Robinson+Cole

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July 21, 2017

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

Re: **Notice of Exempt Modification – Facility Modification**
44 Fyler Place, Suffield, Connecticut

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless ("Cellco") currently maintains fifteen (15) wireless telecommunications antennas at the 91-foot level on an existing 109-foot tower at 44 Fyler Place in Suffield, Connecticut (the "Property"). The tower is owned by Crown Castle ("Crown"). The Council approved Cellco's use of the tower in 2001. Cellco now intends to modify its facility by removing nine (9) of its existing antennas and replace them with six (6) new antennas (three (3) model SBNHH-1D65B, 700/2100 MHz antennas and three (3) model SBNHH-1D65B, 1900 MHz antennas), all at the same 91-foot level on the tower. Cellco also intends to replace three (3) of its existing remote radio heads ("RRHs") with three (3) newer model RRHs and install six (6) new RRHs, and install two (2) HYBRIFLEX™ fiber optic antenna cables inside the monopole. 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 notice is being sent to Melissa Mack, Suffield's First Selectman; Bill Hawkins, Suffield's Town Planner; and Crown, the tower owner. The Property is owned by the Town of Suffield.

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

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's replacement antennas and RRHs will be installed at the 91-foot level on the existing 109-foot tower.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. Far Field Approximation tables for each of Cellco's operating frequencies are included in Attachment 2. The Far Field calculations demonstrate that Cellco's modified facility will operate well within the RF emissions safety limits established by the FCC.

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 parcel map and property owner information is included in Attachment 4. A stamped Certificate of Mailing verifying that this filing was sent to municipal officials and the owner of the Property is included in Attachment 5.

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:
Melissa Mack, Suffield First Selectman
Bill Hawkins, Suffield Town Planner
Crown Castle
Tim Parks

ATTACHMENT 1

Product Specifications

COMMSCOPE®

SBNHH-1D65B

6-port sector antenna, 2x 698–896 and 4x 1695–2360 MHz, 65° HPBW, 2x RET. Both high bands share the same electrical tilt.

- Interleaved dipole technology providing for attractive, low wind load mechanical package

Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.9	14.7	17.7	18.2	18.6	18.6
Beamwidth, Horizontal, degrees	68	66	69	66	63	58
Beamwidth, Vertical, degrees	12.1	10.7	5.6	5.2	5.0	4.5
Beam Tilt, degrees	0–14	0–14	0–7	0–7	0–7	0–7
USLS (First Lobe), dB	14	13	15	15	15	13
Front-to-Back Ratio at 180°, dB	27	29	28	28	28	27
Isolation, dB	25	25	25	25	25	25
Isolation, Intersystem, dB	30	30	30	30	30	30
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	350	350	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	14.5	14.3	17.4	17.9	18.2	18.3
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.8	±0.4	±0.3	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0 ° | 14.6	0 ° | 14.5	0 ° | 17.4	0 ° | 17.8	0 ° | 18.1	0 ° | 18.2
	7 ° | 14.6	7 ° | 14.4	3 ° | 17.5	3 ° | 17.9	3 ° | 18.3	3 ° | 18.4
	14 ° | 14.2	14 ° | 13.6	7 ° | 17.4	7 ° | 17.9	7 ° | 18.2	7 ° | 18.4
Beamwidth, Horizontal Tolerance, degrees	±2.2	±3.4	±2	±4.6	±5.7	±4.3
Beamwidth, Vertical Tolerance, degrees	±0.8	±1	±0.3	±0.2	±0.3	±0.2
USLS, beampeak to 20° above beampeak, dB	16	14	16	16	16	15
Front-to-Back Total Power at 180° ± 30°, dB	25	26	27	26	26	26
CPR at Boresight, dB	22	23	21	20	20	22
CPR at Sector, dB	13	11	16	12	11	4

* 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.

Array Layout

Product Specifications

SBNHH-1D65B

SBNHH 65

Array	Freq (MHz)	Conns	RET (MRET)	AISG RET UID
R1	698-896	1-2	1	ANxxxxxxxxxxxxxxxx.1
Y1	1695-2360	3-4	2	ANxxxxxxxxxxxxxxxx.2
Y2	1695-2360	5-6		

View from the front of the antenna

(Sizes of colored boxes are not true depictions of array sizes)

General Specifications

Operating Frequency Band	1695 – 2360 MHz | 698 – 896 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage

Mechanical Specifications

RF Connector Quantity, total	6
RF Connector Quantity, low band	2
RF Connector Quantity, high band	4
RF Connector Interface	7-16 DIN Female

