ROBINSON & COLE LLP

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Also admitted in Massachusetts

June 16, 2014

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

Re: **Notice of Exempt Modification – Facility Modification**
290 Preston Avenue, Middletown, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 110-foot level on an existing 148-foot tower at 290 Preston Avenue in Middletown, Connecticut (the "Property"). The tower is owned by AT&T. Cellco's use of the tower was approved by the Council in 2001. Cellco now intends to modify its facility by removing six (6) 850 MHz antennas and three (3) 1900 MHz antennas and replacing them with three (3) model LNX-6513DS-VTM, 850 MHz antennas; three (3) HBX-6516DS-VTM, 1900 MHz antennas; and three (3) model HBX-6517DS-VTM, 2100 MHz antennas, all at the same 110-foot level on the tower. Cellco also intends to install three (3) remote radio heads ("RRHs") behind its 2100 MHz antennas and one (1) HYBRIFLEX™ antenna cable. Included in Attachment 1 are specifications for Cellco's replacement antenna, RRHs and HYBRIFLEX™ cable.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this notice is being sent to Daniel Drew, Mayor for the City of Middletown. A copy of this notice is also being sent to Earnest and Brenda Trumpold, the owners of the Property.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be installed at the 110-foot level on the existing 148-foot tower.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the 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 exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A Cumulative General Power Density table for Cellco's modified facility is included in Attachment 2.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The tower and its foundation can support Cellco's proposed modifications. (*See* Structural Analysis included in Attachment 3).

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Kenneth C. Baldwin

Enclosures
Copy to:
Daniel Drew, Middletown Mayor
Earnest and Brenda Trumpold
Sandy M. Carter

ATTACHMENT 1

Product Specifications

COMMSCOPE®

POWERED BY ANDREW.

LNX-6513DS-VTM

Andrew® Antenna, 698–896 MHz, 65° horizontal beamwidth, RET compatible

- Extended tilt range offers better coverage
- Great solution to maximize network coverage and capacity
- Excellent gain, VSWR, front-to-back ratio, and PIM specifications for robust network performance
- Fully compatible with Andrew remote electrical tilt system for greater OpEx savings
- The RF connectors are designed for IP67 rating and the radome for IP56 rating

Electrical Specifications

Frequency Band, MHz	**698–806**	**806–896**
Gain, dBi	14.6	15.1
Beamwidth, Horizontal, degrees	65	65
Beamwidth, Horizontal Tolerance, degrees	±3	±3
Beamwidth, Vertical, degrees	16.0	14.5
Beam Tilt, degrees	0–10	0–10
USLS, typical, dB	20	20
Front-to-Back Ratio at 180°, dB	30	30
CPR at Boresight, dB	12	12
CPR at Sector, dB	10	10
Isolation, dB	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.4 | 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153
Input Power per Port, maximum, watts	400	400
Polarization	±45°	±45°
Impedance	50 ohm	50 ohm

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol®
Band	Single band
Brand	DualPol® | Teletilt®
Operating Frequency Band	698 – 896 MHz

Mechanical Specifications

Color	Light gray
Connector Interface	7-16 DIN Female
Connector Location	Bottom
Connector Quantity, total	2
Lightning Protection	dc Ground
Radiator Material	Aluminum
Radome Material	Fiberglass, UV resistant
Wind Loading, maximum	437.9 N @ 150 km/h 98.4 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph

Dimensions

Depth	181.0 mm | 7.1 in

Product Specifications

LNX-6513DS-VTM

Length	1390.0 mm | 54.7 in
Width	301.0 mm | 11.9 in
Net Weight	14.1 kg | 31.1 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 1.1 Actuator	LNX-6513DS-R2M
Model with Factory Installed AISG 2.0 Actuator	LNX-6513DS-A1M
RET System	Teletilt®

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Included Products

DB380 — Pipe Mounting Kit for 2.4"-4.5" (60-115mm) OD round members on wide panel antennas. Includes 2 clamp sets and double nuts.

DB5083 — Downtilt Mounting Kit for 2.4"-4.5" (60 - 115 mm) OD round members. Includes a heavy-duty, galvanized steel downtilt mounting bracket assembly and associated hardware. This kit is compatible with the DB380 pipe mount kit for panel antennas that are equipped with two mounting brackets.

Product Specifications

COMMSCOPE®

POWERED BY ANDREW.

HBX-6516DS-VTM

Andrew® Teletilt® Antenna, 1710–2170 MHz, 65° horizontal beamwidth, RET compatible

- Superior azimuth tracking and pattern symmetry to minimize any sector overlap
- Rugged, reliable design with excellent passive intermodulation suppression
- The values presented on this datasheet have been calculated based on N-P-BASTA White Paper version 9.6 by the NGMN Alliance

Electrical Specifications

Frequency Band, MHz	**1710–1880**	**1850–1990**	**1920–2170**
Gain by all Beam Tilts, average, dBi	17.1	17.3	17.5
Gain by all Beam Tilts Tolerance, dB	±0.2	±0.3	±0.4
Gain by Beam Tilt, average, dBi	0 ° | 17.1 5 ° | 17.2 10 ° | 16.9	0 ° | 17.3 5 ° | 17.5 10 ° | 17.0	0 ° | 17.6 5 ° | 17.7 10 ° | 17.1
Beamwidth, Horizontal, degrees	68	65	64
Beamwidth, Horizontal Tolerance, degrees	±1.9	±1.6	±2.1
Beamwidth, Vertical, degrees	7.5	7.0	6.7
Beamwidth, Vertical Tolerance, degrees	±0.4	±0.3	±0.4
Beam Tilt, degrees	0–10	0–10	0–10
USLS, dB	19	19	19
Front-to-Back Total Power at 180° ± 30°, dB	25	26	26
CPR at Boresight, dB	22	22	22
CPR at Sector, dB	11	9	9
Isolation, dB	30	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.4 | 15.6	1.4 | 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350
Polarization	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol®
Band	Single band
Brand	DualPol® | Teletilt®
Operating Frequency Band	1710 – 2170 MHz
Number of Ports, all types	2

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Low loss circuit board
Radome Material	PVC, UV resistant
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom

Product Specifications

HBX-6516DS-VTM

RF Connector Quantity, total	2
Wind Loading, maximum	257.0 N @ 150 km/h 57.8 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph

Dimensions

Depth	83.0 mm | 3.3 in
Length	1306.0 mm | 51.4 in
Width	166.0 mm | 6.5 in
Net Weight	4.7 kg | 10.4 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 1.1 Actuator	HBX-6516DS-R2M
Model with Factory Installed AISG 2.0 Actuator	HBX-6516DS-A1M
RET System	Teletilt®

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Included Products

DB390 — Pipe Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Use for narrow panel antennas. Includes two pipe mounts.

DB5098E — Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members

Product Specifications

COMMSCOPE®

POWERED BY ANDREW.

HBX-6517DS-VTM

Andrew® Teletilt® Antenna, 1710–2180 MHz, 65° horizontal beamwidth, RET compatible

- Superior azimuth tracking and pattern symmetry to minimize any sector overlap
- Rugged, reliable design with excellent passive intermodulation suppression
- The values presented on this datasheet have been calculated based on N-P-BASTA White Paper version 9.6 by the NGMN Alliance

Electrical Specifications

Frequency Band, MHz	**1710–1880**	**1850–1990**	**1920–2180**
Gain by all Beam Tilts, average, dBi	18.5	18.6	18.9
Gain by all Beam Tilts Tolerance, dB	±0.2	±0.3	±0.4
Gain by Beam Tilt, average, dBi	0 ° | 18.3 3 ° | 18.6 6 ° | 18.4	0 ° | 18.4 3 ° | 18.7 6 ° | 18.6	0 ° | 18.8 3 ° | 19.1 6 ° | 18.7
Beamwidth, Horizontal, degrees	67	66	64
Beamwidth, Horizontal Tolerance, degrees	±1.8	±0.9	±2.8
Beamwidth, Vertical, degrees	5.0	4.7	4.4
Beamwidth, Vertical Tolerance, degrees	±0.2	±0.2	±0.3
Beam Tilt, degrees	0–6	0–6	0–6
USLS, dB	19	19	18
Front-to-Back Total Power at 180° ± 30°, dB	26	26	26
CPR at Boresight, dB	22	22	22
CPR at Sector, dB	11	11	9
Isolation, dB	30	30	30
VSWR | Return Loss, dB	1.4 | 15.6	1.4 | 15.6	1.4 | 15.6
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153
Input Power per Port, maximum, watts	350	350	350
Polarization	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol®
Band	Single band
Brand	DualPol® | Teletilt®
Operating Frequency Band	1710 – 2180 MHz
Number of Ports, all types	2

Mechanical Specifications

Color	Light gray
Lightning Protection	dc Ground
Radiator Material	Low loss circuit board
Radome Material	PVC, UV resistant
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom

Product Specifications

HBX-6517DS-VTM

RF Connector Quantity, total	2
Wind Loading, maximum	393.0 N @ 150 km/h 88.3 lbf @ 150 km/h
Wind Speed, maximum	241.0 km/h | 149.8 mph

Dimensions

Depth	83.0 mm | 3.3 in
Length	1902.0 mm | 74.9 in
Width	166.0 mm | 6.5 in
Net Weight	6.2 kg | 13.7 lb

Remote Electrical Tilt (RET) Information

Model with Factory Installed AISG 1.1 Actuator	HBX-6517DS-R2M
Model with Factory Installed AISG 2.0 Actuator	HBX-6517DS-A1M
RET System	Teletilt®

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)
ISO 9001:2008	Designed, manufactured and/or distributed under this quality management system

Included Products

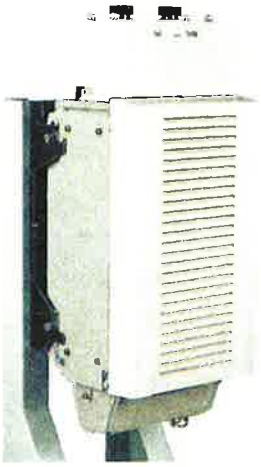
DB390 — Pipe Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Use for narrow panel antennas. Includes two pipe mounts.

DB5098E — Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members

Alcatel-Lucent RRH2x40-AWS

REMOTE RADIO HEAD

The Alcatel-Lucent RRH2x40-AWS is a high-power, small form-factor Remote Radio Head (RRH) operating in the AWS frequency band (1700/2100MHz - 3GPP Band 4). The Alcatel-Lucent RRH2x40-AWS is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.



A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent RRH2x40-AWS is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent RRH2x40-AWS has two transmit RF paths, 40 W RF output power per transmit path, and is designed to manage up to four-way receive diversity. The device is ideally suited to support macro coverage, with multiple-input multiple-output (MIMO) 2x2 operation in up to 20 MHz of bandwidth.

The Alcatel-Lucent RRH2x40-AWS is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH2x40-AWS installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

Fast, low-cost installation and deployment

The Alcatel-Lucent RRH2x40-AWS is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent RRH2x40-AWS is compact and weighs less than 20 kg (44 lb), eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day — a fraction of the time required for a traditional BTS.

Excellent RF performance

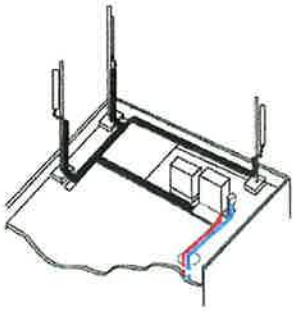
Because of its small size and weight, the Alcatel-Lucent RRH2x40-AWS can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent RRH2x40-AWS where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent RRH2x40-AWS provides more RF power while at the same time consuming less electricity.

Features

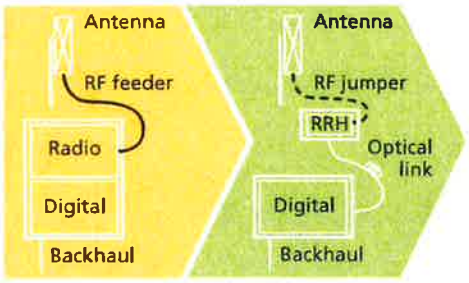
- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless)
- Noise-free
- Best-in-class power efficiency, with significantly reduced energy consumption

Benefits

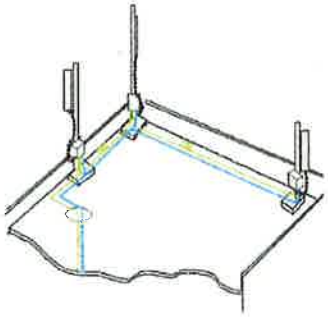
- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning



Macro



RRH for space-constrained cell sites



Distributed

Technical specifications

Physical dimensions

- Height: 620 mm (24.4 in.)
- Width: 270 mm (10.63 in.)
- Depth: 170m (6.7 in.)
- Weight (without mounting kit): less than 20 kg (44 lb)

Power

- Power supply: -48VDC

Operating environment

- Outdoor temperature range:
  - ¬ With solar load: -40°C to +50°C (-40°F to +122°F)
  - ¬ Without solar load: -40°C to +55°C (-40°F to +131°F)
- Passive convection cooling (no fans)
- Enclosure protection
  - ¬ IP65 (International Protection rating)

RF characteristics

- Frequency band: 1700/2100 MHz (AWS); 3GPP Band 4
- Bandwidth: up to 20 MHz
- RF output power at antenna port: 40 W nominal RF power for each Tx port
- Rx diversity: 2-way or 4-way with optional Rx Diversity module
- Noise figure: below 2.0 dB typical
- Antenna Line Device features
  - ¬ TMA and Remote electrical tilt (RET) support via AISG v2.0

Optical characteristics

Type/number of fibers

- Single-mode variant
  - ¬ One Single Mode Single Fiber per RRH2x, carrying UL and DL using CWDM
  - ¬ Single mode dual fiber (SM/DF)
- Multi-mode variant
  - ¬ Two Multi-mode fibers per RRH2x: one carrying UL, the other carrying DL

Optical fiber length

- Up to 500 m (0.31 mi), using MM fiber
- Up to 20 km (12.43 mi), using SM fiber

Digital Ports and Alarms

- Two optical ports to support daisy-chaining
- Six external alarms

CPG2809100912 (09)

Alcatel·Lucent

Product Data Sheet HB158-1-08U8-S8J18

HYBRIFLEX™ RRH Hybrid Feeder Cabling Solution, 1-5/8", Single-Mode Fiber

Product Description

RFS' HYBRIFLEX Remote Radio Head (RRH) hybrid feeder cabling solution combines optical fiber and DC power for RRHs in a single lightweight aluminum corrugated cable, making it the world's most innovative solution for RRH deployments.

It was developed to reduce installation complexity and costs at Cellular sites. HYBRIFLEX allows mobile operators deploying an RRH architecture to standardize the RRH installation process and eliminate the need for and cost of cable grounding. HYBRIFLEX combines optical fiber (multi-mode or single-mode) and power in a single corrugated cable. It eliminates the need for junction boxes and can connect multiple RRHs with a single feeder. Standard RFS CELLFLEX® accessories can be used with HYBRIFLEX cable. Both pre-connectorized and on-site options are available.

