Robinson+Cole

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November 10, 2016

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

Re: **Notice of Exempt Modification – Facility Modification**
8 Ferris Road, Newtown, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains twelve (12) wireless telecommunications antennas at the 98-foot level of the existing 118-foot tower at 8 Ferris Road in Newtown, Connecticut (the "Property"). The tower is owned by SBA Communications Corporation ("SBA"). The Council approved Cellco's use of the tower in 2002. Cellco now intends to modify its facility by replacing six (6) of its existing antennas with three (3) model SBNHH-1D85C, 700/1900 MHz antennas and three (3) model SBNHH-1D85C, 2100 MHz antennas, all at the same level on the tower. Cellco also intends to install nine (9) remote radio heads ("RRHs") and two (2) HYBRIFLEX™ fiber optic antenna cables. Included in Attachment 1 are specifications for Cellco's replacement antennas, RRHs and HYBRIFLEX™ cables.

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 letter is being sent to E. Patricia Llodra, First Selectwoman for the Town of Newtown. A copy of this letter is also being sent to Erich and Patricia Gertsch, the owners of the Property and SBA, the tower owner.

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 located at the 98-foot level on the 118-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/or local criteria.

4. The operation of the modified facility 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 behind 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 Report included in Attachment 3).

A copy of the Town Assessor's Parcel Map and property owner information is included in Attachment 4.

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:
E. Patricia Llodra, Newtown First Selectwoman
Erich and Patricia Gertsch
SBA
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

POWERED BY ANDREW.

SBNHH-1D85C

Andrew® Tri-band Antenna, 698–896 and 2x 1695–2360 MHz, 85° horizontal beamwidth, internal RETs.

- Interleaved dipole technology providing for attractive, low wind load mechanical package
- Three internal RETs for independent tilt on all three bands

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	15.6	15.6	17.0	17.6	17.9	17.8
Beamwidth, Horizontal, degrees	82	83	82	79	79	80
Beamwidth, Vertical, degrees	8.9	8.1	5.6	5.2	5.0	4.6
Beam Tilt, degrees	0–10	0–10	0–8	0–8	0–8	0–8
USLS (First Lobe), dB	16	17	14	14	14	15
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	25	25	25	25
VSWR | Return Loss, dB	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0	1.5 | 14.0
PIM, 3rd Order, 2 x 20 W, dBc	-153	-153	-153	-153	-153	-153
Input Power per Port, maximum, watts	300	300	350	350	350	300
Polarization	±45°	±45°	±45°	±45°	±45°	±45°
Impedance	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm	50 ohm

Electrical Specifications, BASTA*

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	15.4	15.4	16.6	17.3	17.6	17.6
Gain by all Beam Tilts Tolerance, dB	±0.2	±0.3	±0.6	±0.2	±0.4	±0.3
Gain by Beam Tilt, average, dBi	0 ° | 15.2	0 ° | 15.1	0 ° | 16.6	0 ° | 17.3	0 ° | 17.6	0 ° | 17.5
	5 ° | 15.5	5 ° | 15.4	4 ° | 16.6	4 ° | 17.4	4 ° | 17.7	4 ° | 17.7
	10 ° | 15.5	10 ° | 15.5	8 ° | 16.4	8 ° | 17.2	8 ° | 17.5	8 ° | 17.3
Beamwidth, Horizontal Tolerance, degrees	±2.3	±1.4	±4.5	±2.4	±2.9	±2.6
Beamwidth, Vertical Tolerance, degrees	±0.5	±0.5	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	17	18	15	16	16	17
Front-to-Back Total Power at 180° ± 30°, dB	23	24	27	26	25	27
CPR at Boresight, dB	20	20	21	22	18	25
CPR at Sector, dB	14	16	13	12	11	6

* CommScope® supports NGMN recommendations on Base Station Antenna Standards (BASTA). To learn more about the benefits of BASTA, download the whitepaper Time to Raise the Bar on BSAs.

General Specifications

Antenna Brand	Andrew®
Antenna Type	DualPol® multiband
Band	Multiband
Brand	DualPol®
Operating Frequency Band	1695 – 2360 MHz | 698 – 896 MHz
Performance Note	Outdoor usage

Mechanical Specifications

Color	Light gray

Product Specifications

SBNHH-1D85C

Lightning Protection	dc Ground
Radiator Material	Aluminum | Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Interface	7-16 DIN Female
RF Connector Location	Bottom
RF Connector Quantity, total	6
Wind Loading, maximum	875.0 N @ 150 km/h 196.7 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Depth	180.0 mm | 7.1 in
Length	2438.0 mm | 96.0 in
Width	301.0 mm | 11.9 in
Net Weight	22.5 kg | 49.6 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Multi-RET)
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	1 female | 1 male
RET System	Teletilt®

Packed Dimensions

Depth	299.0 mm | 11.8 in
Length	2561.0 mm | 100.8 in
Width	409.0 mm | 16.1 in
Shipping Weight	35.0 kg | 77.2 lb

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

BSAMNT-1 — Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set.

Product Specifications

SBNHH-1D85C

* Footnotes

Performance Note	Severe environmental conditions may degrade optimum performance

ALCATEL-LUCENT B13 RRH4X30-4R

Alcatel-Lucent B13 Remote Radio Head 4x30-4R is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B13 RRH4x30-4R allows operators to have a compact radio solution to deploy LTE in the 700U band (700 MHz, 3GPP band 13), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B13 RRH4x30-4R product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity and up to 10MHz instantaneous bandwidth.

The Alcatel-Lucent B13 RRH4x30-4R is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

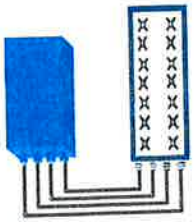
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 700 MHz band (700U, 3GPP band 13)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- 10MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in 700U band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through MIMO4
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

Alcatel·Lucent

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	U700 (C) (3GPP bands 13): DL: 746 - 756 MHz / UL: 777 - 787 MHz
Instantaneous bandwidth - #carriers	10MHz – 1 LTE carrier (in 10MHz occupied bandwidth)
LTE carrier bandwidth	10 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure – RX Diversity scheme	2 dB typ. (<2.5 dB max) – 2 or 4 way Rx diversity
Sizes (HxWxD) in mm (in.) Volume in L Weight in kg (lb) (w/o mounting HW)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield) 38 (with solar shield) 26 (57.2) (with solar shield)
DC voltage range DC power consumption	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 550W typical @100% RF load (in 2Tx or 4TX mode)
Environmental conditions Wind load (@150km/h or 93mph)	-40°C (-40°F) /+55°C (+131°F) IP65 Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate7, 9.8 Gbps) SFP single mode dual fiber
AISG interfaces	1 AISG2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) – 4 RF Tx & 4 RF Rx monitor ports - 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

ALCATEL-LUCENT B25 RRH4X30

Alcatel-Lucent Band 25 Remote Radio Head 4x30W is the new addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering.

Supporting 2Tx/4Tx MIMO and 4-way Rx diversity, Alcatel-Lucent B25 RRH4x30 allows operators to have a compact radio solution to deploy LTE in the PCS band (1.9 GHz, 3GPP band 25), providing them with the means to achieve high capacity, high quality and high coverage with minimum site requirements.

The Alcatel-Lucent B25 RRH4x30 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x60 W or 4x30 W RF output power. It supports also 4-way Rx diversity, LTE carriers from 3 MHz up to 20 MHz and up to 65 MHz instantaneous bandwidth.

The Alcatel-Lucent B25 RRH4x30 is a near zero-footprint solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

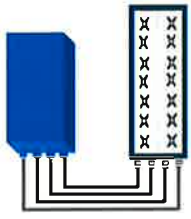
Its compactness and slim design makes the Alcatel-Lucent B25 RRH4x30 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 1.9 GHz band (PCS, 3GPP band 2 & 25)
- LTE 2Tx or 4Tx MIMO (SW switchable)
- Output power: Up to 2x60W or 4x30W
- Ready for 3, 5, 10, 15 or 20MHz LTE carrier operation with 4Rx Diversity
- Ready to support up to 4 carriers anywhere in 65MHz instantaneous bandwidth
- Convection-cooled (fan-less)
- Supports AISG 2.0 devices (RET, TMA) through RS485 or RF ports

BENEFITS

- Compact to reduce additional footprint when adding LTE in PCS band
- MIMO scheme operation selection (2Tx or 4Tx) by software only
- Full flexibility for multiple carriers operation over entire PCS spectrum
- Improves downlink spectral efficiency and cell edge throughput through MIMO4
- Increases LTE coverage thanks to 4-way Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options (Pole or Wall)



4x30W with 4T4R
or
2x60W with 2T4R

Can be switched between modes via SW w/o site visit

Alcatel·Lucent

Features & performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R by SW)
Frequency band	3GPP bands 2 & 25 (PCS-G) DL: 1930 - 1995 MHz UL: 1850 - 1915 MHz
Instantaneous bandwidth - #carriers	65MHz – Up to 4 LTE carriers (in 40MHz occupied bandwidth)
LTE carrier bandwidth	3, 5, 10, 15 or 20 MHz
RF output power	2x60W or 4x30W (by SW)
Noise figure (3GPP band 2) RX Diversity scheme	2.0 dB typ. (<2.5 dB max) 2 or 4 way Rx diversity
Sizes (HxWxD)(w/ solar shield) in mm (in.) Volume (w/ solar shield) in L Weight (w/ solar shield) in kg (lb)	538 x 304 x 182 (21.2" x 12.0" x 7.2") 30 24 (53)
DC voltage range DC power consumption	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 580W typical @100% RF load
Environmental conditions Wind load (@150km/h or 93mph)	-40°C (-40°F) /+55°C (+131°F) IP65 Frontal:<200N / Lateral :<150N
Antenna ports	4 ports 7/16 DIN female (50 ohms) VSWR < 1.5 (> 14dB)
CPRI ports	2 CPRI ports (HW ready for Rate7 / 9.8 Gbps)
AISG interfaces	1 AISG2.0 output (RS485), +24V/2A DC power Integrated Smart Bias Tees (x2)
Misc. Interfaces	1 external alarms connector (4 alarms) 4 RF Tx & 4 RF Rx monitor ports 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27

ALCATEL-LUCENT B66A RRH4X45

The Alcatel-Lucent B66a Remote Radio Head 4x45 is the newest addition of Remote Radio Head to the extended product line of Alcatel-Lucent's distributed Base Station solutions, aimed at facilitating smooth RF site acquisition and related civil engineering. Its operational range covers beyond that of B4 (AWS) and B10 (AWS+).

Supporting 2Tx/4Tx MIMO and 2-way/4-way Rx diversity, the Alcatel-Lucent B66a RRH4x45 allows operators to have a compact radio solution to deploy LTE in the 2100 band (3GPP band 4, 10, and 66), providing them with the means to achieve high capacity, high quality, high reliability, large instantaneous bandwidth, and high coverage with minimum site requirements.

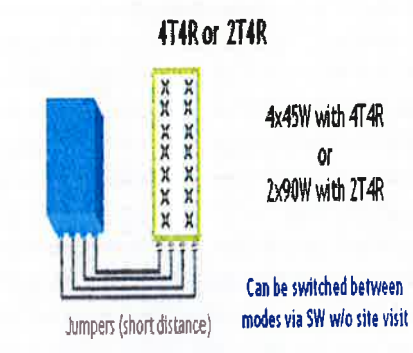
The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.

The Alcatel-Lucent B66a RRH4x45 is a compact (near zero-footprint) solution and operates noise free, simplifying negotiations with site property owners and minimizing environmental impacts.

Its compactness and slim design makes the Alcatel-Lucent B66a RRH4x45 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the RF feeder needs and installation costs.

FEATURES

- Supporting LTE in 2110 - 2180 MHz band/DL, 1710-1780MHz/UL (3GPP band 4, 10, and 66a)
- LTE 2Tx or 4Tx MIMO (SW selectable)
- Configuration: 2T2R/2T4R/4T4R
- Output power: Up to 2x90W or 4x45W (SW configurable)
- 70MHz LTE carrier with 4Rx Diversity
- Convection-cooled (fan-less)
- Supports AISG 2.0 ALD devices (RET, TMA) through RS485 or RF ports



BENEFITS

- Compact to reduce additional footprint when adding LTE in AWS 1-3 band
- Selection of MIMO configuration (2Tx or 4Tx) by software only
- Improves downlink spectral efficiency through 4Tx MIMO
- Increases LTE coverage thanks to 4Rx diversity capability and best in class Rx sensitivity
- Flexible mounting options: Pole or Wall

TECHNICAL SPECIFICATIONS

Features & Performance	
Number of TX/RX paths	4 duplexed (either 4T4R or 2T4R selectable by SW)
Frequency band	AWS 1-3, B4/B66a DL: 2110-2180 MHz / UL: 1710-1780 MHz
Instantaneous bandwidth - #carriers	70 MHz – 4 LTE MIMO carriers (in 70 MHz occupied bandwidth)
LTE carrier bandwidth	5, 10, 15, 20 MHz
RF output power	2x90W or 4x45W (selectable by SW)
Noise figure – RX Diversity scheme Receiver Sensivity (FRC A1-3)	2 dB typical (<2.5 dB max) – 2 or 4 way Rx diversity -104.5 dBm maximum
Sizes (HxWxD) in mm (in.) Volume in Liters Weight in kg (lb) (w/o mounting HW)	655x299x182 (25.8x11.8x7.2) (with solar shield) 640x290x160 (25.2x11.4x6.3) (without solar shield) 35.5 (with solar shield) 29.7 (without solar shield) 25.8kg (56.8lb) (with solar shield)
DC voltage range DC power consumption	Nominal: -48V, -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption 750W typical @100% RF load (in 2Tx or 4Tx mode); Add 58W for 2A*29V for AISG
Environmental conditions Wind load (@150km/h or 93mph)	-40°C (-40°F) /+55°C (+131°F) UL50E Type 4 Enclosure 250N (56lb) Frontal/150N (34lb) Lateral
Antenna ports	4 ports 4.3-10 female (50 ohms) VSWR < 1.5
CPRI ports	2 CPRI ports (HW ready for Rate 7, 9.8 Gbps) SFP: SMDF (HW supports also SMSF and MMDF)
AISG interfaces	1 AISG 2.0 output (RS485) Integrated Smart Bias Tees (x2)
Misc. Interfaces	4 external alarms (1 connector) 1 DC connector (2 pins)
Installation conditions	Pole and wall mounting
Regulatory compliance	3GPP 36.141 / 3GPP 36.113 / GR-487 / GR-1089-CORE / GR-3108-CORE / UL 60950-1 / FCC Part 27 / FCC Part 15 / GR-3178-CORE

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.

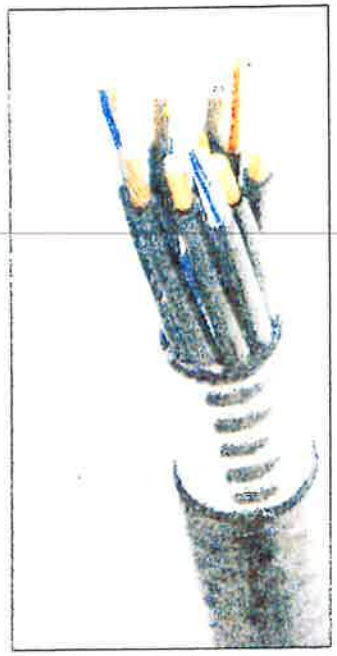


Figure 1: HYBRIFLEX Series

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)

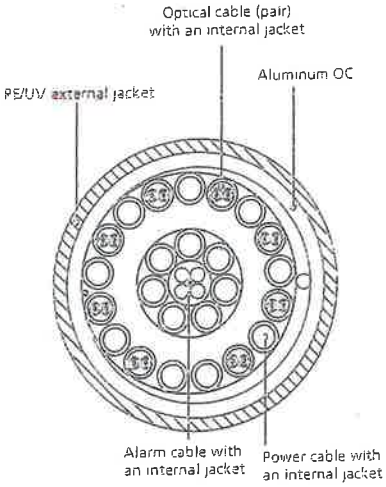


Figure 2: Construction Detail

- This data is provisional and subject to change

ATTACHMENT 2

	General	Power	Density					
Site Name: Newtown W								
Tower Height: 118'								
CARRIER	**# OF CHAN.**	**WATTS ERP**	**HEIGHT**	**CALC. POWER DENS**	**FREQ.**	**MAX. PERMISS. EXP.**	**FRACTION MPE**	**Total**
*Nextel	9	100	118	851	0.0258	0.5673	0.45%	
*Sprint	2	69	105	1900	0.0051	1.0000	0.05%	
*Sprint	1	39	105	850	0.0014	0.5667	0.03%	
*Sprint	2	69	105	2145	0.0051	1.0000	0.05%	
*AT&T	3	427	88	1900	0.0685	1.0000	0.69%	
*AT&T	7	296	88	880	0.1108	0.5867	1.89%	
*AT&T	1	500	88	880	0.0267	0.5867	0.46%	
*AT&T	1	500	88	1900	0.0267	1.0000	0.27%	
*AT&T	1	500	88	740	0.0267	0.4933	0.54%	
*T-Mobile	8	178	81	1945	0.0910	1.0000	0.91%	
Verizon	**1**	**1433**	**98**	**0.0537**	**1970**	**1.0000**	**5.37%**	
Verizon	**9**	**475**	**98**	**0.1601**	**869**	**0.5793**	**27.63%**	
Verizon	**1**	**1431**	**98**	**0.0536**	**2145**	**1.0000**	**5.36%**	
Verizon	**1**	**738**	**98**	**0.0276**	**746**	**0.4973**	**5.56%**	
								49.2%
* Source: Siting Council								

ATTACHMENT 3

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Structural Analysis Report

Existing 118 ft EEI Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT46132-A

Customer Site Name: Newtown-ferris Rd

Carrier Name: Verizon

Carrier Site ID / Name: Newtown West CT

Site Location: 8 Ferris Road

Newtown, Connecticut

Fairfield County

Latitude: 41.389747

Longitude: -73.338444

Analysis Result:

Max Structural Usage: 99.8% [Pass]

Max Foundation Usage: 79.0% [Pass]

Report Prepared By: Farzam Yazdani

Introduction

The purpose of this report is to summarize the analysis results on the 118 ft EEI Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	FDH Engineering, Inc., Project No. 1462H91400 dated 4/10/2014.
Foundation Drawing	Engineered Endeavors Incorporated, Project No. 5189 revision dated 8/20/1999.
Geotechnical Report	New England Boring Contractors & Applied Earth Technologies Inc. dated 6/4/1999.
Modification Drawings	Vertical Solutions, Project No. 100188.08 dated 5/7/2010.

Analysis Criteria

The analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-F. In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Basic Wind Speed Used in the Analysis:	85.0 mph (fastest mile)
Basic Wind Speed with Ice:	74 mph (fastest mile) with 1/2" radial ice concurrent
Operational Wind Speed:	50 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-F / 2003 IBC / 2005 Connecticut State Building Code

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	130.0	1	Decibel DB222 Dipole	(1) Low-Profile Platform	(12) 7/8"	Town of Newtown
2	119.42	1	Telewave ANT150D Dipole			
3	118.8	9	Decibel DB844H90E-XY			Sprint
4	107.0	3	ALU 1900 4x45 65 MHz RRHs	(1) Universal Ring Mount	(3) 1-1/4" Fiber (1) 1-1/4"	Sprint
5		3	ALU 800 MHz 2x50W RRHs			
6		3	ALU 800 MHz External Notch Filters			
7		3	Alcatel Lucent TD-RRH8x20-25 RRUs			
8		4	RFS ACU-A20-N RETs			
9	105.0	3	RFS APXVSPP18-C-A20	(1) Low-Profile Platform		
10		3	RFS APXVTM14-C-I20			
11	98.0	3	Powerwave P65-16-XL-2	(1) Low-Profile Platform	(12) 1-5/8"	Verizon
12		4	Andrew DB846H80E-SX			
13		2	RFS APL868013			
14		3	RYMSA MGD3-800TX			
15	91.0	3	Powerwave 7770.00	(1) Low-Profile Platform	(12) 7/8" (2) 5/8" DC (1) 3/8" Fiber	AT&T
16		3	Powerwave P65-16-XLH-RR			
17		6	Powerwave LGP21401 TMAs			
18		6	Ericsson RRUS-11 RRUs			
19		1	Raycap Surge Arrestor			
20	81.0	6	RFS APX16DWV-16DWV	(1) Low-Profile Platform	(24) 7/8"	T-Mobile
21		6	Remec S20057A1 TMAs			
22	75.0	1	GPS	Direct	*(1) 1/2"	Sprint

*Considered outside of the pole

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	98.0	2	RFS APL868013 – Panel	(1) Low-Profile Platform	(12) 1-5/8" Coax (2) 1-5/8" Fiber	Verizon
2		6	Andrew SBNHH-1D85C – Panel			
3		4	Andrew DB846H80E-SX – Panel			
4		3	Alcatel Lucent RRH4X45-AWS – RRU			
5		3	Alcatel Lucent RRH2x60-700 – RRU			
6		3	Alcatel-Lucent RRH2X60-1900A-4R – RRU			
7		2	RFS Celwave DB-T1-6Z-8AB-0Z			

All proposed transmission lines are considered running inside of the pole shafts.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	**99.8%**	**88.2%**	**99.5%**
Pass/Fail	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Original Design Reactions	2006.0	22.0	20.0
Analysis Reactions	2266.4	25.1	28.5

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-F for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 2.1661 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be adequate to safely support the existing and proposed equipment and meet the minimum requirements per the ANSI/TIA/EIA 222-F Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.