Product Specifications

COMMSCOPE®

SBNHH-1D65B

Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Radiator Material	Aluminum | Low loss circuit board
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Location	Bottom
Wind Loading, frontal	618.0 N @ 150 km/h 138.9 lbf @ 150 km/h
Wind Loading, lateral	197.0 N @ 150 km/h 44.3 lbf @ 150 km/h
Wind Loading, rear	728.0 N @ 150 km/h 163.7 lbf @ 150 km/h
Wind Speed, maximum	241 km/h | 150 mph

Dimensions

Length	1851.0 mm | 72.9 in
Width	301.0 mm | 11.9 in
Depth	180.0 mm | 7.1 in
Net Weight, without mounting kit	18.4 kg | 40.6 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal RET	High band (1) | Low band (1)
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

Packed Dimensions

Length	2025.0 mm | 79.7 in
Width	390.0 mm | 15.4 in
Depth	296.0 mm | 11.7 in
Shipping Weight	31.0 kg | 68.3 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

Product Specifications

SBNHH-1D65B

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.

* 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.

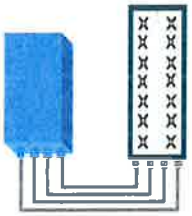
Its compactness and slim design makes the Alcatel-Lucent B13 RRH4x30-4R easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

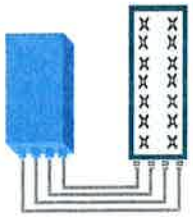
Its compactness and slim design makes the Alcatel-Lucent B25 RRH4x30 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the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

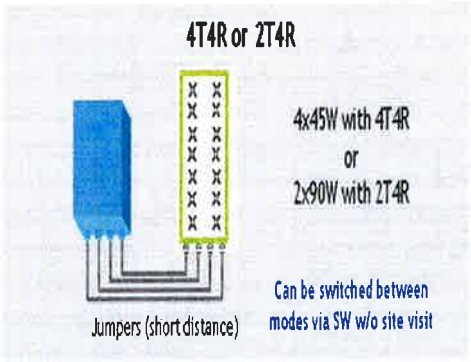
The Alcatel-Lucent B66a RRH4x45 product has four transmit RF paths, offering the possibility to **select, via software only, 2Tx or 4Tx MIMO configurations** with either 2x90W or 4x45W RF output power. It also supports 4-way Rx diversity at the 70 MHz instantaneous bandwidth.

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

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)