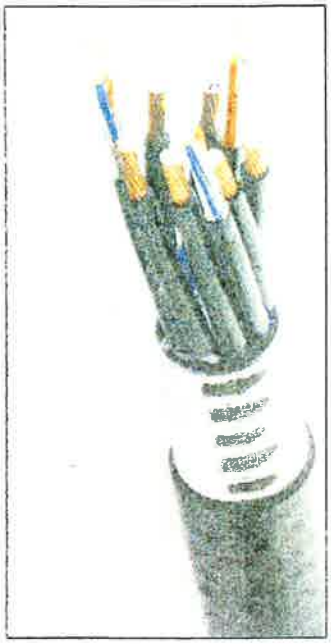


Figure 1: HYBRIFLEX Series

Features/Benefits

- Aluminum corrugated armor with outstanding bending characteristics – minimizes installation time and enables mechanical protection and shielding
- Same accessories as 1 5/8" coaxial cable
- Outer conductor grounding – Eliminates typical grounding requirements and saves on installation costs
- Lightweight solution and compact design – Decreases tower loading
- Robust cabling – Eliminates need for expensive cable trays and ducts
- Installation of tight bundled fiber optic cable pairs directly to the RRH – Reduces CAPEX and wind load by eliminating need for interconnection
- Optical fiber and power cables housed in single corrugated cable – Saves CAPEX by standardizing RRH cable installation and reducing installation requirements
- Outdoor polyethylene jacket – Ensures long-lasting cable protection

Technical Specifications

Outer Conductor Armor	Corrugated Aluminum	[mm (in)]	46.5 (1.83)
Jacket	Polyethylene, PE	[mm (in)]	50.3 (1.98)
UV-Protection	Individual and External Jacket		Yes
Weight, Approximate		[kg/m (lb/ft)]	1.9 (1.30)
Minimum Bending Radius, Single Bending		[mm (in)]	200 (8)
Minimum Bending Radius, Repeated Bending		[mm (in)]	500 (20)
Recommended/Maximum Clamp Spacing		[m (ft)]	1.0 / 1.2 (3.25 / 4.0)
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	.068 (0.205)
DC-Resistance Power Cable, 8.4mm²(8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Version			Single-mode OM3
Quantity, Fiber Count			16 (8 pairs)
Core/Clad		[µm]	50/125
Primary Coating (Acrylate)		[µm]	245
Buffer Diameter, Nominal		[µm]	900
Secondary Protection, Jacket, Nominal		[mm (in)]	2.0 (0.08)
Minimum Bending Radius		[mm (in)]	104 (4.1)
Insertion Loss @ wavelength 850nm		dB/km	3.0
Insertion Loss @ wavelength 1310nm		dB/km	1.0
Standards (Meets or exceeds)			UL94-V0, UL1666 RoHS Compliant
Size (Power)		[mm² (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm² (AWG)]	0.8 (18)
Quantity, Wire Count (Alarm)			4 (2 pairs)
Type			UV protected
Strands			19
Primary Jacket Diameter, Nominal		[mm (in)]	6.8 (0.27)
Standards (Meets or exceeds)			NFPA 130, ICEA S-95-658 UL Type XHHW-2, UL 44 UL-LS Limited Smoke, UL VW-1 IEEE-383 (1974), IEEE1202/FT4 RoHS Compliant
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to149)

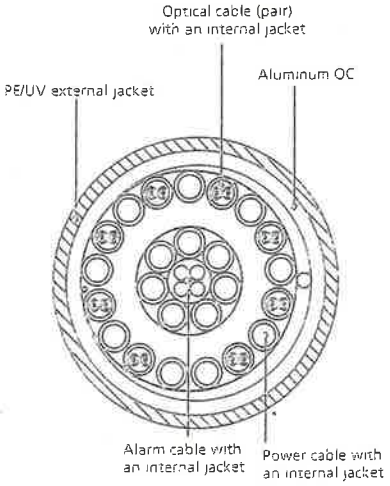


Figure 2: Construction Detail

* This data is provisional and subject to change

ATTACHMENT 2

	General	Power	Density					
Site Name: Middletown W								
Tower Height: 148Ft								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*MetroPCS CDMA	3	727	90	0.0968	2135	1.0000	9.68%	
*MetroPCS LTE	1	1200	90	0.0533	2130	1.0000	5.33%	
*Sprint CDMA/LTE	2	693	125	0.0319	1900	1.0000	3.19%	
*Sprint CDMA/LTE	1	390	125	0.0090	850	0.5667	1.58%	
*Nextel	9	100	117.5	0.0234	851	0.5673	4.13%	
*T-Mobile LTE	2	24	140	0.0009	2100	1.0000	0.09%	
*T-Mobile GSM/UMTS	2	12	140	0.0004	1950	1.0000	0.04%	
*T-Mobile UMTS	2	12	140	0.0004	2100	1.0000	0.04%	
*AT&T UMTS	2	565	149	0.0183	880	0.5867	3.12%	
*AT&T UMTS	2	875	149	0.0283	1900	1.0000	2.83%	
*AT&T GSM	1	283	149	0.0046	880	0.5867	0.78%	
*AT&T GSM	4	525	149	0.0340	1900	1.0000	3.40%	
*AT&T LTE	1	1313	149	0.0213	734	0.4893	4.35%	
Verizon	**11**	**366**	**110**	**0.1196**	**1970**	**1.0000**	**11.96%**	
Verizon	**9**	**285**	**110**	**0.0762**	**869**	**0.5793**	**13.16%**	
Verizon	**1**	**1270**	**110**	**0.0377**	**2145**	**1.0000**	**3.77%**	
Verizon	**1**	**846**	**110**	**0.0251**	**698**	**0.4653**	**5.40%**	
								72.87%
* Source: Siting Council								

ATTACHMENT 3

AT&T Towers
2300 Northlake Center Dr Ste 405
Tucker, GA 30084

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74119

April 1, 2014

B+T No.: 86667.006.01

STRUCTURAL ANALYSIS
148' Monopole Tower

AT&T DESIGNATION:	Site ID:	14635
	Site FA:	10035088
	Site Name:	Middletown SW
	AT&T Project:	4_Verizon PRE-NTP MOD - 2-17-14
ANALYSIS CRITERIA:	Codes:	TIA/EIA-222-F (85 mph fastest mile) IBC 2003 Connecticut State Building Code 2005
SITE DATA:		290 Preston Avenue, Middletown, CT, Middlesex County Latitude 41.557353°, Longitude -72.743277° Market MA/RI/VT/NH/ME/CT

Ms. Carole Jones,

B+T Group is pleased to submit this Structural Analysis Report to determine the structural integrity of the aformentioned tower. The purpose of the analysis is to determine the suitability of the tower with the existing and proposed loading configuration detailed in the analysis report.

Analysis Results

Tower Stress Level with Proposed Equipment:	**95.0%**	**Pass**
Foundation Ratio with Proposed Equipment:	**96.0%**	**Pass**

We at B+T Group appreciate the opportunity of providing our continuing professional services to you and AT&T Towers. If you have any questions or need further assistance on this or any other project please give us a call.

Respectfully Submitted by: B+T Engineering, Inc.

Analysis Prepared by: Zach Smith

Analysis Reviewed by: Chad E. Tuttle, P.E.

ANALYSIS RESULTS:

Table 1 - Section Capacity (Summary)

Elevation (ft)	% Capacity	Pass / Fail
148 - 111	58.6	Pass
111 - 99.333	92.5	Pass
99.333 - 90.5	**95.0**	Pass
90.5 - 75	86.4	Pass
75 - 60.5	93.5	Pass
60.5 - 39.75	87.7	Pass
39.75 - 30.5	87.8	Pass
30.5 - 0	92.3	Pass

Table 2 - Tower Component Stresses vs. Capacity

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	92.1	**Pass**
1	Base Plate	Base	82.1	**Pass**
1	Base Foundation(Soil Interaction)	Base	96.0	**Pass**

Structure Rating (max from all components) =	96.0%

Notes:
1) See additional documentation in "Appendix B - Calculations" for calculation supporting the % capacity consumed.
2) Capacities up to 105% are considered acceptable based on analysis methods used.

Recommendations:

N/A

ANALYSIS PROCEDURE:

Table 3 - Documents Provided

Document	Description	Date	Source
Tower Data	PennSummit/PJF Project # 29201-0230	2/26/2001	Siterra
Foundation Information	PennSummit/PJF Project # 29201-0230	2/26/2001	Siterra
Geotech Report	Dr. Clarence Welti, P.E., P.C.	7/25/2000	Siterra
Loading	B+T Group Project No. 86667.003.01; 4_T-Mobile Modification 9-18-13	12/10/2013	On File
	Site Lease Application; 4_Verizon PRE-NTP MOD - 2-17-14	2/24/2014	Siterra
	NOC2; 4_Verizon PRE-NTP MOD - 2-17-14	3/5/2014	Siterra
Previous Structural Analysis	B+T Group Project No. 86667.003.01; 4_T-Mobile Modification 9-18-13	12/10/2013	On File
	B+T Group Project No. 86667.005.01; 3_Verizon Modification 4-15-13	11/18/2013	On File
	B+T Group Project No. 86667.004.01; 2_Sprint Modification 12-14-2012	11/17/2013	On File
Modification Drawings	B+T Group Project No. 84934.003.00; 1_MOD LTE 6-15-12	11/8/2012	On File

ANALYSIS METHOD:

tnxTower, a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix B.

ASSUMPTIONS:

1. Tower and structures were built in accordance with the manufacturer's specifications.
2. The tower and structures have been maintained in accordance with the manufacturer's specifications.
3. The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Appendix A of this report.
4. Mount areas and weights are assumed based on photographs provided.
5. Refer to the base level drawing for transmission line distribution.
6. All loading for Verizon was taken from the Site Lease Application.
7. All other existing/reserved loading was taken from the previous analysis unless otherwise noted.
8. The existing AT&T loading in the NOC2 was not consistent with the previous analysis. The future loading duplicates the existing LTE. Therefore, generic future loading was considered.

If any of these assumptions have been made in error, B+T Group should be notified to determine the effect on the structural integrity of the tower.

APPENDIX A

TOWER ANALYSIS LOADING

TOWER ANALYSIS LOADING:

Existing / Reserved Loading

Antenna						Mount		Transmission Line	
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Manufacturer	Model	Quantity	Type	Quantity	Size (in)
AT&T	148	150	3	KMW	AM-X-CD-16-65-00T			12	1 5/8"
AT&T	148	149	6	Powerwave	AXCM-800/1900-90-13	1	LP Platform	1	3/8"
AT&T	148	149	12	Powerwave	16"x14"x3" TME			2	7/8"
AT&T	148	148	6	Ericsson	RBS6601				
AT&T	148	148	1	Raycap	DC6-48-60-18-8F				
T-Mobile	140	140	6	Ericsson	AIR21	1	LP Platform	18	1 5/8"
T-Mobile	140	140	3	Andrew	OneBase Twin Dual Duplex TMA			1	1 5/8"
T-Mobile	140	140	2	RFS	APX16-DWV			1	12"
Sprint	124	125	6	Andrew	DB980F65T4E-M	1	LP Platform	6	1 5/8"
Sprint	124	125	3	Powerwave	APXVSPP18-C-A20			3	1 1/4"
Sprint	124	125	3	Alcatel	1900 RRH				
Sprint	124	125	3	Alcatel	800 RRH				
Verizon	110	110	6*	Amphenol	LPA-80063/4CF	1	LP Platform	12	1 5/8"
Verizon	110	110	1	Andrew	LNX-6514DS-T4M				
Verizon	110	110	2	Antel	BXA-70063-6CF				
Verizon	110	110	3*	Raymsa	MG D3-800T0				
Verizon	110	110	6	RFS	FD9R6004/2C-3				
Metro PCS	90	90	3	Unknown	6'x6"x4" Panel	3	Pipe Mount	6	1 5/8"
Metro PCS	55	55	1	Unknown	GPS	1	Standoff	1	3/8"
Unknown	50	50	1	Unknown	GPS	1	Standoff	1	1/2"

*Equipment to be Removed

Proposed Loading

Antenna						Mount		Transmission Line	
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Manufacturer	Model	Quantity	Type	Quantity	Size (in)
Verizon	110	110	3	Andrew	HBX-6517DS-VTM			1	1 5/8"
Verizon	110	110	3	Andrew	LNX-6513DS-VTM				
Verizon	110	110	3	Andrew	HBX-6516DS-VTM				
Verizon	110	110	3	ALU	RRH 2x40AWS				
Verizon	110	110	1	RFS	DB-T1-6Z-8AB00Z	1	Collar Mount		

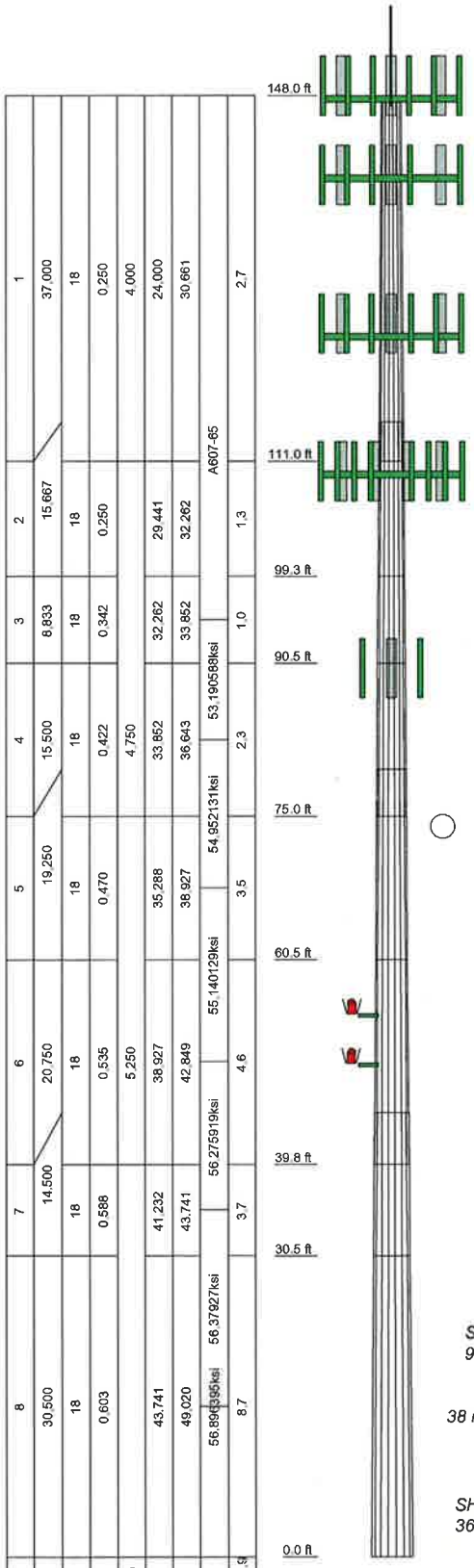
Note: See Base Level Drawing For Transmission Line Distribution