3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.

4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.

5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.

6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed or/and ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Stress 99.8% at 49.7ft

Structure:	CT46132-A-SBA	**Code:**	EIA/TIA-222-F	8/11/2016	
Site Name:	Newtown-ferris Rd	**Exposure:**	C		
Height:	118.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)			Page: 1	

Tower Engineering Solutions

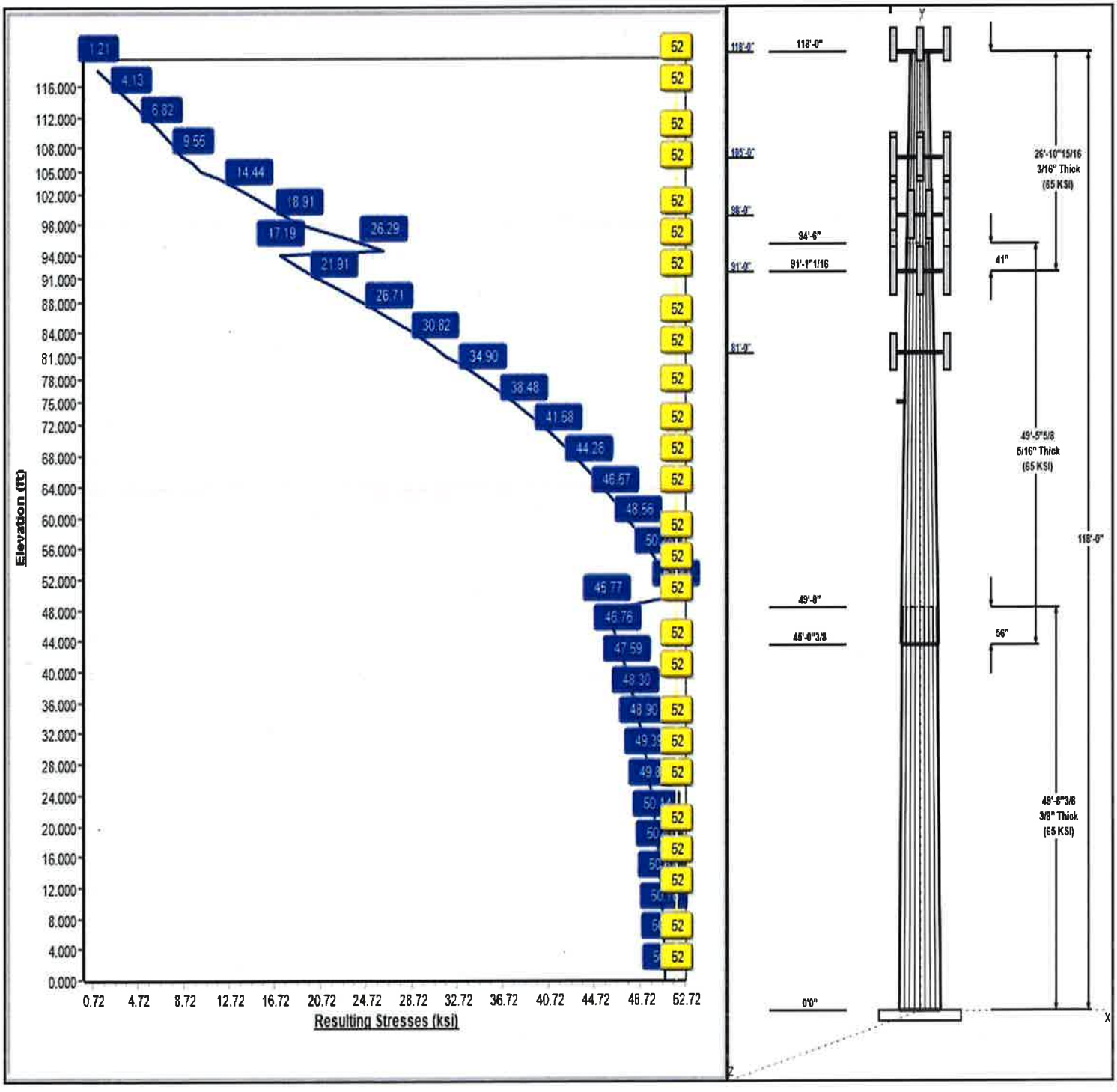
Dead Load Factor:	1.00
Wind Load Factor:	1.00

52 Alllowable Stress

52 Resulting Stress

Load Case : 85 mph Wind with 0 in Ice

Iterations: 27



Structure: CT46132-A-SBA

Type: Tapered
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 18 Sided
Taper: 0.23095

8/11/2016

Tower Engineering Solutions

Shaft Properties

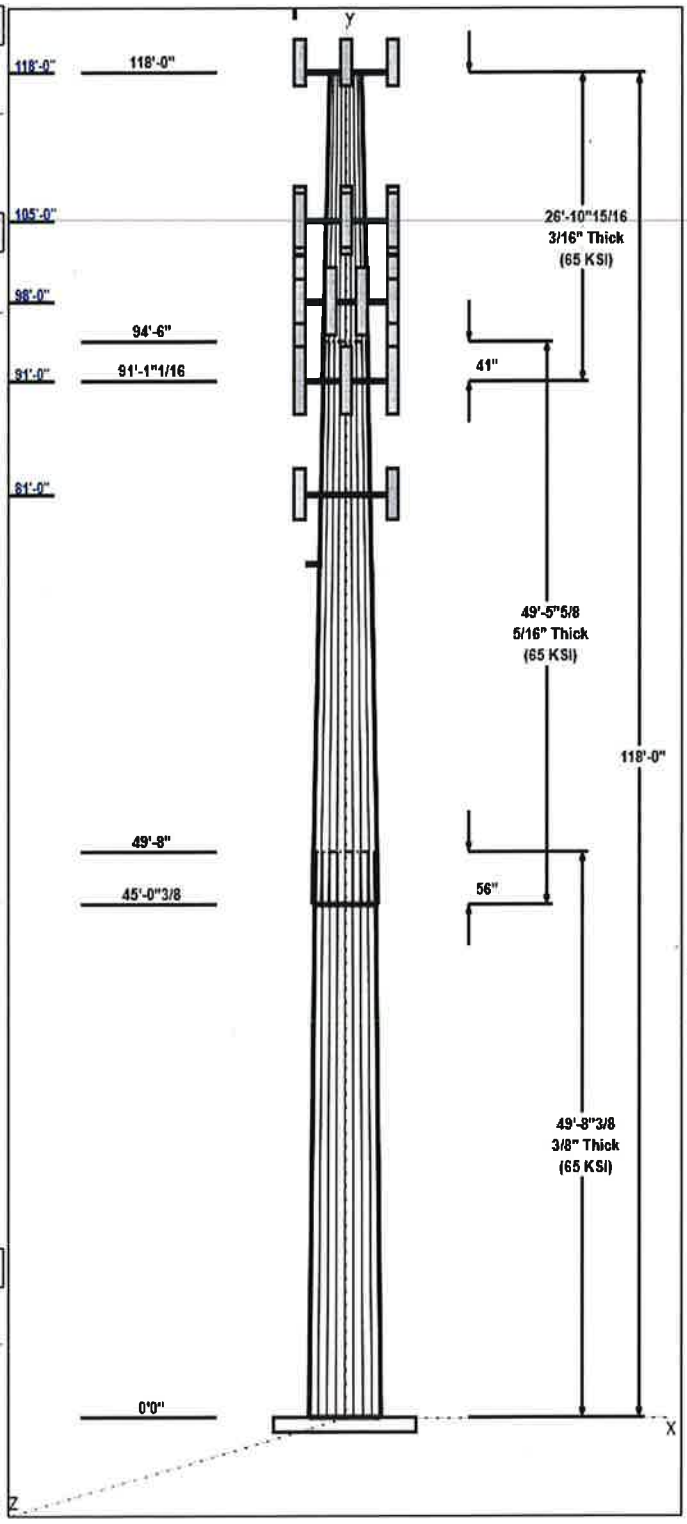
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	49.70	31.77	43.25	0.375		0.23095	65
2	49.47	22.05	33.48	0.313	Slip	0.23095	65
3	26.91	17.00	23.22	0.188	Slip	0.23095	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
118.00	128.00	1	DB222	Town of Newtown
118.00	119.42	1	ANT150D	Town of Newtown
118.00	118.80	9	DB844H90E-XY	Sprint
118.00	118.00	1	Low Profile Platform	Town of
107.00	107.00	1	Universal Ring Mount	Sprint
107.00	107.00	3	1900 MHz 4X45 RRH	Sprint
107.00	107.00	3	800 MHz 2X50W RRH w/	Sprint
107.00	107.00	3	ALU 800MHz External	Sprint
107.00	107.00	3	TD-RRH8x20-25	Sprint
107.00	107.00	4	ACU-A20-N	Sprint
105.00	105.00	1	Low Profile Platform	Sprint
105.00	105.00	3	APXVSPP18-C-A20	Sprint
105.00	105.00	3	APXVTM14-C-120	Sprint
98.00	98.00	1	Low Profile Platform	Verizon
98.00	98.00	2	RFS APL868013	Verizon
98.00	98.00	6	Andrew SBNHH-1D85C	Verizon
98.00	98.00	3	Alcatel Lucent	Verizon
98.00	98.00	3	Alcatel Lucent	Verizon
98.00	98.00	3	Alcatel-Lucent	Verizon
98.00	98.00	2	Rfs Celwave	Verizon
98.00	98.00	4	Andrew DB846H80E-SX	Verizon
91.00	91.00	1	Low Profile Platform	AT&T
91.00	91.00	3	7770.00	AT&T
91.00	91.00	3	P65-16-XLH-RR	AT&T
91.00	91.00	6	LGP21401	AT&T
91.00	91.00	6	RRUS-11	AT&T
91.00	91.00	1	FD Series DC Surge	AT&T
81.00	81.00	6	APX16DWV-16DWV	T-Mobile
81.00	81.00	6	S20057A1	T-Mobile
81.00	81.00	1	Low Profile	T-Mobile
75.00	75.00	1	GPS	Sprint
75.00	75.00	1	Standoff Mount	Sprint

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	130.00	Inside	7/8"	Town of Newtown
0.00	107.00	Inside	1-1/4"	Sprint
0.00	107.00	Inside	1-1/4" Fiber	Sprint
0.00	98.00	Inside	1-5/8" Coax	Verizon
0.00	98.00	Inside	1-5/8" Fiber	Verizon
0.00	91.00	Inside	3/8" Fiber	AT&T
0.00	91.00	Inside	5/8" DC	AT&T
0.00	91.00	Inside	7/8"	AT&T
0.00	81.00	Inside	7/8"	T-Mobile
0.00	75.00	Outside	1/2"	Sprint



Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
12	2.25" 18J	75.0	Radial

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
1.7500	58.0	60.0	Round

Reactions

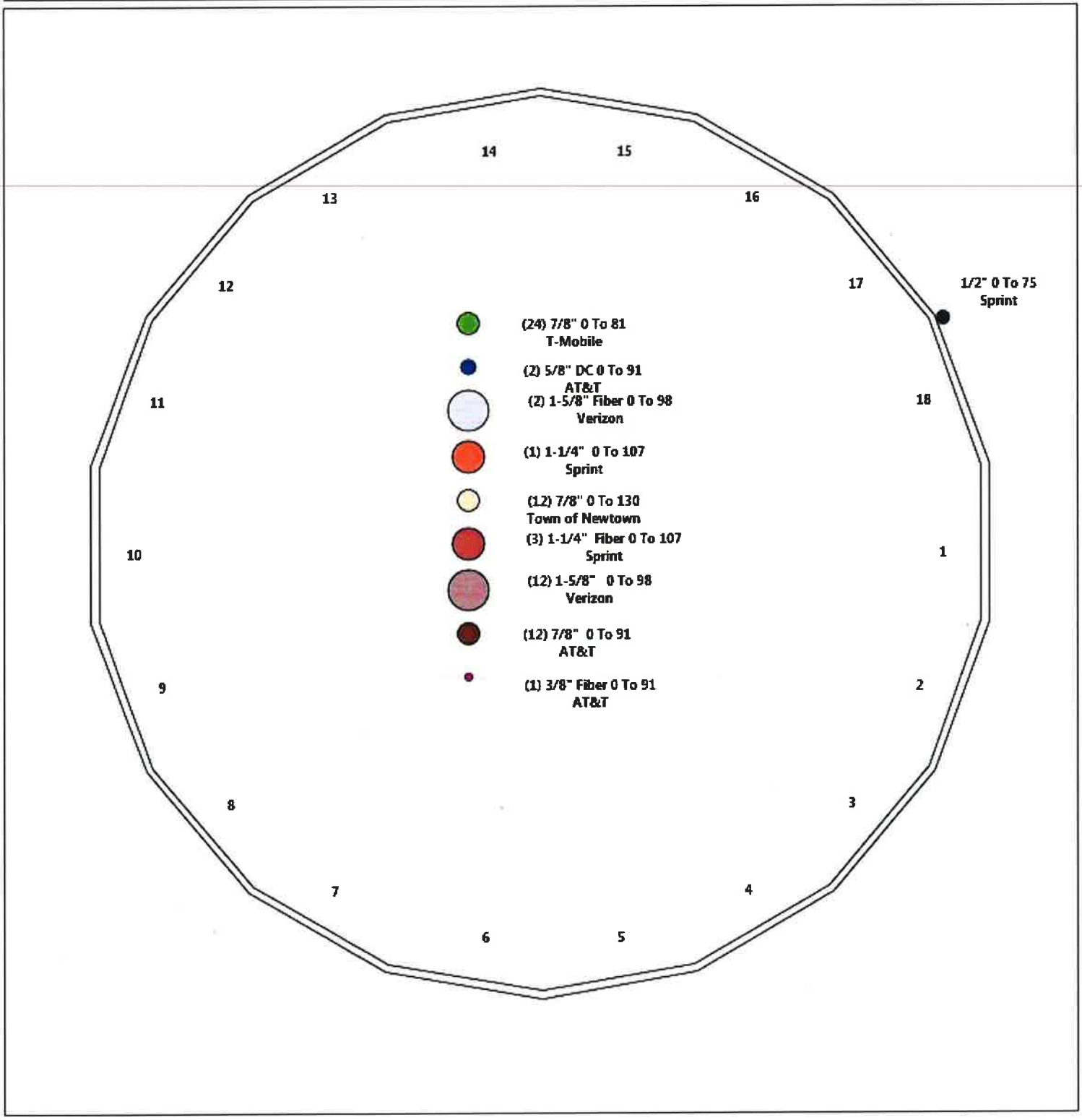
Load Case	Moment	Shear	Axial
85 mph Wind with 0" Ice	2266.4	25.1	28.5
73.61 mph Wind with 0.5" Ice	1923.4	21.0	34.3
50 mph Wind with 0" Ice	785.3	8.7	28.5

Structure: CT46132-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)

8/11/2016

TES Tower Engineering Solutions



Shaft Properties

Structure:	CT46132-A-SBA	**Code:**	EIA/TIA-222-F	8/11/2016	
Site Name:	Newtown-ferris Rd	**Exposure:**	C		
Height:	118.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 5	

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	49.700	0.3750	65		0.00	7,475
2	18	49.470	0.3130	65	Slip	56.00	4,590
3	18	26.913	0.1880	65	Slip	41.00	1,089
					Total Shaft Weight:		**13,154**

	Bottom						Top						
Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	43.25	0.00	51.03	11851.90	18.93	115.33	31.77	49.70	37.37	4654.07	13.53	84.72	0.230949
2	33.48	45.03	32.94	4577.56	17.45	106.95	22.05	94.50	21.59	1289.20	11.01	70.45	0.230949
3	23.22	91.09	13.74	920.55	20.36	123.49	17.00	118.0	10.03	358.23	14.53	90.43	0.230949

Loading Summary

Structure:	CT46132-A-SBA	**Code:**	EIA/TIA-222-F	8/11/2016	
Site Name:	Newtown-ferris Rd	**Exposure:**	C		
Height:	118.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	118.00	DB222	1	16.00	2.25	1.00	35.90	3.990	1.00	0.00	10.00
2	118.00	ANT150D	1	6.00	1.00	1.00	26.90	1.490	1.00	0.00	1.42
3	118.00	DB844H90E-XY	9	14.00	3.73	1.00	0.00	4.290	1.00	0.00	0.80
4	118.00	Low Profile Platform	1	1600.00	25.55	1.00	2100.00	27.320	1.00	0.00	0.00
5	107.00	Universal Ring Mount	1	350.00	3.50	1.00	450.00	4.500	1.00	0.00	0.00
6	107.00	1900 MHz 4X45 RRH	3	60.00	2.71	0.67	83.10	3.070	0.69	0.00	0.00
7	107.00	800 MHz 2X50W RRH w/ Filter	3	64.00	2.40	0.67	86.10	2.720	0.69	0.00	0.00
8	107.00	ALU 800MHz External Notch Filt	3	8.80	0.78	0.67	13.80	0.960	0.69	0.00	0.00
9	107.00	TD-RRH8x20-25	3	70.00	4.72	0.67	92.00	4.970	0.69	0.00	0.00
10	107.00	ACU-A20-N	4	1.00	0.14	0.67	2.30	0.220	0.69	0.00	0.00
11	105.00	Low Profile Platform	1	1600.00	25.55	1.00	2100.00	27.320	1.00	0.00	0.00
12	105.00	APXVSPP18-C-A20	3	57.00	8.26	0.83	106.50	9.080	0.85	0.00	0.00
13	105.00	APXVTM14-C-120	3	56.00	6.90	0.79	91.90	7.290	0.81	0.00	0.00
14	98.00	Low Profile Platform	1	1600.00	25.55	1.00	2100.00	27.320	1.00	0.00	0.00
15	98.00	RFS APL868013	2	6.30	3.73	1.15	0.00	4.290	1.15	0.00	0.00
16	98.00	Andrew SBNHH-1D85C	6	49.60	11.39	0.84	111.20	11.860	0.86	0.00	0.00
17	98.00	Alcatel Lucent RRH2x60-700	3	60.00	3.96	0.67	80.10	4.230	0.69	0.00	0.00
18	98.00	Alcatel Lucent RRH4X45-AWS	3	56.80	2.96	0.67	73.40	3.170	0.69	0.00	0.00
19	98.00	Alcatel-Lucent RRH2X60-1900A-4R	3	46.00	2.19	0.67	58.80	2.370	0.69	0.00	0.00
20	98.00	Rfs Celwave DB-T1-6Z-8AB-0Z,	2	18.90	5.60	0.67	46.00	5.870	0.69	0.00	0.00
21	98.00	Andrew DB846H80E-SX	4	16.00	5.87	1.12	0.00	6.560	1.14	0.00	0.00
22	91.00	Low Profile Platform	1	1500.00	20.00	1.00	1800.00	25.000	1.00	0.00	0.00
23	91.00	7770.00	3	35.00	5.88	0.73	0.00	6.530	0.75	0.00	0.00
24	91.00	P65-16-XLH-RR	3	53.00	8.40	0.75	100.20	9.220	0.75	0.00	0.00
25	91.00	LGP21401	6	14.10	1.29	0.67	21.20	1.530	0.70	0.00	0.00
26	91.00	RRUS-11	6	55.00	4.42	0.67	80.70	4.850	0.70	0.00	0.00
27	91.00	FD Series DC Surge Protection	1	18.00	3.73	0.67	39.20	4.120	0.70	0.00	0.00
28	81.00	APX16DWV-16DWV	6	39.60	6.70	0.62	84.00	7.350	0.64	0.00	0.00
29	81.00	S20057A1	6	11.00	0.82	0.67	16.40	1.020	0.70	0.00	0.00
30	81.00	Low Profile Platform-Round	1	1500.00	20.00	1.00	1800.00	25.000	1.00	0.00	0.00
31	75.00	GPS	1	10.00	0.50	1.00	18.00	1.250	1.00	0.00	0.00
32	75.00	Standoff Mount	1	40.00	1.00	1.00	63.00	2.000	1.00	0.00	0.00
		Totals:	**95**	**11,200.00**			**14,872.90**				

Linear Appurtenances

			No Ice		Ice		
Bottom Elev. (ft)	Top Elev. (ft)	Description	Weight (lb/ft)	CaAa (sf/ft)	Weight (lb/ft)	CaAa (sf/ft)	Exposed
0.00	130.00	(12) 7/8"	6.24	0.00	0.00	0.00	Inside
0.00	107.00	(1) 1-1/4"	0.66	0.00	0.00	0.00	Inside
0.00	107.00	(3) 1-1/4" Fiber	1.98	0.00	0.00	0.00	Inside
0.00	98.00	(12) 1-5/8" Coax	12.48	0.00	0.00	0.00	Inside
0.00	98.00	(2) 1-5/8" Fiber	2.20	0.00	0.00	0.00	Inside
0.00	91.00	(1) 3/8" Fiber	0.06	0.00	0.00	0.00	Inside
0.00	91.00	(2) 5/8" DC	0.80	0.00	0.00	0.00	Inside

