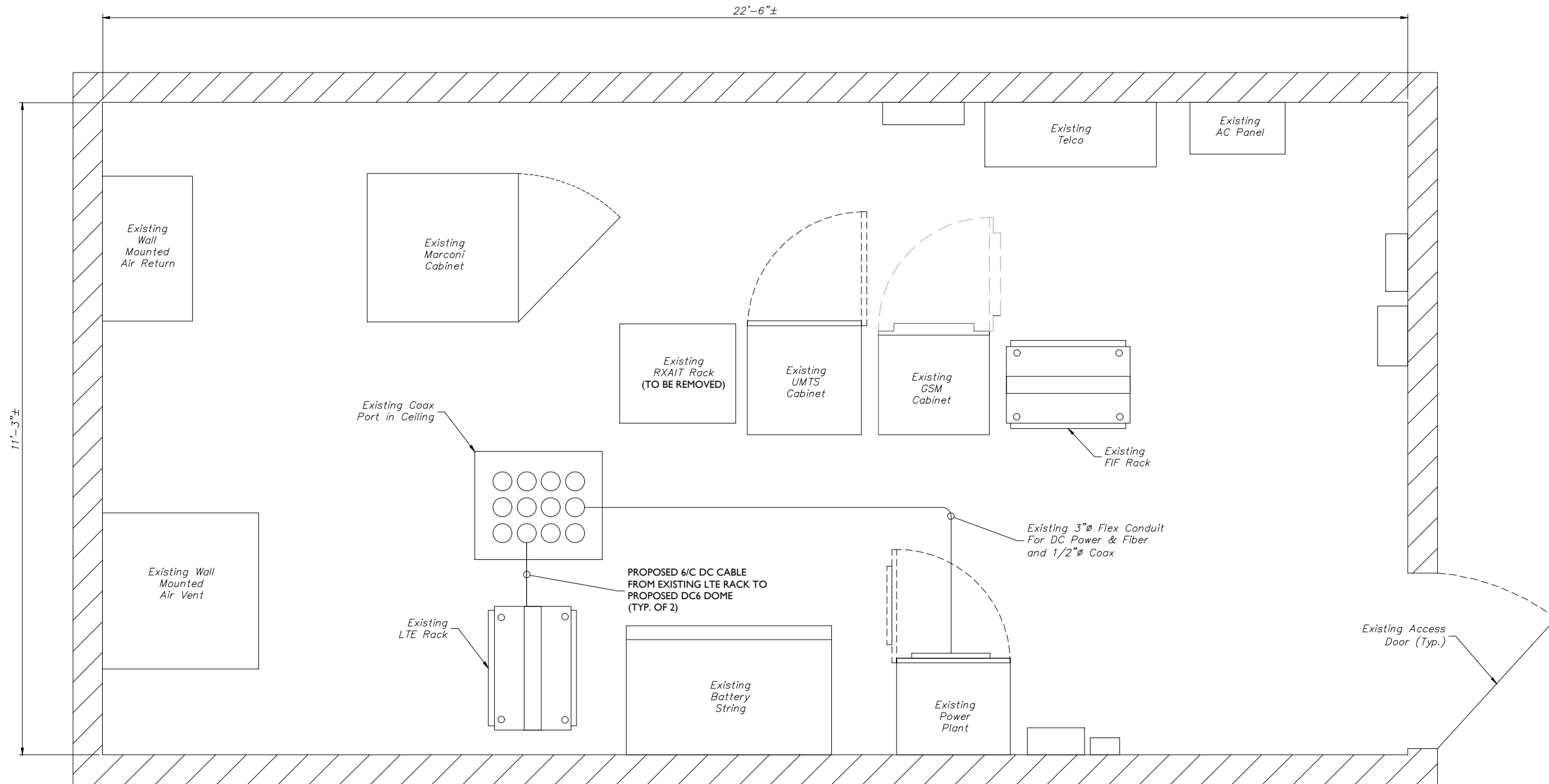
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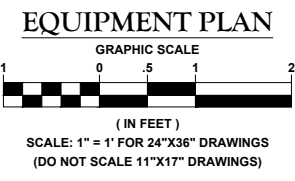
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SHEET TITLE:
COMPOUND PLAN
 SHEET NUMBER:
A-1