Future Loading

Antenna						Mount		Transmission Line	
Antenna Owner	Mount Height (ft)	Antenna CL (ft)	Quantity	Manufacturer	Model	Quantity	Type	Quantity	Size (in)
AT&T	148	150	3	KMW	AM-X-CD-16-65-00T			6	1 5/8"

APPENDIX B

CALCULATIONS



Section	1	2	3	4	5	6	7	8
Length (ft)	37.000	15.667	8.833	15.500	19.250	20.750	14.500	30.500
Number of Sides	18	18	18	18	18	18	18	18
Thickness (in)	0.250	0.250	0.342	0.422	0.470	0.535	0.588	0.603
Socket Length (ft)	4.000			4.750		5.250		
Top Dia (in)	24.000	29.441	32.262	33.852	35.288	38.927	41.232	43.741
Bot Dia (in)	30.661	32.262	33.852	36.643	38.927	42.849	43.741	49.020
Grade	A607-65		53.190588ksi	54.952131ksi	55.140129ksi	56.275919ksi	56.37927ksi	56.896395ksi
Weight (K)	2.7	1.3	1.0	2.3	3.5	4.6	3.7	8.7

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lighting Rod 5/8" x 8' (E)	152	APXVSPP18-C-A20 w/ Mount Pipe (Sprint-E)	124
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-E)	148	APXVSPP18-C-A20 w/ Mount Pipe (Sprint-E)	124
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-E)	148	1900MHz RRH (Sprint-E)	124
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-E)	148	1900MHz RRH (Sprint-E)	124
(2) AXCM-800/1900-90-13 w/ Mount Pipe (ATI-E)	148	1900MHz RRH (Sprint-E)	124
(2) AXCM-800/1900-90-13 w/ Mount Pipe (ATI-E)	148	800MHZ RRH (Sprint-E)	124
(2) AXCM-800/1900-90-13 w/ Mount Pipe (ATI-E)	148	800MHZ RRH (Sprint-E)	124
(4) 16"x14"x3" (ATI-E-Shielded)	148	800MHZ RRH (Sprint-E)	124
(4) 16"x14"x3" (ATI-E-Shielded)	148	14' L.P. Platform (E)	124
(4) 16"x14"x3" (ATI-E-Shielded)	148	BXA-70063-6CF w/ Mount Pipe (E - Verizon)	110
(2) RBS6601 (ATI-E)	148	LNX-6514DS-T4M w/ Mount Pipe (E - Verizon)	110
(2) RBS6601 (ATI-E)	148	BXA-70063-6CF w/ Mount Pipe (E - Verizon)	110
(2) RBS6601 (ATI-E)	148	(2) FD9R6004/2C-3L (E - Verizon)	110
DC6-48-60-18-8F (ATI-E)	148	(2) FD9R6004/2C-3L (E - Verizon)	110
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-F)	148	(2) FD9R6004/2C-3L (E - Verizon)	110
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-F)	148	HBX-6517DS-VTM w/ Mount Pipe (P - Verizon)	110
AM-X-CD-16-65-00T-RET w/ Mount Pipe (ATI-F)	148	HBX-6517DS-VTM w/ Mount Pipe (P - Verizon)	110
Platform Mount [LP 714-1] (ATI-E)	148	HBX-6517DS-VTM w/ Mount Pipe (P - Verizon)	110
APX16DWV-16DWVS-C w/ Mount Pipe (T-Mobile-E)	140	LNX-6513DS-VTM w/ Mount Pipe (P - Verizon)	110
APX16DWV-16DWVS-C w/ Mount Pipe (T-Mobile-E)	140	LNX-6513DS-VTM w/ Mount Pipe (P - Verizon)	110
(2) AIR 21 w/ Mount Pipe (T-Mobile-E)	140	LNX-6513DS-VTM w/ Mount Pipe (P - Verizon)	110
(2) AIR 21 w/ Mount Pipe (T-Mobile-E)	140	HBX-6516DS-VTM w/ Mount Pipe (P - Verizon)	110
(2) AIR 21 w/ Mount Pipe (T-Mobile-E)	140	HBX-6516DS-VTM w/ Mount Pipe (P - Verizon)	110
ONEBASE TWIN DUAL DUPLEX TMA (T-Mobile-E)	140	HBX-6516DS-VTM w/ Mount Pipe (P - Verizon)	110
ONEBASE TWIN DUAL DUPLEX TMA (T-Mobile-E)	140	RRH2X40-AWS (P - Verizon)	110
ONEBASE TWIN DUAL DUPLEX TMA (T-Mobile-E)	140	RRH2X40-AWS (P - Verizon)	110
6' x 2" Mount Pipe (T-Mobile-E)	140	RRH2X40-AWS (P - Verizon)	110
(2) 6' x 2" Mount Pipe (T-Mobile-E)	140	DB-T1-6Z-8AB-0Z (P - Verizon)	110
6' x 2" Mount Pipe (T-Mobile-E)	140	Collar Mount (P - Verizon)	110
14' L.P. Platform (T-Mobile-E)	140	14' L.P. Platform (E - Verizon)	110
(2) DB980F65T4E-M w/Mount Pipe (Sprint-E)	124	6'x6"x4" Panel (E - Metro PCS)	90
(2) DB980F65T4E-M w/Mount Pipe (Sprint-E)	124	6'x6"x4" Panel (E - Metro PCS)	90
(2) DB980F65T4E-M w/Mount Pipe (Sprint-E)	124	6'x6"x4" Panel (E - Metro PCS)	90
APXVSPP18-C-A20 w/ Mount Pipe (Sprint-E)	124	Pipe Mount [PM 601-3] (E - Metro PCS)	90
		GPS (E - Metro PCS)	55
		Side Arm Mount [SO 702-1] (E - Metro PCS)	55
		GPS (E)	50
		Side Arm Mount [SO 702-1] (E)	50

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi	56.275919ksi	56 ksi	71 ksi
53.190588ksi	53 ksi	68 ksi	56.37927ksi	56 ksi	71 ksi
54.952131ksi	55 ksi	70 ksi	56.896395ksi	57 ksi	72 ksi
55.140129ksi	55 ksi	70 ksi			

AXIAL
68 K
SHEAR
9 K
TORQUE 0 kip-ft
38 mph WIND - 0.750 i
AXIAL
46 K
SHEAR
36 K
MOMENT
3919 kip-ft
TORQUE 2 kip-ft
REACTIONS - 85 mph WIND

TOWER DESIGN NOTES

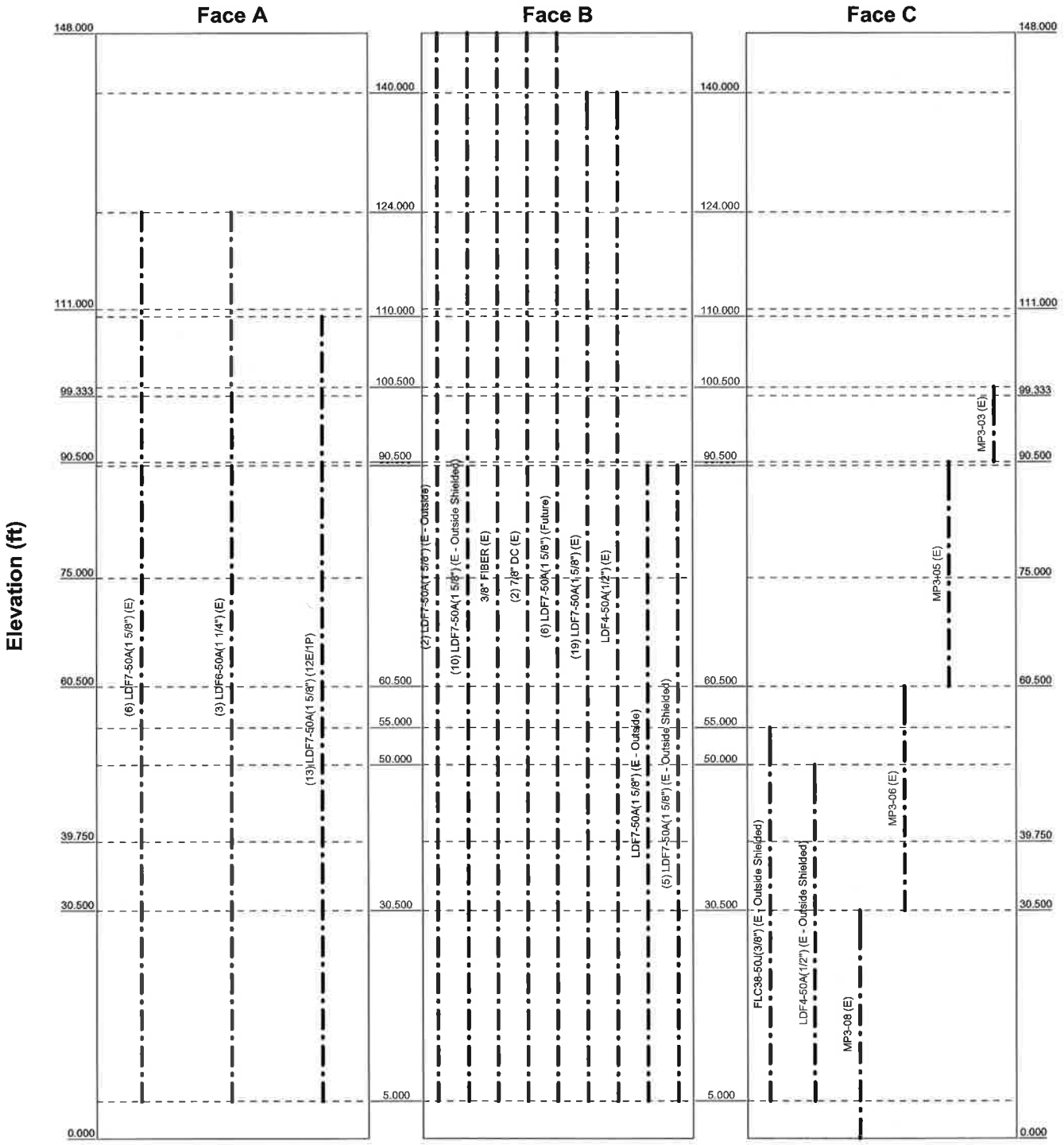
1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.

B+T Group
1717 S. Boulder Ave.
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 86667.006.01 - Middletown, CT (USID# 1463		
Project: 4_Verizon PRE-NTP MOD - 2-17-14		
Client: AT&T Towers	Drawn by: zsmith	App'd:
Code: TIA/EIA-222-F	Date: 04/01/14	Scale: NTS
Path:		Dwg No. E-1

Feed Line Distribution Chart
0' - 148'

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



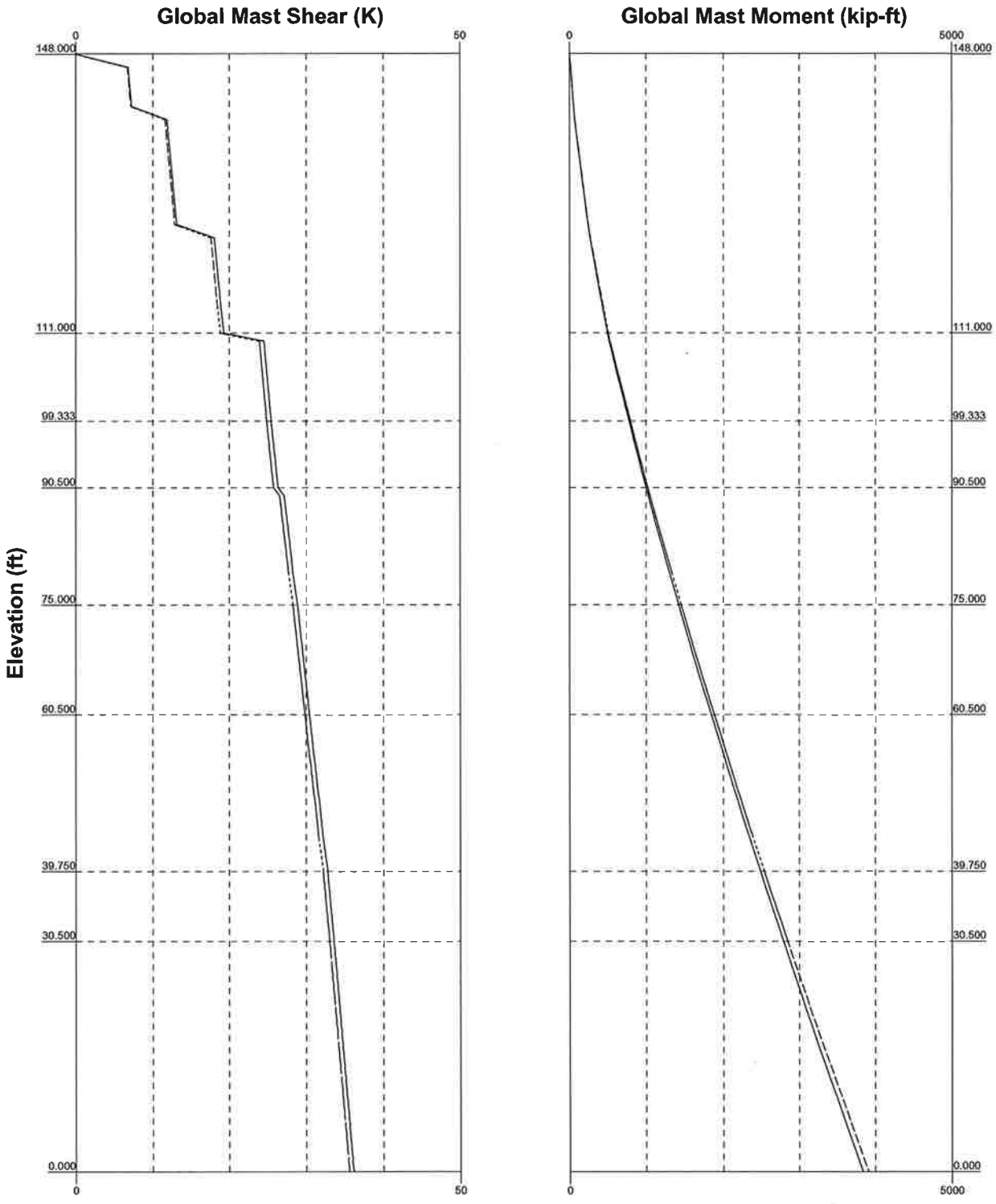
B+T Group 1717 S. Boulder Ave. Tulsa, OK 74119 Phone: (918) 587-4630 FAX: (918) 295-0265	Job: *86667.006.01 - Middletown, CT (USID# 1463* Project: *4_Verizon PRE-NTP MOD - 2-17-14*		
	Client: AT&T Towers	Drawn by: zsmith	App'd:
	Code: TIA/EIA-222-F	Date: 04/01/14	Scale: NTS
	Path:		Dwg No. E-7