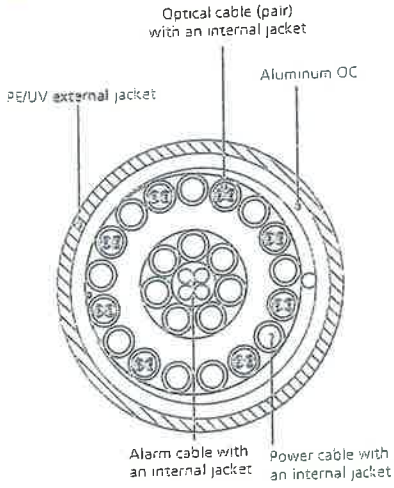


Figure 2: Construction Detail

* This data is provisional and subject to change

ATTACHMENT 2

Far Field Approximation
with downtilt variation

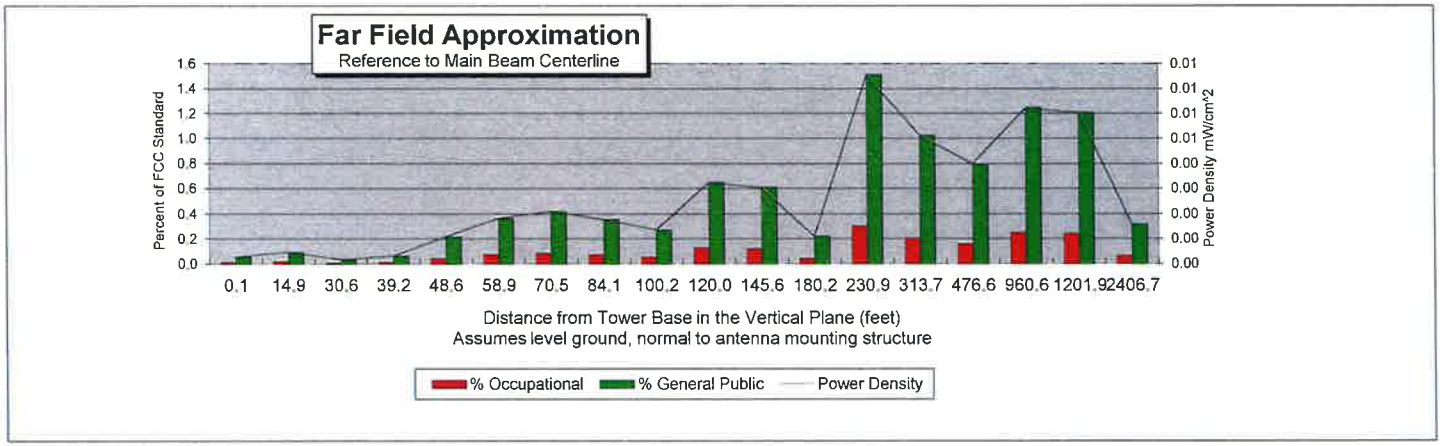
Estimated Radiated Emission

Single Emitter Far Field Model

Dipole / Wire/ Yagi Antenna Types

Location:	Suffield 2, CT
Site #:	68528
Date:	07/19/17
Name:	Kelly Lemay
File Name:	Suffield 2, CT - LTE FF Power

Operating Freq. (MHz)	**746.0**
Antenna Height (ft):	**90.0**
Antenna Gain (dBi):	**14.8**
Antenna Size (in.):	**72.0**
Downtilt (degrees):	**0.0**
Feedline Loss (dB):	**2.0**
Power @ J4 (w):	**2199.0**
Number of Channels	**1**



Distance in feet below:

Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0	
Solve for r, dx to antenna	84.0	85.3	89.4	92.7	97.0	102.6	109.7	118.8	130.7	146.5	168.1	198.9	245.7	324.7	484.0	964.3	1204.8	2408.1	
Distance from Antenna Structure Base in Horizontal plane	0.1	14.9	30.6	39.2	48.6	58.9	70.5	84.1	100.2	120.0	145.6	180.2	230.9	313.7	476.6	960.6	1201.9	2406.7	
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2	
dB down from centerline (referenced to centerline)	36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0	
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.01	0.01	0.00	
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.3	0.2	0.2	0.2	0.2	0.1	
Percent of General Population Standard	0.1	0.1	0.0	0.1	0.2	0.4	0.4	0.4	0.3	0.6	0.6	0.2	1.5	1.0	0.8	1.2	1.2	0.3	

Antenna Type SBNHH-1D65B
Max% 1.52%

Instructions:

1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to ba saved as.
2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Pov
4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
7) An odd distance may be entered in the rightmost column of the lower table.

Far Field Approximation
with downtilt variation

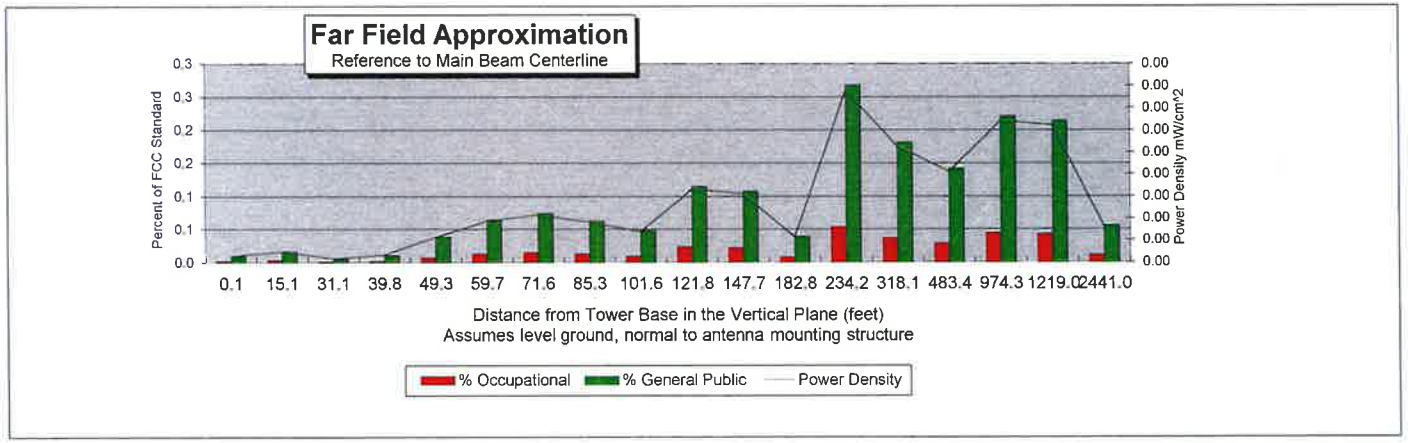
Estimated Radiated Emission

Single Emitter Far Field Model

Dipole / Wire/ Yagi Antenna Types

Location:	Suffield 2, CT
Site #:	68528
Date:	07/20/17
Name:	Kelly Lemay
File Name:	Suffield 2, CT - Cellular FF Power