NOTE:
 UPGRADE DUL TO 5216
 ADD XMU



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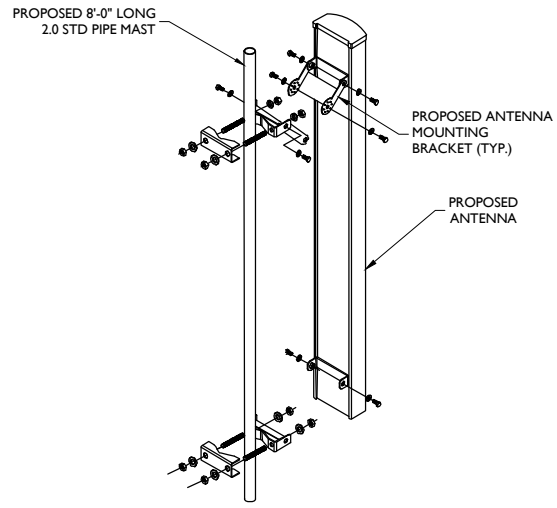
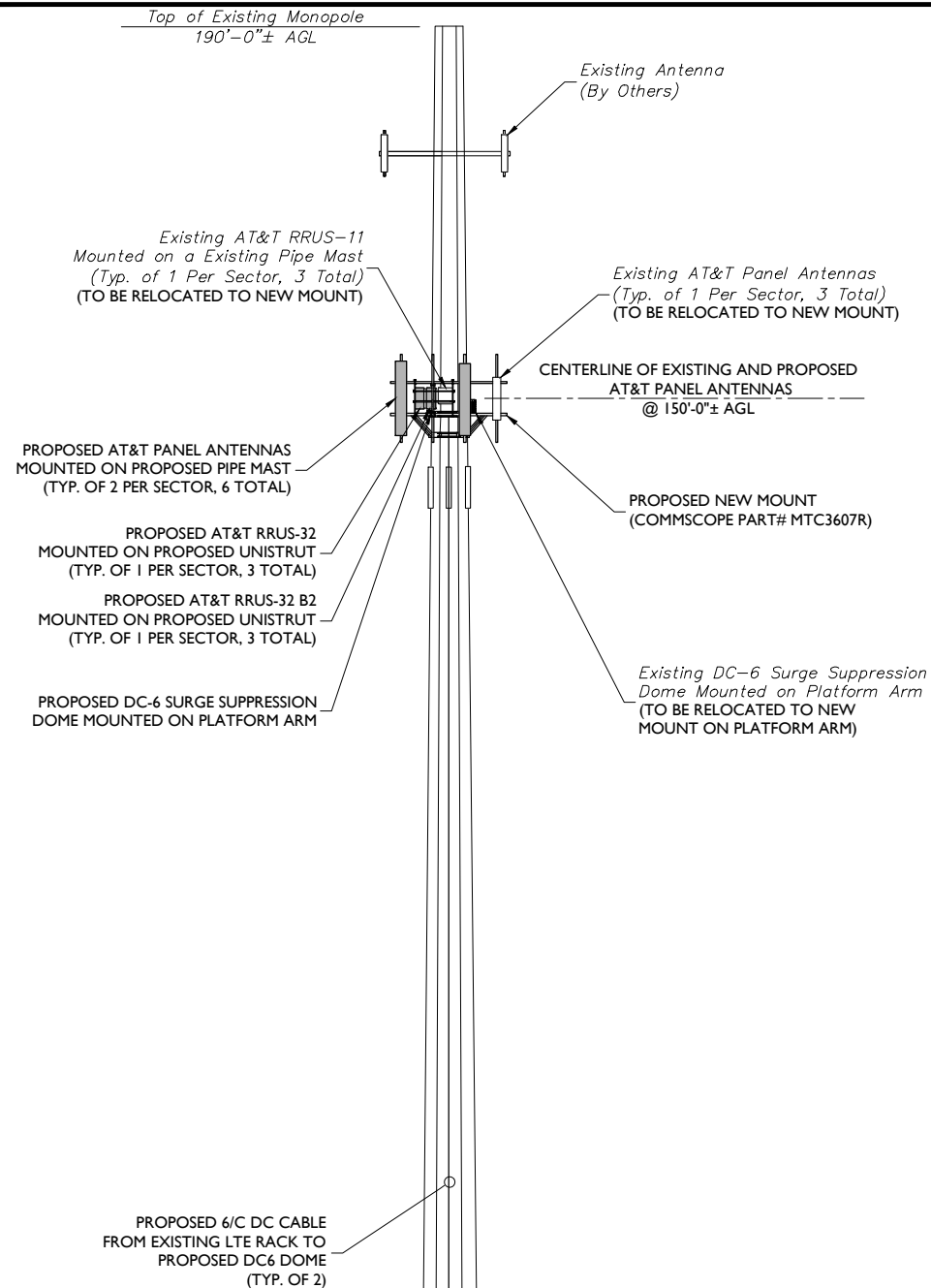
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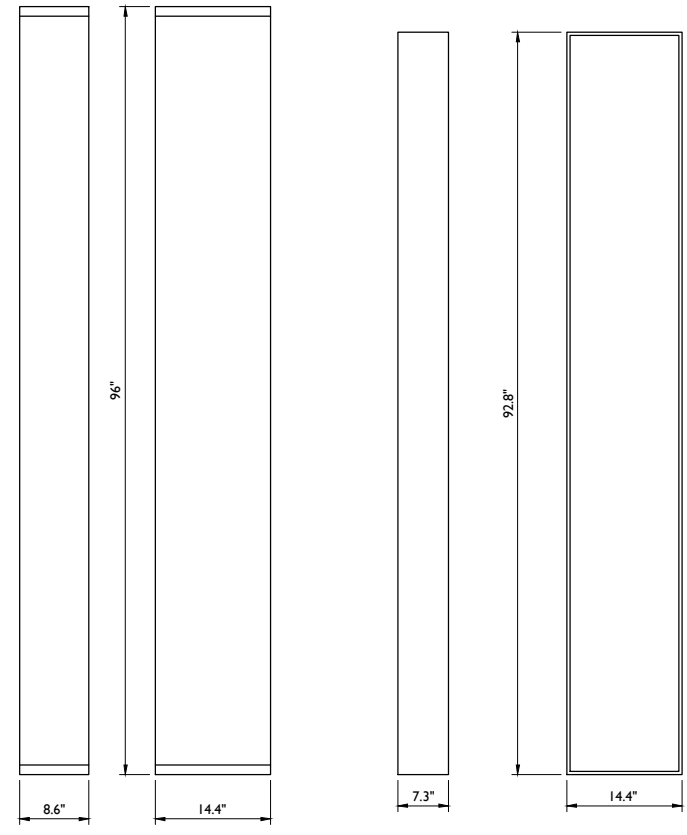
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SHEET TITLE:
EQUIPMENT PLAN

SHEET NUMBER:
A-2



ANTENNA MOUNTING DETAIL
NOT TO SCALE



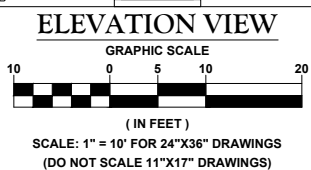
WEIGHT = 75 LBS
CCI TPA-65R-LCUUUU-H8
WEIGHT = 53 LBS
CCI HPA-65R-BUU-H8

ANTENNA DETAIL
NOT TO SCALE

- STRUCTURAL NOTES:
- MASER CONSULTING P.A. HAS NOT BEEN CONTRACTED TO PERFORM A STRUCTURAL ANALYSIS ON THIS TOWER AND MOUNTS THEREFORE ASSUMES NO RESPONSIBILITY FOR THE STRUCTURAL CAPACITY AS REQUIRED UNDER THE MOST CURRENT LOCAL, STATE AND FEDERAL CODES. AT&T IS TO PROVIDE A STRUCTURAL ANALYSIS OF THE MOUNTS, TOWER AND TOWER FOUNDATION PREPARED BY AN APPROPRIATE LICENSED STRUCTURAL ENGINEER CERTIFYING THAT THE EXISTING TOWER, MOUNTS AND ANY REQUIRED IMPROVEMENTS AND REINFORCEMENTS HAVE SUFFICIENT CAPACITY TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, SUPPORTS, CABLES AND APPURTENANCES COMPLIES WITH THE MOST CURRENT LOCAL, STATE AND FEDERAL CODES.
 - 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.