TIA/EIA-222-F - 85 mph/38 mph 0.750 in Ice

Vx ---------- Vz

Maximum Values

Mx ---------- Mz



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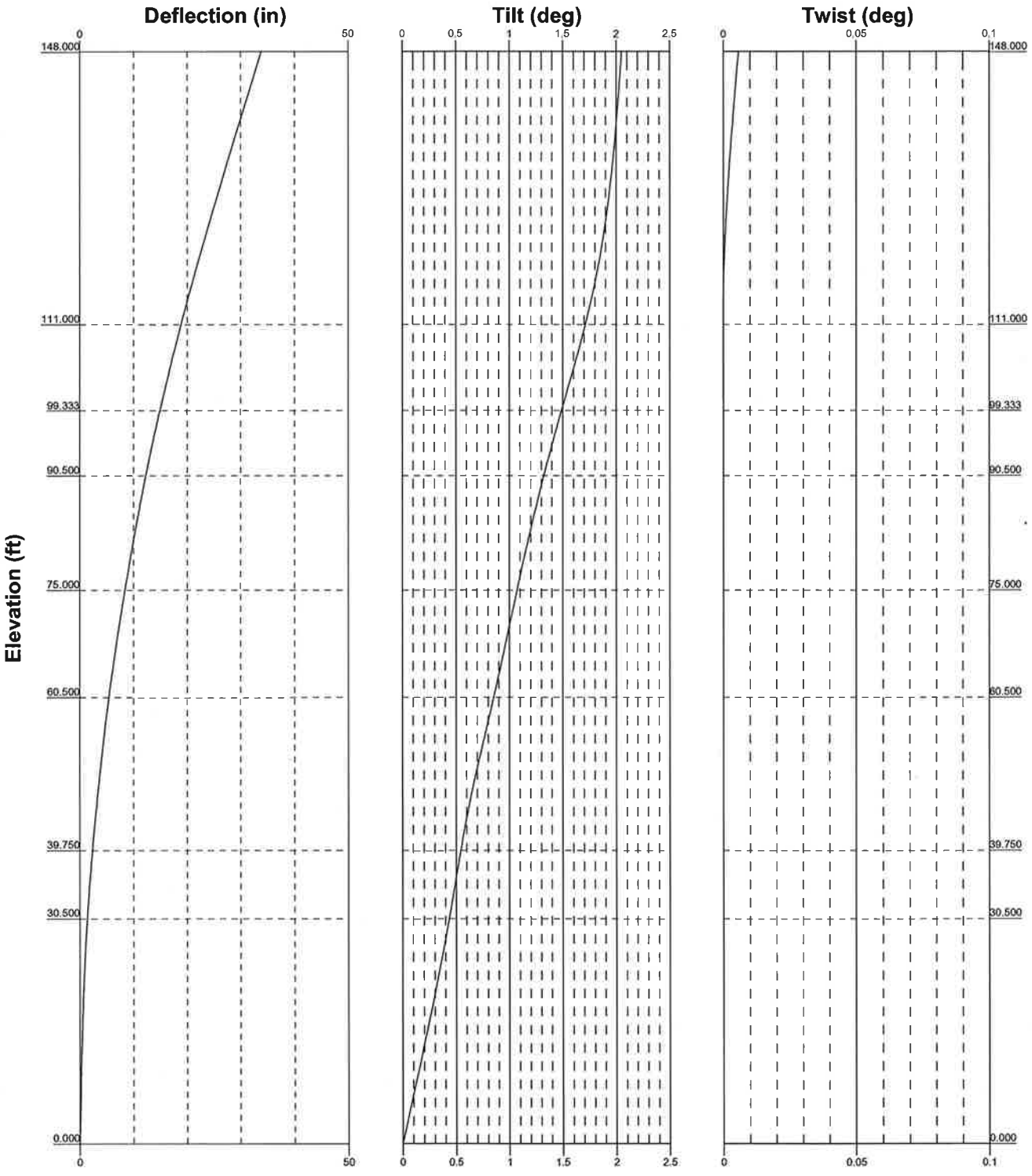
FAX: (918) 295-0265

Job: 86667.006.01 - Middletown, CT (USID# 1463		
Project: 4_Verizon PRE-NTP MOD - 2-17-14		
Client: AT&T Towers	Drawn by: zsmith	App'd:
Code: TIA/EIA-222-F	Date: 04/01/14	Scale: NTS
Path:		Dwg No. E-4

TIA/EIA-222-F - Service - 50 mph

Maximum Values



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Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 86667.006.01 - Middletown, CT (USID# 1463			
Project: 4_Verizon PRE-NTP MOD - 2-17-14			
Client: AT&T Towers	Drawn by: zsmith	App'd:	
Code: TIA/EIA-222-F	Date: 04/01/14	Scale: NTS	
Path:		Dwg No. E-5	

Tower Input Data

There is a pole section.
This tower is designed using the TIA/EIA-222-F standard.
The following design criteria apply:

Tower is located in Middlesex County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 50 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.333.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Treat Feedline Bundles As Cylinder
	Consider Moments - Horizontals		Assume Legs Pinned		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Calculate Redundant Bracing Forces
	Use Moment Magnification	√	Use Clear Spans For Wind Area		Ignore Redundant Members in FEA
√	Use Code Stress Ratios		Use Clear Spans For KL/r		SR Leg Bolts Resist Compression
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		All Leg Panels Have Same Allowable
√	Escalate Ice	√	Bypass Mast Stability Checks		Offset Girt At Foundation
	Always Use Max Kz	√	Use Azimuth Dish Coefficients	√	Consider Feedline Torque
	Use Special Wind Profile	√	Project Wind Area of Appurt		Include Angle Block Shear Check
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Poles
	Leg Bolts Are At Top Of Section		SR Members Have Cut Ends	√	Include Shear-Torsion Interaction
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component		Always Use Sub-Critical Flow
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Use Top Mounted Sockets
	Add IBC .6D+W Combination		Use TIA-222-G Tension Splice Capacity Exemption		

Tapered Pole Section Geometry

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	148.000-111.000	37.000	4.000	18	24.000	30.661	0.250	1.000	A607-65 (65 ksi)
L2	111.000-99.333	15.667	0.000	18	29.441	32.262	0.250	1.000	A607-65 (65 ksi)
L3	99.333-90.500	8.833	0.000	18	32.262	33.852	0.342	1.366	53.190588ksi (53 ksi)
L4	90.500-75.000	15.500	4.750	18	33.852	36.643	0.422	1.689	54.952131ksi (55 ksi)
L5	75.000-60.500	19.250	0.000	18	35.288	38.927	0.470	1.880	55.140129ksi

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
L6	60.500-39.750	20.750	5.250	18	38.927	42.849	0.535	2.139	(55 ksi) 56.275919ksi
L7	39.750-30.500	14.500	0.000	18	41.232	43.741	0.588	2.351	(56 ksi) 56.37927ksi
L8	30.500-0.000	30.500		18	43.741	49.020	0.603	2.413	(56 ksi) 56.896395ksi (57 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	24.370	18.846	1342.998	8.431	12.192	110.154	2687.762	9.425	3.784	15.136
	31.134	24.131	2819.528	10.796	15.576	181.020	5642.767	12.068	4.956	19.825
L2	30.626	23.163	2493.598	10.363	14.956	166.729	4990.478	11.584	4.742	18.966
	32.759	25.401	3288.621	11.364	16.389	200.660	6581.568	12.703	5.238	20.952
L3	32.759	34.605	4454.590	11.332	16.389	271.804	8915.041	17.306	5.077	14.864
	34.374	36.329	5154.157	11.896	17.197	299.714	10315.096	18.168	5.357	15.683
L4	34.374	44.792	6324.332	11.868	17.197	367.760	12656.986	22.400	5.215	12.354
	37.208	48.532	8044.149	12.858	18.615	432.141	16098.884	24.270	5.706	13.517
L5	36.744	51.933	7954.037	12.360	17.926	443.711	15918.540	25.972	5.384	11.456
	39.527	57.361	10717.611	13.652	19.775	541.986	21449.324	28.686	6.024	12.819
L6	39.527	65.171	12135.843	13.629	19.775	613.705	24287.654	32.592	5.910	11.05
	43.510	71.830	16248.487	15.022	21.767	746.463	32518.354	35.922	6.600	12.341
L7	42.790	75.823	15824.510	14.429	20.946	755.504	31669.842	37.919	6.222	10.586
	44.416	80.505	18940.540	15.319	22.221	852.390	37906.003	40.260	6.664	11.338
L8	44.416	82.606	19420.657	15.314	22.221	873.996	38866.869	41.311	6.637	11
	49.776	92.714	27458.256	17.188	24.902	1102.646	54952.643	46.366	7.566	12.54

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in
L1 148.000-111.000				1	1	1		
L2 111.000-99.333				1	1	1		
L3 99.333-90.500				1	1	0.975769		
L4 90.500-75.000				1	1	0.953599		
L5 75.000-60.500				1	1	0.963898		
L6 60.500-39.750				1	1	0.95047		
L7 39.750-30.500				1	1	0.957465		
L8 30.500-0.000				1	1	0.959173		

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
LDF7-50A(1 5/8")	B	No	CaAa (Out Of	148.000 - 5.000	2	No Ice	0.198	0.001
(E - Outside)			Face)			1/2" Ice	0.298	0.002
						1" Ice	0.398	0.004
						2" Ice	0.598	0.011
						4" Ice	0.998	0.030
LDF7-50A(1 5/8")	B	No	CaAa (Out Of	148.000 - 5.000	10	No Ice	0.000	0.001
(E - Outside Shielded)			Face)			1/2" Ice	0.000	0.002
						1" Ice	0.000	0.004
						2" Ice	0.000	0.011
						4" Ice	0.000	0.030
3/8" FIBER	B	No	Inside Pole	148.000 - 5.000	1	No Ice	0.000	0.000
(E)						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
7/8" DC	B	No	Inside Pole	148.000 - 5.000	2	No Ice	0.000	0.001
(E)						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
LDF7-50A(1 5/8")	B	No	Inside Pole	148.000 - 5.000	6	No Ice	0.000	0.001
(Future)						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
///								
LDF7-50A(1 5/8")	B	No	Inside Pole	140.000 - 5.000	19	No Ice	0.000	0.001
(E)						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
LDF4-50A(1/2")	B	No	Inside Pole	140.000 - 5.000	1	No Ice	0.000	0.000
(E)						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
						2" Ice	0.000	0.000
						4" Ice	0.000	0.000
////								
LDF7-50A(1 5/8")	A	No	Inside Pole	124.000 - 5.000	6	No Ice	0.000	0.001
(E)						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
LDF6-50A(1 1/4")	A	No	Inside Pole	124.000 - 5.000	3	No Ice	0.000	0.001
(E)						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
////								
LDF7-50A(1 5/8")	A	No	Inside Pole	110.000 - 5.000	13	No Ice	0.000	0.001
(12E/1P)						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
						2" Ice	0.000	0.001
						4" Ice	0.000	0.001
////								
LDF7-50A(1 5/8")	B	No	CaAa (Out Of	90.000 - 5.000	1	No Ice	0.198	0.001
(E - Outside)			Face)			1/2" Ice	0.298	0.002
						1" Ice	0.398	0.004
						2" Ice	0.598	0.011

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
						4" Ice	0.998	0.030
LDF7-50A(1 5/8")	B	No	CaAa (Out Of	90.000 - 5.000	5	No Ice	0.000	0.001
(E - Outside Shielded)			Face)			1/2" Ice	0.000	0.002
						1" Ice	0.000	0.004
						2" Ice	0.000	0.011
						4" Ice	0.000	0.030
////								
///								
FLC38-50J(3/8")	C	No	CaAa (Out Of	55.000 - 5.000	1	No Ice	0.000	0.000
(E - Outside Shielded)			Face)			1/2" Ice	0.000	0.001
						1" Ice	0.000	0.002
						2" Ice	0.000	0.006
						4" Ice	0.000	0.022
////								
LDF4-50A(1/2")	C	No	CaAa (Out Of	50.000 - 5.000	1	No Ice	0.000	0.000
(E - Outside Shielded)			Face)			1/2" Ice	0.000	0.001
						1" Ice	0.000	0.002
						2" Ice	0.000	0.007
						4" Ice	0.000	0.023
////								
MP3-08	C	No	CaAa (Out Of	30.500 - 0.000	1	No Ice	0.467	0.010
(E)			Face)			1/2" Ice	0.551	0.015
						1" Ice	0.634	0.020
						2" Ice	0.800	0.030
						4" Ice	1.134	0.051
MP3-06	C	No	CaAa (Out Of	60.500 - 30.500	1	No Ice	0.434	0.010
(E)			Face)			1/2" Ice	0.518	0.015
						1" Ice	0.601	0.020
						2" Ice	0.768	0.030
						4" Ice	1.101	0.051
MP3-05	C	No	CaAa (Out Of	90.500 - 60.500	1	No Ice	0.348	0.010
(E)			Face)			1/2" Ice	0.432	0.015
						1" Ice	0.515	0.020
						2" Ice	0.682	0.030
						4" Ice	1.015	0.051
MP3-03	C	No	CaAa (Out Of	100.500 - 90.500	1	No Ice	0.262	0.010
(E)			Face)			1/2" Ice	0.345	0.015
						1" Ice	0.428	0.020
						2" Ice	0.595	0.030
						4" Ice	0.928	0.051
///								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	148.000-111.000	A	0.000	0.000	0.000	0.000	0.090
		B	0.000	0.000	0.000	14.652	1.045
		C	0.000	0.000	0.000	0.000	0.000
L2	111.000-99.333	A	0.000	0.000	0.000	0.000	0.194
		B	0.000	0.000	0.000	4.620	0.369
		C	0.000	0.000	0.000	0.305	0.012
L3	99.333-90.500	A	0.000	0.000	0.000	0.000	0.155
		B	0.000	0.000	0.000	3.498	0.280
		C	0.000	0.000	0.000	2.311	0.087
L4	90.500-75.000	A	0.000	0.000	0.000	0.000	0.272
		B	0.000	0.000	0.000	9.108	0.564

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.000	5.399	0.153
L5	75.000-60.500	A	0.000	0.000	0.000	0.000	0.255
		B	0.000	0.000	0.000	8.613	0.530
		C	0.000	0.000	0.000	5.051	0.144
L6	60.500-39.750	A	0.000	0.000	0.000	0.000	0.364
		B	0.000	0.000	0.000	12.326	0.759
		C	0.000	0.000	0.000	9.012	0.208
L7	39.750-30.500	A	0.000	0.000	0.000	0.000	0.162
		B	0.000	0.000	0.000	5.495	0.338
		C	0.000	0.000	0.000	4.018	0.094
L8	30.500-0.000	A	0.000	0.000	0.000	0.000	0.448
		B	0.000	0.000	0.000	15.147	0.933
		C	0.000	0.000	0.000	14.249	0.308