Discrete Appurtenances

No.	Elev (ft)		Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
	0.00	91.00	(12) 7/8"		6.24	0.00		0.00	0.00	Inside		
	0.00	81.00	(24) 7/8"		12.48	0.00		0.00	0.00	Inside		
	0.00	75.00	(1) 1/2"		0.16	0.06		0.00	0.16	Outside		
				Totals:	**4,201.30**			**0.00**				

Shaft Section Properties

Structure: CT46132-A-SBA
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)
Increment Length: 2 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016

Tower Engineering Solutions

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)
0.00		0.3750	43.250	51.030	11851.9	18.93	115.33	65	52	0.0
2.00		0.3750	42.788	50.480	11473.0	18.71	114.10	65	52	345.4
4.00		0.3750	42.326	49.931	11102.2	18.49	112.87	65	52	341.7
6.00		0.3750	41.864	49.381	10739.5	18.27	111.64	65	52	337.9
8.00		0.3750	41.402	48.831	10384.8	18.06	110.41	65	52	334.2
10.00		0.3750	40.941	48.281	10038.0	17.84	109.17	65	52	330.5
12.00		0.3750	40.479	47.732	9699.0	17.62	107.94	65	52	326.7
14.00		0.3750	40.017	47.182	9367.7	17.41	106.71	65	52	323.0
16.00		0.3750	39.555	46.632	9044.0	17.19	105.48	65	52	319.2
18.00		0.3750	39.093	46.082	8727.9	16.97	104.25	65	52	315.5
20.00		0.3750	38.631	45.533	8419.3	16.75	103.02	65	52	311.7
22.00		0.3750	38.169	44.983	8118.0	16.54	101.78	65	52	308.0
24.00		0.3750	37.707	44.433	7824.0	16.32	100.55	65	52	304.3
26.00		0.3750	37.245	43.883	7537.1	16.10	99.32	65	52	300.5
28.00		0.3750	36.783	43.334	7257.4	15.89	98.09	65	52	296.8
30.00		0.3750	36.322	42.784	6984.7	15.67	96.86	65	52	293.0
32.00		0.3750	35.860	42.234	6718.9	15.45	95.63	65	52	289.3
34.00		0.3750	35.398	41.684	6459.9	15.23	94.39	65	52	285.6
36.00		0.3750	34.936	41.135	6207.7	15.02	93.16	65	52	281.8
38.00		0.3750	34.474	40.585	5962.1	14.80	91.93	65	52	278.1
40.00		0.3750	34.012	40.035	5723.1	14.58	90.70	65	52	274.3
42.00		0.3750	33.550	39.485	5490.5	14.36	89.47	65	52	270.6
44.00		0.3750	33.088	38.936	5264.4	14.15	88.24	65	52	266.8
45.03	Bot - Section 2	0.3750	32.850	38.651	5150.0	14.04	87.60	65	52	136.4
46.00		0.3750	32.626	38.386	5044.5	13.93	87.00	65	52	234.7
48.00		0.3750	32.164	37.836	4830.9	13.71	85.77	65	52	480.5
49.70	Top - Section 1	0.3130	32.398	31.874	4145.6	16.84	103.51	65	52	403.0
50.00		0.3130	32.329	31.805	4118.8	16.80	103.29	65	52	32.5
52.00		0.3130	31.867	31.346	3943.1	16.54	101.81	65	52	214.9
54.00		0.3130	31.405	30.887	3772.5	16.28	100.33	65	52	211.8
56.00		0.3130	30.943	30.428	3606.8	16.02	98.86	65	52	208.6
58.00		0.3130	30.481	29.970	3446.1	15.76	97.38	65	52	205.5
60.00		0.3130	30.019	29.511	3290.2	15.50	95.91	65	52	202.4
62.00		0.3130	29.557	29.052	3139.1	15.24	94.43	65	52	199.3
64.00		0.3130	29.095	28.593	2992.7	14.98	92.96	65	52	196.2
66.00		0.3130	28.633	28.134	2850.9	14.72	91.48	65	52	193.0
68.00		0.3130	28.171	27.675	2713.7	14.46	90.00	65	52	189.9
70.00		0.3130	27.710	27.216	2580.9	14.20	88.53	65	52	186.8
72.00		0.3130	27.248	26.758	2452.6	13.94	87.05	65	52	183.7
74.00		0.3130	26.786	26.299	2328.6	13.68	85.58	65	52	180.5
75.00		0.3130	26.555	26.069	2268.1	13.55	84.84	65	52	89.1
76.00		0.3130	26.324	25.840	2208.8	13.42	84.10	65	52	88.3
78.00		0.3130	25.862	25.381	2093.2	13.16	82.63	65	52	174.3
80.00		0.3130	25.400	24.922	1981.7	12.90	81.15	65	52	171.2
81.00		0.3130	25.169	24.693	1927.5	12.77	80.41	65	52	84.4
82.00		0.3130	24.938	24.463	1874.2	12.64	79.67	65	52	83.6
84.00		0.3130	24.476	24.004	1770.7	12.38	78.20	65	52	164.9
86.00		0.3130	24.014	23.546	1671.1	12.12	76.72	65	52	161.8
88.00		0.3130	23.552	23.087	1575.3	11.86	75.25	65	52	158.7
90.00		0.3130	23.091	22.628	1483.2	11.60	73.77	65	52	155.6
91.00		0.3130	22.860	22.398	1438.6	11.47	73.03	65	52	76.6
91.09	Bot - Section 3	0.3130	22.840	22.379	1434.8	11.46	72.97	65	52	6.6

Increment Length: 2 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fy (ksi)	Fb (ksi)	Weight (lb)
92.00		0.3130	22.629	22.169	1394.8	11.34	72.30	65	52	111.7
94.00		0.3130	22.167	21.710	1310.0	11.08	70.82	65	52	241.0
94.50	Top - Section 2	0.1880	22.427	13.270	829.1	19.62	119.29	65	52	59.9
96.00		0.1880	22.081	13.063	791.1	19.30	117.45	65	52	67.1
98.00		0.1880	21.619	12.788	742.0	18.87	114.99	65	52	88.0
100.00		0.1880	21.157	12.512	695.1	18.43	112.54	65	52	86.1
102.00		0.1880	20.695	12.236	650.2	18.00	110.08	65	52	84.2
104.00		0.1880	20.233	11.961	607.2	17.57	107.62	65	52	82.3
105.00		0.1880	20.002	11.823	586.5	17.35	106.40	65	52	40.5
106.00		0.1880	19.771	11.685	566.2	17.13	105.17	65	52	40.0
107.00		0.1880	19.540	11.547	546.4	16.92	103.94	65	52	39.5
108.00		0.1880	19.309	11.410	527.1	16.70	102.71	65	52	39.1
110.00		0.1880	18.848	11.134	489.8	16.27	100.25	65	52	76.7
112.00		0.1880	18.386	10.858	454.3	15.83	97.80	65	52	74.8
114.00		0.1880	17.924	10.583	420.6	15.40	95.34	65	52	73.0
116.00		0.1880	17.462	10.307	388.6	14.97	92.88	65	52	71.1
118.00		0.1880	17.000	10.032	358.2	14.53	90.43	65	52	69.2
										13153.9

Wind Loading - Shaft

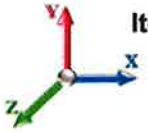
Structure: CT46132-A-SBA
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 27

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	18.496	31.26	306.35	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
2.00		0.00	1.00	18.496	31.26	303.08	0.650	0.000	2.00	7.170	4.66	145.7	0.0	345.4
4.00		0.00	1.00	18.496	31.26	299.81	0.650	0.000	2.00	7.093	4.61	144.1	0.0	341.7
6.00		0.00	1.00	18.496	31.26	296.54	0.650	0.000	2.00	7.016	4.56	142.5	0.0	337.9
8.00		0.00	1.00	18.496	31.26	293.27	0.650	0.000	2.00	6.939	4.51	141.0	0.0	334.2
10.00		0.00	1.00	18.496	31.26	290.00	0.650	0.000	2.00	6.862	4.46	139.4	0.0	330.5
12.00		0.00	1.00	18.496	31.26	286.72	0.650	0.000	2.00	6.785	4.41	137.9	0.0	326.7
14.00		0.00	1.00	18.496	31.26	283.45	0.650	0.000	2.00	6.708	4.36	136.3	0.0	323.0
16.00		0.00	1.00	18.496	31.26	280.18	0.650	0.000	2.00	6.631	4.31	134.7	0.0	319.2
18.00		0.00	1.00	18.496	31.26	276.91	0.650	0.000	2.00	6.554	4.26	133.2	0.0	315.5
20.00		0.00	1.00	18.496	31.26	273.64	0.650	0.000	2.00	6.477	4.21	131.6	0.0	311.7
22.00		0.00	1.00	18.496	31.26	270.36	0.650	0.000	2.00	6.400	4.16	130.0	0.0	308.0
24.00		0.00	1.00	18.496	31.26	267.09	0.650	0.000	2.00	6.323	4.11	128.5	0.0	304.3
26.00		0.00	1.00	18.496	31.26	263.82	0.650	0.000	2.00	6.246	4.06	126.9	0.0	300.5
28.00		0.00	1.00	18.496	31.26	260.55	0.650	0.000	2.00	6.169	4.01	125.3	0.0	296.8
30.00		0.00	1.00	18.496	31.26	257.28	0.650	0.000	2.00	6.092	3.96	123.8	0.0	293.0
32.00		0.00	1.00	18.496	31.26	254.01	0.650	0.000	2.00	6.015	3.91	122.2	0.0	289.3
34.00		0.00	1.01	18.654	31.53	251.81	0.650	0.000	2.00	5.938	3.86	121.7	0.0	285.6
36.00		0.00	1.03	18.962	32.05	250.56	0.650	0.000	2.00	5.861	3.81	122.1	0.0	281.8
38.00		0.00	1.04	19.257	32.54	249.16	0.650	0.000	2.00	5.784	3.76	122.4	0.0	278.1
40.00		0.00	1.06	19.541	33.02	247.63	0.650	0.000	2.00	5.707	3.71	122.5	0.0	274.3
42.00		0.00	1.07	19.815	33.49	245.98	0.650	0.000	2.00	5.630	3.66	122.6	0.0	270.6
44.00		0.00	1.09	20.081	33.94	244.21	0.650	0.000	2.00	5.553	3.61	122.5	0.0	266.8
45.03	Bot - Section 2	0.00	1.09	20.214	34.16	243.25	0.650	0.000	1.03	2.839	1.85	63.0	0.0	136.4
46.00		0.00	1.10	20.337	34.37	242.33	0.650	0.000	0.97	2.688	1.75	60.0	0.0	234.7
48.00		0.00	1.11	20.586	34.79	240.36	0.650	0.000	2.00	5.504	3.58	124.5	0.0	480.5
49.70	Top - Section 1	0.00	1.12	20.792	35.14	238.61	0.650	0.000	1.70	4.618	3.00	105.5	0.0	403.0
50.00		0.00	1.13	20.827	35.20	243.00	0.650	0.000	0.30	0.809	0.53	18.5	0.0	32.5
52.00		0.00	1.14	21.062	35.60	240.87	0.650	0.000	2.00	5.350	3.48	123.8	0.0	214.9
54.00		0.00	1.15	21.291	35.98	238.66	0.650	0.000	2.00	5.273	3.43	123.3	0.0	211.8
56.00		0.00	1.16	21.513	36.36	236.38	0.650	0.000	2.00	5.196	3.38	122.8	0.0	208.6
58.00		0.00	1.17	21.730	36.72	234.02	0.650	0.000	2.00	5.119	3.33	122.2	0.0	205.5
60.00		0.00	1.19	21.941	37.08	231.59	0.650	0.000	2.00	5.042	3.28	121.5	0.0	202.4
62.00		0.00	1.20	22.148	37.43	229.10	0.650	0.000	2.00	4.965	3.23	120.8	0.0	199.3
64.00		0.00	1.21	22.350	37.77	226.55	0.650	0.000	2.00	4.888	3.18	120.0	0.0	196.2
66.00		0.00	1.22	22.547	38.10	223.93	0.650	0.000	2.00	4.811	3.13	119.2	0.0	193.0
68.00		0.00	1.23	22.740	38.43	221.26	0.650	0.000	2.00	4.734	3.08	118.2	0.0	189.9
70.00		0.00	1.24	22.929	38.75	218.54	0.650	0.000	2.00	4.657	3.03	117.3	0.0	186.8
72.00		0.00	1.25	23.114	39.06	215.76	0.650	0.000	2.00	4.580	2.98	116.3	0.0	183.7
74.00		0.00	1.26	23.296	39.37	212.93	0.650	0.000	2.00	4.503	2.93	115.2	0.0	180.5
75.00	Appurtenance(s)	0.00	1.26	23.386	39.52	211.50	0.650	0.000	1.00	2.223	1.44	57.1	0.0	89.1
76.00		0.00	1.27	23.474	39.67	210.06	0.650	0.000	1.00	2.203	1.43	56.8	0.0	88.3
78.00		0.00	1.28	23.649	39.97	207.14	0.650	0.000	2.00	4.349	2.83	113.0	0.0	174.3
80.00		0.00	1.29	23.821	40.26	204.18	0.650	0.000	2.00	4.272	2.78	111.8	0.0	171.2
81.00	Appurtenance(s)	0.00	1.29	23.906	40.40	202.68	0.650	0.000	1.00	2.107	1.37	55.3	0.0	84.4
82.00		0.00	1.30	23.989	40.54	201.17	0.650	0.000	1.00	2.088	1.36	55.0	0.0	83.6
84.00		0.00	1.31	24.155	40.82	198.13	0.650	0.000	2.00	4.118	2.68	109.3	0.0	164.9
86.00		0.00	1.31	24.318	41.10	195.05	0.650	0.000	2.00	4.041	2.63	107.9	0.0	161.8

Wind Loading - Shaft

Structure: CT46132-A-SBA
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016

Tower Engineering Solutions

88.00	0.00	1.32	24.478	41.37	191.92	0.650	0.000	2.00	3.964	2.58	106.6	0.0	158.7
90.00	0.00	1.33	24.636	41.63	188.76	0.650	0.000	2.00	3.887	2.53	105.2	0.0	155.6
91.00 Appurtenance(s)	0.00	1.34	24.714	41.77	187.17	0.650	0.000	1.00	1.915	1.24	52.0	0.0	76.6
91.09 Bot - Section 3	0.00	1.34	24.721	41.78	187.03	0.650	0.000	0.09	0.165	0.11	4.5	0.0	6.6
92.00	0.00	1.34	24.791	41.90	185.57	0.650	0.000	0.91	1.759	1.14	47.9	0.0	111.7
94.00	0.00	1.35	24.944	42.16	182.34	0.650	0.000	2.00	3.796	2.47	104.0	0.0	241.0
94.50 Top - Section 2	0.00	1.35	24.982	42.22	181.52	0.650	0.000	0.50	0.943	0.61	25.9	0.0	59.9
96.00	0.00	1.36	25.095	42.41	182.18	0.650	0.000	1.50	2.776	1.80	76.5	0.0	67.1
98.00 Appurtenance(s)	0.00	1.36	25.243	42.66	178.90	0.650	0.000	2.00	3.642	2.37	101.0	0.0	88.0
100.00	0.00	1.37	25.389	42.91	175.58	0.650	0.000	2.00	3.565	2.32	99.4	0.0	86.1
102.00	0.00	1.38	25.533	43.15	172.23	0.650	0.000	2.00	3.488	2.27	97.8	0.0	84.2
104.00	0.00	1.39	25.675	43.39	168.86	0.650	0.000	2.00	3.411	2.22	96.2	0.0	82.3
105.00 Appurtenance(s)	0.00	1.39	25.745	43.51	167.16	0.650	0.000	1.00	1.676	1.09	47.4	0.0	40.5
106.00	0.00	1.40	25.815	43.63	165.45	0.650	0.000	1.00	1.657	1.08	47.0	0.0	40.0
107.00 Appurtenance(s)	0.00	1.40	25.885	43.74	163.74	0.650	0.000	1.00	1.638	1.06	46.6	0.0	39.5
108.00	0.00	1.40	25.953	43.86	162.02	0.650	0.000	1.00	1.619	1.05	46.2	0.0	39.1
110.00	0.00	1.41	26.090	44.09	158.56	0.650	0.000	2.00	3.180	2.07	91.1	0.0	76.7
112.00	0.00	1.42	26.225	44.32	155.07	0.650	0.000	2.00	3.103	2.02	89.4	0.0	74.8
114.00	0.00	1.43	26.357	44.54	151.56	0.650	0.000	2.00	3.026	1.97	87.6	0.0	73.0
116.00	0.00	1.43	26.489	44.77	148.02	0.650	0.000	2.00	2.949	1.92	85.8	0.0	71.1
118.00 Appurtenance(s)	0.00	1.44	26.618	44.99	144.46	0.650	0.000	2.00	2.872	1.87	84.0	0.0	69.2
							Totals:	**118.00**			**6,897.1**		**13,153.9**

Discrete Appurtenance Forces

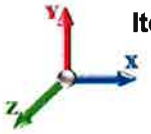
Structure: CT46132-A-SB
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 27

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	118.00	Low Profile Platform	1	26.618	44.985	1.00	25.55	1600.00	0.000	0.000	1149.37	0.00	0.00
2	118.00	DB844H90E-XY	9	26.670	45.072	1.00	33.57	126.00	0.000	0.800	1513.07	0.00	1210.46
3	118.00	ANT150D	1	26.710	45.139	1.00	1.00	6.00	0.000	1.420	45.14	0.00	64.10
4	118.00	DB222	1	27.244	46.043	1.00	2.25	16.00	0.000	10.000	103.60	0.00	1035.97
5	107.00	Universal Ring Mount	1	25.885	43.745	1.00	3.50	350.00	0.000	0.000	153.11	0.00	0.00
6	107.00	1900 MHz 4X45 RRH	3	25.885	43.745	0.67	5.45	180.00	0.000	0.000	238.28	0.00	0.00
7	107.00	800 MHz 2X50W RRH w/	3	25.885	43.745	0.67	4.82	192.00	0.000	0.000	211.03	0.00	0.00
8	107.00	ALU 800MHz External Notch	3	25.885	43.745	0.67	1.57	26.40	0.000	0.000	68.58	0.00	0.00
9	107.00	TD-RRH8x20-25	3	25.885	43.745	0.67	9.49	210.00	0.000	0.000	415.02	0.00	0.00
10	107.00	ACU-A20-N	4	25.885	43.745	0.67	0.38	4.00	0.000	0.000	16.41	0.00	0.00
11	105.00	APXVTM14-C-120	3	25.745	43.510	0.79	16.35	168.00	0.000	0.000	711.51	0.00	0.00
12	105.00	APXVSPP18-C-A20	3	25.745	43.510	0.83	20.57	171.00	0.000	0.000	894.88	0.00	0.00
13	105.00	Low Profile Platform	1	25.745	43.510	1.00	25.55	1600.00	0.000	0.000	1111.67	0.00	0.00
14	98.00	Andrew DB846H80E-SX	4	25.243	42.660	1.12	26.30	64.00	0.000	0.000	1121.87	0.00	0.00
15	98.00	Rfs Celwave	2	25.243	42.660	0.67	7.50	37.80	0.000	0.000	320.12	0.00	0.00
16	98.00	Alcatel-Lucent	3	25.243	42.660	0.67	4.40	138.00	0.000	0.000	187.79	0.00	0.00
17	98.00	Alcatel Lucent	3	25.243	42.660	0.67	5.95	170.40	0.000	0.000	253.81	0.00	0.00
18	98.00	Alcatel Lucent RRH2x60-700	3	25.243	42.660	0.67	7.96	180.00	0.000	0.000	339.56	0.00	0.00
19	98.00	Andrew SBNHH-1D85C	6	25.243	42.660	0.84	57.41	297.60	0.000	0.000	2448.95	0.00	0.00
20	98.00	RFS APL868013	2	25.243	42.660	1.15	8.59	12.60	0.000	0.000	366.30	0.00	0.00
21	98.00	Low Profile Platform	1	25.243	42.660	1.00	25.55	1600.00	0.000	0.000	1089.97	0.00	0.00
22	91.00	Low Profile Platform	1	24.714	41.767	1.00	20.00	1500.00	0.000	0.000	835.33	0.00	0.00
23	91.00	7770.00	3	24.714	41.767	0.73	12.88	105.00	0.000	0.000	537.84	0.00	0.00
24	91.00	P65-16-XLH-RR	3	24.714	41.767	0.75	18.90	159.00	0.000	0.000	789.39	0.00	0.00
25	91.00	LGP21401	6	24.714	41.767	0.67	5.19	84.60	0.000	0.000	216.59	0.00	0.00
26	91.00	RRUS-11	6	24.714	41.767	0.67	17.77	330.00	0.000	0.000	742.13	0.00	0.00
27	91.00	FD Series DC Surge	1	24.714	41.767	0.67	2.50	18.00	0.000	0.000	104.38	0.00	0.00
28	81.00	Low Profile Platform-Round	1	23.906	40.400	1.00	20.00	1500.00	0.000	0.000	808.01	0.00	0.00
29	81.00	S20057A1	6	23.906	40.400	0.67	3.30	66.00	0.000	0.000	133.18	0.00	0.00
30	81.00	APX16DWV-16DWV	6	23.906	40.400	0.62	24.92	237.60	0.000	0.000	1006.94	0.00	0.00
31	75.00	Standoff Mount	1	23.386	39.522	1.00	1.00	40.00	0.000	0.000	39.52	0.00	0.00
32	75.00	GPS	1	23.386	39.522	1.00	0.50	10.00	0.000	0.000	19.76	0.00	0.00
						Totals:		**11,200.00**			**17,993.11**		