PROPOSED ANTENNA AND RRUS CONFIGURATION												
SECTOR	EXISTING ANTENNA CONFIGURATION	PROPOSED ANTENNA CONFIGURATION	TECHNOLOGY	ANTENNA STATUS	HEIGHT (in)	WIDTH (in)	DEPTH (in)	WEIGHT (lbs)	ANTENNA AZIMUTH	ANT. CL. ELEV. (ft.)	RRUS CONFIGURATION	STATUS
ALPHA	C1	Kathrein 80010121	UMTS	REMAIN	54.50	10.30	5.90	50.70	40°	150'	-	-
	A2	Powerwave P65-17-XLH-RR	LTE	REPLACED	92.80	14.40	7.30	53.00	40°	150'	RRUS-32 B2 PROPOSED RRUS-11 EXISTING	NEW REMAIN
	A3	-	-	-	-	-	-	-	-	-	-	-
	A4	-	TPA-65R-LCUUUU-H8	LTE	NEW	96.00	14.40	8.60	75.00	40°	150'	RRUS-32
BETA	A1	Kathrein 80010121	UMTS	REMAIN	54.50	10.30	5.90	50.70	160°	150'	-	-
	B2	Powerwave P65-17-XLH-RR	LTE	REPLACED	92.80	14.40	7.30	53.00	160°	150'	RRUS-32 B2 PROPOSED RRUS-11 EXISTING	NEW REMAIN
	B3	-	-	-	-	-	-	-	-	-	-	-
	B4	-	TPA-65R-LCUUUU-H8	LTE	NEW	96.00	14.40	8.60	75.00	160°	150'	RRUS-32
GAMMA	B1	Kathrein 80010121	UMTS	REMAIN	54.50	10.30	5.90	50.70	270°	150'	-	-
	C2	Powerwave P65-17-XLH-RR	LTE	REPLACED	92.80	14.40	7.30	53.00	260°	150'	RRUS-32 B2 PROPOSED RRUS-11 EXISTING	NEW REMAIN
	C3	-	-	-	-	-	-	-	-	-	-	-
	C4	-	TPA-65R-LCUUUU-H8	LTE	NEW	96.00	14.40	8.60	75.00	260°	150'	RRUS-32

ANTENNA SCHEDULE



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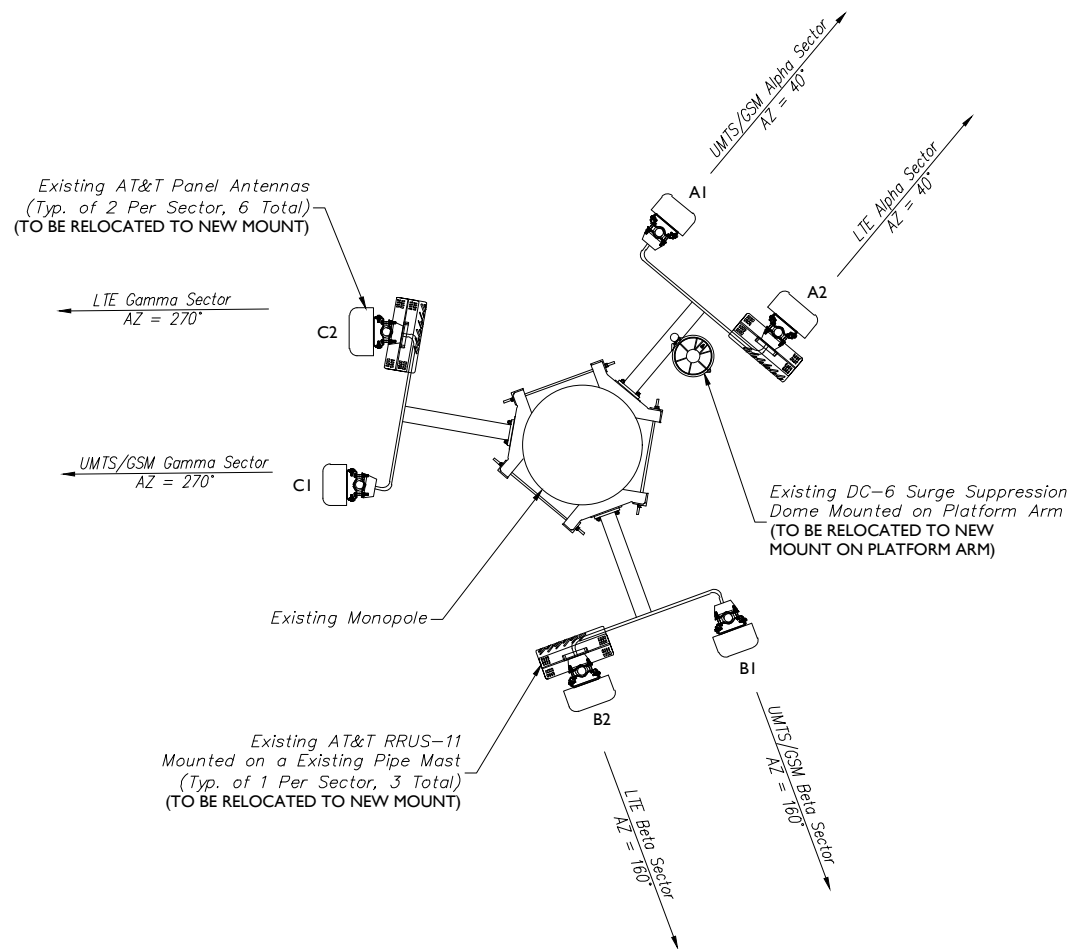
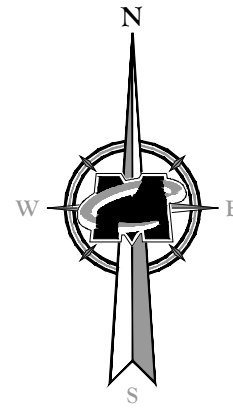
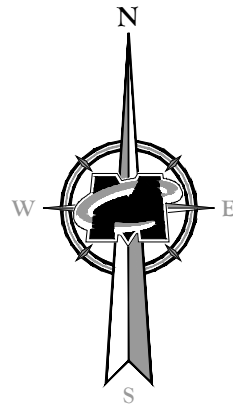
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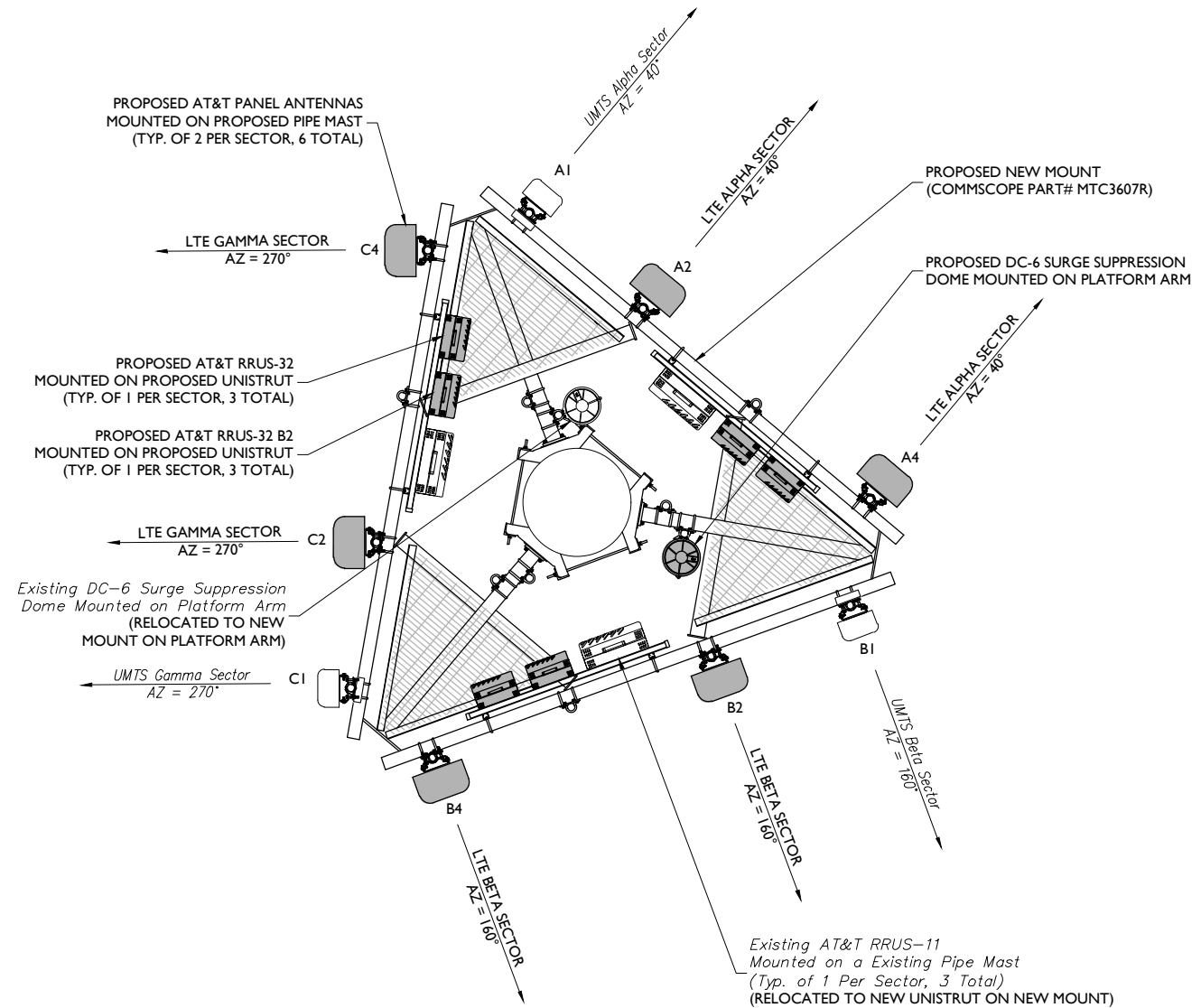
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SHEET TITLE:
ELEVATION VIEW AND ANTENNA SCHEDULE