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_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	148.000-111.000	A	0.883	0.000	0.000	0.000	0.000	0.090
		B		0.000	0.000	0.000	27.724	2.441
		C		0.000	0.000	0.000	0.000	0.000
L2	111.000-99.333	A	0.862	0.000	0.000	0.000	0.000	0.194
		B		0.000	0.000	0.000	8.742	0.810
		C		0.000	0.000	0.000	0.477	0.022
L3	99.333-90.500	A	0.851	0.000	0.000	0.000	0.000	0.155
		B		0.000	0.000	0.000	6.506	0.598
		C		0.000	0.000	0.000	3.565	0.164
L4	90.500-75.000	A	0.837	0.000	0.000	0.000	0.000	0.272
		B		0.000	0.000	0.000	16.812	1.378
		C		0.000	0.000	0.000	7.562	0.285
L5	75.000-60.500	A	0.817	0.000	0.000	0.000	0.000	0.255
		B		0.000	0.000	0.000	15.898	1.300
		C		0.000	0.000	0.000	7.074	0.266
L6	60.500-39.750	A	0.788	0.000	0.000	0.000	0.000	0.364
		B		0.000	0.000	0.000	22.139	1.782
		C		0.000	0.000	0.000	11.739	0.408
L7	39.750-30.500	A	0.756	0.000	0.000	0.000	0.000	0.162
		B		0.000	0.000	0.000	9.869	0.795
		C		0.000	0.000	0.000	5.233	0.192
L8	30.500-0.000	A	0.750	0.000	0.000	0.000	0.000	0.448
		B		0.000	0.000	0.000	26.622	2.116
		C		0.000	0.000	0.000	18.061	0.604

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	148.000-111.000	0.438	0.253	0.698	0.403
L2	111.000-99.333	0.412	0.273	0.675	0.436
L3	99.333-90.500	0.141	0.398	0.295	0.584
L4	90.500-75.000	0.236	0.532	0.490	0.745
L5	75.000-60.500	0.245	0.543	0.510	0.766

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L6	60.500-39.750	0.159	0.592	0.429	0.807
L7	39.750-30.500	0.161	0.599	0.436	0.820
L8	30.500-0.000	0.026	0.576	0.251	0.774

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lighting Rod 5/8" x 8' (E)	C	None		0.000	152.000	No Ice	0.500	0.500	0.031
						1/2" Ice	1.314	1.314	0.037
						1" Ice	2.144	2.144	0.047
						2" Ice	3.613	3.613	0.084
						4" Ice	5.683	5.683	0.227
////									
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-E)	C	From Leg	4.000 0.000 2.000	0.000	148.000	No Ice	8.498	6.304	0.074
						1/2" Ice	9.149	7.479	0.139
						1" Ice	9.767	8.368	0.212
						2" Ice	11.031	10.179	0.385
						4" Ice	13.679	14.024	0.874
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-E)	B	From Leg	4.000 0.000 2.000	0.000	148.000	No Ice	8.498	6.304	0.074
						1/2" Ice	9.149	7.479	0.139
						1" Ice	9.767	8.368	0.212
						2" Ice	11.031	10.179	0.385
						4" Ice	13.679	14.024	0.874
AM-X-CD-16-65-00T-RET w/ Mount Pipe (AT&T-E)	A	From Leg	4.000 0.000 2.000	0.000	148.000	No Ice	8.498	6.304	0.074
						1/2" Ice	9.149	7.479	0.139
						1" Ice	9.767	8.368	0.212
						2" Ice	11.031	10.179	0.385
						4" Ice	13.679	14.024	0.874
(2) AXCM-800/1900-90-13 w/ Mount Pipe (AT&T-E)	C	From Leg	4.000 0.000 1.000	50.000	148.000	No Ice	5.980	4.120	0.053
						1/2" Ice	6.440	4.770	0.097
						1" Ice	6.900	5.420	0.141
						2" Ice	7.820	6.720	0.229
						4" Ice	9.660	9.320	0.404
(2) AXCM-800/1900-90-13 w/ Mount Pipe (AT&T-E)	B	From Leg	4.000 0.000 1.000	50.000	148.000	No Ice	5.980	4.120	0.053
						1/2" Ice	6.440	4.770	0.097
						1" Ice	6.900	5.420	0.141
						2" Ice	7.820	6.720	0.229
						4" Ice	9.660	9.320	0.404
(2) AXCM-800/1900-90-13 w/ Mount Pipe (AT&T-E)	A	From Leg	4.000 0.000 1.000	50.000	148.000	No Ice	5.980	4.120	0.053
						1/2" Ice	6.440	4.770	0.097
						1" Ice	6.900	5.420	0.141
						2" Ice	7.820	6.720	0.229
						4" Ice	9.660	9.320	0.404
(4) 16"x14"x3" (AT&T-E-Shielded)	C	From Leg	4.000 0.000 1.000	0.000	148.000	No Ice	0.000	0.544	0.010
						1/2" Ice	0.000	0.675	0.022
						1" Ice	0.000	0.815	0.036
						2" Ice	0.000	1.119	0.072
						4" Ice	0.000	1.832	0.181
(4) 16"x14"x3" (AT&T-E-Shielded)	B	From Leg	4.000 0.000	0.000	148.000	No Ice	0.000	0.544	0.010
						1/2" Ice	0.000	0.675	0.022

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			1.000			1" Ice	0.000	0.815	0.036
						2" Ice	0.000	1.119	0.072
						4" Ice	0.000	1.832	0.181
(4) 16"x14"x3"	A	From Leg	4.000	0.000	148.000	No Ice	0.000	0.544	0.010
(AT&T-E-Shielded)			0.000			1/2" Ice	0.000	0.675	0.022
			1.000			1" Ice	0.000	0.815	0.036
						2" Ice	0.000	1.119	0.072
						4" Ice	0.000	1.832	0.181
(2) RBS6601	C	From Leg	4.000	0.000	148.000	No Ice	2.942	1.190	0.055
(AT&T-E)			0.000			1/2" Ice	3.172	1.351	0.074
			0.000			1" Ice	3.410	1.521	0.097
						2" Ice	3.913	1.887	0.151
						4" Ice	5.023	2.721	0.302
(2) RBS6601	B	From Leg	4.000	0.000	148.000	No Ice	2.942	1.190	0.055
(AT&T-E)			0.000			1/2" Ice	3.172	1.351	0.074
			0.000			1" Ice	3.410	1.521	0.097
						2" Ice	3.913	1.887	0.151
						4" Ice	5.023	2.721	0.302
(2) RBS6601	A	From Leg	4.000	0.000	148.000	No Ice	2.942	1.190	0.055
(AT&T-E)			0.000			1/2" Ice	3.172	1.351	0.074
			0.000			1" Ice	3.410	1.521	0.097
						2" Ice	3.913	1.887	0.151
						4" Ice	5.023	2.721	0.302
DC6-48-60-18-8F	A	From Leg	4.000	0.000	148.000	No Ice	2.567	4.317	0.019
(AT&T-E)			0.000			1/2" Ice	2.798	4.596	0.050
			0.000			1" Ice	3.038	4.885	0.085
						2" Ice	3.543	5.488	0.167
						4" Ice	4.658	6.797	0.383
AM-X-CD-16-65-00T-RET	C	From Leg	4.000	0.000	148.000	No Ice	8.498	6.304	0.074
w/ Mount Pipe			0.000			1/2" Ice	9.149	7.479	0.139
(AT&T-F)			2.000			1" Ice	9.767	8.368	0.212
						2" Ice	11.031	10.179	0.385
						4" Ice	13.679	14.024	0.874
AM-X-CD-16-65-00T-RET	B	From Leg	4.000	0.000	148.000	No Ice	8.498	6.304	0.074
w/ Mount Pipe			0.000			1/2" Ice	9.149	7.479	0.139
(AT&T-F)			2.000			1" Ice	9.767	8.368	0.212
						2" Ice	11.031	10.179	0.385
						4" Ice	13.679	14.024	0.874
AM-X-CD-16-65-00T-RET	A	From Leg	4.000	0.000	148.000	No Ice	8.498	6.304	0.074
w/ Mount Pipe			0.000			1/2" Ice	9.149	7.479	0.139
(AT&T-F)			2.000			1" Ice	9.767	8.368	0.212
						2" Ice	11.031	10.179	0.385
						4" Ice	13.679	14.024	0.874
Platform Mount [LP 714-1]	C	None		0.000	148.000	No Ice	37.470	37.470	1.600
(AT&T-E)						1/2" Ice	44.230	44.230	2.040
						1" Ice	50.990	50.990	2.480
						2" Ice	64.510	64.510	3.360
						4" Ice	91.550	91.550	5.119
///									
APX16DWV-16DWVS-C w/	C	From Leg	4.000	40.000	140.000	No Ice	7.466	3.494	0.061
Mount Pipe			0.000			1/2" Ice	7.994	4.263	0.110
(T-Mobile-E)			0.000			1" Ice	8.518	4.960	0.165
						2" Ice	9.595	6.403	0.298
						4" Ice	11.873	9.490	0.683
APX16DWV-16DWVS-C w/	A	From Leg	4.000	40.000	140.000	No Ice	7.466	3.494	0.061
Mount Pipe			0.000			1/2" Ice	7.994	4.263	0.110
(T-Mobile-E)			0.000			1" Ice	8.518	4.960	0.165

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	9.595	6.403	0.298
						4" Ice	11.873	9.490	0.683
(2) AIR 21 w/ Mount Pipe (T-Mobile-E)	C	From Leg	4.000 0.000 0.000	40.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.771 7.292 7.807 8.869 11.116	5.701 6.552 7.329 8.938 12.371	0.112 0.169 0.232 0.383 0.807
(2) AIR 21 w/ Mount Pipe (T-Mobile-E)	B	From Leg	4.000 0.000 0.000	85.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.771 7.292 7.807 8.869 11.116	5.701 6.552 7.329 8.938 12.371	0.112 0.169 0.232 0.383 0.807
(2) AIR 21 w/ Mount Pipe (T-Mobile-E)	A	From Leg	4.000 0.000 0.000	40.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	6.771 7.292 7.807 8.869 11.116	5.701 6.552 7.329 8.938 12.371	0.112 0.169 0.232 0.383 0.807
ONEBASE TWIN DUAL DUPLEX TMA (T-Mobile-E)	C	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.674 0.786 0.908 1.176 1.816	0.306 0.392 0.486 0.699 1.231	0.011 0.016 0.022 0.040 0.103
ONEBASE TWIN DUAL DUPLEX TMA (T-Mobile-E)	B	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.674 0.786 0.908 1.176 1.816	0.306 0.392 0.486 0.699 1.231	0.011 0.016 0.022 0.040 0.103
ONEBASE TWIN DUAL DUPLEX TMA (T-Mobile-E)	A	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.674 0.786 0.908 1.176 1.816	0.306 0.392 0.486 0.699 1.231	0.011 0.016 0.022 0.040 0.103
6' x 2" Mount Pipe (T-Mobile-E)	C	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
(2) 6' x 2" Mount Pipe (T-Mobile-E)	B	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
6' x 2" Mount Pipe (T-Mobile-E)	A	From Leg	4.000 0.000 0.000	0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.425 1.925 2.294 3.060 4.702	1.425 1.925 2.294 3.060 4.702	0.022 0.033 0.048 0.090 0.231
14' L.P. Platform (T-Mobile-E)	C	None		0.000	140.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	32.000 37.000 42.000 52.000 72.000	32.000 37.000 42.000 52.000 72.000	1.600 2.040 2.480 3.360 5.119
///									
(2) DB980F65T4E-M w/Mount Pipe (Sprint-E)	C	From Leg	4.000 0.000 1.000	45.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.371 4.959 5.471 6.522	3.954 5.045 5.849 7.492	0.034 0.074 0.120 0.235

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice	8.983	10.977	0.593
(2) DB980F65T4E-M w/Mount Pipe (Sprint-E)	B	From Leg	4.000 0.000 1.000	90.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.371 4.959 5.471 6.522 8.983	3.954 5.045 5.849 7.492 10.977	0.034 0.074 0.120 0.235 0.593
(2) DB980F65T4E-M w/Mount Pipe (Sprint-E)	A	From Leg	4.000 0.000 1.000	70.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	4.371 4.959 5.471 6.522 8.983	3.954 5.045 5.849 7.492 10.977	0.034 0.074 0.120 0.235 0.593
APXVSPP18-C-A20 w/ Mount Pipe (Sprint-E)	C	From Leg	4.000 0.000 1.000	45.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.946 8.127 9.021 10.844 14.851	0.083 0.151 0.227 0.406 0.909
APXVSPP18-C-A20 w/ Mount Pipe (Sprint-E)	B	From Leg	4.000 0.000 1.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.946 8.127 9.021 10.844 14.851	0.083 0.151 0.227 0.406 0.909
APXVSPP18-C-A20 w/ Mount Pipe (Sprint-E)	A	From Leg	4.000 0.000 1.000	70.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.946 8.127 9.021 10.844 14.851	0.083 0.151 0.227 0.406 0.909
1900MHz RRH (Sprint-E)	C	From Leg	4.000 0.000 1.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.907 3.145 3.391 3.909 5.050	3.801 4.065 4.337 4.908 6.152	0.044 0.075 0.110 0.192 0.407
1900MHz RRH (Sprint-E)	B	From Leg	4.000 0.000 1.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.907 3.145 3.391 3.909 5.050	3.801 4.065 4.337 4.908 6.152	0.044 0.075 0.110 0.192 0.407
1900MHz RRH (Sprint-E)	A	From Leg	4.000 0.000 1.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.907 3.145 3.391 3.909 5.050	3.801 4.065 4.337 4.908 6.152	0.044 0.075 0.110 0.192 0.407
800MHZ RRH (Sprint-E)	C	From Leg	4.000 0.000 1.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.490 2.706 2.931 3.407 4.462	2.068 2.271 2.481 2.928 3.927	0.053 0.074 0.098 0.157 0.318
800MHZ RRH (Sprint-E)	B	From Leg	4.000 0.000 1.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.490 2.706 2.931 3.407 4.462	2.068 2.271 2.481 2.928 3.927	0.053 0.074 0.098 0.157 0.318
800MHZ RRH (Sprint-E)	A	From Leg	4.000 0.000 1.000	0.000	124.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.490 2.706 2.931 3.407 4.462	2.068 2.271 2.481 2.928 3.927	0.053 0.074 0.098 0.157 0.318
14' L.P. Platform	C	None		0.000	124.000	No Ice	32.000	32.000	1.600