Operating Freq. (MHz)	869.0
Antenna Height (ft):	90.0
Antenna Gain (dBi):	14.6
Antenna Size (in.):	43.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	2.0
Power @ J4 (w):	492.0
Number of Channels	1



Distance in feet below:

Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0
Solve for r, dx to antenna	85.2	86.5	90.7	94.0	98.4	104.0	111.3	120.5	132.6	148.6	170.5	201.7	249.2	329.4	490.9	978.1	1222.0	2442.5
Distance from Antenna Structure Base in Horizontal plane	0.1	15.1	31.1	39.8	49.3	59.7	71.6	85.3	101.6	121.8	147.7	182.8	234.2	318.1	483.4	974.3	1219.0	2441.0
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2
dB down from centerline (referenced to centerline)	36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Percent of General Population Standard	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.3	0.2	0.1	0.2	0.2	0.1

Antenna Type SC9012REV2
Max% 0.27%

Instructions:

1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to ba saved as.
2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Power
4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
7) An odd distance may be entered in the rightmost column of the lower table.

Far Field Approximation
with downtilt variation

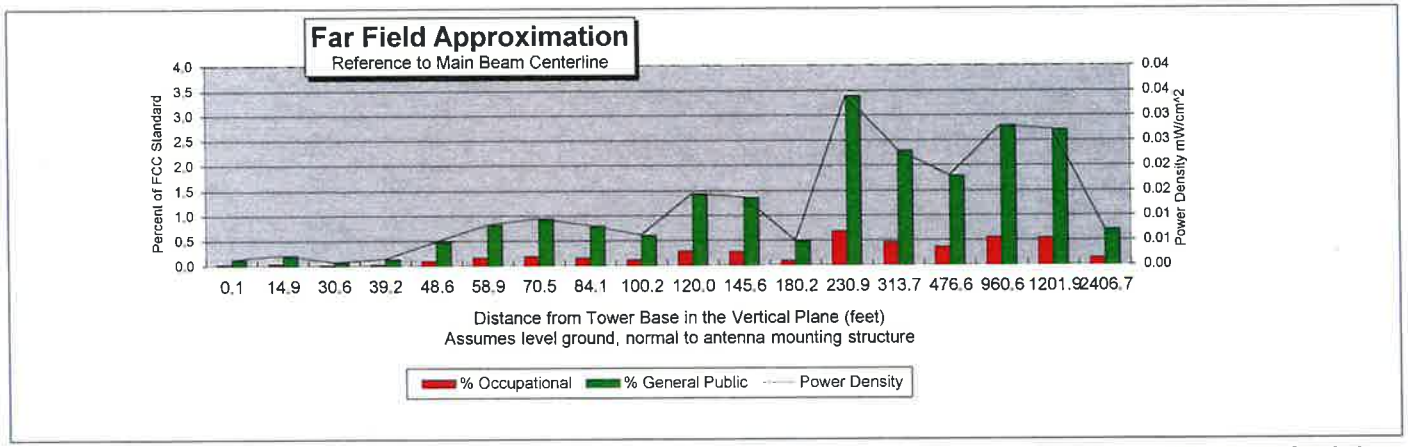
Estimated Radiated Emission

Single Emitter Far Field Model

Dipole / Wire/ Yagi Antenna Types

Location:	Suffield 2, CT
Site #:	68528
Date:	07/19/17
Name:	Kelly Lemay
File Name:	Suffield 2, CT - PCS FF Power

Operating Freq. (MHz):	1970.0
Antenna Height (ft):	90.0
Antenna Gain (dBi):	18.1
Antenna Size (in.):	72.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	2.0
Power @ J4 (w):	4669.0
Number of Channels	1



Distance in feet below:

Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0	
Solve for r, dx to antenna	84.0	85.3	89.4	92.7	97.0	102.6	109.7	118.8	130.7	146.5	168.1	198.9	245.7	324.7	484.0	964.3	1204.8	2408.1	
Distance from Antenna Structure Base in Horizontal plane	0.1	14.9	30.6	39.2	48.6	58.9	70.5	84.1	100.2	120.0	145.6	180.2	230.9	313.7	476.6	960.6	1201.9	2406.7	
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2	
dB down from centerline (referenced to centerline)	36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0	
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.03	0.02	0.02	0.03	0.03	0.01	
Percent of Occupational Standard	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.1	0.3	0.3	0.1	0.7	0.5	0.4	0.6	0.5	0.1	
Percent of General Population Standard	0.1	0.2	0.1	0.1	0.5	0.8	0.9	0.8	0.6	1.5	1.4	0.5	3.4	2.3	1.8	2.8	2.7	0.7	

Antenna Type SBNHH-1D65B
Max% 3.40%

Instructions:

1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to ba saved as.
2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Pow
4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
7) An odd distance may be entered in the rightmost column of the lower table.

Far Field Approximation
with downtilt variation

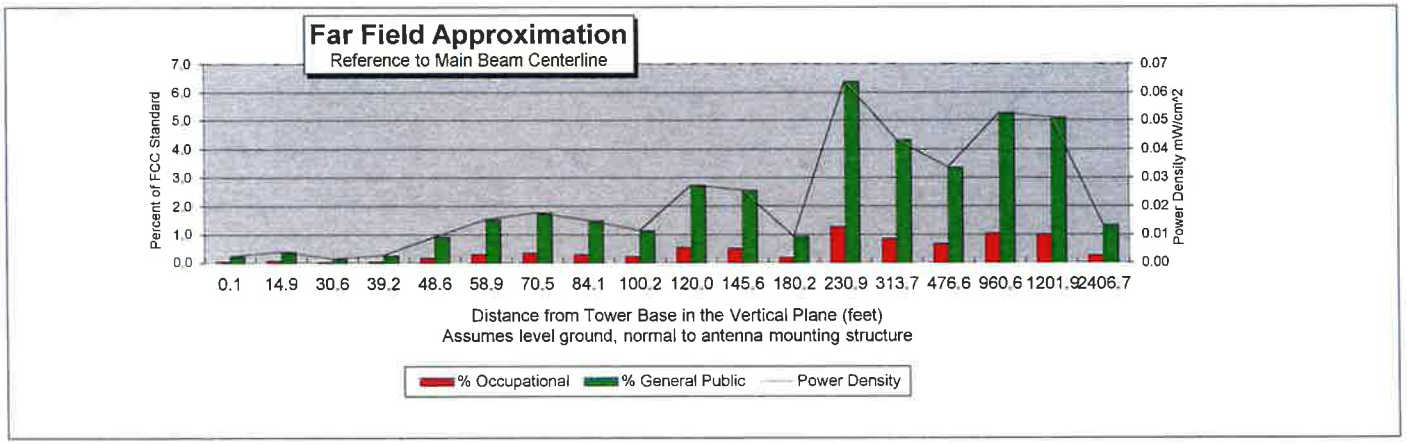
Estimated Radiated Emission

Single Emitter Far Field Model

Dipole / Wire/ Yagi Antenna Types

Location:	Suffield 2, CT
Site #:	68528
Date:	07/19/17
Name:	Kelly Lemay
File Name:	Suffield 2, CT - AWS FF Power

Operating Freq. (MHz):	2145.0
Antenna Height (ft):	90.0
Antenna Gain (dBi):	18.5
Antenna Size (in.):	72.0
Downtilt (degrees):	0.0
Feedline Loss (dB):	2.0
Power @ J4 (w):	7839.0
Number of Channels	1



Distance in feet below:

Calc Angle	90.0	80.0	70.0	65.0	60.0	55.0	50.0	45.0	40.0	35.0	30.0	25.0	20.0	15.0	10.0	5.0	4.0	2.0	
Solve for r, dx to antenna	84.0	85.3	89.4	92.7	97.0	102.6	109.7	118.8	130.7	146.5	168.1	198.9	245.7	324.7	484.0	964.3	1204.8	2408.1	
Distance from Antenna Structure Base in Horizontal plane	0.1	14.9	30.6	39.2	48.6	58.9	70.5	84.1	100.2	120.0	145.6	180.2	230.9	313.7	476.6	960.6	1201.9	2406.7	
Angle from Main Beam (reference to horizontal plane)	90	80	70	65	60	55	50	45	40	35	30	25	20	15	10	5	4	2	
dB down from centerline (referenced to centerline)	36.76	34.35	38.52	35.34	29.54	26.8	25.59	25.63	25.99	21.21	20.29	23.24	13.03	12.3	9.92	2	0.2	0	
Reflection Coefficient (1 to 4, 2.56 typical)	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	2.56	
Power Density (mW/cm^2)	0.00	0.00	0.00	0.00	0.01	0.02	0.02	0.02	0.01	0.03	0.03	0.01	0.06	0.04	0.03	0.05	0.05	0.01	
Percent of Occupational Standard	0.0	0.1	0.0	0.1	0.2	0.3	0.4	0.3	0.2	0.5	0.5	0.2	1.3	0.9	0.7	1.1	1.0	0.3	
Percent of General Population Standard	0.2	0.4	0.1	0.3	0.9	1.5	1.8	1.5	1.1	2.7	2.6	0.9	6.4	4.3	3.4	5.3	5.1	1.3	