SHEET NUMBER:
A-2



EXISTING - ANTENNA LAYOUT
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PROPOSED - ANTENNA LAYOUT
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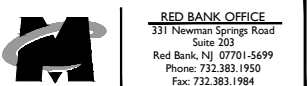
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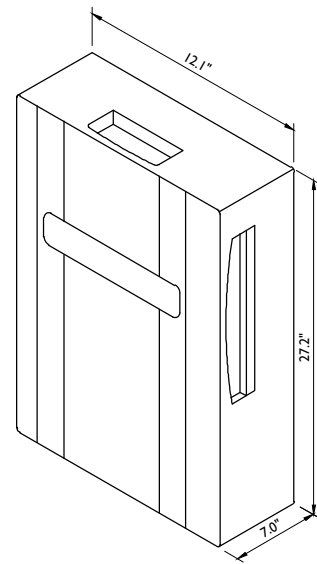
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SHEET TITLE:

ANTENNA LAYOUTS

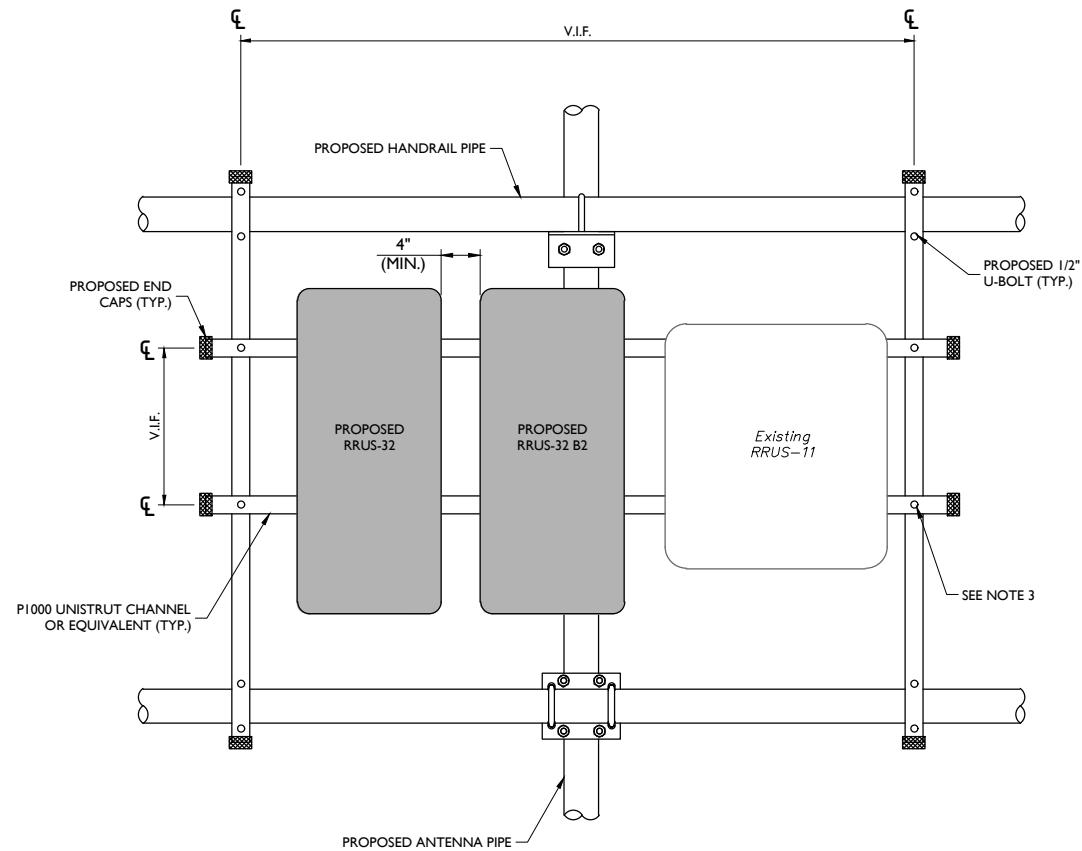
SHEET NUMBER:

A-4



RRUS-32 DIMENSIONS (H X W X D): 27.2" X 12.0" X 7.0" (INCLUDES SUNSHIELD)
WEIGHT: 53 LBS

RRUS-32 DETAIL
NOT TO SCALE



NOTES:

1. MANUFACTURES VIA AT&T SUPPLIES THE RRH. SUBCONTRACTOR SHALL SUPPLY ALL OTHER MATERIALS AND INSTALL ALL MOUNTING HARDWARE. MANUFACTURES INSTALLS RRH AND MAKES CABLE TERMINATIONS.
2. ALL UNISTRUT CHANNELS SHALL BE P1000 UNLESS OTHERWISE NOTED.
3. ALL FIELD CUT ENDS SHALL BE FIELD GALVANIZED ACCORDING TO ATSM-A780. ALL UNISTRUT CHANNELS SHALL BE P1000 UNLESS OTHERWISE NOTED.
4. ALL FASTENERS ARE 1/2"Ø. ALL DRILLED HOLES SHALL BE 9/16"Ø.
5. MOUNT ALL EQUIPMENT TO UNISTRUT USING MANUFACTURER'S BRACKET AND HARDWARE.
6. NO PAINTING OF THE RRU'S OR SOLAR SHIELD IS ALLOWED.

RRU'S MOUNTING DETAIL
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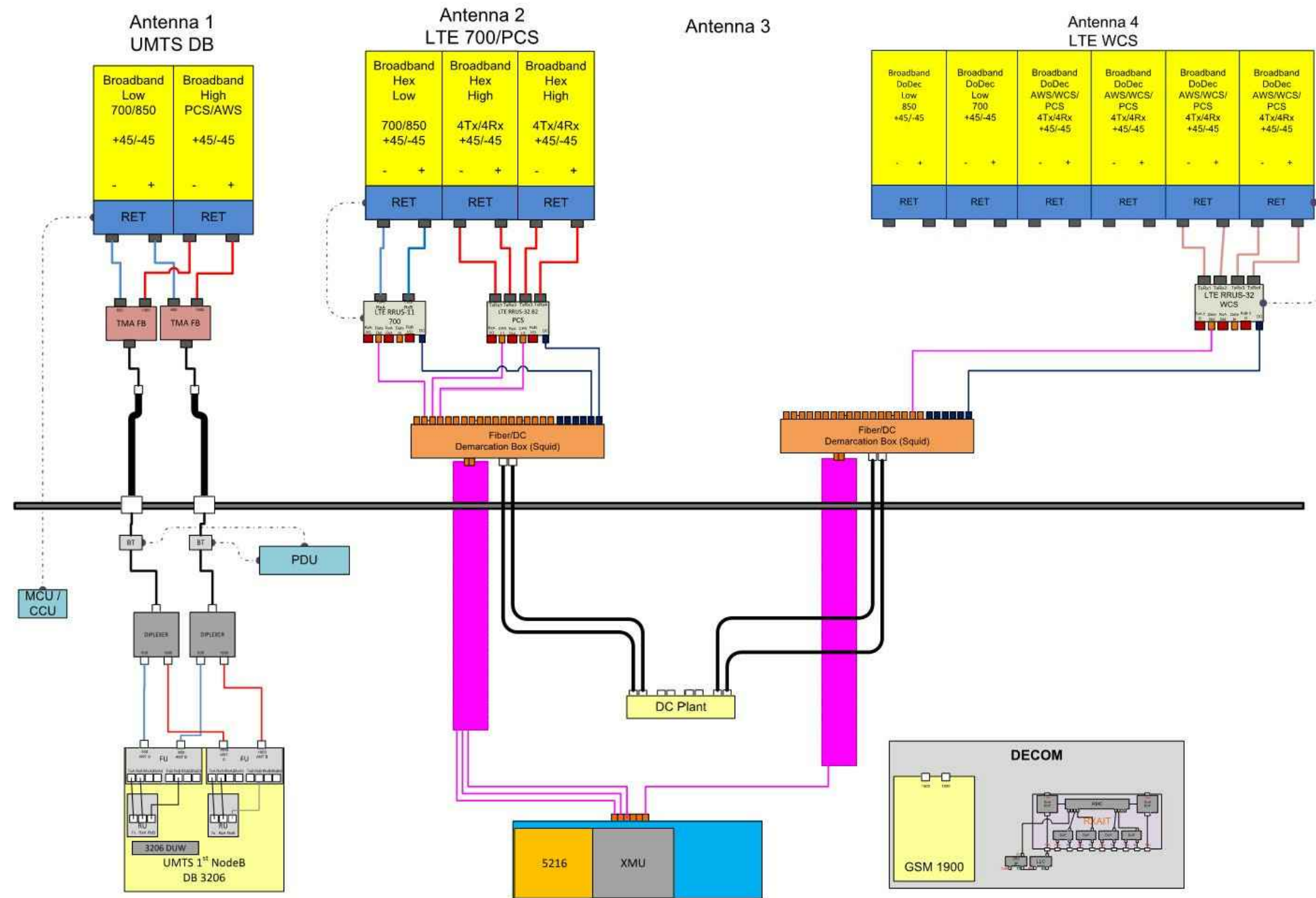
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SHEET TITLE:
DETAILS - I