Total Applied Force Summary

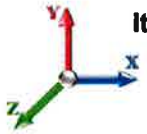
Structure:	CT46132-A-SB	**Code:**	EIA/TIA-222-F	8/11/2016	
Site Name:	Newtown-ferris Rd	**Exposure:**	C		
Height:	118.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 13	

TES Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 27

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
2.00		149.43	432.02	0.00	0.00
4.00		147.86	428.28	0.00	0.00
6.00		146.30	424.53	0.00	0.00
8.00		144.73	420.79	0.00	0.00
10.00		143.17	417.05	0.00	0.00
12.00		141.61	413.31	0.00	0.00
14.00		140.04	409.57	0.00	0.00
16.00		138.48	405.83	0.00	0.00
18.00		136.91	402.09	0.00	0.00
20.00		135.35	398.35	0.00	0.00
22.00		133.79	394.60	0.00	0.00
24.00		132.22	390.86	0.00	0.00
26.00		130.66	387.12	0.00	0.00
28.00		129.09	383.38	0.00	0.00
30.00		127.53	379.64	0.00	0.00
32.00		125.96	375.90	0.00	0.00
34.00		125.47	372.16	0.00	0.00
36.00		125.93	368.41	0.00	0.00
38.00		126.26	364.67	0.00	0.00
40.00		126.47	360.93	0.00	0.00
42.00		126.57	357.19	0.00	0.00
44.00		126.57	353.45	0.00	0.00
45.03		65.16	181.15	0.00	0.00
46.00		62.04	276.56	0.00	0.00
48.00		128.63	567.10	0.00	0.00
49.70		109.05	476.64	0.00	0.00
50.00		19.14	45.49	0.00	0.00
52.00		128.04	301.49	0.00	0.00
54.00		127.63	298.37	0.00	0.00
56.00		127.15	295.24	0.00	0.00
58.00		126.59	292.12	0.00	0.00
60.00		125.97	289.00	0.00	0.00
62.00		125.28	285.88	0.00	0.00
64.00		124.53	282.75	0.00	0.00
66.00		123.72	279.63	0.00	0.00
68.00		122.86	276.51	0.00	0.00
70.00		121.94	273.38	0.00	0.00
72.00		120.97	270.26	0.00	0.00
74.00		119.95	267.14	0.00	0.00
75.00	(2) appurtenances	118.75	182.40	0.00	0.00
76.00		56.81	131.46	0.00	0.00
78.00		112.98	260.57	0.00	0.00
80.00		111.78	257.45	0.00	0.00
81.00	(13) appurtenances	2003.45	1931.15	0.00	0.00
82.00		55.02	114.29	0.00	0.00
84.00		109.27	226.24	0.00	0.00
86.00		107.95	223.12	0.00	0.00
88.00		106.59	220.00	0.00	0.00

Total Applied Force Summary

Structure:	CT46132-A-SB	**Code:**	EIA/TIA-222-F	8/11/2016	
Site Name:	Newtown-ferris Rd	**Exposure:**	C		
Height:	118.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 14	

Tower Engineering Solutions

90.00		105.19	216.88	0.00	0.00
91.00	(20) appurtenances	3277.64	2303.87	0.00	0.00
91.09		4.48	8.64	0.00	0.00
92.00		47.90	133.25	0.00	0.00
94.00		104.00	288.15	0.00	0.00
94.50		25.88	71.73	0.00	0.00
96.00		76.51	102.32	0.00	0.00
98.00	(24) appurtenances	6229.35	2635.48	0.00	0.00
100.00		99.42	103.85	0.00	0.00
102.00		97.82	101.97	0.00	0.00
104.00		96.20	100.10	0.00	0.00
105.00	(7) appurtenances	2765.48	1988.35	0.00	0.00
106.00		47.00	48.88	0.00	0.00
107.00	(17) appurtenances	1149.00	1010.81	0.00	0.00
108.00		46.15	45.30	0.00	0.00
110.00		91.13	89.19	0.00	0.00
112.00		89.38	87.32	0.00	0.00
114.00		87.61	85.44	0.00	0.00
116.00		85.80	83.56	0.00	0.00
118.00	(12) appurtenances	2895.15	1829.69	0.00	2310.52
	Totals:	**25,042.75**	**28,480.30**	**0.00**	**2,310.52**

Resulting Forces and Deflections

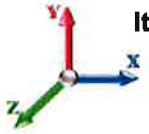
Structure:	CT46132-A-SB	**Code:**	EIA/TIA-222-F	8/11/2016	
Site Name:	Newtown-ferris Rd	**Exposure:**	C		
Height:	118.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 27

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-25.070	-28.456	0.000	0.000	0.000	-2266.423	0.000	0.000	0.000	0.000	0.000
2.00	-24.973	-27.977	0.000	0.000	0.000	-2216.284	-0.023	0.000	0.023	-0.108	0.000
4.00	-24.876	-27.502	0.000	0.000	0.000	-2166.339	-0.092	0.000	0.092	-0.216	0.000
6.00	-24.780	-27.030	0.000	0.000	0.000	-2116.587	-0.207	0.000	0.207	-0.326	0.000
8.00	-24.684	-26.562	0.000	0.000	0.000	-2067.028	-0.367	0.000	0.367	-0.437	0.000
10.00	-24.589	-26.098	0.000	0.000	0.000	-2017.661	-0.575	0.000	0.575	-0.549	0.000
12.00	-24.494	-25.638	0.000	0.000	0.000	-1968.484	-0.829	0.000	0.829	-0.662	0.000
14.00	-24.399	-25.182	0.000	0.000	0.000	-1919.498	-1.131	0.000	1.131	-0.776	0.000
16.00	-24.304	-24.729	0.000	0.000	0.000	-1870.701	-1.481	0.000	1.481	-0.891	0.000
18.00	-24.210	-24.280	0.000	0.000	0.000	-1822.093	-1.880	0.000	1.880	-1.007	0.000
20.00	-24.117	-23.834	0.000	0.000	0.000	-1773.673	-2.327	0.000	2.327	-1.124	0.000
22.00	-24.023	-23.393	0.000	0.000	0.000	-1725.441	-2.824	0.000	2.824	-1.243	0.000
24.00	-23.930	-22.955	0.000	0.000	0.000	-1677.395	-3.370	0.000	3.370	-1.362	0.000
26.00	-23.838	-22.521	0.000	0.000	0.000	-1629.536	-3.967	0.000	3.967	-1.482	0.000
28.00	-23.745	-22.091	0.000	0.000	0.000	-1581.862	-4.614	0.000	4.614	-1.603	0.000
30.00	-23.653	-21.665	0.000	0.000	0.000	-1534.372	-5.312	0.000	5.312	-1.725	0.000
32.00	-23.561	-21.242	0.000	0.000	0.000	-1487.067	-6.061	0.000	6.061	-1.848	0.000
34.00	-23.469	-20.824	0.000	0.000	0.000	-1439.946	-6.862	0.000	6.862	-1.972	0.000
36.00	-23.374	-20.409	0.000	0.000	0.000	-1393.009	-7.716	0.000	7.716	-2.097	0.000
38.00	-23.278	-19.998	0.000	0.000	0.000	-1346.261	-8.621	0.000	8.621	-2.223	0.000
40.00	-23.181	-19.591	0.000	0.000	0.000	-1299.705	-9.580	0.000	9.580	-2.349	0.000
42.00	-23.082	-19.189	0.000	0.000	0.000	-1253.344	-10.591	0.000	10.591	-2.476	0.000
44.00	-22.972	-18.802	0.000	0.000	0.000	-1207.180	-11.655	0.000	11.655	-2.603	0.000
45.03	-22.919	-18.599	0.000	0.000	0.000	-1183.443	-12.226	0.000	12.226	-2.670	0.000
46.00	-22.875	-18.287	0.000	0.000	0.000	-1161.288	-12.774	0.000	12.774	-2.733	0.000
48.00	-22.756	-17.680	0.000	0.000	0.000	-1115.538	-13.946	0.000	13.946	-2.861	0.000
49.70	-22.642	-17.184	0.000	0.000	0.000	-1076.854	-14.985	0.000	14.985	-2.971	0.000
50.00	-22.645	-17.106	0.000	0.000	0.000	-1070.062	-15.172	0.000	15.172	-2.991	0.000
52.00	-22.544	-16.755	0.000	0.000	0.000	-1024.772	-16.456	0.000	16.456	-3.135	0.000
54.00	-22.441	-16.408	0.000	0.000	0.000	-979.686	-17.800	0.000	17.800	-3.280	0.000
56.00	-22.337	-16.065	0.000	0.000	0.000	-934.805	-19.205	0.000	19.205	-3.424	0.000
58.00	-22.233	-15.725	0.000	0.000	0.000	-890.131	-20.670	0.000	20.670	-3.568	0.000
60.00	-22.127	-15.389	0.000	0.000	0.000	-845.667	-22.195	0.000	22.195	-3.712	0.000
62.00	-22.020	-15.058	0.000	0.000	0.000	-801.414	-23.780	0.000	23.780	-3.854	0.000
64.00	-21.913	-14.731	0.000	0.000	0.000	-757.374	-25.424	0.000	25.424	-3.995	0.000
66.00	-21.805	-14.408	0.000	0.000	0.000	-713.548	-27.127	0.000	27.127	-4.135	0.000
68.00	-21.696	-14.089	0.000	0.000	0.000	-669.939	-28.888	0.000	28.888	-4.273	0.000
70.00	-21.586	-13.775	0.000	0.000	0.000	-626.549	-30.706	0.000	30.706	-4.409	0.000
72.00	-21.475	-13.466	0.000	0.000	0.000	-583.378	-32.581	0.000	32.581	-4.542	0.000
74.00	-21.357	-13.173	0.000	0.000	0.000	-540.428	-34.510	0.000	34.510	-4.673	0.000
75.00	-21.238	-12.977	0.000	0.000	0.000	-519.071	-35.495	0.000	35.495	-4.738	0.000
76.00	-21.191	-12.816	0.000	0.000	0.000	-497.834	-36.494	0.000	36.494	-4.801	0.000
78.00	-21.083	-12.522	0.000	0.000	0.000	-455.452	-38.530	0.000	38.530	-4.924	0.000
80.00	-20.968	-12.243	0.000	0.000	0.000	-413.286	-40.616	0.000	40.616	-5.042	0.000
81.00	-18.812	-10.478	0.000	0.000	0.000	-392.319	-41.678	0.000	41.678	-5.100	0.000
82.00	-18.762	-10.342	0.000	0.000	0.000	-373.507	-42.751	0.000	42.751	-5.157	0.000
84.00	-18.651	-10.092	0.000	0.000	0.000	-335.984	-44.932	0.000	44.932	-5.264	0.000
86.00	-18.540	-9.848	0.000	0.000	0.000	-298.682	-47.157	0.000	47.157	-5.366	0.000
88.00	-18.429	-9.610	0.000	0.000	0.000	-261.602	-49.423	0.000	49.423	-5.462	0.000

Resulting Forces and Deflections

Structure: CT46132-A-SB
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016

Tower Engineering Solutions

90.00	-18.314	-9.384	0.000	0.000	0.000	-224.746	-51.728	0.000	51.728	-5.549	0.000
91.00	-14.830	-7.403	0.000	0.000	0.000	-206.433	-52.893	0.000	52.893	-5.591	0.000
91.09	-14.828	-7.390	0.000	0.000	0.000	-205.147	-52.995	0.000	52.995	-5.594	0.000
92.00	-14.774	-7.248	0.000	0.000	0.000	-191.605	-54.067	0.000	54.067	-5.630	0.000
94.00	-14.647	-6.960	0.000	0.000	0.000	-162.057	-56.438	0.000	56.438	-5.702	0.000
94.50	-14.618	-6.883	0.000	0.000	0.000	-154.685	-57.039	0.000	57.039	-5.720	0.000
96.00	-14.540	-6.771	0.000	0.000	0.000	-132.806	-58.838	0.000	58.838	-5.767	0.000
98.00	-8.082	-4.770	0.000	0.000	0.000	-103.727	-61.270	0.000	61.270	-5.852	0.000
100.00	-7.978	-4.667	0.000	0.000	0.000	-87.562	-63.733	0.000	63.733	-5.926	0.000
102.00	-7.875	-4.568	0.000	0.000	0.000	-71.606	-66.226	0.000	66.226	-5.991	0.000
104.00	-7.772	-4.473	0.000	0.000	0.000	-55.855	-68.744	0.000	68.744	-6.047	0.000
105.00	-4.813	-2.786	0.000	0.000	0.000	-48.083	-70.011	0.000	70.011	-6.071	0.000
106.00	-4.763	-2.740	0.000	0.000	0.000	-43.270	-71.283	0.000	71.283	-6.093	0.000
107.00	-3.513	-1.856	0.000	0.000	0.000	-38.507	-72.559	0.000	72.559	-6.114	0.000
108.00	-3.463	-1.815	0.000	0.000	0.000	-34.994	-73.840	0.000	73.840	-6.133	0.000
110.00	-3.364	-1.734	0.000	0.000	0.000	-28.067	-76.411	0.000	76.411	-6.167	0.000
112.00	-3.267	-1.655	0.000	0.000	0.000	-21.339	-78.996	0.000	78.996	-6.195	0.000
114.00	-3.171	-1.579	0.000	0.000	0.000	-14.806	-81.592	0.000	81.592	-6.218	0.000
116.00	-3.077	-1.504	0.000	0.000	0.000	-8.464	-84.195	0.000	84.195	-6.234	0.000
118.00	-2.895	0.000	0.000	0.000	0.000	-2.311	0.000	0.000	86.804	-6.242	0.000

Resulting Stresses

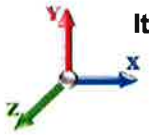
Structure:	CT46132-A-SBA	**Code:**	EIA/TIA-222-F	8/11/2016	
Site Name:	Newtown-ferris Rd	**Exposure:**	C		
Height:	118.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 85 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 27

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.56	0.99	0.00	0.00	0.00	50.39	50.98	52.0	0.981
2.00	0.55	1.00	0.00	0.00	0.00	50.36	50.94	52.0	0.980
4.00	0.55	1.00	0.00	0.00	0.00	50.32	50.90	52.0	0.979
6.00	0.55	1.01	0.00	0.00	0.00	50.27	50.85	52.0	0.978
8.00	0.54	1.02	0.00	0.00	0.00	50.21	50.78	52.0	0.977
10.00	0.54	1.03	0.00	0.00	0.00	50.14	50.71	52.0	0.976
12.00	0.54	1.03	0.00	0.00	0.00	50.05	50.62	52.0	0.974
14.00	0.53	1.04	0.00	0.00	0.00	49.96	50.52	52.0	0.972
16.00	0.53	1.05	0.00	0.00	0.00	49.85	50.41	52.0	0.970
18.00	0.53	1.06	0.00	0.00	0.00	49.72	50.28	52.0	0.967
20.00	0.52	1.07	0.00	0.00	0.00	49.58	50.14	52.0	0.965
22.00	0.52	1.08	0.00	0.00	0.00	49.43	49.98	52.0	0.962
24.00	0.52	1.09	0.00	0.00	0.00	49.25	49.81	52.0	0.958
26.00	0.51	1.09	0.00	0.00	0.00	49.06	49.61	52.0	0.954
28.00	0.51	1.10	0.00	0.00	0.00	48.85	49.39	52.0	0.950
30.00	0.51	1.11	0.00	0.00	0.00	48.61	49.16	52.0	0.946
32.00	0.50	1.12	0.00	0.00	0.00	48.35	48.90	52.0	0.941
34.00	0.50	1.13	0.00	0.00	0.00	48.07	48.61	52.0	0.935
36.00	0.50	1.15	0.00	0.00	0.00	47.76	48.30	52.0	0.929
38.00	0.49	1.16	0.00	0.00	0.00	47.43	47.96	52.0	0.923
40.00	0.49	1.17	0.00	0.00	0.00	47.06	47.59	52.0	0.916
42.00	0.49	1.18	0.00	0.00	0.00	46.66	47.19	52.0	0.908
44.00	0.48	1.19	0.00	0.00	0.00	46.23	46.76	52.0	0.899
45.03	0.48	1.20	0.00	0.00	0.00	45.99	46.52	52.0	0.895
46.00	0.48	1.20	0.00	0.00	0.00	45.76	46.28	52.0	0.890
48.00	0.47	1.21	0.00	0.00	0.00	45.25	45.77	52.0	0.880
49.70	0.54	1.43	0.00	0.00	0.00	51.27	51.87	52.0	0.998
50.00	0.54	1.43	0.00	0.00	0.00	51.17	51.77	52.0	0.996
52.00	0.53	1.45	0.00	0.00	0.00	50.46	51.05	52.0	0.982
54.00	0.53	1.46	0.00	0.00	0.00	49.69	50.28	52.0	0.967
56.00	0.53	1.48	0.00	0.00	0.00	48.86	49.45	52.0	0.951
58.00	0.52	1.50	0.00	0.00	0.00	47.97	48.56	52.0	0.934
60.00	0.52	1.51	0.00	0.00	0.00	47.01	47.60	52.0	0.916
62.00	0.52	1.53	0.00	0.00	0.00	45.97	46.57	52.0	0.896
64.00	0.52	1.54	0.00	0.00	0.00	44.86	45.45	52.0	0.874
66.00	0.51	1.56	0.00	0.00	0.00	43.66	44.26	52.0	0.851
68.00	0.51	1.58	0.00	0.00	0.00	42.37	42.97	52.0	0.827
70.00	0.51	1.60	0.00	0.00	0.00	40.98	41.58	52.0	0.800
72.00	0.50	1.62	0.00	0.00	0.00	39.49	40.09	52.0	0.771
74.00	0.50	1.64	0.00	0.00	0.00	37.88	38.48	52.0	0.740
75.00	0.50	1.64	0.00	0.00	0.00	37.03	37.63	52.0	0.724
76.00	0.50	1.65	0.00	0.00	0.00	36.15	36.76	52.0	0.707
78.00	0.49	1.67	0.00	0.00	0.00	34.28	34.90	52.0	0.671
80.00	0.49	1.70	0.00	0.00	0.00	32.27	32.90	52.0	0.633
81.00	0.42	1.54	0.00	0.00	0.00	31.21	31.75	52.0	0.611
82.00	0.42	1.55	0.00	0.00	0.00	30.28	30.82	52.0	0.593
84.00	0.42	1.57	0.00	0.00	0.00	28.29	28.84	52.0	0.555

Resulting Stresses

Structure:	CT46132-A-SBA			**Code:**	EIA/TIA-222-F		8/11/2016		
Site Name:	Newtown-ferris Rd			**Exposure:**	C				
Height:	118.00 (ft)			**Gh:**	1.69				
Base Elev:	0.000 (ft)			**Struct Class:**	II		Page: 18		

86.00	0.42	1.59	0.00	0.00	0.00	26.15	26.71	52.0	0.514
88.00	0.42	1.61	0.00	0.00	0.00	23.83	24.41	52.0	0.470
90.00	0.41	1.63	0.00	0.00	0.00	21.32	21.91	52.0	0.422
91.00	0.33	1.33	0.00	0.00	0.00	19.99	20.45	52.0	0.393
91.09	0.33	1.34	0.00	0.00	0.00	19.90	20.36	52.0	0.392
92.00	0.33	1.34	0.00	0.00	0.00	18.94	19.41	52.0	0.373
94.00	0.32	1.36	0.00	0.00	0.00	16.71	17.19	52.0	0.331
94.50	0.52	2.22	0.00	0.00	0.00	25.49	26.29	52.0	0.506
96.00	0.52	2.24	0.00	0.00	0.00	22.59	23.43	52.0	0.451
98.00	0.37	1.27	0.00	0.00	0.00	18.41	18.91	52.0	0.364
100.00	0.37	1.29	0.00	0.00	0.00	16.24	16.76	52.0	0.322
102.00	0.37	1.30	0.00	0.00	0.00	13.89	14.44	52.0	0.278
104.00	0.37	1.31	0.00	0.00	0.00	11.34	11.93	52.0	0.230
105.00	0.24	0.82	0.00	0.00	0.00	9.99	10.33	52.0	0.199
106.00	0.23	0.82	0.00	0.00	0.00	9.21	9.55	52.0	0.184
107.00	0.16	0.61	0.00	0.00	0.00	8.39	8.62	52.0	0.166
108.00	0.16	0.61	0.00	0.00	0.00	7.81	8.04	52.0	0.155
110.00	0.16	0.61	0.00	0.00	0.00	6.58	6.82	52.0	0.131
112.00	0.15	0.61	0.00	0.00	0.00	5.26	5.51	52.0	0.106
114.00	0.15	0.60	0.00	0.00	0.00	3.84	4.13	52.0	0.079
116.00	0.15	0.60	0.00	0.00	0.00	2.32	2.67	52.0	0.051
118.00	0.00	0.58	0.00	0.00	0.00	0.67	1.21	52.0	0.023