Antenna Type SBNHH-1D65B
Max% 6.39%

Instructions:

1) Fill in Site Location, Site number, Date, Name of Person Responsible for Date, and enter File Name to ba saved as.
2) References to J4 refer to a point where the transmission line exits the equipment shelter and proceeds to the antenna(s). There is typically a connector located here where power measurements are made.
3) Enter Antenna Height (in feet to bottom of antenna), Antenna Gain (expressed as dBi, add 2.17 to dBd to obtain dBi), Antenna Size (vertical size in inches), Downtilt (in Degrees, enter zero if none), Feedline loss from J4 to Antenna, and J4 Pow
4) From manufacturer's plots, or data sheet, input Angle from mainbeam and dB below mainbeam centerline.
5) Enter Reflection coefficient (2.56 would be typical, 1 for free space)
6) Spreadsheet calculates actual power density, then relates as Occupational or General Population percentage of FCC Standard.
7) An odd distance may be entered in the rightmost column of the lower table.

ATTACHMENT 3

Date: **January 26, 2017**

Charles McGuirt
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

JACOBS
Jacobs Engineering Group, Inc.
5449 Bells Ferry Road
Acworth, GA 30102
770-701-2500

Subject:	**Structural Analysis Report**	
Carrier Designation:	***Verizon Wireless* Co-Locate**	
	Carrier Site Number:	119612
	Carrier Site Name:	Suffield
Crown Castle Designation:	**Crown Castle BU Number:**	801486
	Crown Castle Site Name:	CT SUFFIELD 2 CAC 801486
	Crown Castle JDE Job Number:	414990
	Crown Castle Work Order Number:	1352016
	Crown Castle Application Number:	360695 Rev. 1
Engineering Firm Designation:	**Jacobs Engineering Group, Inc. Project Number:**	1352016
Site Data:	**44 FFyler Place, Suffield, Hartford County, CT** **Latitude *41° 58' 49.7"*, Longitude *-72° 39' 26.2"*** **109 Foot - Monopole Tower**	

Dear Charles McGuirt,

Jacobs Engineering Group, Inc. is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 992640, in accordance with 360695, revision 1.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC5: Existing + Proposed Equipment **Sufficient Capacity**
Note: See Table I and Table II for the proposed and existing loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 120 mph converted to a nominal 3-second gust wind speed of 93 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category C with a maximum topographic factor, Kzt, of 1.0 and Risk Category II were used in this analysis.

We at *Jacobs Engineering Group, Inc.* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Respectfully submitted by:

Philip Lin
Tower Structural Engineer

Reviewed By:

01/26/17

Matthew E. Watkins, P.E.
Engineering Project Manager

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 109 ft Monopole tower designed by FWT INC. in February of 2002. The tower was originally designed for a wind speed of 80 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standard for Antenna Supporting Structures and Antennas using a 3-second gust wind speed of 93 mph with no ice, 50 mph with 1 inch ice thickness and 60 mph under service loads, exposure category C with topographic category 1 and crest height of 0 feet.

Table 1 - Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
90.0	91.0	3	alcatel lucent	B13 RRH 4X30	2	1-1/2	-
		3	alcatel lucent	PCS B25 RRH4x30			
		3	alcatel lucent	RRH2x60-AWS			
		2	commscope	RC2DC-3315-PF-48			
		6	commscope	SBNHH-1D65B w/ Mount Pipe			

Table 2 - Existing Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
107.0	109.0	2	andrew	SBNH-1D6565A w/ Mount Pipe	1 2 12	3/8 3/4 1-5/8	1
		3	cci antennas	HPA-65R-BUU-H8 w/ Mount Pipe			
		3	ericsson	RRUS 12			
		3	ericsson	RRUS A2			
		3	kathrein	800 10121 w/ Mount Pipe			
		1	powerwave technologies	P65-17-XLH-RR w/ Mount Pipe			
	107.0	1	crown mounts	Platform Mount [LP 1001-1]			
		3	communication components inc.	DTMABP7819VG12A			
		3	ericsson	RRUS-11			
		6	kathrein	860 10025			
		1	raycap	DC6-48-60-18-8F			