SHEET NUMBER:
A-5

Diagram - Sector A/1 Diagram File Name - CT5404_3C_WCS_A_B_C_V1.vsd
 Atoll Site Name - CTV5404 Location Name - UNIONVILLE-FARMINGTON Market - CONNECTICUT Market Cluster - NEW ENGLAND
 Comments:



ALL SECTORS

NEW-ENGLAND_CONNECTICUT_CTV5404_2018-LTE-Next-Carrier_LTE_mb497_2051A0ACW5_10071289_25996_05-11-2017_Final-RF-Approval_v1.00

RF PLUMBING DIAGRAMS



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16 ESQUIRE ROAD
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SCALE: AS SHOWN JOB NUMBER: 17963003A

REV	DATE	DESCRIPTION	DRAWN	CHECKED
0	01/18/18	FOR CONSTRUCTION	AJC	PET
1	09/12/17	ISSUED FOR CONSTRUCTION	AN	MPC



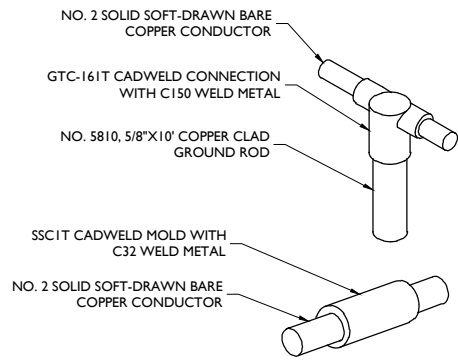
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 UNIONVILLE - FARMINGTON
 FA10071289
 CT5404
 319-321 NEW BRITAIN AVENUE
 FARMINGTON, CT 06085
 HARTFORD COUNTY

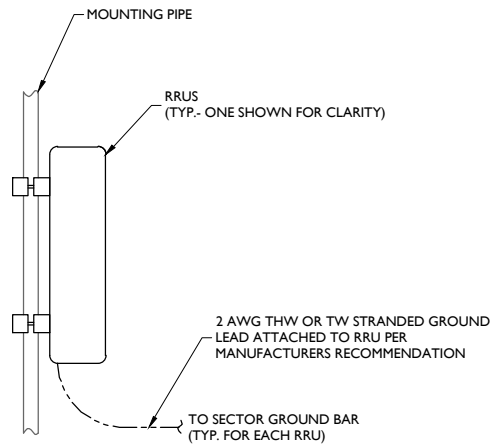
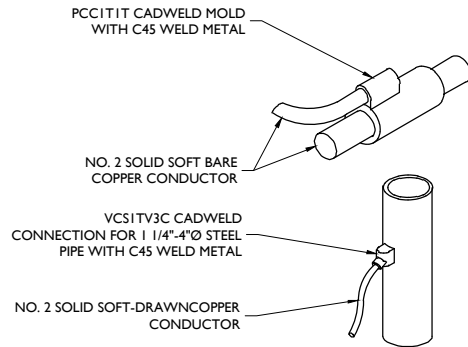
RED BANK OFFICE
 331 Newman Springs Road
 Suite 203
 Red Bank, NJ 07701-5699
 Phone: 732.383.1950
 Fax: 732.383.1984