Wind Loading - Shaft

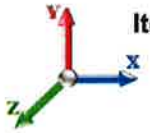
Structure: CT46132-A-SBA
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 26

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	13.871	23.44	265.30	0.650	0.500	0.00	0.000	0.00	0.0	0.0	0.0
2.00		0.00	1.00	13.871	23.44	262.47	0.650	0.500	2.00	7.337	4.77	111.8	53.4	398.8
4.00		0.00	1.00	13.871	23.44	259.64	0.650	0.500	2.00	7.260	4.72	110.6	52.9	394.5
6.00		0.00	1.00	13.871	23.44	256.80	0.650	0.500	2.00	7.183	4.67	109.4	52.3	390.2
8.00		0.00	1.00	13.871	23.44	253.97	0.650	0.500	2.00	7.106	4.62	108.3	51.7	385.9
10.00		0.00	1.00	13.871	23.44	251.14	0.650	0.500	2.00	7.029	4.57	107.1	51.1	381.6
12.00		0.00	1.00	13.871	23.44	248.30	0.650	0.500	2.00	6.952	4.52	105.9	50.6	377.3
14.00		0.00	1.00	13.871	23.44	245.47	0.650	0.500	2.00	6.875	4.47	104.8	50.0	373.0
16.00		0.00	1.00	13.871	23.44	242.64	0.650	0.500	2.00	6.798	4.42	103.6	49.4	368.7
18.00		0.00	1.00	13.871	23.44	239.80	0.650	0.500	2.00	6.721	4.37	102.4	48.9	364.4
20.00		0.00	1.00	13.871	23.44	236.97	0.650	0.500	2.00	6.644	4.32	101.2	48.3	360.0
22.00		0.00	1.00	13.871	23.44	234.14	0.650	0.500	2.00	6.567	4.27	100.1	47.7	355.7
24.00		0.00	1.00	13.871	23.44	231.30	0.650	0.500	2.00	6.490	4.22	98.9	47.2	351.4
26.00		0.00	1.00	13.871	23.44	228.47	0.650	0.500	2.00	6.413	4.17	97.7	46.6	347.1
28.00		0.00	1.00	13.871	23.44	225.64	0.650	0.500	2.00	6.336	4.12	96.5	46.0	342.8
30.00		0.00	1.00	13.871	23.44	222.80	0.650	0.500	2.00	6.259	4.07	95.4	45.4	338.5
32.00		0.00	1.00	13.871	23.44	219.97	0.650	0.500	2.00	6.182	4.02	94.2	44.9	334.2
34.00		0.00	1.01	13.990	23.64	218.06	0.650	0.500	2.00	6.105	3.97	93.8	44.3	329.9
36.00		0.00	1.03	14.220	24.03	216.98	0.650	0.500	2.00	6.028	3.92	94.2	43.7	325.6
38.00		0.00	1.04	14.442	24.41	215.77	0.650	0.500	2.00	5.951	3.87	94.4	43.2	321.2
40.00		0.00	1.06	14.655	24.77	214.45	0.650	0.500	2.00	5.874	3.82	94.6	42.6	316.9
42.00		0.00	1.07	14.861	25.11	213.02	0.650	0.500	2.00	5.797	3.77	94.6	42.0	312.6
44.00		0.00	1.09	15.059	25.45	211.48	0.650	0.500	2.00	5.720	3.72	94.6	41.5	308.3
45.03	Bot - Section 2	0.00	1.09	15.160	25.62	210.66	0.650	0.500	1.03	2.925	1.90	48.7	21.3	157.7
46.00		0.00	1.10	15.252	25.78	209.86	0.650	0.500	0.97	2.768	1.80	46.4	20.1	254.8
48.00		0.00	1.11	15.439	26.09	208.15	0.650	0.500	2.00	5.670	3.69	96.2	41.1	521.6
49.70	Top - Section 1	0.00	1.12	15.593	26.35	206.63	0.650	0.500	1.70	4.759	3.09	81.5	34.5	437.5
50.00		0.00	1.13	15.620	26.40	210.44	0.650	0.500	0.30	0.834	0.54	14.3	6.1	38.6
52.00		0.00	1.14	15.796	26.69	208.60	0.650	0.500	2.00	5.516	3.59	95.7	39.9	254.8
54.00		0.00	1.15	15.967	26.98	206.68	0.650	0.500	2.00	5.439	3.54	95.4	39.4	251.1
56.00		0.00	1.16	16.134	27.27	204.70	0.650	0.500	2.00	5.362	3.49	95.0	38.8	247.5
58.00		0.00	1.17	16.296	27.54	202.66	0.650	0.500	2.00	5.285	3.44	94.6	38.2	243.8
60.00		0.00	1.19	16.455	27.81	200.56	0.650	0.500	2.00	5.208	3.39	94.1	37.7	240.1
62.00		0.00	1.20	16.610	28.07	198.40	0.650	0.500	2.00	5.131	3.34	93.6	37.1	236.4
64.00		0.00	1.21	16.761	28.33	196.19	0.650	0.500	2.00	5.054	3.29	93.1	36.5	232.7
66.00		0.00	1.22	16.909	28.58	193.92	0.650	0.500	2.00	4.977	3.24	92.5	36.0	229.0
68.00		0.00	1.23	17.054	28.82	191.61	0.650	0.500	2.00	4.900	3.19	91.8	35.4	225.3
70.00		0.00	1.24	17.196	29.06	189.25	0.650	0.500	2.00	4.823	3.14	91.1	34.8	221.6
72.00		0.00	1.25	17.335	29.30	186.85	0.650	0.500	2.00	4.746	3.09	90.4	34.2	217.9
74.00		0.00	1.26	17.471	29.53	184.40	0.650	0.500	2.00	4.669	3.04	89.6	33.7	214.2
75.00	Appurtenance(s)	0.00	1.26	17.538	29.64	183.16	0.650	0.500	1.00	2.306	1.50	44.4	16.7	105.8
76.00		0.00	1.27	17.605	29.75	181.91	0.650	0.500	1.00	2.287	1.49	44.2	16.6	104.9
78.00		0.00	1.28	17.736	29.97	179.38	0.650	0.500	2.00	4.515	2.94	88.0	32.5	206.8
80.00		0.00	1.29	17.865	30.19	176.82	0.650	0.500	2.00	4.439	2.89	87.1	32.0	203.1
81.00	Appurtenance(s)	0.00	1.29	17.928	30.30	175.52	0.650	0.500	1.00	2.190	1.42	43.1	15.8	100.3
82.00		0.00	1.30	17.991	30.40	174.22	0.650	0.500	1.00	2.171	1.41	42.9	15.7	99.3
84.00		0.00	1.31	18.115	30.61	171.58	0.650	0.500	2.00	4.285	2.78	85.3	30.8	195.8
86.00		0.00	1.31	18.238	30.82	168.91	0.650	0.500	2.00	4.208	2.73	84.3	30.3	192.1

Wind Loading - Shaft

Structure: CT46132-A-SBA
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016

Tower Engineering Solutions

88.00	0.00	1.32	18.358	31.02	166.21	0.650	0.500	2.00	4.131	2.68	83.3	29.7	188.4
90.00	0.00	1.33	18.476	31.22	163.47	0.650	0.500	2.00	4.054	2.63	82.3	29.1	184.7
91.00 Appurtenance(s)	0.00	1.34	18.534	31.32	162.09	0.650	0.500	1.00	1.998	1.30	40.7	14.4	91.0
91.09 Bot - Section 3	0.00	1.34	18.539	31.33	161.97	0.650	0.500	0.09	0.172	0.11	3.5	1.2	7.9
92.00	0.00	1.34	18.592	31.42	160.70	0.650	0.500	0.91	1.835	1.19	37.5	13.2	125.0
94.00	0.00	1.35	18.707	31.61	157.91	0.650	0.500	2.00	3.962	2.58	81.4	28.4	269.5
94.50 Top - Section 2	0.00	1.35	18.736	31.66	157.20	0.650	0.500	0.50	0.985	0.64	20.3	7.1	67.0
96.00	0.00	1.36	18.820	31.81	157.77	0.650	0.500	1.50	2.900	1.89	60.0	20.9	87.9
98.00 Appurtenance(s)	0.00	1.36	18.931	31.99	154.92	0.650	0.500	2.00	3.808	2.48	79.2	27.3	115.3
100.00	0.00	1.37	19.041	32.18	152.05	0.650	0.500	2.00	3.731	2.43	78.0	26.7	112.8
102.00	0.00	1.38	19.149	32.36	149.15	0.650	0.500	2.00	3.654	2.38	76.9	26.2	110.4
104.00	0.00	1.39	19.255	32.54	146.23	0.650	0.500	2.00	3.577	2.33	75.7	25.6	107.9
105.00 Appurtenance(s)	0.00	1.39	19.308	32.63	144.76	0.650	0.500	1.00	1.760	1.14	37.3	12.7	53.1
106.00	0.00	1.40	19.360	32.72	143.28	0.650	0.500	1.00	1.741	1.13	37.0	12.5	52.5
107.00 Appurtenance(s)	0.00	1.40	19.412	32.81	141.80	0.650	0.500	1.00	1.721	1.12	36.7	12.4	51.9
108.00	0.00	1.40	19.464	32.89	140.31	0.650	0.500	1.00	1.702	1.11	36.4	12.2	51.3
110.00	0.00	1.41	19.566	33.07	137.31	0.650	0.500	2.00	3.346	2.18	71.9	23.9	100.6
112.00	0.00	1.42	19.667	33.24	134.29	0.650	0.500	2.00	3.269	2.13	70.6	23.3	98.1
114.00	0.00	1.43	19.767	33.41	131.25	0.650	0.500	2.00	3.192	2.08	69.3	22.7	95.7
116.00	0.00	1.43	19.865	33.57	128.19	0.650	0.500	2.00	3.115	2.03	68.0	22.2	93.3
118.00 Appurtenance(s)	0.00	1.44	19.963	33.74	125.10	0.650	0.500	2.00	3.038	1.98	66.6	21.6	90.8
							Totals:	**118.00**			**5,350.1**		**15,366.3**

Discrete Appurtenance Forces

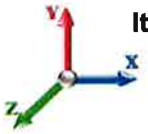
Structure: CT46132-A-SB
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016

TES Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	118.00	Low Profile Platform	1	19.963	33.737	1.00	27.32	2100.00	0.000	0.000	921.69	0.00	0.00
2	118.00	DB844H90E-XY	9	20.001	33.802	1.00	38.61	0.00	0.000	0.800	1305.10	0.00	1044.08
3	118.00	ANT150D	1	20.031	33.852	1.00	1.49	26.90	0.000	1.420	50.44	0.00	71.62
4	118.00	DB222	1	20.432	34.530	1.00	3.99	35.90	0.000	10.000	137.78	0.00	1377.76
5	107.00	Universal Ring Mount	1	19.412	32.807	1.00	4.50	450.00	0.000	0.000	147.63	0.00	0.00
6	107.00	1900 MHz 4X45 RRH	3	19.412	32.807	0.69	6.35	249.30	0.000	0.000	208.48	0.00	0.00
7	107.00	800 MHz 2X50W RRH w/	3	19.412	32.807	0.69	5.63	258.30	0.000	0.000	184.72	0.00	0.00
8	107.00	ALU 800MHz External Notch	3	19.412	32.807	0.69	1.99	41.40	0.000	0.000	65.19	0.00	0.00
9	107.00	TD-RRH8x20-25	3	19.412	32.807	0.69	10.29	276.00	0.000	0.000	337.51	0.00	0.00
10	107.00	ACU-A20-N	4	19.412	32.807	0.69	0.61	9.20	0.000	0.000	19.92	0.00	0.00
11	105.00	APXVTM14-C-120	3	19.308	32.630	0.81	17.71	275.70	0.000	0.000	578.04	0.00	0.00
12	105.00	APXVSPP18-C-A20	3	19.308	32.630	0.85	23.15	319.50	0.000	0.000	755.52	0.00	0.00
13	105.00	Low Profile Platform	1	19.308	32.630	1.00	27.32	2100.00	0.000	0.000	891.46	0.00	0.00
14	98.00	Andrew DB846H80E-SX	4	18.931	31.993	1.14	29.91	0.00	0.000	0.000	957.04	0.00	0.00
15	98.00	Rfs Celwave	2	18.931	31.993	0.69	8.10	92.00	0.000	0.000	259.17	0.00	0.00
16	98.00	Alcatel-Lucent	3	18.931	31.993	0.69	4.91	176.40	0.000	0.000	156.96	0.00	0.00
17	98.00	Alcatel Lucent	3	18.931	31.993	0.69	6.56	220.20	0.000	0.000	209.94	0.00	0.00
18	98.00	Alcatel Lucent RRH2x60-700	3	18.931	31.993	0.69	8.76	240.30	0.000	0.000	280.14	0.00	0.00
19	98.00	Andrew SBNHH-1D85C	6	18.931	31.993	0.86	61.20	667.20	0.000	0.000	1957.92	0.00	0.00
20	98.00	RFS APL868013	2	18.931	31.993	1.15	9.88	0.00	0.000	0.000	316.23	0.00	0.00
21	98.00	Low Profile Platform	1	18.931	31.993	1.00	27.32	2100.00	0.000	0.000	874.06	0.00	0.00
22	91.00	Low Profile Platform	1	18.534	31.323	1.00	25.00	1800.00	0.000	0.000	783.08	0.00	0.00
23	91.00	7770.00	3	18.534	31.323	0.75	14.69	0.00	0.000	0.000	460.22	0.00	0.00
24	91.00	P65-16-XLH-RR	3	18.534	31.323	0.75	20.75	300.60	0.000	0.000	649.80	0.00	0.00
25	91.00	LGP21401	6	18.534	31.323	0.70	6.43	127.20	0.000	0.000	201.28	0.00	0.00
26	91.00	RRUS-11	6	18.534	31.323	0.70	20.37	484.20	0.000	0.000	638.05	0.00	0.00
27	91.00	FD Series DC Surge	1	18.534	31.323	0.70	2.88	39.20	0.000	0.000	90.34	0.00	0.00
28	81.00	Low Profile Platform-Round	1	17.928	30.298	1.00	25.00	1800.00	0.000	0.000	757.46	0.00	0.00
29	81.00	S20057A1	6	17.928	30.298	0.70	4.28	98.40	0.000	0.000	129.80	0.00	0.00
30	81.00	APX16DWV-16DWV	6	17.928	30.298	0.64	28.22	504.00	0.000	0.000	855.14	0.00	0.00
31	75.00	Standoff Mount	1	17.538	29.640	1.00	2.00	63.00	0.000	0.000	59.28	0.00	0.00
32	75.00	GPS	1	17.538	29.640	1.00	1.25	18.00	0.000	0.000	37.05	0.00	0.00
						Totals:		**14,872.90**			**15,276.43**		

Total Applied Force Summary

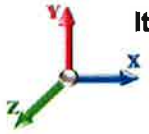
Structure:	CT46132-A-SB	**Code:**	EIA/TIA-222-F	8/11/2016	
Site Name:	Newtown-ferris Rd	**Exposure:**	C		
Height:	118.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 22	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
2.00		119.29	485.13	0.00	0.00
4.00		118.12	480.82	0.00	0.00
6.00		116.95	476.50	0.00	0.00
8.00		115.77	472.19	0.00	0.00
10.00		114.60	467.88	0.00	0.00
12.00		113.43	463.57	0.00	0.00
14.00		112.25	459.26	0.00	0.00
16.00		111.08	454.95	0.00	0.00
18.00		109.91	450.64	0.00	0.00
20.00		108.73	446.32	0.00	0.00
22.00		107.56	442.01	0.00	0.00
24.00		106.39	437.70	0.00	0.00
26.00		105.22	433.39	0.00	0.00
28.00		104.04	429.08	0.00	0.00
30.00		102.87	424.77	0.00	0.00
32.00		101.70	420.46	0.00	0.00
34.00		101.38	416.14	0.00	0.00
36.00		101.85	411.83	0.00	0.00
38.00		102.22	407.52	0.00	0.00
40.00		102.48	403.21	0.00	0.00
42.00		102.67	398.90	0.00	0.00
44.00		102.77	394.59	0.00	0.00
45.03		52.95	202.25	0.00	0.00
46.00		50.37	296.54	0.00	0.00
48.00		104.51	607.87	0.00	0.00
49.70		88.69	510.88	0.00	0.00
50.00		15.58	51.52	0.00	0.00
52.00		104.26	341.12	0.00	0.00
54.00		104.04	337.43	0.00	0.00
56.00		103.76	333.73	0.00	0.00
58.00		103.43	330.04	0.00	0.00
60.00		103.04	326.35	0.00	0.00
62.00		102.61	322.65	0.00	0.00
64.00		102.13	318.96	0.00	0.00
66.00		101.60	315.27	0.00	0.00
68.00		101.03	311.58	0.00	0.00
70.00		100.41	307.88	0.00	0.00
72.00		99.76	304.19	0.00	0.00
74.00		99.06	300.50	0.00	0.00
75.00	(2) appurtenances	145.49	229.94	0.00	0.00
76.00		44.22	148.01	0.00	0.00
78.00		87.97	293.11	0.00	0.00
80.00		87.10	289.42	0.00	0.00
81.00	(13) appurtenances	1785.54	2545.80	0.00	0.00
82.00		42.91	129.99	0.00	0.00
84.00		85.26	257.07	0.00	0.00
86.00		84.29	253.38	0.00	0.00
88.00		83.30	249.69	0.00	0.00

Total Applied Force Summary

Structure:	CT46132-A-SB	**Code:**	EIA/TIA-222-F	8/11/2016	
Site Name:	Newtown-ferris Rd	**Exposure:**	C		
Height:	118.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 23	

90.00		82.27	245.99	0.00	0.00
91.00	(20) appurtenances	2863.44	2872.88	0.00	0.00
91.09		3.51	9.89	0.00	0.00
92.00		37.48	146.50	0.00	0.00
94.00		81.42	316.59	0.00	0.00
94.50		20.27	78.85	0.00	0.00
96.00		59.96	123.17	0.00	0.00
98.00	(24) appurtenances	5090.64	3658.49	0.00	0.00
100.00		78.05	130.58	0.00	0.00
102.00		76.87	128.13	0.00	0.00
104.00		75.67	125.69	0.00	0.00
105.00	(7) appurtenances	2262.35	2757.20	0.00	0.00
106.00		37.02	61.39	0.00	0.00
107.00	(17) appurtenances	1000.16	1344.98	0.00	0.00
108.00		36.39	57.52	0.00	0.00
110.00		71.93	113.07	0.00	0.00
112.00		70.63	110.63	0.00	0.00
114.00		69.32	108.18	0.00	0.00
116.00		67.99	105.73	0.00	0.00
118.00	(12) appurtenances	2481.64	2266.09	0.00	2493.46
	Totals:	**20,931.58**	**34,353.58**	**0.00**	**2,493.46**

Resulting Forces and Deflections

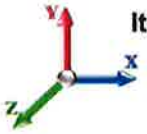
Structure: CT46132-A-SB
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016
Page: 24