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(E)							1/2" Ice	37.000	37.000	2.040
							1" Ice	42.000	42.000	2.480
							2" Ice	52.000	52.000	3.360
							4" Ice	72.000	72.000	5.119
///										
BXA-70063-6CF w/ Mount Pipe	A	From Leg	4.000		30.000	110.000	No Ice	7.979	5.695	0.040
			0.000				1/2" Ice	8.621	6.849	0.100
(E - Verizon)			0.000				1" Ice	9.228	7.715	0.168
							2" Ice	10.473	9.497	0.331
							4" Ice	13.082	13.262	0.798
LNX-6514DS-T4M w/ Mount Pipe	B	From Leg	4.000		30.000	110.000	No Ice	8.568	7.004	0.058
			0.000				1/2" Ice	9.220	8.185	0.127
(E - Verizon)			0.000				1" Ice	9.838	9.081	0.203
							2" Ice	11.104	10.904	0.384
							4" Ice	13.754	14.926	0.889
BXA-70063-6CF w/ Mount Pipe	C	From Leg	4.000		30.000	110.000	No Ice	7.979	5.695	0.040
			0.000				1/2" Ice	8.621	6.849	0.100
(E - Verizon)			0.000				1" Ice	9.228	7.715	0.168
							2" Ice	10.473	9.497	0.331
							4" Ice	13.082	13.262	0.798
(2) FD9R6004/2C-3L	A	From Leg	4.000		0.000	110.000	No Ice	0.367	0.085	0.003
(E - Verizon)			0.000				1/2" Ice	0.451	0.136	0.005
			0.000				1" Ice	0.543	0.196	0.009
							2" Ice	0.755	0.343	0.020
							4" Ice	1.281	0.740	0.063
(2) FD9R6004/2C-3L	B	From Leg	4.000		0.000	110.000	No Ice	0.367	0.085	0.003
(E - Verizon)			0.000				1/2" Ice	0.451	0.136	0.005
			0.000				1" Ice	0.543	0.196	0.009
							2" Ice	0.755	0.343	0.020
							4" Ice	1.281	0.740	0.063
(2) FD9R6004/2C-3L	C	From Leg	4.000		0.000	110.000	No Ice	0.367	0.085	0.003
(E - Verizon)			0.000				1/2" Ice	0.451	0.136	0.005
			0.000				1" Ice	0.543	0.196	0.009
							2" Ice	0.755	0.343	0.020
							4" Ice	1.281	0.740	0.063
HBX-6517DS-VTM w/ Mount Pipe	A	From Leg	4.000		0.000	110.000	No Ice	5.541	5.021	0.045
			0.000				1/2" Ice	6.112	6.223	0.092
(P - Verizon)			0.000				1" Ice	6.654	7.167	0.146
							2" Ice	7.750	9.011	0.281
							4" Ice	10.109	12.898	0.692
HBX-6517DS-VTM w/ Mount Pipe	B	From Leg	4.000		0.000	110.000	No Ice	5.541	5.021	0.045
			0.000				1/2" Ice	6.112	6.223	0.092
(P - Verizon)			0.000				1" Ice	6.654	7.167	0.146
							2" Ice	7.750	9.011	0.281
							4" Ice	10.109	12.898	0.692
HBX-6517DS-VTM w/ Mount Pipe	C	From Leg	4.000		0.000	110.000	No Ice	5.541	5.021	0.045
			0.000				1/2" Ice	6.112	6.223	0.092
(P - Verizon)			0.000				1" Ice	6.654	7.167	0.146
							2" Ice	7.750	9.011	0.281
							4" Ice	10.109	12.898	0.692
LNX-6513DS-VTM w/ Mount Pipe	A	From Leg	4.000		0.000	110.000	No Ice	6.566	5.159	0.051
			0.000				1/2" Ice	7.076	5.923	0.104
(P - Verizon)			0.000				1" Ice	7.582	6.668	0.164
							2" Ice	8.626	8.236	0.307
							4" Ice	10.837	11.586	0.714
LNX-6513DS-VTM w/ Mount Pipe	B	From Leg	4.000		0.000	110.000	No Ice	6.566	5.159	0.051
			0.000				1/2" Ice	7.076	5.923	0.104

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(P - Verizon)			0.000				1" Ice	7.582	6.668	0.164
							2" Ice	8.626	8.236	0.307
							4" Ice	10.837	11.586	0.714
LNX-6513DS-VTM w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	110.000	No Ice	6.566	5.159	0.051
(P - Verizon)			0.000				1/2" Ice	7.076	5.923	0.104
			0.000				1" Ice	7.582	6.668	0.164
							2" Ice	8.626	8.236	0.307
							4" Ice	10.837	11.586	0.714
HBX-6516DS-VTM w/ Mount Pipe	A	From Leg	4.000	0.000	0.000	110.000	No Ice	3.598	3.241	0.029
(P - Verizon)			0.000				1/2" Ice	3.998	3.914	0.062
			0.000				1" Ice	4.435	4.564	0.101
							2" Ice	5.368	5.914	0.199
							4" Ice	7.361	8.877	0.504
HBX-6516DS-VTM w/ Mount Pipe	B	From Leg	4.000	0.000	0.000	110.000	No Ice	3.598	3.241	0.029
(P - Verizon)			0.000				1/2" Ice	3.998	3.914	0.062
			0.000				1" Ice	4.435	4.564	0.101
							2" Ice	5.368	5.914	0.199
							4" Ice	7.361	8.877	0.504
HBX-6516DS-VTM w/ Mount Pipe	C	From Leg	4.000	0.000	0.000	110.000	No Ice	3.598	3.241	0.029
(P - Verizon)			0.000				1/2" Ice	3.998	3.914	0.062
			0.000				1" Ice	4.435	4.564	0.101
							2" Ice	5.368	5.914	0.199
							4" Ice	7.361	8.877	0.504
RRH2X40-AWS	A	From Leg	4.000	0.000	0.000	110.000	No Ice	2.522	1.589	0.044
(P - Verizon)			0.000				1/2" Ice	2.753	1.795	0.061
			0.000				1" Ice	2.993	2.010	0.082
							2" Ice	3.499	2.465	0.132
							4" Ice	4.615	3.479	0.275
RRH2X40-AWS	B	From Leg	4.000	0.000	0.000	110.000	No Ice	2.522	1.589	0.044
(P - Verizon)			0.000				1/2" Ice	2.753	1.795	0.061
			0.000				1" Ice	2.993	2.010	0.082
							2" Ice	3.499	2.465	0.132
							4" Ice	4.615	3.479	0.275
RRH2X40-AWS	C	From Leg	4.000	0.000	0.000	110.000	No Ice	2.522	1.589	0.044
(P - Verizon)			0.000				1/2" Ice	2.753	1.795	0.061
			0.000				1" Ice	2.993	2.010	0.082
							2" Ice	3.499	2.465	0.132
							4" Ice	4.615	3.479	0.275
DB-T1-6Z-8AB-0Z	C	From Leg	1.000	0.000	0.000	110.000	No Ice	5.600	2.333	0.044
(P - Verizon)			0.000				1/2" Ice	5.915	2.558	0.080
			0.000				1" Ice	6.240	2.791	0.120
							2" Ice	6.914	3.284	0.213
							4" Ice	8.365	4.373	0.455
Collar Mount	C	From Leg	0.500	0.000	0.000	110.000	No Ice	3.000	0.900	0.065
(P - Verizon)			0.000				1/2" Ice	3.740	1.120	0.079
			0.000				1" Ice	4.480	1.340	0.093
							2" Ice	5.960	1.780	0.122
							4" Ice	8.920	2.660	0.178
14' L.P. Platform	C	None			0.000	110.000	No Ice	32.000	32.000	1.600
(E - Verizon)							1/2" Ice	37.000	37.000	2.040
							1" Ice	42.000	42.000	2.480
							2" Ice	52.000	52.000	3.360
							4" Ice	72.000	72.000	5.119
////										
6'x6"x4" Panel	C	From Leg	2.000		80.000	90.000	No Ice	4.700	2.950	0.025
(E - Metro PCS)			0.000				1/2" Ice	5.147	3.381	0.049
			0.000				1" Ice	5.602	3.819	0.079

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	6.533	4.719	0.155
						4" Ice	8.521	6.606	0.382
6'x6"x4" Panel	B	From Leg	2.000	80.000	90.000	No Ice	4.700	2.950	0.025
(E - Metro PCS)			0.000			1/2" Ice	5.147	3.381	0.049
			0.000			1" Ice	5.602	3.819	0.079
						2" Ice	6.533	4.719	0.155
						4" Ice	8.521	6.606	0.382
6'x6"x4" Panel	A	From Leg	2.000	80.000	90.000	No Ice	4.700	2.950	0.025
(E - Metro PCS)			0.000			1/2" Ice	5.147	3.381	0.049
			0.000			1" Ice	5.602	3.819	0.079
						2" Ice	6.533	4.719	0.155
						4" Ice	8.521	6.606	0.382
Pipe Mount [PM 601-3]	C	From Leg	2.000	0.000	90.000	No Ice	4.390	4.390	0.195
(E - Metro PCS)			0.000			1/2" Ice	5.480	5.480	0.237
			0.000			1" Ice	6.570	6.570	0.280
						2" Ice	8.750	8.750	0.365
						4" Ice	13.110	13.110	0.534
////									
///									
GPS	C	From Leg	3.000	0.000	55.000	No Ice	0.204	0.204	0.008
(E - Metro PCS)			0.000			1/2" Ice	0.273	0.273	0.010
			0.000			1" Ice	0.351	0.351	0.013
						2" Ice	0.533	0.533	0.023
						4" Ice	0.999	0.999	0.065
Side Arm Mount [SO 702-1]	C	From Leg	1.000	0.000	55.000	No Ice	1.000	1.430	0.027
(E - Metro PCS)			0.000			1/2" Ice	1.000	2.050	0.038
			0.000			1" Ice	1.000	2.670	0.049
						2" Ice	1.000	3.910	0.071
						4" Ice	1.000	6.390	0.115
///									
GPS	C	From Leg	3.000	0.000	50.000	No Ice	0.204	0.204	0.008
(E)			0.000			1/2" Ice	0.273	0.273	0.010
			0.000			1" Ice	0.351	0.351	0.013
						2" Ice	0.533	0.533	0.023
						4" Ice	0.999	0.999	0.065
Side Arm Mount [SO 702-1]	C	From Leg	1.000	0.000	50.000	No Ice	1.000	1.430	0.027
(E)			0.000			1/2" Ice	1.000	2.050	0.038
			0.000			1" Ice	1.000	2.670	0.049
						2" Ice	1.000	3.910	0.071
						4" Ice	1.000	6.390	0.115
///									
*									

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice

Comb. No.	Description
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	148 - 111	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-19.563	-1.149	-0.303
			Max. Mx	5	-9.463	-431.753	3.332
			Max. My	8	-9.536	3.209	-422.633
			Max. Vy	5	18.873	-431.753	3.332
			Max. Vx	8	18.423	3.209	-422.633
			Max. Torque	3			1.125
L2	111 - 99.333	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-27.573	-1.790	-1.140
			Max. Mx	5	-13.928	-793.909	6.433
			Max. My	8	-14.008	6.522	-776.465
			Max. Vy	5	25.460	-793.909	6.433
			Max. Vx	8	24.871	6.522	-776.465
			Max. Torque	3			1.076
L3	99.333 - 90.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-29.845	-2.109	-1.571
			Max. Mx	5	-15.638	-1022.682	8.520
			Max. My	8	-15.711	8.750	-1000.160
			Max. Vy	5	26.359	-1022.682	8.520

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	8	25.770	8.750	-1000.160
			Max. Torque	3			0.920
L4	90.5 - 75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-33.672	-2.024	-2.748
			Max. Mx	11	-18.328	1319.507	-12.590
			Max. My	8	-18.393	11.936	-1291.061
			Max. Vy	5	28.249	-1318.876	10.700
			Max. Vx	8	27.659	11.936	-1291.061
			Max. Torque	2			1.384
L5	75 - 60.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-41.198	-3.355	-4.107
			Max. Mx	11	-24.057	1884.840	-17.795
			Max. My	8	-24.107	16.656	-1845.531
			Max. Vy	5	30.433	-1884.452	15.144
			Max. Vx	8	29.844	16.656	-1845.531
			Max. Torque	2			1.350
L6	60.5 - 39.75	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-47.240	-4.097	-5.427
			Max. Mx	11	-28.819	2369.476	-22.003
			Max. My	8	-28.855	20.503	-2321.534
			Max. Vy	5	32.120	-2368.920	18.468
			Max. Vx	8	31.549	20.503	-2321.534
			Max. Torque	2			1.592
L7	39.75 - 30.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-54.737	-5.062	-6.505
			Max. Mx	11	-34.896	2846.450	-25.738
			Max. My	8	-34.923	23.814	-2790.665
			Max. Vy	5	33.599	-2846.099	21.552
			Max. Vx	8	33.030	23.814	-2790.665
			Max. Torque	7			-1.603
L8	30.5 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-67.962	-6.638	-8.580
			Max. Mx	11	-46.033	3909.570	-33.458
			Max. My	8	-46.034	30.758	-3837.431
			Max. Vy	5	36.150	-3909.436	27.944
			Max. Vx	8	35.596	30.758	-3837.431
			Max. Torque	7			-1.675

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	18	67.962	-8.701	0.031
	Max. H_x	11	46.052	36.125	-0.228
	Max. H_z	2	46.052	-0.228	35.571
	Max. M_x	2	3831.925	-0.228	35.571
	Max. M_z	5	3909.436	-36.125	0.228
	Max. Torsion	13	1.672	17.865	30.692
	Min. Vert	1	46.052	0.000	0.000
	Min. H_x	5	46.052	-36.125	0.228
	Min. H_z	8	46.052	0.228	-35.571
	Min. M_x	8	-3837.431	0.228	-35.571
	Min. M_z	11	-3909.570	36.125	-0.228
	Min. Torsion	7	-1.675	-17.865	-30.692