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
90.0	91.0	3	alcatel lucent	RRH2x40-AWS	1	1-5/8	2
		1	antel	BXA-70063-4CF-EDIN-X w/ Mount Pipe			
		2	antel	BXA-70063-6CF-EDIN-0 w/ Mount Pipe			
		6	kathrein	742 213 w/ Mount Pipe			
		1	rfs celwave	DB-B1-6C-8AB-0Z			
		6	rfs celwave	FD9R6004/2C-3L			
		2	antel	LPA-80080-4CF-EDIN-0 w/ Mount Pipe	12	1-1/4	1
		4	swedcom	SC 9012 rev 2 w/ Mount Pipe			
	90.0	1	crown mounts	Platform Mount [LP 1001-1]			
80.0	81.0	12	decibel	DB844H90-XY w/ Mount Pipe	12	7/8	3
	80.0	1	crown mounts	Platform Mount [LP 1201-1]			
74.0	74.0	3	alcatel lucent	800MHz 2X50W RRH W/FILTER	-	-	1
		3	alcatel lucent	PCS 1900MHz 4x45W-65MHz			
		1	crown mounts	Side Arm Mount [SO 102-3]			
72.0	74.0	3	alcatel lucent	TD-RRH8x20-25	1 3	5/8 1-1/4	1
		2	rfs celwave	APXV9ERR18-C-A20 w/ Mount Pipe			
		1	rfs celwave	APXVSPP18-C-A20 w/ Mount Pipe			
		3	rfs celwave	APXVTM14-C-120 w/ Mount Pipe			
	72.0	1	crown mounts	Platform Mount [LP 1201-1]			
62.0	62.0	3	rfs celwave	APX18-206516L	6	1-5/8	1
		1	crown mounts	Pipe Mount [PM 602-3]			

Notes:
1) Existing equipment
2) Equipment to be removed; not considered in this analysis
3) Abandoned Equipment; considered in this analysis

Table 3 - Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
110	110	12	swedcom	ALP-9212-N		-
102	102	12	swedcom	ALP-9212-N		-
92	92	12	swedcom	ALP-9212-N		-
82	82	12	swedcom	ALP-9212-N		-
72	72	12	swedcom	ALP-9212-N		-

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	Clough, Harbour & Associates, LLP	2294830	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	FWT	821489	CCISITES
4-TOWER MANUFACTURER DRAWINGS	FWT	823124	CCISITES

3.1) Analysis Method

tnxTower (version 7.0.7.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.

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

4) ANALYSIS RESULTS

Table 5 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	109 - 95	Pole	TP26.715x23.476x0.1875	1	-5.54	1051.09	16.9	Pass
L2	95 - 48.08	Pole	TP37.573x26.715x0.3125	2	-24.33	2558.23	46.1	Pass
L3	48.08 - 0	Pole	TP48.075x35.8094x0.375	3	-38.95	3931.05	58.4	Pass
							Summary	
						Pole (L3)	58.4	Pass
						Rating =	58.4	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	48.6	Pass
1	Base Plate	0	27.1	Pass
1	Base Foundation (Structural)	0	67.9	Pass
1	Base Foundation (Soil Interaction)	0	32.9	Pass
1	Flange Plate	95	2.6	Pass
1	Flange Bolts	95	12.0	Pass

Structure Rating (max from all components) =	67.9%

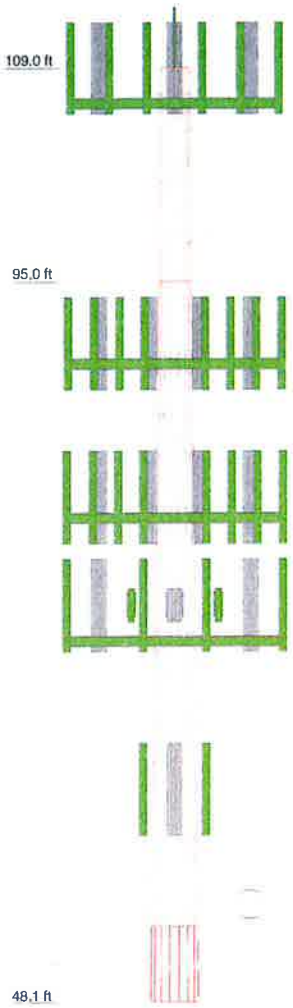
Notes:
1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A