IES Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 26

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-20.958	-34.336	0.000	0.000	0.000	-1923.390	0.000	0.000	0.000	0.000	0.000
2.00	-20.893	-33.818	0.000	0.000	0.000	-1881.475	-0.020	0.000	0.020	-0.091	0.000
4.00	-20.827	-33.303	0.000	0.000	0.000	-1839.690	-0.078	0.000	0.078	-0.184	0.000
6.00	-20.762	-32.794	0.000	0.000	0.000	-1798.037	-0.175	0.000	0.175	-0.277	0.000
8.00	-20.697	-32.288	0.000	0.000	0.000	-1756.514	-0.312	0.000	0.312	-0.371	0.000
10.00	-20.632	-31.786	0.000	0.000	0.000	-1715.120	-0.488	0.000	0.488	-0.466	0.000
12.00	-20.567	-31.289	0.000	0.000	0.000	-1673.857	-0.704	0.000	0.704	-0.562	0.000
14.00	-20.503	-30.796	0.000	0.000	0.000	-1632.724	-0.961	0.000	0.961	-0.659	0.000
16.00	-20.438	-30.308	0.000	0.000	0.000	-1591.720	-1.258	0.000	1.258	-0.757	0.000
18.00	-20.373	-29.824	0.000	0.000	0.000	-1550.845	-1.597	0.000	1.597	-0.856	0.000
20.00	-20.309	-29.344	0.000	0.000	0.000	-1510.099	-1.977	0.000	1.977	-0.956	0.000
22.00	-20.245	-28.868	0.000	0.000	0.000	-1469.482	-2.399	0.000	2.399	-1.056	0.000
24.00	-20.180	-28.396	0.000	0.000	0.000	-1428.994	-2.864	0.000	2.864	-1.158	0.000
26.00	-20.116	-27.929	0.000	0.000	0.000	-1388.634	-3.371	0.000	3.371	-1.260	0.000
28.00	-20.052	-27.466	0.000	0.000	0.000	-1348.402	-3.921	0.000	3.921	-1.364	0.000
30.00	-19.988	-27.008	0.000	0.000	0.000	-1308.299	-4.515	0.000	4.515	-1.468	0.000
32.00	-19.924	-26.554	0.000	0.000	0.000	-1268.323	-5.153	0.000	5.153	-1.573	0.000
34.00	-19.859	-26.104	0.000	0.000	0.000	-1228.476	-5.835	0.000	5.835	-1.679	0.000
36.00	-19.793	-25.658	0.000	0.000	0.000	-1188.758	-6.561	0.000	6.561	-1.785	0.000
38.00	-19.725	-25.217	0.000	0.000	0.000	-1149.173	-7.332	0.000	7.332	-1.892	0.000
40.00	-19.656	-24.781	0.000	0.000	0.000	-1109.723	-8.148	0.000	8.148	-2.000	0.000
42.00	-19.585	-24.349	0.000	0.000	0.000	-1070.413	-9.009	0.000	9.009	-2.108	0.000
44.00	-19.502	-23.930	0.000	0.000	0.000	-1031.243	-9.916	0.000	9.916	-2.217	0.000
45.03	-19.464	-23.711	0.000	0.000	0.000	-1011.092	-10.402	0.000	10.402	-2.274	0.000
46.00	-19.435	-23.389	0.000	0.000	0.000	-992.277	-10.868	0.000	10.868	-2.328	0.000
48.00	-19.346	-22.752	0.000	0.000	0.000	-953.407	-11.867	0.000	11.867	-2.438	0.000
49.70	-19.257	-22.227	0.000	0.000	0.000	-920.519	-12.752	0.000	12.752	-2.531	0.000
50.00	-19.266	-22.152	0.000	0.000	0.000	-914.742	-12.912	0.000	12.912	-2.548	0.000
52.00	-19.194	-21.775	0.000	0.000	0.000	-876.211	-14.006	0.000	14.006	-2.672	0.000
54.00	-19.120	-21.402	0.000	0.000	0.000	-837.824	-15.152	0.000	15.152	-2.796	0.000
56.00	-19.045	-21.033	0.000	0.000	0.000	-799.585	-16.349	0.000	16.349	-2.919	0.000
58.00	-18.969	-20.668	0.000	0.000	0.000	-761.496	-17.598	0.000	17.598	-3.042	0.000
60.00	-18.892	-20.307	0.000	0.000	0.000	-723.559	-18.899	0.000	18.899	-3.165	0.000
62.00	-18.814	-19.951	0.000	0.000	0.000	-685.777	-20.251	0.000	20.251	-3.287	0.000
64.00	-18.734	-19.599	0.000	0.000	0.000	-648.151	-21.653	0.000	21.653	-3.408	0.000
66.00	-18.654	-19.252	0.000	0.000	0.000	-610.683	-23.106	0.000	23.106	-3.527	0.000
68.00	-18.572	-18.909	0.000	0.000	0.000	-573.377	-24.608	0.000	24.608	-3.645	0.000
70.00	-18.490	-18.572	0.000	0.000	0.000	-536.234	-26.160	0.000	26.160	-3.762	0.000
72.00	-18.406	-18.238	0.000	0.000	0.000	-499.256	-27.760	0.000	27.760	-3.876	0.000
74.00	-18.312	-17.919	0.000	0.000	0.000	-462.445	-29.407	0.000	29.407	-3.987	0.000
75.00	-18.168	-17.682	0.000	0.000	0.000	-444.134	-30.248	0.000	30.248	-4.043	0.000
76.00	-18.138	-17.512	0.000	0.000	0.000	-425.966	-31.100	0.000	31.100	-4.097	0.000
78.00	-18.060	-17.194	0.000	0.000	0.000	-389.691	-32.838	0.000	32.838	-4.202	0.000
80.00	-17.974	-16.888	0.000	0.000	0.000	-353.572	-34.619	0.000	34.619	-4.303	0.000
81.00	-16.013	-14.471	0.000	0.000	0.000	-335.599	-35.526	0.000	35.526	-4.353	0.000
82.00	-15.978	-14.325	0.000	0.000	0.000	-319.586	-36.442	0.000	36.442	-4.401	0.000
84.00	-15.896	-14.050	0.000	0.000	0.000	-287.630	-38.304	0.000	38.304	-4.493	0.000
86.00	-15.812	-13.781	0.000	0.000	0.000	-255.839	-40.204	0.000	40.204	-4.581	0.000
88.00	-15.727	-13.517	0.000	0.000	0.000	-224.216	-42.140	0.000	42.140	-4.662	0.000

Resulting Forces and Deflections

Structure: CT46132-A-SB
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016

Tower Engineering Solutions

90.00	-15.638	-13.264	0.000	0.000	0.000	-192.762	-44.108	0.000	44.108	-4.738	0.000
91.00	-12.550	-10.635	0.000	0.000	0.000	-177.125	-45.103	0.000	45.103	-4.773	0.000
91.09	-12.548	-10.621	0.000	0.000	0.000	-176.037	-45.190	0.000	45.190	-4.776	0.000
92.00	-12.507	-10.468	0.000	0.000	0.000	-164.577	-46.106	0.000	46.106	-4.807	0.000
94.00	-12.406	-10.151	0.000	0.000	0.000	-139.562	-48.131	0.000	48.131	-4.869	0.000
94.50	-12.384	-10.068	0.000	0.000	0.000	-133.318	-48.645	0.000	48.645	-4.884	0.000
96.00	-12.325	-9.938	0.000	0.000	0.000	-114.783	-50.181	0.000	50.181	-4.925	0.000
98.00	-6.944	-6.726	0.000	0.000	0.000	-90.134	-52.259	0.000	52.259	-4.999	0.000
100.00	-6.862	-6.595	0.000	0.000	0.000	-76.246	-54.365	0.000	54.365	-5.063	0.000
102.00	-6.780	-6.468	0.000	0.000	0.000	-62.523	-56.496	0.000	56.496	-5.119	0.000
104.00	-6.697	-6.346	0.000	0.000	0.000	-48.963	-58.649	0.000	58.649	-5.168	0.000
105.00	-4.197	-3.803	0.000	0.000	0.000	-42.266	-59.732	0.000	59.732	-5.189	0.000
106.00	-4.155	-3.744	0.000	0.000	0.000	-38.069	-60.820	0.000	60.820	-5.209	0.000
107.00	-3.038	-2.494	0.000	0.000	0.000	-33.914	-61.912	0.000	61.912	-5.227	0.000
108.00	-2.997	-2.439	0.000	0.000	0.000	-30.876	-63.007	0.000	63.007	-5.244	0.000
110.00	-2.917	-2.332	0.000	0.000	0.000	-24.881	-65.207	0.000	65.207	-5.274	0.000
112.00	-2.837	-2.227	0.000	0.000	0.000	-19.048	-67.419	0.000	67.419	-5.300	0.000
114.00	-2.759	-2.125	0.000	0.000	0.000	-13.374	-69.641	0.000	69.641	-5.320	0.000
116.00	-2.682	-2.025	0.000	0.000	0.000	-7.857	-71.870	0.000	71.870	-5.334	0.000
118.00	-2.482	0.000	0.000	0.000	0.000	-2.493	0.000	0.000	74.103	-5.342	0.000

Resulting Stresses

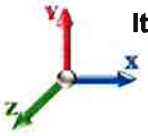
Structure:	CT46132-A-SBA	**Code:**	EIA/TIA-222-F	8/11/2016	
Site Name:	Newtown-ferris Rd	**Exposure:**	C		
Height:	118.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 26	

Tower Engineering Solutions

Load Case: 73.61 mph Wind with 0.5" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 26

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.67	0.83	0.00	0.00	0.00	42.76	43.46	52.0	0.836
2.00	0.67	0.83	0.00	0.00	0.00	42.75	43.44	52.0	0.836
4.00	0.67	0.84	0.00	0.00	0.00	42.73	43.42	52.0	0.835
6.00	0.66	0.85	0.00	0.00	0.00	42.70	43.39	52.0	0.835
8.00	0.66	0.85	0.00	0.00	0.00	42.67	43.35	52.0	0.834
10.00	0.66	0.86	0.00	0.00	0.00	42.62	43.30	52.0	0.833
12.00	0.66	0.87	0.00	0.00	0.00	42.56	43.24	52.0	0.832
14.00	0.65	0.88	0.00	0.00	0.00	42.49	43.17	52.0	0.831
16.00	0.65	0.88	0.00	0.00	0.00	42.41	43.09	52.0	0.829
18.00	0.65	0.89	0.00	0.00	0.00	42.32	43.00	52.0	0.827
20.00	0.64	0.90	0.00	0.00	0.00	42.21	42.89	52.0	0.825
22.00	0.64	0.91	0.00	0.00	0.00	42.09	42.77	52.0	0.823
24.00	0.64	0.92	0.00	0.00	0.00	41.96	42.63	52.0	0.820
26.00	0.64	0.92	0.00	0.00	0.00	41.81	42.47	52.0	0.817
28.00	0.63	0.93	0.00	0.00	0.00	41.64	42.30	52.0	0.814
30.00	0.63	0.94	0.00	0.00	0.00	41.45	42.11	52.0	0.810
32.00	0.63	0.95	0.00	0.00	0.00	41.24	41.90	52.0	0.806
34.00	0.63	0.96	0.00	0.00	0.00	41.01	41.67	52.0	0.802
36.00	0.62	0.97	0.00	0.00	0.00	40.76	41.42	52.0	0.797
38.00	0.62	0.98	0.00	0.00	0.00	40.48	41.14	52.0	0.791
40.00	0.62	0.99	0.00	0.00	0.00	40.18	40.84	52.0	0.786
42.00	0.62	1.00	0.00	0.00	0.00	39.85	40.50	52.0	0.779
44.00	0.61	1.01	0.00	0.00	0.00	39.49	40.14	52.0	0.772
45.03	0.61	1.01	0.00	0.00	0.00	39.29	39.95	52.0	0.768
46.00	0.61	1.02	0.00	0.00	0.00	39.10	39.75	52.0	0.765
48.00	0.60	1.03	0.00	0.00	0.00	38.67	39.32	52.0	0.756
49.70	0.70	1.22	0.00	0.00	0.00	43.83	44.58	52.0	0.858
50.00	0.70	1.22	0.00	0.00	0.00	43.74	44.49	52.0	0.856
52.00	0.69	1.23	0.00	0.00	0.00	43.14	43.89	52.0	0.844
54.00	0.69	1.25	0.00	0.00	0.00	42.49	43.24	52.0	0.832
56.00	0.69	1.26	0.00	0.00	0.00	41.79	42.54	52.0	0.818
58.00	0.69	1.28	0.00	0.00	0.00	41.04	41.78	52.0	0.804
60.00	0.69	1.29	0.00	0.00	0.00	40.22	40.97	52.0	0.788
62.00	0.69	1.31	0.00	0.00	0.00	39.34	40.09	52.0	0.771
64.00	0.69	1.32	0.00	0.00	0.00	38.39	39.14	52.0	0.753
66.00	0.68	1.34	0.00	0.00	0.00	37.37	38.12	52.0	0.733
68.00	0.68	1.35	0.00	0.00	0.00	36.27	37.02	52.0	0.712
70.00	0.68	1.37	0.00	0.00	0.00	35.08	35.84	52.0	0.689
72.00	0.68	1.39	0.00	0.00	0.00	33.79	34.56	52.0	0.665
74.00	0.68	1.40	0.00	0.00	0.00	32.41	33.18	52.0	0.638
75.00	0.68	1.40	0.00	0.00	0.00	31.68	32.45	52.0	0.624
76.00	0.68	1.41	0.00	0.00	0.00	30.93	31.70	52.0	0.610
78.00	0.68	1.43	0.00	0.00	0.00	29.33	30.11	52.0	0.579
80.00	0.68	1.45	0.00	0.00	0.00	27.61	28.40	52.0	0.546
81.00	0.59	1.31	0.00	0.00	0.00	26.70	27.38	52.0	0.527
82.00	0.59	1.32	0.00	0.00	0.00	25.91	26.59	52.0	0.512
84.00	0.59	1.33	0.00	0.00	0.00	24.22	24.92	52.0	0.479

Resulting Stresses

Structure: CT46132-A-SBA
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016

Tower Engineering Solutions

86.00	0.59	1.35	0.00	0.00	0.00	22.40	23.10	52.0	0.444
88.00	0.59	1.37	0.00	0.00	0.00	20.42	21.14	52.0	0.407
90.00	0.59	1.39	0.00	0.00	0.00	18.28	19.02	52.0	0.366
91.00	0.47	1.13	0.00	0.00	0.00	17.15	17.73	52.0	0.341
91.09	0.47	1.13	0.00	0.00	0.00	17.07	17.66	52.0	0.340
92.00	0.47	1.14	0.00	0.00	0.00	16.27	16.85	52.0	0.324
94.00	0.47	1.15	0.00	0.00	0.00	14.39	14.99	52.0	0.288
94.50	0.76	1.88	0.00	0.00	0.00	21.97	22.96	52.0	0.442
96.00	0.76	1.90	0.00	0.00	0.00	19.52	20.55	52.0	0.395
98.00	0.53	1.09	0.00	0.00	0.00	16.00	16.63	52.0	0.320
100.00	0.53	1.11	0.00	0.00	0.00	14.14	14.79	52.0	0.285
102.00	0.53	1.12	0.00	0.00	0.00	12.13	12.80	52.0	0.246
104.00	0.53	1.13	0.00	0.00	0.00	9.94	10.65	52.0	0.205
105.00	0.32	0.72	0.00	0.00	0.00	8.78	9.19	52.0	0.177
106.00	0.32	0.72	0.00	0.00	0.00	8.10	8.51	52.0	0.164
107.00	0.22	0.53	0.00	0.00	0.00	7.39	7.66	52.0	0.147
108.00	0.21	0.53	0.00	0.00	0.00	6.89	7.16	52.0	0.138
110.00	0.21	0.53	0.00	0.00	0.00	5.83	6.11	52.0	0.118
112.00	0.21	0.53	0.00	0.00	0.00	4.70	4.99	52.0	0.096
114.00	0.20	0.53	0.00	0.00	0.00	3.47	3.78	52.0	0.073
116.00	0.20	0.52	0.00	0.00	0.00	2.15	2.52	52.0	0.048
118.00	0.00	0.50	0.00	0.00	0.00	0.72	1.12	52.0	0.022

Wind Loading - Shaft

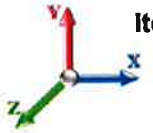
Structure: CT46132-A-SBA
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016
Page: 28

IES Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 25

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		0.00	1.00	6.400	10.82	180.21	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
2.00		0.00	1.00	6.400	10.82	178.28	0.650	0.000	2.00	7.170	4.66	50.4	0.0	345.4
4.00		0.00	1.00	6.400	10.82	176.36	0.650	0.000	2.00	7.093	4.61	49.9	0.0	341.7
6.00		0.00	1.00	6.400	10.82	174.43	0.650	0.000	2.00	7.016	4.56	49.3	0.0	337.9
8.00		0.00	1.00	6.400	10.82	172.51	0.650	0.000	2.00	6.939	4.51	48.8	0.0	334.2
10.00		0.00	1.00	6.400	10.82	170.59	0.650	0.000	2.00	6.862	4.46	48.2	0.0	330.5
12.00		0.00	1.00	6.400	10.82	168.66	0.650	0.000	2.00	6.785	4.41	47.7	0.0	326.7
14.00		0.00	1.00	6.400	10.82	166.74	0.650	0.000	2.00	6.708	4.36	47.2	0.0	323.0
16.00		0.00	1.00	6.400	10.82	164.81	0.650	0.000	2.00	6.631	4.31	46.6	0.0	319.2
18.00		0.00	1.00	6.400	10.82	162.89	0.650	0.000	2.00	6.554	4.26	46.1	0.0	315.5
20.00		0.00	1.00	6.400	10.82	160.96	0.650	0.000	2.00	6.477	4.21	45.5	0.0	311.7
22.00		0.00	1.00	6.400	10.82	159.04	0.650	0.000	2.00	6.400	4.16	45.0	0.0	308.0
24.00		0.00	1.00	6.400	10.82	157.11	0.650	0.000	2.00	6.323	4.11	44.5	0.0	304.3
26.00		0.00	1.00	6.400	10.82	155.19	0.650	0.000	2.00	6.246	4.06	43.9	0.0	300.5
28.00		0.00	1.00	6.400	10.82	153.26	0.650	0.000	2.00	6.169	4.01	43.4	0.0	296.8
30.00		0.00	1.00	6.400	10.82	151.34	0.650	0.000	2.00	6.092	3.96	42.8	0.0	293.0
32.00		0.00	1.00	6.400	10.82	149.42	0.650	0.000	2.00	6.015	3.91	42.3	0.0	289.3
34.00		0.00	1.01	6.455	10.91	148.12	0.650	0.000	2.00	5.938	3.86	42.1	0.0	285.6
36.00		0.00	1.03	6.561	11.09	147.39	0.650	0.000	2.00	5.861	3.81	42.2	0.0	281.8
38.00		0.00	1.04	6.663	11.26	146.57	0.650	0.000	2.00	5.784	3.76	42.3	0.0	278.1
40.00		0.00	1.06	6.762	11.43	145.67	0.650	0.000	2.00	5.707	3.71	42.4	0.0	274.3
42.00		0.00	1.07	6.857	11.59	144.69	0.650	0.000	2.00	5.630	3.66	42.4	0.0	270.6
44.00		0.00	1.09	6.948	11.74	143.65	0.650	0.000	2.00	5.553	3.61	42.4	0.0	266.8
45.03	Bot - Section 2	0.00	1.09	6.995	11.82	143.09	0.650	0.000	1.03	2.839	1.85	21.8	0.0	136.4
46.00		0.00	1.10	7.037	11.89	142.55	0.650	0.000	0.97	2.688	1.75	20.8	0.0	234.7
48.00		0.00	1.11	7.123	12.04	141.39	0.650	0.000	2.00	5.504	3.58	43.1	0.0	480.5
49.70	Top - Section 1	0.00	1.12	7.194	12.16	140.36	0.650	0.000	1.70	4.618	3.00	36.5	0.0	403.0
50.00		0.00	1.13	7.207	12.18	142.94	0.650	0.000	0.30	0.809	0.53	6.4	0.0	32.5
52.00		0.00	1.14	7.288	12.32	141.69	0.650	0.000	2.00	5.350	3.48	42.8	0.0	214.9
54.00		0.00	1.15	7.367	12.45	140.39	0.650	0.000	2.00	5.273	3.43	42.7	0.0	211.8
56.00		0.00	1.16	7.444	12.58	139.05	0.650	0.000	2.00	5.196	3.38	42.5	0.0	208.6
58.00		0.00	1.17	7.519	12.71	137.66	0.650	0.000	2.00	5.119	3.33	42.3	0.0	205.5
60.00		0.00	1.19	7.592	12.83	136.23	0.650	0.000	2.00	5.042	3.28	42.0	0.0	202.4
62.00		0.00	1.20	7.664	12.95	134.76	0.650	0.000	2.00	4.965	3.23	41.8	0.0	199.3
64.00		0.00	1.21	7.733	13.07	133.26	0.650	0.000	2.00	4.888	3.18	41.5	0.0	196.2
66.00		0.00	1.22	7.802	13.18	131.72	0.650	0.000	2.00	4.811	3.13	41.2	0.0	193.0
68.00		0.00	1.23	7.869	13.30	130.15	0.650	0.000	2.00	4.734	3.08	40.9	0.0	189.9
70.00		0.00	1.24	7.934	13.41	128.55	0.650	0.000	2.00	4.657	3.03	40.6	0.0	186.8
72.00		0.00	1.25	7.998	13.52	126.92	0.650	0.000	2.00	4.580	2.98	40.2	0.0	183.7
74.00		0.00	1.26	8.061	13.62	125.26	0.650	0.000	2.00	4.503	2.93	39.9	0.0	180.5
75.00	Appurtenance(s)	0.00	1.26	8.092	13.68	124.41	0.650	0.000	1.00	2.223	1.44	19.8	0.0	89.1
76.00		0.00	1.27	8.123	13.73	123.57	0.650	0.000	1.00	2.203	1.43	19.7	0.0	88.3
78.00		0.00	1.28	8.183	13.83	121.85	0.650	0.000	2.00	4.349	2.83	39.1	0.0	174.3
80.00		0.00	1.29	8.242	13.93	120.11	0.650	0.000	2.00	4.272	2.78	38.7	0.0	171.2
81.00	Appurtenance(s)	0.00	1.29	8.272	13.98	119.22	0.650	0.000	1.00	2.107	1.37	19.1	0.0	84.4
82.00		0.00	1.30	8.301	14.03	118.34	0.650	0.000	1.00	2.088	1.36	19.0	0.0	83.6
84.00		0.00	1.31	8.358	14.13	116.55	0.650	0.000	2.00	4.118	2.68	37.8	0.0	164.9
86.00		0.00	1.31	8.415	14.22	114.73	0.650	0.000	2.00	4.041	2.63	37.4	0.0	161.8