SHEET TITLE:
 RF PLUMBING DIAGRAMS

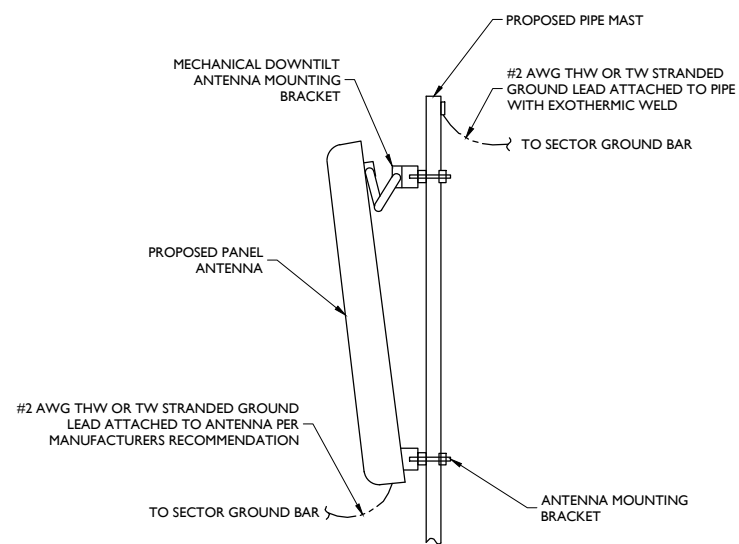
SHEET NUMBER:
 A-7



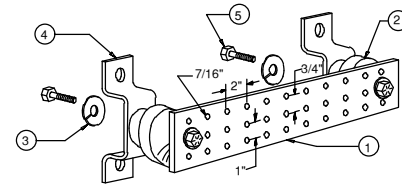
CADWELD DETAILS
NOT TO SCALE



RRU GROUNDING DETAIL
NOT TO SCALE



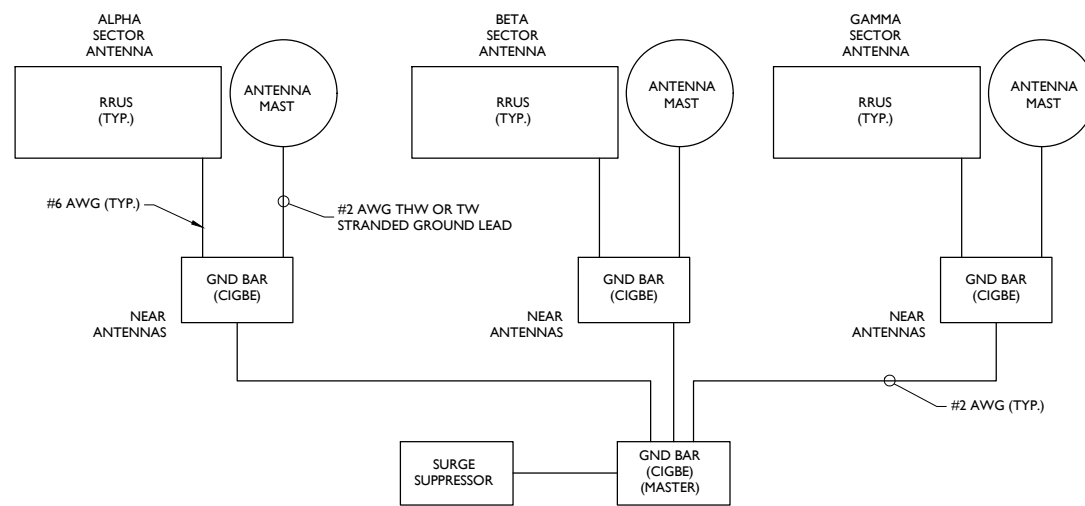
ANTENNA GROUNDING
NOT TO SCALE



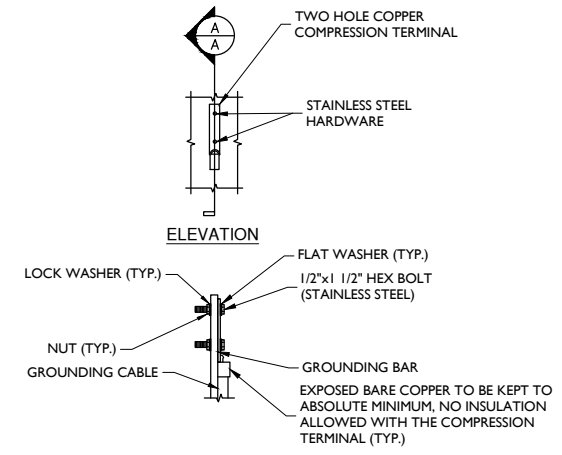
- LEGEND**
- 1- TINNED COPPER GROUND BAR, 1/4"x4"x20", NEWTON INSTRUMENT CO. CAT. NO. B-6142 OR EQUAL. HOLE CENTERS TO MATCH NEMA DOUBLE LUG CONFIGURATION.
 - 2- INSULATORS, NEWTON INSTRUMENT CAT. NO. 3061-4
 - 3- 5/8" LOCKWASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8
 - 4- WALL MOUNTING BRACKET, NEWTON 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)

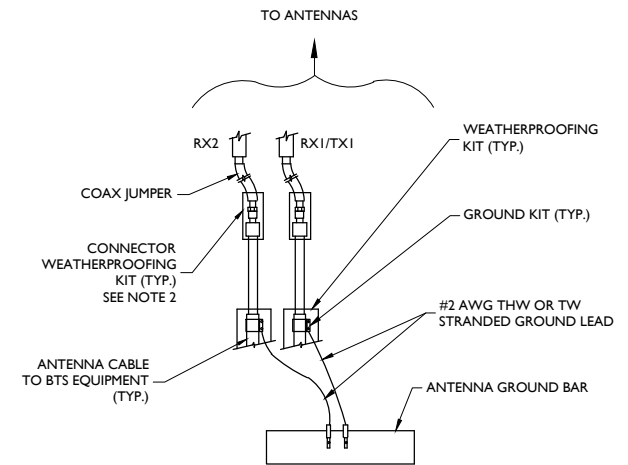
MASTER GROUND BAR
NOT TO SCALE



SCHEMATIC DIAGRAM GROUNDING SYSTEM
NOT TO SCALE



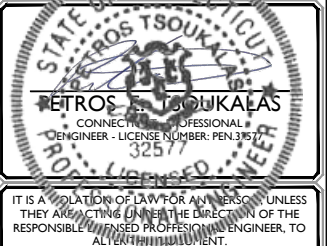
TYPICAL GROUND BAR CONNECTION DETAIL
NOT TO SCALE



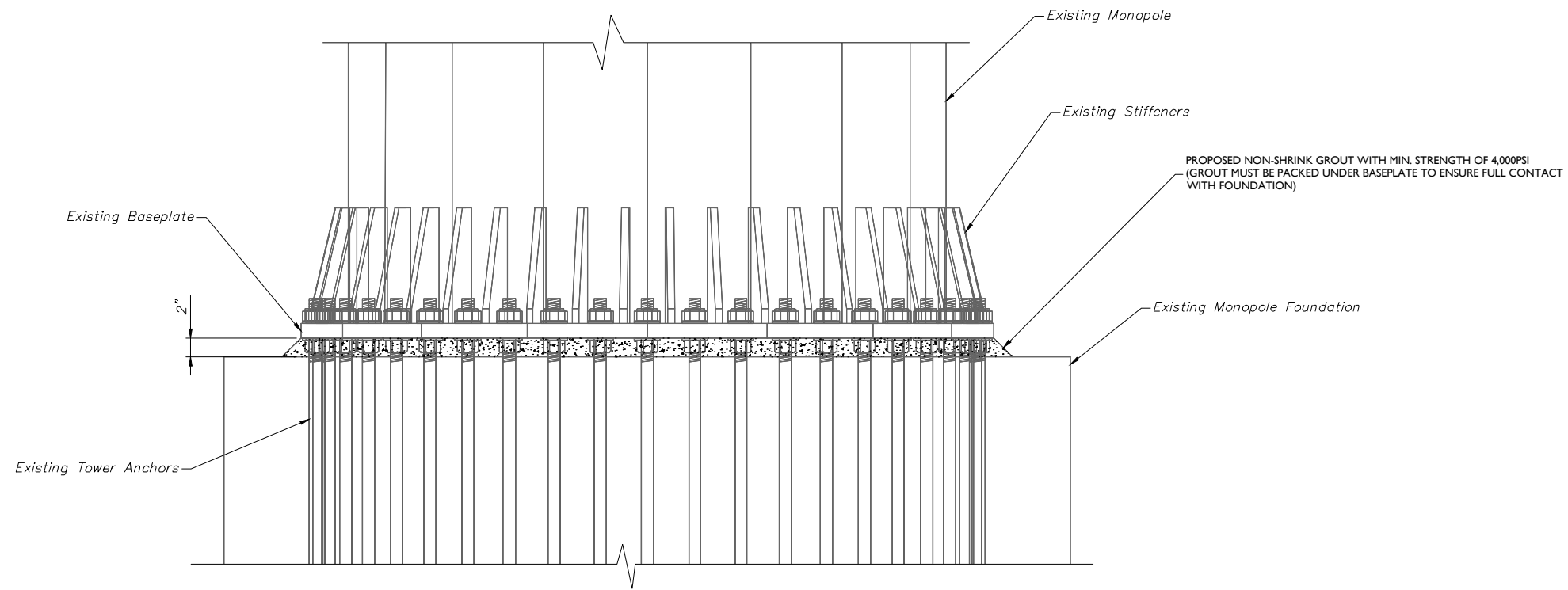
- NOTES:**
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
 2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