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	46.052	0.000	0.000	2.674	0.059	0.000
Dead+Wind 0 deg - No Ice	46.052	0.228	-35.571	-3831.925	-30.649	-1.555
Dead+Wind 30 deg - No Ice	46.052	18.260	-30.920	-3333.405	-1981.337	-1.018
Dead+Wind 60 deg - No Ice	46.052	31.399	-17.983	-1941.040	-3401.004	-0.203
Dead+Wind 90 deg - No Ice	46.052	36.125	-0.228	-27.945	-3909.436	0.667
Dead+Wind 120 deg - No Ice	46.052	31.171	17.588	1893.455	-3370.440	1.355
Dead+Wind 150 deg - No Ice	46.052	17.865	30.692	3308.347	-1928.235	1.675
Dead+Wind 180 deg - No Ice	46.052	-0.228	35.571	3837.431	30.758	1.546
Dead+Wind 210 deg - No Ice	46.052	-18.260	30.920	3338.917	1981.444	1.005
Dead+Wind 240 deg - No Ice	46.052	-31.399	17.983	1946.559	3401.121	0.200
Dead+Wind 270 deg - No Ice	46.052	-36.125	0.228	33.458	3909.570	-0.657
Dead+Wind 300 deg - No Ice	46.052	-31.171	-17.588	-1887.953	3370.570	-1.342
Dead+Wind 330 deg - No Ice	46.052	-17.865	-30.692	-3302.852	1928.355	-1.672
Dead+Ice+Temp	67.962	0.000	0.000	8.580	-6.638	-0.000
Dead+Wind 0 deg+Ice+Temp	67.962	0.031	-8.627	-951.301	-11.286	-0.339
Dead+Wind 30 deg+Ice+Temp	67.962	4.377	-7.487	-824.965	-496.167	-0.205
Dead+Wind 60 deg+Ice+Temp	67.962	7.551	-4.340	-475.254	-849.900	-0.015
Dead+Wind 90 deg+Ice+Temp	67.962	8.701	-0.031	4.127	-977.705	0.179
Dead+Wind 120 deg+Ice+Temp	67.962	7.520	4.287	484.731	-845.338	0.324
Dead+Wind 150 deg+Ice+Temp	67.962	4.324	7.456	837.781	-488.265	0.383
Dead+Wind 180 deg+Ice+Temp	67.962	-0.031	8.627	968.677	-2.162	0.339
Dead+Wind 210 deg+Ice+Temp	67.962	-4.377	7.487	842.344	482.719	0.204
Dead+Wind 240 deg+Ice+Temp	67.962	-7.551	4.340	492.634	836.454	0.014
Dead+Wind 270 deg+Ice+Temp	67.962	-8.701	0.031	13.251	964.261	-0.179
Dead+Wind 300 deg+Ice+Temp	67.962	-7.520	-4.287	-467.355	831.894	-0.324
Dead+Wind 330 deg+Ice+Temp	67.962	-4.324	-7.456	-820.407	474.819	-0.383
Dead+Wind 0 deg - Service	46.052	0.079	-12.308	-1325.784	-10.574	-0.542
Dead+Wind 30 deg - Service	46.052	6.318	-10.699	-1153.109	-686.424	-0.355
Dead+Wind 60 deg - Service	46.052	10.865	-6.223	-670.720	-1178.325	-0.073
Dead+Wind 90 deg - Service	46.052	12.500	-0.079	-7.878	-1354.478	0.229
Dead+Wind 120 deg - Service	46.052	10.786	6.086	657.817	-1167.692	0.470
Dead+Wind 150 deg - Service	46.052	6.182	10.620	1147.995	-668.001	0.583
Dead+Wind 180 deg - Service	46.052	-0.079	12.308	1331.303	10.703	0.541
Dead+Wind 210 deg - Service	46.052	-6.318	10.699	1158.629	686.553	0.353
Dead+Wind 240 deg - Service	46.052	-10.865	6.223	676.241	1178.455	0.072
Dead+Wind 270 deg - Service	46.052	-12.500	0.079	13.399	1354.609	-0.228
Dead+Wind 300 deg - Service	46.052	-10.786	-6.086	-652.299	1167.824	-0.468
Dead+Wind 330 deg - Service	46.052	-6.182	-10.620	-1142.477	668.131	-0.583

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-46.052	0.000	0.000	46.052	0.000	0.000%
2	0.228	-46.052	-35.571	-0.228	46.052	35.571	0.000%
3	18.260	-46.052	-30.920	-18.260	46.052	30.920	0.000%
4	31.399	-46.052	-17.983	-31.399	46.052	17.983	0.000%
5	36.125	-46.052	-0.228	-36.125	46.052	0.228	0.000%
6	31.171	-46.052	17.588	-31.171	46.052	-17.588	0.000%
7	17.865	-46.052	30.692	-17.865	46.052	-30.692	0.000%
8	-0.228	-46.052	35.571	0.228	46.052	-35.571	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
9	-18.260	-46.052	30.920	18.260	46.052	-30.920	0.000%
10	-31.399	-46.052	17.983	31.399	46.052	-17.983	0.000%
11	-36.125	-46.052	0.228	36.125	46.052	-0.228	0.000%
12	-31.171	-46.052	-17.588	31.171	46.052	17.588	0.000%
13	-17.865	-46.052	-30.692	17.865	46.052	30.692	0.000%
14	0.000	-67.962	0.000	-0.000	67.962	-0.000	0.000%
15	0.031	-67.962	-8.627	-0.031	67.962	8.627	0.000%
16	4.377	-67.962	-7.487	-4.377	67.962	7.487	0.000%
17	7.551	-67.962	-4.340	-7.551	67.962	4.340	0.000%
18	8.701	-67.962	-0.031	-8.701	67.962	0.031	0.000%
19	7.520	-67.962	4.287	-7.520	67.962	-4.287	0.000%
20	4.324	-67.962	7.456	-4.324	67.962	-7.456	0.000%
21	-0.031	-67.962	8.627	0.031	67.962	-8.627	0.000%
22	-4.377	-67.962	7.487	4.377	67.962	-7.487	0.000%
23	-7.551	-67.962	4.340	7.551	67.962	-4.340	0.000%
24	-8.701	-67.962	0.031	8.701	67.962	-0.031	0.000%
25	-7.520	-67.962	-4.287	7.520	67.962	4.287	0.000%
26	-4.324	-67.962	-7.456	4.324	67.962	7.456	0.000%
27	0.079	-46.052	-12.308	-0.079	46.052	12.308	0.000%
28	6.318	-46.052	-10.699	-6.318	46.052	10.699	0.000%
29	10.865	-46.052	-6.223	-10.865	46.052	6.223	0.000%
30	12.500	-46.052	-0.079	-12.500	46.052	0.079	0.000%
31	10.786	-46.052	6.086	-10.786	46.052	-6.086	0.000%
32	6.182	-46.052	10.620	-6.182	46.052	-10.620	0.000%
33	-0.079	-46.052	12.308	0.079	46.052	-12.308	0.000%
34	-6.318	-46.052	10.699	6.318	46.052	-10.699	0.000%
35	-10.865	-46.052	6.223	10.865	46.052	-6.223	0.000%
36	-12.500	-46.052	0.079	12.500	46.052	-0.079	0.000%
37	-10.786	-46.052	-6.086	10.786	46.052	6.086	0.000%
38	-6.182	-46.052	-10.620	6.182	46.052	10.620	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	4	0.00000001	0.00062677
3	Yes	6	0.00000001	0.00004408
4	Yes	6	0.00000001	0.00004529
5	Yes	4	0.00000001	0.00064671
6	Yes	6	0.00000001	0.00004446
7	Yes	6	0.00000001	0.00004287
8	Yes	5	0.00000001	0.00007133
9	Yes	6	0.00000001	0.00004569
10	Yes	6	0.00000001	0.00004462
11	Yes	5	0.00000001	0.00003778
12	Yes	6	0.00000001	0.00004312
13	Yes	6	0.00000001	0.00004459
14	Yes	4	0.00000001	0.00008224
15	Yes	5	0.00000001	0.00047322
16	Yes	5	0.00000001	0.00056927
17	Yes	5	0.00000001	0.00057363
18	Yes	5	0.00000001	0.00048620
19	Yes	5	0.00000001	0.00057551
20	Yes	5	0.00000001	0.00057092
21	Yes	5	0.00000001	0.00048099

22	Yes	5	0.00000001	0.00057295
23	Yes	5	0.00000001	0.00057357
24	Yes	5	0.00000001	0.00047950
25	Yes	5	0.00000001	0.00055702
26	Yes	5	0.00000001	0.00055648
27	Yes	4	0.00000001	0.00025745
28	Yes	5	0.00000001	0.00009917
29	Yes	5	0.00000001	0.00010475
30	Yes	4	0.00000001	0.00020033
31	Yes	5	0.00000001	0.00010180
32	Yes	5	0.00000001	0.00009447
33	Yes	4	0.00000001	0.00032081
34	Yes	5	0.00000001	0.00010652
35	Yes	5	0.00000001	0.00010235
36	Yes	4	0.00000001	0.00021693
37	Yes	5	0.00000001	0.00009551
38	Yes	5	0.00000001	0.00010151

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	148 - 111	33.830	35	2.050	0.004
L2	115 - 99.333	20.313	35	1.774	0.002
L3	99.333 - 90.5	14.885	35	1.489	0.001
L4	90.5 - 75	12.281	35	1.324	0.001
L5	79.75 - 60.5	9.500	35	1.144	0.001
L6	60.5 - 39.75	5.408	35	0.854	0.001
L7	45 - 30.5	3.024	35	0.615	0.000
L8	30.5 - 0	1.389	35	0.437	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.000	Lighting Rod 5/8" x 8'	35	33.830	2.050	0.004	25171
148.000	AM-X-CD-16-65-00T-RET w/ Mount Pipe	35	33.830	2.050	0.004	25171
140.000	APX16DWV-16DWVS-C w/ Mount Pipe	35	30.423	2.009	0.003	15732
124.000	(2) DB980F65T4E-M w/Mount Pipe	35	23.804	1.888	0.002	5243
110.000	BXA-70063-6CF w/ Mount Pipe	35	18.480	1.691	0.002	3316
90.000	6'x6"x4" Panel	35	12.143	1.315	0.001	3235
55.000	GPS	35	4.478	0.767	0.001	3711
50.000	GPS	35	3.717	0.688	0.000	4483

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	148 - 111	97.325	10	5.905	0.011
L2	115 - 99.333	58.483	10	5.111	0.005
L3	99.333 - 90.5	42.874	10	4.291	0.004
L4	90.5 - 75	35.378	10	3.815	0.003
L5	79.75 - 60.5	27.374	10	3.296	0.003
L6	60.5 - 39.75	15.589	10	2.462	0.002
L7	45 - 30.5	8.717	10	1.772	0.001
L8	30.5 - 0	4.006	10	1.261	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.000	Lighting Rod 5/8" x 8'	10	97.325	5.905	0.011	8917
148.000	AM-X-CD-16-65-00T-RET w/ Mount Pipe	10	97.325	5.905	0.011	8917
140.000	APX16DWV-16DWVS-C w/ Mount Pipe	10	87.536	5.786	0.009	5572
124.000	(2) DB980F65T4E-M w/Mount Pipe	10	68.517	5.439	0.007	1854
110.000	BXA-70063-6CF w/ Mount Pipe	10	53.211	4.873	0.005	1169
90.000	6'x6"x4" Panel	10	34.981	3.790	0.003	1134
55.000	GPS	10	12.908	2.210	0.002	1292
50.000	GPS	10	10.716	1.983	0.001	1560

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	F_a ksi	A in^2	Actual P K	Allow. P_a K	Ratio $\frac{P}{P_a}$
L1	148 - 111 (1)	TP30.661x24x0.25	37.000	0.000	0.0	39.000	23.560	-9.460	918.829	0.010
L2	111 - 99.333 (2)	TP32.262x29.441x0.25	15.667	0.000	0.0	39.000	25.401	-13.919	990.653	0.014
L3	99.333 - 90.5 (3)	TP33.852x32.262x0.342	8.833	0.000	0.0	31.914	36.329	-15.629	1159.420	0.013
L4	90.5 - 75 (4)	TP36.643x33.852x0.422	15.500	0.000	0.0	32.971	47.386	-18.320	1562.370	0.012
L5	75 - 60.5 (5)	TP38.927x35.288x0.47	19.250	0.000	0.0	33.084	57.361	-24.051	1897.740	0.013
L6	60.5 - 39.75 (6)	TP42.849x38.927x0.535	20.750	0.000	0.0	33.766	70.145	-28.815	2368.480	0.012
L7	39.75 - 30.5 (7)	TP43.741x41.232x0.588	14.500	0.000	0.0	33.828	80.505	-34.893	2723.300	0.013
L8	30.5 - 0 (8)	TP49.02x43.741x0.603	30.500	0.000	0.0	34.138	92.714	-46.033	3165.060	0.015

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M_x kip-ft	Actual f_{bx} ksi	Allow. F_{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M_y kip-ft	Actual f_{by} ksi	Allow. F_{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	148 - 111 (1)	TP30.661x24x0.25	432.408	30.078	39.000	0.771	0.000	0.000	39.000	0.000
L2	111 - 99.333 (2)	TP32.262x29.441x0.25	795.171	47.553	39.000	1.219	0.000	0.000	39.000	0.000
L3	99.333 - 90.5 (3)	TP33.852x32.262x0.342	1024.542	41.021	31.914	1.285	0.000	0.000	31.914	0.000
L4	90.5 - 75 (4)	TP36.643x33.852x0.422	1322.700	38.538	32.971	1.169	0.000	0.000	32.971	0.000
L5	75 - 60.5 (5)	TP38.927x35.288x0.47	1889.567	41.837	33.084	1.265	0.000	0.000	33.084	0.000
L6	60.5 - 39.75 (6)	TP42.849x38.927x0.535	2375.425	40.055	33.766	1.186	0.000	0.000	33.766	0.000
L7	39.75 - 30.5 (7)	TP43.741x41.232x0.588	2853.467	40.171	33.828	1.188	0.000	0.000	33.828	0.000
L8	30.5 - 0 (8)	TP49.02x43.741x0.603	3918.767	42.648	34.138	1.249	0.000	0.000	34.138	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f_v ksi	Allow. F_v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f_{vt} ksi	Allow. F_{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	148 - 111 (1)	TP30.661x24x0.25	18.874	0.801	26.000	0.062	1.039	0.035	26.000	0.001
L2	111 - 99.333 (2)	TP32.262x29.441x0.25	25.529	1.005	26.000	0.077	0.716	0.021	26.000	0.001
L3	99.333 - 90.5 (3)	TP33.852x32.262x0.342	26.429	0.727	21.276	0.068	0.681	0.013	21.276	0.001
L4	90.5 - 75 (4)	TP36.643x33.852x0.422	28.318	0.598	21.981	0.054	0.624	0.009	21.981	0.000
L5	75 - 60.5 (5)	TP38.927x35.288x0.47	30.502	0.532	22.056	0.048	0.514	0.006	22.056	0.000
L6	60.5 - 39.75 (6)	TP42.849x38.927x0.535	32.181	0.459	22.510	0.041	0.428	0.004	22.510	0.000
L7	39.75 - 30.5 (7)	TP43.741x41.232x0.588	33.660	0.418	22.552	0.037	0.347	0.002	22.552	0.000
L8	30.5 - 0 (8)	TP49.02x43.741x0.603	36.209	0.391	22.759	0.034	0.208	0.001	22.759	0.000

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	148 - 111 (1)	0.010	0.771	0.000	0.062	0.001	0.783 ✔	1.333	H1-3+VT ✔
L2	111 - 99.333 (2)	0.014	1.219	0.000	0.077	0.001	1.235 ✔	1.333	H1-3+VT ✔
L3	99.333 - 90.5 (3)	0.013	1.285	0.000	0.068	0.001	1.300 ✔	1.333	H1-3+VT ✔
L4	90.5 - 75 (4)	0.012	1.169	0.000	0.054	0.000	1.181 ✔	1.333	H1-3+VT ✔
L5	75 - 60.5 (5)	0.013	1.265	0.000	0.048	0.000	1.278	1.333	H1-3+VT ✔