Wind Loading - Shaft

Structure: CT46132-A-SBA
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016

Tower Engineering Solutions

88.00	0.00	1.32	8.470	14.31	112.90	0.650	0.000	2.00	3.964	2.58	36.9	0.0	158.7
90.00	0.00	1.33	8.525	14.41	111.04	0.650	0.000	2.00	3.887	2.53	36.4	0.0	155.6
91.00 Appurtenance(s)	0.00	1.34	8.552	14.45	110.10	0.650	0.000	1.00	1.915	1.24	18.0	0.0	76.6
91.09 Bot - Section 3	0.00	1.34	8.554	14.46	110.02	0.650	0.000	0.09	0.165	0.11	1.6	0.0	6.6
92.00	0.00	1.34	8.578	14.50	109.16	0.650	0.000	0.91	1.759	1.14	16.6	0.0	111.7
94.00	0.00	1.35	8.631	14.59	107.26	0.650	0.000	2.00	3.796	2.47	36.0	0.0	241.0
94.50 Top - Section 2	0.00	1.35	8.644	14.61	106.78	0.650	0.000	0.50	0.943	0.61	9.0	0.0	59.9
96.00	0.00	1.36	8.683	14.67	107.17	0.650	0.000	1.50	2.776	1.80	26.5	0.0	67.1
98.00 Appurtenance(s)	0.00	1.36	8.735	14.76	105.23	0.650	0.000	2.00	3.642	2.37	34.9	0.0	88.0
100.00	0.00	1.37	8.785	14.85	103.28	0.650	0.000	2.00	3.565	2.32	34.4	0.0	86.1
102.00	0.00	1.38	8.835	14.93	101.31	0.650	0.000	2.00	3.488	2.27	33.8	0.0	84.2
104.00	0.00	1.39	8.884	15.01	99.33	0.650	0.000	2.00	3.411	2.22	33.3	0.0	82.3
105.00 Appurtenance(s)	0.00	1.39	8.908	15.06	98.33	0.650	0.000	1.00	1.676	1.09	16.4	0.0	40.5
106.00	0.00	1.40	8.933	15.10	97.33	0.650	0.000	1.00	1.657	1.08	16.3	0.0	40.0
107.00 Appurtenance(s)	0.00	1.40	8.957	15.14	96.32	0.650	0.000	1.00	1.638	1.06	16.1	0.0	39.5
108.00	0.00	1.40	8.980	15.18	95.31	0.650	0.000	1.00	1.619	1.05	16.0	0.0	39.1
110.00	0.00	1.41	9.028	15.26	93.27	0.650	0.000	2.00	3.180	2.07	31.5	0.0	76.7
112.00	0.00	1.42	9.074	15.34	91.22	0.650	0.000	2.00	3.103	2.02	30.9	0.0	74.8
114.00	0.00	1.43	9.120	15.41	89.15	0.650	0.000	2.00	3.026	1.97	30.3	0.0	73.0
116.00	0.00	1.43	9.166	15.49	87.07	0.650	0.000	2.00	2.949	1.92	29.7	0.0	71.1
118.00 Appurtenance(s)	0.00	1.44	9.211	15.57	84.97	0.650	0.000	2.00	2.872	1.87	29.1	0.0	69.2
							Totals:	**118.00**			**2,386.5**		**13,153.9**

Discrete Appurtenance Forces

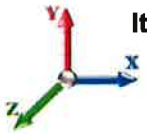
Structure:	CT46132-A-SB	**Code:**	EIA/TIA-222-F	8/11/2016	
Site Name:	Newtown-ferris Rd	**Exposure:**	C		
Height:	118.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 30	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa Factor	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	118.00	Low Profile Platform	1	9.211	15.566	1.00	25.55	1600.00	0.000	0.000	397.71	0.00	0.00
2	118.00	DB844H90E-XY	9	9.228	15.596	1.00	33.57	126.00	0.000	0.800	523.55	0.00	418.84
3	118.00	ANT150D	1	9.242	15.619	1.00	1.00	6.00	0.000	1.420	15.62	0.00	22.18
4	118.00	DB222	1	9.427	15.932	1.00	2.25	16.00	0.000	10.000	35.85	0.00	358.47
5	107.00	Universal Ring Mount	1	8.957	15.137	1.00	3.50	350.00	0.000	0.000	52.98	0.00	0.00
6	107.00	1900 MHz 4X45 RRH	3	8.957	15.137	0.67	5.45	180.00	0.000	0.000	82.45	0.00	0.00
7	107.00	800 MHz 2X50W RRH w/	3	8.957	15.137	0.67	4.82	192.00	0.000	0.000	73.02	0.00	0.00
8	107.00	ALU 800MHz External Notch	3	8.957	15.137	0.67	1.57	26.40	0.000	0.000	23.73	0.00	0.00
9	107.00	TD-RRH8x20-25	3	8.957	15.137	0.67	9.49	210.00	0.000	0.000	143.60	0.00	0.00
10	107.00	ACU-A20-N	4	8.957	15.137	0.67	0.38	4.00	0.000	0.000	5.68	0.00	0.00
11	105.00	APXVTM14-C-120	3	8.908	15.055	0.79	16.35	168.00	0.000	0.000	246.20	0.00	0.00
12	105.00	APXVSPP18-C-A20	3	8.908	15.055	0.83	20.57	171.00	0.000	0.000	309.65	0.00	0.00
13	105.00	Low Profile Platform	1	8.908	15.055	1.00	25.55	1600.00	0.000	0.000	384.66	0.00	0.00
14	98.00	Andrew DB846H80E-SX	4	8.735	14.761	1.12	26.30	64.00	0.000	0.000	388.19	0.00	0.00
15	98.00	Rfs Celwave	2	8.735	14.761	0.67	7.50	37.80	0.000	0.000	110.77	0.00	0.00
16	98.00	Alcatel-Lucent	3	8.735	14.761	0.67	4.40	138.00	0.000	0.000	64.98	0.00	0.00
17	98.00	Alcatel Lucent	3	8.735	14.761	0.67	5.95	170.40	0.000	0.000	87.82	0.00	0.00
18	98.00	Alcatel Lucent RRH2x60-700	3	8.735	14.761	0.67	7.96	180.00	0.000	0.000	117.49	0.00	0.00
19	98.00	Andrew SBNHH-1D85C	6	8.735	14.761	0.84	57.41	297.60	0.000	0.000	847.39	0.00	0.00
20	98.00	RFS APL868013	2	8.735	14.761	1.15	8.59	12.60	0.000	0.000	126.75	0.00	0.00
21	98.00	Low Profile Platform	1	8.735	14.761	1.00	25.55	1600.00	0.000	0.000	377.15	0.00	0.00
22	91.00	Low Profile Platform	1	8.552	14.452	1.00	20.00	1500.00	0.000	0.000	289.04	0.00	0.00
23	91.00	7770.00	3	8.552	14.452	0.73	12.88	105.00	0.000	0.000	186.10	0.00	0.00
24	91.00	P65-16-XLH-RR	3	8.552	14.452	0.75	18.90	159.00	0.000	0.000	273.15	0.00	0.00
25	91.00	LGP21401	6	8.552	14.452	0.67	5.19	84.60	0.000	0.000	74.95	0.00	0.00
26	91.00	RRUS-11	6	8.552	14.452	0.67	17.77	330.00	0.000	0.000	256.79	0.00	0.00
27	91.00	FD Series DC Surge	1	8.552	14.452	0.67	2.50	18.00	0.000	0.000	36.12	0.00	0.00
28	81.00	Low Profile Platform-Round	1	8.272	13.979	1.00	20.00	1500.00	0.000	0.000	279.59	0.00	0.00
29	81.00	S20057A1	6	8.272	13.979	0.67	3.30	66.00	0.000	0.000	46.08	0.00	0.00
30	81.00	APX16DWV-16DWV	6	8.272	13.979	0.62	24.92	237.60	0.000	0.000	348.42	0.00	0.00
31	75.00	Standoff Mount	1	8.092	13.675	1.00	1.00	40.00	0.000	0.000	13.68	0.00	0.00
32	75.00	GPS	1	8.092	13.675	1.00	0.50	10.00	0.000	0.000	6.84	0.00	0.00
						Totals:		**11,200.00**			**6,225.99**		

Total Applied Force Summary

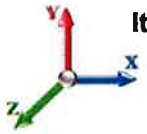
Structure:	CT46132-A-SB	**Code:**	EIA/TIA-222-F	8/11/2016	
Site Name:	Newtown-ferris Rd	**Exposure:**	C		
Height:	118.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 31	

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations: 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
2.00		51.70	432.02	0.00	0.00
4.00		51.16	428.28	0.00	0.00
6.00		50.62	424.53	0.00	0.00
8.00		50.08	420.79	0.00	0.00
10.00		49.54	417.05	0.00	0.00
12.00		49.00	413.31	0.00	0.00
14.00		48.46	409.57	0.00	0.00
16.00		47.92	405.83	0.00	0.00
18.00		47.38	402.09	0.00	0.00
20.00		46.83	398.35	0.00	0.00
22.00		46.29	394.60	0.00	0.00
24.00		45.75	390.86	0.00	0.00
26.00		45.21	387.12	0.00	0.00
28.00		44.67	383.38	0.00	0.00
30.00		44.13	379.64	0.00	0.00
32.00		43.59	375.90	0.00	0.00
34.00		43.41	372.16	0.00	0.00
36.00		43.57	368.41	0.00	0.00
38.00		43.69	364.67	0.00	0.00
40.00		43.76	360.93	0.00	0.00
42.00		43.80	357.19	0.00	0.00
44.00		43.79	353.45	0.00	0.00
45.03		22.55	181.15	0.00	0.00
46.00		21.47	276.56	0.00	0.00
48.00		44.51	567.10	0.00	0.00
49.70		37.73	476.64	0.00	0.00
50.00		6.62	45.49	0.00	0.00
52.00		44.31	301.49	0.00	0.00
54.00		44.16	298.37	0.00	0.00
56.00		44.00	295.24	0.00	0.00
58.00		43.80	292.12	0.00	0.00
60.00		43.59	289.00	0.00	0.00
62.00		43.35	285.88	0.00	0.00
64.00		43.09	282.75	0.00	0.00
66.00		42.81	279.63	0.00	0.00
68.00		42.51	276.51	0.00	0.00
70.00		42.19	273.38	0.00	0.00
72.00		41.86	270.26	0.00	0.00
74.00		41.51	267.14	0.00	0.00
75.00	(2) appurtenances	41.09	182.40	0.00	0.00
76.00		19.66	131.46	0.00	0.00
78.00		39.09	260.57	0.00	0.00
80.00		38.68	257.45	0.00	0.00
81.00	(13) appurtenances	693.24	1931.15	0.00	0.00
82.00		19.04	114.29	0.00	0.00
84.00		37.81	226.24	0.00	0.00
86.00		37.35	223.12	0.00	0.00
88.00		36.88	220.00	0.00	0.00

Total Applied Force Summary

Structure:	CT46132-A-SB	**Code:**	EIA/TIA-222-F	8/11/2016	
Site Name:	Newtown-ferris Rd	**Exposure:**	C		
Height:	118.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 32	

Tower Engineering Solutions

90.00		36.40	216.88	0.00	0.00
91.00	(20) appurtenances	1134.13	2303.87	0.00	0.00
91.09		1.55	8.64	0.00	0.00
92.00		16.57	133.25	0.00	0.00
94.00		35.99	288.15	0.00	0.00
94.50		8.96	71.73	0.00	0.00
96.00		26.47	102.32	0.00	0.00
98.00	(24) appurtenances	2155.49	2635.48	0.00	0.00
100.00		34.40	103.85	0.00	0.00
102.00		33.85	101.97	0.00	0.00
104.00		33.29	100.10	0.00	0.00
105.00	(7) appurtenances	956.91	1988.35	0.00	0.00
106.00		16.26	48.88	0.00	0.00
107.00	(17) appurtenances	397.58	1010.81	0.00	0.00
108.00		15.97	45.30	0.00	0.00
110.00		31.53	89.19	0.00	0.00
112.00		30.93	87.32	0.00	0.00
114.00		30.31	85.44	0.00	0.00
116.00		29.69	83.56	0.00	0.00
118.00	(12) appurtenances	1001.78	1829.69	0.00	799.49
	Totals:	**8,665.31**	**28,480.30**	**0.00**	**799.49**

Resulting Forces and Deflections

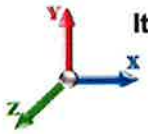
Structure: CT46132-A-SB
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016
Page: 33

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 25

Elev (ft)	Lateral FX (-) (kips)	Axial FY (-) (kips)	Lateral FZ (kips)	Moment MX (ft-kips)	Torsion MY (ft-kips)	Moment MZ (ft-kips)	Deflect X (in)	Deflect Z (in)	Deflect Resultant (in)	Rotation Sway (deg)	Rotation Twist (deg)
0.00	-8.673	-28.477	0.000	0.000	0.000	-785.347	0.000	0.000	0.000	0.000	0.000
2.00	-8.639	-28.040	0.000	0.000	0.000	-768.002	-0.008	0.000	0.008	-0.037	0.000
4.00	-8.606	-27.606	0.000	0.000	0.000	-750.724	-0.032	0.000	0.032	-0.075	0.000
6.00	-8.573	-27.176	0.000	0.000	0.000	-733.512	-0.072	0.000	0.072	-0.113	0.000
8.00	-8.540	-26.749	0.000	0.000	0.000	-716.367	-0.127	0.000	0.127	-0.151	0.000
10.00	-8.507	-26.327	0.000	0.000	0.000	-699.288	-0.199	0.000	0.199	-0.190	0.000
12.00	-8.474	-25.908	0.000	0.000	0.000	-682.274	-0.287	0.000	0.287	-0.229	0.000
14.00	-8.442	-25.492	0.000	0.000	0.000	-665.326	-0.392	0.000	0.392	-0.269	0.000
16.00	-8.409	-25.081	0.000	0.000	0.000	-648.443	-0.513	0.000	0.513	-0.309	0.000
18.00	-8.377	-24.673	0.000	0.000	0.000	-631.625	-0.651	0.000	0.651	-0.349	0.000
20.00	-8.345	-24.269	0.000	0.000	0.000	-614.872	-0.806	0.000	0.806	-0.390	0.000
22.00	-8.313	-23.869	0.000	0.000	0.000	-598.183	-0.979	0.000	0.979	-0.431	0.000
24.00	-8.281	-23.473	0.000	0.000	0.000	-581.557	-1.168	0.000	1.168	-0.472	0.000
26.00	-8.249	-23.080	0.000	0.000	0.000	-564.995	-1.375	0.000	1.375	-0.514	0.000
28.00	-8.218	-22.691	0.000	0.000	0.000	-548.497	-1.599	0.000	1.599	-0.556	0.000
30.00	-8.186	-22.306	0.000	0.000	0.000	-532.062	-1.841	0.000	1.841	-0.598	0.000
32.00	-8.155	-21.924	0.000	0.000	0.000	-515.689	-2.101	0.000	2.101	-0.641	0.000
34.00	-8.124	-21.546	0.000	0.000	0.000	-499.379	-2.379	0.000	2.379	-0.684	0.000
36.00	-8.092	-21.172	0.000	0.000	0.000	-483.132	-2.675	0.000	2.675	-0.727	0.000
38.00	-8.059	-20.802	0.000	0.000	0.000	-466.949	-2.989	0.000	2.989	-0.771	0.000
40.00	-8.026	-20.436	0.000	0.000	0.000	-450.831	-3.321	0.000	3.321	-0.814	0.000
42.00	-7.992	-20.073	0.000	0.000	0.000	-434.780	-3.672	0.000	3.672	-0.858	0.000
44.00	-7.955	-19.716	0.000	0.000	0.000	-418.795	-4.041	0.000	4.041	-0.903	0.000
45.03	-7.937	-19.532	0.000	0.000	0.000	-410.575	-4.239	0.000	4.239	-0.926	0.000
46.00	-7.922	-19.251	0.000	0.000	0.000	-402.903	-4.429	0.000	4.429	-0.947	0.000
48.00	-7.882	-18.679	0.000	0.000	0.000	-387.059	-4.835	0.000	4.835	-0.992	0.000
49.70	-7.843	-18.200	0.000	0.000	0.000	-373.660	-5.195	0.000	5.195	-1.030	0.000
50.00	-7.844	-18.151	0.000	0.000	0.000	-371.308	-5.260	0.000	5.260	-1.037	0.000
52.00	-7.810	-17.843	0.000	0.000	0.000	-355.619	-5.706	0.000	5.706	-1.087	0.000
54.00	-7.776	-17.539	0.000	0.000	0.000	-340.000	-6.172	0.000	6.172	-1.137	0.000
56.00	-7.741	-17.238	0.000	0.000	0.000	-324.449	-6.659	0.000	6.659	-1.187	0.000
58.00	-7.705	-16.940	0.000	0.000	0.000	-308.968	-7.168	0.000	7.168	-1.237	0.000
60.00	-7.670	-16.646	0.000	0.000	0.000	-293.558	-7.697	0.000	7.697	-1.287	0.000
62.00	-7.634	-16.354	0.000	0.000	0.000	-278.219	-8.247	0.000	8.247	-1.337	0.000
64.00	-7.598	-16.066	0.000	0.000	0.000	-262.951	-8.818	0.000	8.818	-1.386	0.000
66.00	-7.562	-15.781	0.000	0.000	0.000	-247.755	-9.409	0.000	9.409	-1.434	0.000
68.00	-7.525	-15.500	0.000	0.000	0.000	-232.632	-10.020	0.000	10.020	-1.482	0.000
70.00	-7.488	-15.221	0.000	0.000	0.000	-217.583	-10.651	0.000	10.651	-1.529	0.000
72.00	-7.451	-14.946	0.000	0.000	0.000	-202.607	-11.302	0.000	11.302	-1.576	0.000
74.00	-7.411	-14.676	0.000	0.000	0.000	-187.706	-11.972	0.000	11.972	-1.621	0.000
75.00	-7.370	-14.492	0.000	0.000	0.000	-180.295	-12.314	0.000	12.314	-1.643	0.000
76.00	-7.355	-14.357	0.000	0.000	0.000	-172.925	-12.661	0.000	12.661	-1.666	0.000
78.00	-7.318	-14.092	0.000	0.000	0.000	-158.216	-13.368	0.000	13.368	-1.708	0.000
80.00	-7.279	-13.832	0.000	0.000	0.000	-143.580	-14.092	0.000	14.092	-1.749	0.000
81.00	-6.531	-11.921	0.000	0.000	0.000	-136.301	-14.461	0.000	14.461	-1.769	0.000
82.00	-6.515	-11.804	0.000	0.000	0.000	-129.770	-14.834	0.000	14.834	-1.789	0.000
84.00	-6.477	-11.575	0.000	0.000	0.000	-116.741	-15.591	0.000	15.591	-1.826	0.000
86.00	-6.439	-11.350	0.000	0.000	0.000	-103.787	-16.364	0.000	16.364	-1.862	0.000
88.00	-6.402	-11.127	0.000	0.000	0.000	-90.908	-17.152	0.000	17.152	-1.895	0.000

Resulting Forces and Deflections

Structure: CT46132-A-SB
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016

Tower Engineering Solutions

90.00	-6.362	-10.909	0.000	0.000	0.000	-78.106	-17.952	0.000	17.952	-1.925	0.000
91.00	-5.152	-8.644	0.000	0.000	0.000	-71.743	-18.357	0.000	18.357	-1.940	0.000
91.09	-5.151	-8.635	0.000	0.000	0.000	-71.297	-18.392	0.000	18.392	-1.941	0.000
92.00	-5.133	-8.501	0.000	0.000	0.000	-66.592	-18.765	0.000	18.765	-1.954	0.000
94.00	-5.090	-8.213	0.000	0.000	0.000	-56.326	-19.589	0.000	19.589	-1.979	0.000
94.50	-5.080	-8.140	0.000	0.000	0.000	-53.764	-19.798	0.000	19.798	-1.985	0.000
96.00	-5.053	-8.037	0.000	0.000	0.000	-46.162	-20.423	0.000	20.423	-2.001	0.000
98.00	-2.809	-5.478	0.000	0.000	0.000	-36.055	-21.268	0.000	21.268	-2.031	0.000
100.00	-2.773	-5.374	0.000	0.000	0.000	-30.438	-22.124	0.000	22.124	-2.056	0.000
102.00	-2.738	-5.272	0.000	0.000	0.000	-24.892	-22.991	0.000	22.991	-2.079	0.000
104.00	-2.702	-5.173	0.000	0.000	0.000	-19.417	-23.866	0.000	23.866	-2.098	0.000
105.00	-1.673	-3.221	0.000	0.000	0.000	-16.715	-24.306	0.000	24.306	-2.107	0.000
106.00	-1.656	-3.172	0.000	0.000	0.000	-15.041	-24.748	0.000	24.748	-2.114	0.000
107.00	-1.221	-2.177	0.000	0.000	0.000	-13.386	-25.192	0.000	25.192	-2.122	0.000
108.00	-1.204	-2.132	0.000	0.000	0.000	-12.165	-25.637	0.000	25.637	-2.128	0.000
110.00	-1.170	-2.044	0.000	0.000	0.000	-9.756	-26.531	0.000	26.531	-2.140	0.000
112.00	-1.136	-1.957	0.000	0.000	0.000	-7.417	-27.430	0.000	27.430	-2.150	0.000
114.00	-1.103	-1.873	0.000	0.000	0.000	-5.145	-28.332	0.000	28.332	-2.158	0.000
116.00	-1.070	-1.791	0.000	0.000	0.000	-2.940	-29.237	0.000	29.237	-2.163	0.000
118.00	-1.002	0.000	0.000	0.000	0.000	-0.799	0.000	0.000	30.144	-2.166	0.000