TYPICAL GROUND WIRE TO GROUNDING BAR
NOT TO SCALE

SCALE:	JOB NUMBER:			
AS SHOWN	17963003A			
0	01/18/18 FOR CONSTRUCTION AJC PET			
1	09/12/17 ISSUED FOR DESIGN AN MPC			
REV	DATE	DESCRIPTION	DRAWN	CHECKED



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HARTFORD COUNTY



MODIFICATION DETAILS
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SCALE: AS SHOWN JOB NUMBER: 17963003A

REV	DATE	DESCRIPTION	DRAWN BY	CHECKED BY
0	01/18/18	FOR CONSTRUCTION	AJC	PET
1	09/12/17	ISSUED FOR REVIEW	AN	MPC



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CT5404
319-321 NEW BRITAIN AVENUE
FARMINGTON, CT 06085
HARTFORD COUNTY

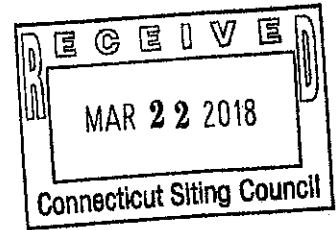
RED BANK OFFICE
331 Newnan Springs Road
Suite 203
Red Bank, NJ 07701-5699
Phone: 732.383.1950
Fax: 732.383.1984

SHEET TITLE:
MODIFICATION DETAILS

SHEET NUMBER:
S-1

March 20, 2018

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



RE: NOTICE OF EXEMPT MODIFICATION
319-321 New Britain Ave., Unionville, CT 06085

Dear Ms. Bachman:

Enclosed please find an original and two (2) copies of a Notice of Exempt Modification including drawings, structural analyses, RF emissions reports, parcel maps, and a check in the amount of six hundred twenty five dollars (\$625.00) for the filing fee. In addition, I have included a single copy of each notification letter to the municipality, the Planning Division, and to the property and tower owner. The proof of delivery is likewise enclosed and consists of a copy of the Certified Mail receipt and a copy of the USPS Tracking Results from the USPS website, acknowledging the date and time of delivery.

I have submitted electronic copies of these documents via email to the CSC today.

Please feel free to contact me with any questions or comments. Thank you for your kind cooperation in this matter.

Respectfully submitted,

Jack Andrews
Zoning Manager, Empire Telecom
o/b/o AT&T Wireless
10130 Donleigh Drive
Columbia, MD 21046
443-286-4006
jandrews@empiretelecomm.com

Enclosures

10130 Donleigh Drive
Columbia, MD 21046
443-677-0144

CT5310 - Zones Permit
 CT5404 - ZAP Notifications

=====

SIMPSONVILLE
 10400 SHAKER DR
 SIMPSONVILLE
 MD
 21150-9998
 2384960572
 03/15/2018 (800)275-8777 4:42 PM

=====

Product Description	Sale Qty	Final Price
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PM 2-Day (Domestic)	1	\$7.15
------------------------	---	--------

(FARMINGTON, CT 06032)
 (Weight: 0 Lb 7.00 Oz)
 ✓ (Expected Delivery Date) *CT 5404*
 (Saturday 03/17/2018)
 (USPS Tracking #)
 (9505 5103 9197 8074 1632 65) ✓

Insurance (Up to \$50.00 included)	1	\$0.00
---------------------------------------	---	--------

PM 2-Day (Domestic)	1	\$7.15
------------------------	---	--------

(VERNON ROCKVILLE, CT 06066) *CT 5310*
 (Weight: 0 Lb 4.50 Oz)
 (Expected Delivery Date) ~~5404~~
 (Saturday 03/17/2018)
 (USPS Tracking #)
 (9505 5103 9197 8074 1632 72)

Insurance (Up to \$50.00 included)	1	\$0.00
---------------------------------------	---	--------

PM 2-Day (Domestic)	1	\$7.15
------------------------	---	--------

(UNIONVILLE, CT 06085) *CT 5404*
 (Weight: 0 Lb 7.00 Oz)
 ✓ (Expected Delivery Date)
 (Saturday 03/17/2018)
 (USPS Tracking #)
 (9505 5103 9197 8074 1632 89) ✓

Insurance (Up to \$50.00 included)	1	\$0.00
---------------------------------------	---	--------

PM 2-Day (Domestic)	1	\$7.15
------------------------	---	--------

(FARMINGTON, CT 06032) *CT 5404*
 (Weight: 0 Lb 7.00 Oz)
 ✓ (Expected Delivery Date)
 (Saturday 03/17/2018)
 (USPS Tracking #)
 (9505 5103 9197 8074 1632 96) ✓

Insurance (Up to \$50.00 included)	1	\$0.00
---------------------------------------	---	--------

Total		\$28.60
-------	--	---------

Debit Card Remit'd		\$28.60
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(Card Name: VISA)
 (Account #: XXXXXXXXXXXX8441)
 (Approval #:
 (Transaction #: 828)
 (Receipt #: 007751)
 (Debit Card Purchase: \$28.60)
 (Cash Back: \$0.00)

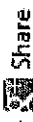
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On Time

Expected Delivery on

SATURDAY

17

MARCH 2018

by

8:00pm

Status

Delivered

March 17, 2018 at 7:58 am
Delivered, In/At Mailbox
FARMINGTON, CT 06032

Get Updates

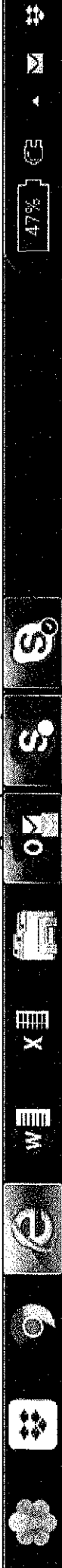
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Expected Delivery by

SATURDAY

17

MARCH 2018

by

8:00pm

Status

Delivered

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