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L6	60.5 - 39.75 (6)	0.012	1.186	0.000	0.041	0.000	1.199 ✔	1.333	H1-3+VT ✔
L7	39.75 - 30.5 (7)	0.013	1.188	0.000	0.037	0.000	1.201 ✔	1.333	H1-3+VT ✔
L8	30.5 - 0 (8)	0.015	1.249	0.000	0.034	0.000	1.264 ✔	1.333	H1-3+VT ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	148 - 111	Pole	TP30.661x24x0.25	1	-9.460	1224.799	**	Pass
L2	111 - 99.333	Pole	TP32.262x29.441x0.25	2	-13.919	1320.540	**	Pass
L3	99.333 - 90.5	Pole	TP33.852x32.262x0.342	3	-15.629	1545.507	**	Pass
L4	90.5 - 75	Pole	TP36.643x33.852x0.422	4	-18.320	2082.639	**	Pass
L5	75 - 60.5	Pole	TP38.927x35.288x0.47	5	-24.051	2529.687	**	Pass
L6	60.5 - 39.75	Pole	TP42.849x38.927x0.535	6	-28.815	3157.184	**	Pass
L7	39.75 - 30.5	Pole	TP43.741x41.232x0.588	7	-34.893	3630.159	**	Pass
L8	30.5 - 0	Pole	TP49.02x43.741x0.603	8	-46.033	4219.025	**	Pass
							Summary	
						Pole (L3)	**	Pass
						RATING =	**	**Pass**

**See additional calculations for pole capacities

Reinforcement 1						
Bottom	Top	QTY	Type	Position	Gap	Ten/Comp
0	30.5	3	MP309	F	0	T&C
30.5	60.5	3	MP306	F	0	T&C
60.5	90.5	3	MP305	F	0	T&C
90.5	99.333	3	MP303	F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C

Reinforcement 2						
Bottom	Top	QTY	Type	Position	Gap	Ten/Comp
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C

Reinforcement 3						
Bottom	Top	QTY	Type	Position	Gap	Ten/Comp
0				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C

Bottom Elevation	Top Elevation	Original Thickness	Original Yield Stress	Original Ultimate Stress	Reinforced Shaft Capacity	Reinf. 1 QTY	Reinf. 1 Type	Rein. 1 Capacity	Reinf. 2 QTY	Reinf. 2 Type	Rein. 2 Capacity	Reinf. 3 QTY	Reinf. 3 Type	Rein. 3 Capacity	Control Stress Ratio	Section Top Height	Section Length	Lap Splice	# of Sides	Top Diameter	Bottom Diameter	Equivalent Shaft Thickness	Equivalent Shaft Fy	Equivalent Weight Mult.	Bottom Elevation Failure	Top Elevation Failure	Section Failure %
111.0000	148.0000	0.2500	65	80	58.6%										**58.5%**	148.0000	37.0000	4.0000	18	24.0000	30.6610	0.7500	65.0	1.00			
99.3330	115.0000	0.2500	65	80	92.5%										**92.5%**	115.0000	15.6670	0.0000	18	29.4409	32.2618	0.7500	65.0	1.00			
90.5000	99.3330	0.2500	65	80	78.8%	3	MP303	95.0%							**95.0%**	99.3330	8.8330	0.0000	18	32.2618	33.8522	0.3416	53.2	0.98			
75.0000	90.5000	0.2500	65	80	74.2%	3	MP305	86.4%							**86.4%**	90.5000	15.5000	4.7500	18	33.8522	36.6430	0.4221	55.0	0.95			
60.5000	79.7500	0.3125	65	80	80.4%	3	MP305	93.5%							**83.5%**	79.7500	19.2500	0.0000	18	35.2878	38.9286	0.4699	55.1	0.96			
39.7500	60.5000	0.3125	65	80	77.2%	3	MP306	87.7%							**87.7%**	60.5000	20.7500	5.2500	18	38.9286	42.8490	0.5348	56.3	0.95			
30.5000	45.0000	0.3750	65	80	77.4%	3	MP306	87.8%							**87.8%**	45.0000	14.5000	0.0000	18	41.2316	43.7412	0.5878	56.4	0.96			
0.0000	30.5000	0.3750	65	80	82.3%	3	MP308	92.3%							**92.3%**	30.5000	30.5000	0.0000	18	43.7412	49.0200	0.6093	56.9	0.96			

Reinforced Pole Stress
and Effective Thickness Check

Rein1

Bottom	Top	Qty	Model	Position	T or T&C
0	30.5	3	MP308	F	T&C
30.5	60.5	3	MP306	F	T&C
60.5	90.5	3	MP305	F	T&C
90.5	99.333	3	MP303	F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C

Flats (Used for relative orientation only. Actual flat numbers may vary.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	1						1						1				
	1						1						1				
	1						1						1				
	1						1						1				

Rein2

Bottom	Top	Qty	Model	Position	T or T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C

Rein3

Bottom	Top	Qty	Model	Position	T or T&C
0				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C

Reinforcement Capacity

AeroSolutions LLC
Optimizing Your Tower Infrastructure
5500 Flatirons Parkway, Suite 100
Boulder, CO 80301
720/934-4882

Dimensions and Properties														Compression				Axial				
																		ASD-9			LRFD	
Model	Weight (lb/ft)	Area (in²)	Moment of Inertia (in⁴)	Moment of Inertia (in⁴)	Centroid from Mating Edge (in)	Centroid from Bolt Hole Center (in)	Web Thickness (in)	Width (in)	Flange Width (in)	Flange Thickness (in)	Hole Diameter (in)	Yield Stress (ksi)	Ultimate Stress (ksi)	Slender Ratio Coefficient	Unbraced Length (in)	Slender Ratio Coefficient	Unbraced Length (in)	Allowable Axial (kip)	Allowable Axial w/ Increase (kip)	Governing Axial	Design Axial Strength (kip)	Governing Axial
MP303	9.9	2.92	0.48	8.37	0.59	0	0.30	4.06	1.57	0.64	1.21875	65	80	0.80	18	1.00	18	80.4	178.3	Rupture	144.7	Rupture
MP305	19.2	5.65	2.15	20.79	0.79	0	0.5	5.39	2.09	0.91	1.21875	65	80	0.80	18	1.00	18	194.5	178.3	Rupture	291.4	Rupture
MP306	28.8	8.47	4.95	53.50	0.93	0	0.64	6.89	2.61	1.01	1.21875	65	80	0.80	24	1.00	24	294.7	294.7	Rupture	441.1	Rupture
MP308	35.1	10.32	6.48	82.29	0.95	0	0.76	7.93	2.8	1.01	1.21875	65	80	0.80	24	1.00	24	368.9	497.8	Rupture	548.9	Rupture
PLS 75x1	19.6	5.75	0.48	15.84	0.5	0	1	5.75	0	0	1.21875	65	80	0.80	14	1.00	14	178.6	358.5	Rupture	268.1	Rupture

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

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

Site Data

BU#: *14635*
Site Name: *MIDDLETOWN SW*
App #: *N/A*

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	56	in
Anchor Spacing:	6	in

Plate Data		
W=Side:	55	in
Thick:	3	in
Grade:	55	ksi
Clip Distance:	6	in

Stiffener Data (Welding at both sides)		
Configuration:	Unstiffened	
Weld Type:		**
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	49.02	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round

Stress Increase Factor	
ASD ASIF:	1.333

Base Reactions		
TIA Revision:	F	
Unfactored Moment, M:	3405.94685	ft-kips
Unfactored Axial, P:	46.0328	kips
Unfactored Shear, V:	36.209229	kips

Anchor Rod Results

TIA F --> Maximum Rod Tension	179.6 Kips
Allowable Tension:	195.0 Kips
Anchor Rod Stress Ratio:	92.1% Pass

Base Plate Results	Flexural Check
Base Plate Stress:	45.2 ksi
Allowable PL Bending Stress:	55.0 ksi
Base Plate Stress Ratio:	82.1% Pass

PL Ref. Data	
Yield Line (in):	28.76
Max PL Length:	28.76

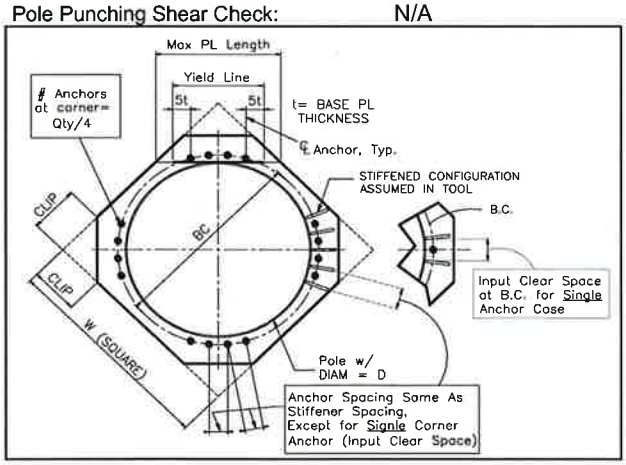
N/A - Unstiffened

Stiffener Results

Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check: N/A



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

Anchor Rod Information for TIA/EIA-222-F and TIA-222-G-2

Site Information	
ID:	14635
Name:	MIDDLETOWN SW
App. #:	N/A

AeroSolutions LLC
Optimizing Your Tower Infrastructure

Base Reactions		
Moment:	3919	ft-kip
Axial:	46	kip
Shear:	36	kip
Base Plate Type:	Square	

Design Information	
TIA Code:	
ASIF:	
Failure:	
eta Factor:	

Original Anchor Rod Data		
Quantity:	16	
Diameter:	2.25	in
Material:	A615 GR 75	
Bolt Circle:	56.0	in
Bolt Spacing:	6	in
Bolt Group Area:	63.62	in^2
Bolt Group MOIx:	24938	in^4

Reactions Seen by Original AR Group		
Moment:	3405.9	kip-ft
Axial:	46.0	kip
Shear:	36.2	kip

Original AR Capacity Check		
Tension Load:	179.6	kip
Allowable load:	194.8	kip
AR Capacity:	92.2%	Pass

First Added Anchor Rod Data		
Quantity:	3	
Diameter:	1.75	in
Material:	A772	
Bolt Circle:	64.5	in
Bolt Group Area:	7.22	in^2
Bolt Group MOIx:	3755	in^4

Reactions Seen by First Added AR Group		
Moment:	512.8	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

First Added AR Capacity Check		
Tension Load:	126.5	kip
Allowable load:	158.7	kip
AR Capacity:	79.7%	Pass

Second Added Anchor Rod Data		
Quantity:		
Diameter:		in
Material:		
Bolt Circle:		in
Bolt Group Area:	0.00	in^2
Bolt Group MOIx:	0	in^4

Reactions Seen by Second Added AR Group		
Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

Second Added AR Capacity Check		
Tension Load:	0.0	kip
Allowable load:	0.0	kip
AR Capacity:	0.0%	

Third Added Anchor Rod Data		
Quantity:		
Diameter:		in
Material:		
Bolt Circle:		in
Bolt Group Area:	0.00	in^2
Bolt Group MOIx:	0	in^4

Reactions Seen by Second Added AR Group		
Moment:	0.0	kip-ft
Axial:	0.0	kip
Shear:	0.0	kip

Second Added AR Capacity Check		
Tension Load:	0.0	kip
Allowable load:	0.0	kip
AR Capacity:	0.0%	

Rev.4.1

PROJECT	**14635 - Middletown SW**				
SUBJECT	**Foundation Analysis**				
DATE	**04/01/14**	PAGE	1	OF	1

B+T GRP
1717 S. Boulder, Suite 300
Tulsa, OK 74159
(918) 587-4630

Monopole Pad & Pier Foundation Analysis

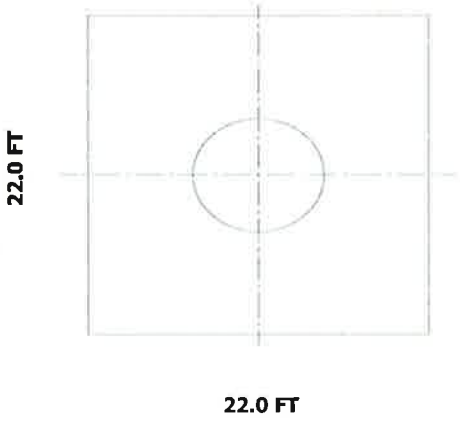
Rev. Type: F

Design Loads:

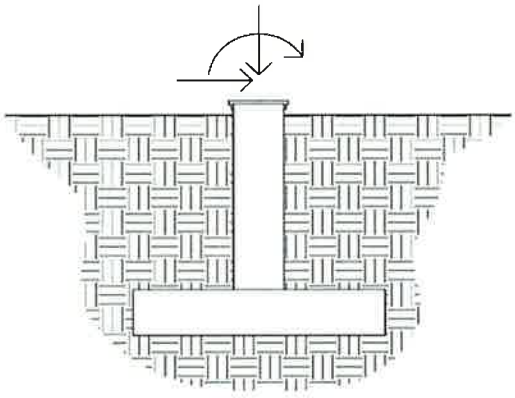
	Input unfactored loads	
Shear:	36.0	kips
Moment:	3,919.0	ft-kips
Tower Height:	148.0	ft
Tower Weight:	46.0	kips

Pad & Pier Dimensions / Properties:

Pole Diameter at Base:	49.02	in
Bearing Depth:	8.0	ft
Pad Width:	22.0	ft
Neglected Depth:	2.0	ft
Thickness:	3.0	ft
Pier Diameter:	7.0	ft
Pier Height Above Grade:	0.5	ft
BP Dist. Above Pier:	3.0	in
Clear Cover:	3.0	in
Pier Rebar Size:	11	
Pier Rebar Quanity:	28	
Pad Rebar Size:	11	
Pad Rebar Quanity:	21	
Pier Tie Size:	5	
Tie Quanity:	16	
Rebar Yield Strength:	60000	psi
Concrete Strength:	3000	psi
Concrete Unit Weight:	0.15	kcf



Elevation Overview



Soil Data:

	Allowable Values	
Soil Unit Weight:	0.125	kcf
Ult. Bearing Capacity:	12.000	ksf
Angle of Friction:	34.000	deg
Cohesion:	0.000	ksf
Passive Pressure:	0.000	ksf
Base Friction:	0.260	

** Notes:

Summary of Results

Req'd Pier Diam.	OK
Overturning	96.0%
Shear Capacity	41.0%
Bearing	70.7%
Pad Shear - 1-way	70.4%
Pad Shear - 2-way	6.4%
Pad Moment Capacity	39.9%
Pier Moment Capacity	78.3%