Resulting Stresses

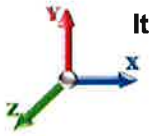
Structure: CT46132-A-SBA
Site Name: Newtown-ferris Rd
Height: 118.00 (ft)
Base Elev: 0.000 (ft)

Code: EIA/TIA-222-F
Exposure: C
Gh: 1.69
Struct Class: II

8/11/2016

Tower Engineering Solutions

Load Case: 50 mph Wind with 0" Ice
Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations: 25

Applied Stresses

Elev (ft)	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	fb Combined (ksi)	Fb Allow Stress (ksi)	f/Fb Stress Ratio
0.00	0.56	0.34	0.00	0.00	0.00	17.46	18.03	52.0	0.347
2.00	0.56	0.34	0.00	0.00	0.00	17.45	18.02	52.0	0.347
4.00	0.55	0.35	0.00	0.00	0.00	17.44	18.00	52.0	0.346
6.00	0.55	0.35	0.00	0.00	0.00	17.42	17.98	52.0	0.346
8.00	0.55	0.35	0.00	0.00	0.00	17.40	17.96	52.0	0.345
10.00	0.55	0.36	0.00	0.00	0.00	17.38	17.93	52.0	0.345
12.00	0.54	0.36	0.00	0.00	0.00	17.35	17.90	52.0	0.344
14.00	0.54	0.36	0.00	0.00	0.00	17.32	17.87	52.0	0.344
16.00	0.54	0.36	0.00	0.00	0.00	17.28	17.83	52.0	0.343
18.00	0.54	0.37	0.00	0.00	0.00	17.24	17.78	52.0	0.342
20.00	0.53	0.37	0.00	0.00	0.00	17.19	17.73	52.0	0.341
22.00	0.53	0.37	0.00	0.00	0.00	17.14	17.68	52.0	0.340
24.00	0.53	0.38	0.00	0.00	0.00	17.08	17.62	52.0	0.339
26.00	0.53	0.38	0.00	0.00	0.00	17.01	17.55	52.0	0.338
28.00	0.52	0.38	0.00	0.00	0.00	16.94	17.47	52.0	0.336
30.00	0.52	0.39	0.00	0.00	0.00	16.86	17.39	52.0	0.335
32.00	0.52	0.39	0.00	0.00	0.00	16.77	17.30	52.0	0.333
34.00	0.52	0.39	0.00	0.00	0.00	16.67	17.20	52.0	0.331
36.00	0.51	0.40	0.00	0.00	0.00	16.57	17.09	52.0	0.329
38.00	0.51	0.40	0.00	0.00	0.00	16.45	16.98	52.0	0.327
40.00	0.51	0.40	0.00	0.00	0.00	16.32	16.85	52.0	0.324
42.00	0.51	0.41	0.00	0.00	0.00	16.19	16.71	52.0	0.321
44.00	0.51	0.41	0.00	0.00	0.00	16.04	16.56	52.0	0.319
45.03	0.51	0.41	0.00	0.00	0.00	15.96	16.48	52.0	0.317
46.00	0.50	0.42	0.00	0.00	0.00	15.88	16.39	52.0	0.315
48.00	0.49	0.42	0.00	0.00	0.00	15.70	16.21	52.0	0.312
49.70	0.57	0.50	0.00	0.00	0.00	17.79	18.38	52.0	0.354
50.00	0.57	0.50	0.00	0.00	0.00	17.76	18.35	52.0	0.353
52.00	0.57	0.50	0.00	0.00	0.00	17.51	18.10	52.0	0.348
54.00	0.57	0.51	0.00	0.00	0.00	17.24	17.83	52.0	0.343
56.00	0.57	0.51	0.00	0.00	0.00	16.96	17.55	52.0	0.338
58.00	0.57	0.52	0.00	0.00	0.00	16.65	17.24	52.0	0.332
60.00	0.56	0.52	0.00	0.00	0.00	16.32	16.91	52.0	0.325
62.00	0.56	0.53	0.00	0.00	0.00	15.96	16.55	52.0	0.318
64.00	0.56	0.54	0.00	0.00	0.00	15.58	16.16	52.0	0.311
66.00	0.56	0.54	0.00	0.00	0.00	15.16	15.75	52.0	0.303
68.00	0.56	0.55	0.00	0.00	0.00	14.71	15.30	52.0	0.294
70.00	0.56	0.55	0.00	0.00	0.00	14.23	14.82	52.0	0.285
72.00	0.56	0.56	0.00	0.00	0.00	13.71	14.31	52.0	0.275
74.00	0.56	0.57	0.00	0.00	0.00	13.16	13.75	52.0	0.264
75.00	0.56	0.57	0.00	0.00	0.00	12.86	13.45	52.0	0.259
76.00	0.56	0.57	0.00	0.00	0.00	12.56	13.15	52.0	0.253
78.00	0.56	0.58	0.00	0.00	0.00	11.91	12.51	52.0	0.241
80.00	0.56	0.59	0.00	0.00	0.00	11.21	11.81	52.0	0.227
81.00	0.48	0.53	0.00	0.00	0.00	10.84	11.36	52.0	0.219
82.00	0.48	0.54	0.00	0.00	0.00	10.52	11.04	52.0	0.212
84.00	0.48	0.54	0.00	0.00	0.00	9.83	10.36	52.0	0.199

Resulting Stresses

Structure:	CT46132-A-SBA			**Code:**	EIA/TIA-222-F		8/11/2016		
Site Name:	Newtown-ferris Rd			**Exposure:**	C				
Height:	118.00 (ft)			**Gh:**	1.69				
Base Elev:	0.000 (ft)			**Struct Class:**	II		Page: 36		

86.00	0.48	0.55	0.00	0.00	0.00	9.09	9.62	52.0	0.185
88.00	0.48	0.56	0.00	0.00	0.00	8.28	8.82	52.0	0.170
90.00	0.48	0.57	0.00	0.00	0.00	7.41	7.95	52.0	0.153
91.00	0.39	0.46	0.00	0.00	0.00	6.95	7.38	52.0	0.142
91.09	0.39	0.46	0.00	0.00	0.00	6.91	7.34	52.0	0.141
92.00	0.38	0.47	0.00	0.00	0.00	6.58	7.01	52.0	0.135
94.00	0.38	0.47	0.00	0.00	0.00	5.81	6.24	52.0	0.120
94.50	0.61	0.77	0.00	0.00	0.00	8.86	9.57	52.0	0.184
96.00	0.62	0.78	0.00	0.00	0.00	7.85	8.57	52.0	0.165
98.00	0.43	0.44	0.00	0.00	0.00	6.40	6.87	52.0	0.132
100.00	0.43	0.45	0.00	0.00	0.00	5.64	6.12	52.0	0.118
102.00	0.43	0.45	0.00	0.00	0.00	4.83	5.32	52.0	0.102
104.00	0.43	0.46	0.00	0.00	0.00	3.94	4.44	52.0	0.086
105.00	0.27	0.29	0.00	0.00	0.00	3.47	3.78	52.0	0.073
106.00	0.27	0.29	0.00	0.00	0.00	3.20	3.51	52.0	0.067
107.00	0.19	0.21	0.00	0.00	0.00	2.92	3.13	52.0	0.060
108.00	0.19	0.21	0.00	0.00	0.00	2.72	2.93	52.0	0.056
110.00	0.18	0.21	0.00	0.00	0.00	2.29	2.50	52.0	0.048
112.00	0.18	0.21	0.00	0.00	0.00	1.83	2.04	52.0	0.039
114.00	0.18	0.21	0.00	0.00	0.00	1.34	1.56	52.0	0.030
116.00	0.17	0.21	0.00	0.00	0.00	0.80	1.04	52.0	0.020
118.00	0.00	0.20	0.00	0.00	0.00	0.23	0.42	52.0	0.008

Final Analysis Summary

Structure:	CT46132-A-SBA	**Code:**	EIA/TIA-222-F	8/11/2016	
Site Name:	Newtown-ferris Rd	**Exposure:**	C		
Height:	118.00 (ft)	**Gh:**	1.69		
Base Elev:	0.000 (ft)	**Struct Class:**	II	Page: 37	

TES Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
85 mph Wind with 0" Ice	25.1	0.00	28.46	0.00	0.00	2266.42
73.61 mph Wind with 0.5" Ice	21.0	0.00	34.34	0.00	0.00	1923.39
50 mph Wind with 0" Ice	8.7	0.00	28.48	0.00	0.00	785.35

Max Stresses

Load Case	fa Axial (Y) (ksi)	fvx Shear (X) (ksi)	fvz Shear (Z) (ksi)	fvt Torsion (ksi)	fbx Bending (X) (ksi)	fbz Bending (Z) (ksi)	Combined Stress (ksi)	Allowable Stress (ksi)	Elev (ft)	Stress Ratio
85 mph Wind with 0" Ice	0.54	1.43	0.00	0.00	0.00	51.27	51.87	52.0	49.70	0.998
73.61 mph Wind with 0.5" Ice	0.70	1.22	0.00	0.00	0.00	43.83	44.58	52.0	49.70	0.858
50 mph Wind with 0" Ice	0.57	0.50	0.00	0.00	0.00	17.79	18.38	52.0	49.70	0.354

Monopole Mat Foundation Design

				Date
				8/11/2016
	Customer Name:	Verizon	EIA/TIA Standard:	EIA-222-F
	Site Name:		Structure Height (Ft.):	118
	Site Number:	CT46132-A-SBA	Engineer Name:	F. Yazdani
	Engr. Number:	25176	Engineer Login ID:	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

Analysis or Design? Analysis

Base Reactions (Unfactored)

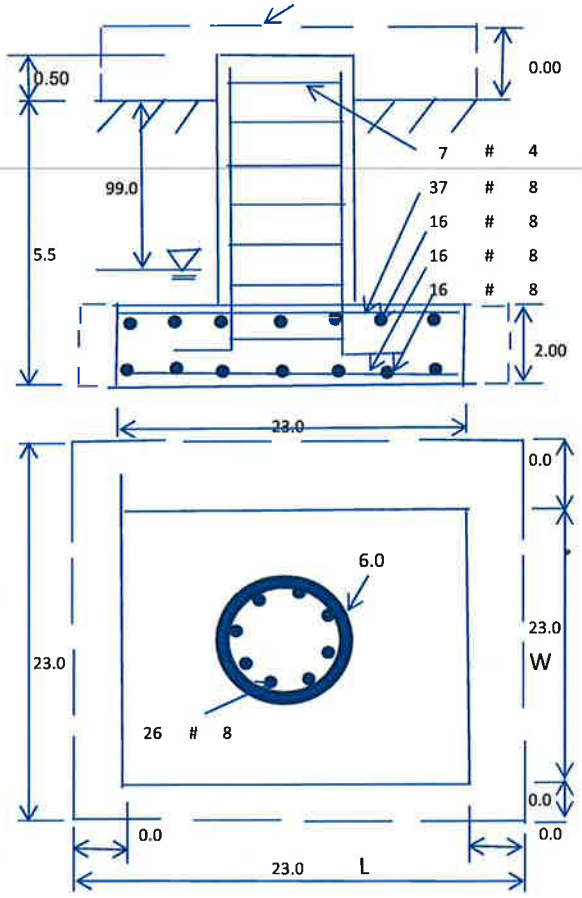
Axial Load (Kips):	28.5	Shear Force (Kips):	25.1
Uplift Force (Kips):	0.0	Moment (Kips-ft):	2266.4

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	6.0	Depth of Base BG (ft.):	5.5
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft):	2.00
Length of Pad (ft.):	23	Width of Pad (ft.):	23
Final Length of pad (ft)	23.0	Final width of pad (ft):	23.0
Control Value for Cell D18:	0	Control Value for Cell F18:	0

Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	8	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	26	Tie Spacing (in):	11.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	8	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	37	Qty. of Rebar in Pad (W):	37	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	16	Qty. of Rebar in Pad (W):	16	



Soil Design Parameters:

Soil Unit Weight (pcf):	155.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Allowable Net Soil Bearing (psf):	20000	Allowable Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hori. force for O.T.M.:	No	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design:

Total Dry Soil Volume (cu. Ft.):	1752.54	Total Dry Soil Weight (Kips):	271.64
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	271.64	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1171.10	Total Dry Concrete Weight (Kips):	175.66
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	175.66	Total Vertical Load on Base (Kips):	475.77

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	1904	<	Allowable Soil Bearing (psf):	20000	0.10	OK!
Allowable Foundation Overturning Resistance (SF=1.5, kips-ft.):	3647.6	>	Applied Momont (kips-ft):	2417	0.66	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.26	OK!				

Check the capacities of Reinforceing Concrete:

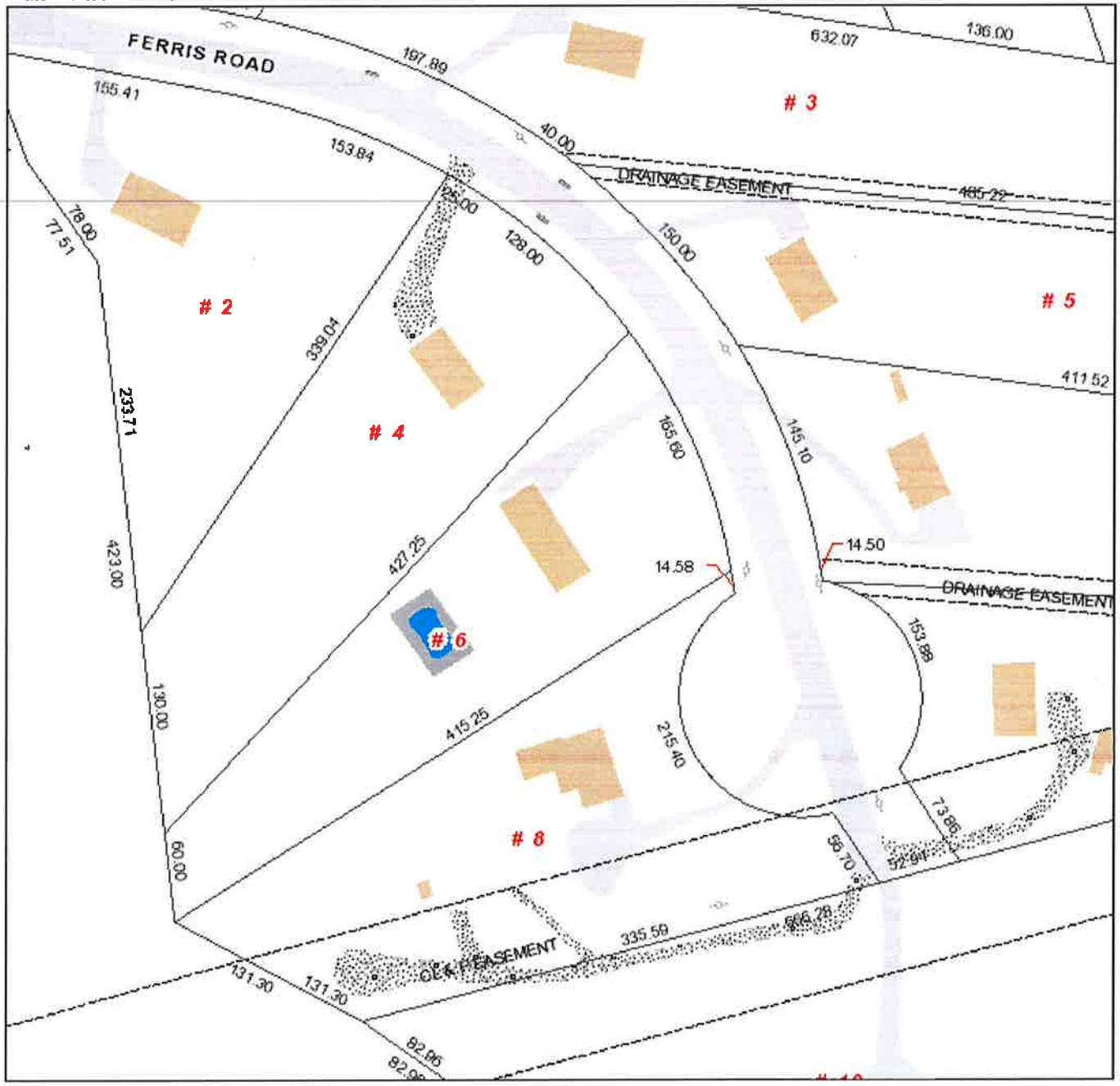
Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75			
Strength reduction factor (Axial compresion):	0.65	Wind Load Factor on Concrete Design:	1.30			
				Load/ Capacity Ratio		
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	0.79		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	2994.3	>	Design Factored Moment (Mu, Kips-Ft	2366.8	0.79	OK!
Calculated Shear Capacity (Kips):	511.9	>	Design Factored Shear (Kips):	32.6	0.06	OK!
Calculated Tension Capacity (Tn, Kips):	1109.2	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	7162.1	>	Design Factored Axial Load (Pu Kips):	37.0	0.01	OK!
Moment & Axial Strength Combination:	0.79	OK!	Check Tie Spacing (Design/Required):		0.9167	OK!
Pier Reinforcement Ratio:	0.005	Reinforcement Ratio is satisfied per ACI				
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	536.8	>	One-Way Factored Shear (L-D. Kips):	185.6	0.35	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	536.8	>	One-Way Factored Shear (W-D., Kips):	185.6	0.35	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	619.1	>	One-Way Factored Shear (C-C, Kips):	263.4	0.43	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0052	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0052		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	2573.6	>	Moment at Bottom (L-Direct. K-Ft):	484.9	0.19	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	2573.6	>	Moment at Bottom (W-Direct. K-Ft):	484.9	0.19	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	3600.2	>	Moment at Bottom (C-C Dir. K-Ft):	685.7	0.19	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0022	OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0022		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	1143.1	>	Moment at the top (L-Dir Kips-Ft):	86.6	0.08	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	1143.1	>	Moment at the top (W-Dir Kips-Ft):	86.6	0.08	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	1609.2	>	Moment at the top (C-C Direc. K-Ft):	564.5	0.35	OK!

ATTACHMENT 4

Town of Newtown

Geographic Information System (GIS)

Date Printed: 11/1/2016



MAP DISCLAIMER - NOTICE OF LIABILITY

This map is for assessment purposes only. It is not for legal description or conveyances. All information is subject to verification by any user. The Town of Newtown and its mapping contractors assume no legal responsibility for the information contained herein.

Approximate Scale: 1 inch = 100 feet

0 100 Feet

N W E S

8 FERRIS ROAD

Location	8 FERRIS ROAD	**M/B/L**	7/ 7/ 11/C /
Acct#	00871500C	**Owner**	GERTSCH ERICH & PATRICIA A
Assessment	$319,200	**Appraisal**	$456,000
PID	15218	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$96,000	$360,000	$456,000
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$67,200	$252,000	$319,200

Owner of Record

Owner GERTSCH ERICH & PATRICIA A
Co-Owner
Address 8 FERRIS RD
NEWTOWN, CT 06384

Sale Price $0
Certificate
Book & Page 181/ 350
Sale Date 12/25/2009

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
GERTSCH ERICH & PATRICIA A	$0		181/ 350	12/25/2009

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0

Building Attributes	
Field	**Description**
Style	Outbuildings
Model	
Grade:	

Stories	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Extra Kitchens	
Fireplace(s)	
Extra Opening(s)	
Gas Fireplace(s)	
Blocked FPL(s)	
Woodstove(s)	
SF Fin Bsmt	
Fin Bsmt Qual	
Bsmt Garage	
Int Millwork	
Foundation	
Dormer LF	

Building Photo

(http://images.vgsi.com/photos/NewtownCTPhotos//default.jpg)

Building Layout

Building Layout

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Land Line Valuation

Use Code	1060	**Size (Acres)**	0
Description	Vacant W/ OB	**Frontage**	
Zone	R-1	**Depth**	
Neighborhood		**Assessed Value**	$252,000
Alt Land Appr	No	**Appraised Value**	$360,000
Category			

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
CELL	Cell Tower			1 Units	$96,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$96,000	$360,000	$456,000
2014	$96,000	$360,000	$456,000

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$67,200	$252,000	$319,200
2014	$67,200	$252,000	$319,200