TNXTOWER OUTPUT



Length (ft)	14.00	46.92	53.00
Number of Sides	18	18	18
Thickness (in)	0.1875	0.3125	0.3750
Socket Length (ft)		4.92	
Top Dia (in)	23.4760	26.7150	35.8094
Bot Dia (in)	26.7150	37.5730	48.0750
Grade		A572-65	
Weight (K)	0.7	5.0	8.9

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lighting Rod 3/4" x 4'	111	RRH2x60-AWS	90
800 10121 w/ Mount Pipe	107	RRH2x60-AWS	90
800 10121 w/ Mount Pipe	107	PCS B25 RRH4x30	90
800 10121 w/ Mount Pipe	107	PCS B25 RRH4x30	90
P65-17-XLH-RR w/ Mount Pipe	107	PCS B25 RRH4x30	90
SBNH-1D6565A w/ Mount Pipe	107	(2) RC2DC-3315-PF-48	90
SBNH-1D6565A w/ Mount Pipe	107	Platform Mount [LP 1001-1]	90
HPA-65R-BUU-H8 w/ Mount Pipe	107	(4) DB844H90-XY w/ Mount Pipe	80
HPA-65R-BUU-H8 w/ Mount Pipe	107	(4) DB844H90-XY w/ Mount Pipe	80
HPA-65R-BUU-H8 w/ Mount Pipe	107	(4) DB844H90-XY w/ Mount Pipe	80
(2) 860 10025	107	Platform Mount [LP 1201-1]	80
(2) 860 10025	107	PCS 1900MHz 4x45W-65MHz	74
(2) 860 10025	107	PCS 1900MHz 4x45W-65MHz	74
DC6-48-60-18-8F	107	PCS 1900MHz 4x45W-65MHz	74
(2) RRUS-11	107	800MHz 2X50W RRH W/FILTER	74
RRUS-11	107	800MHz 2X50W RRH W/FILTER	74
DTMABP7819VG12A	107	800MHz 2X50W RRH W/FILTER	74
(2) DTMABP7819VG12A	107	(2) 5'x2 1/2" Pipe Mount	74
RRUS 12	107	(2) 5'x2 1/2" Pipe Mount	74
RRUS 12	107	(2) 5'x2 1/2" Pipe Mount	74
RRUS 12	107	Side Arm Mount [SO 102-3]	74
RRUS A2	107	APXV9ERR18-C-A20 w/ Mount Pipe	72
RRUS A2	107	APXV9ERR18-C-A20 w/ Mount Pipe	72
RRUS A2	107	APXVSPP18-C-A20 w/ Mount Pipe	72
8'x2.375" Pipe Mount	107	APXVTM14-C-120 w/ Mount Pipe	72
8'x2.375" Pipe Mount	107	APXVTM14-C-120 w/ Mount Pipe	72
8'x2.375" Pipe Mount	107	APXVTM14-C-120 w/ Mount Pipe	72
Platform Mount [LP 1001-1]	107	TD-RRH8x20-25	72
(2) LPA-80080-4CF-EDIN-0 w/ Mount Pipe	90	TD-RRH8x20-25	72
		TD-RRH8x20-25	72
(2) SC 9012 rev 2 w/ Mount Pipe	90	5' x 2' Pipe Mount	72
(2) SC 9012 rev 2 w/ Mount Pipe	90	5' x 2' Pipe Mount	72
(2) SBNHH-1D65B w/ Mount Pipe	90	5' x 2' Pipe Mount	72
(2) SBNHH-1D65B w/ Mount Pipe	90	Platform Mount [LP 1201-1]	72
(2) SBNHH-1D65B w/ Mount Pipe	90	APX18-206516L	62
B13 RRH 4X30	90	APX18-206516L	62
B13 RRH 4X30	90	APX18-206516L	62
B13 RRH 4X30	90	Pipe Mount [PM 602-3]	62
RRH2x60-AWS	90		

MATERIAL STRENGTH

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

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 93 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.00 ft
8. TOWER RATING: 58.4%

ALL REACTIONS ARE FACTORED

AXIAL 79 K

SHEAR 9 K — *MOMENT 727 kip-ft*

TORQUE 1 kip-ft
50 mph WIND - 1.0000 in ICE

AXIAL 39 K

SHEAR 27 K — *MOMENT 2212 kip-ft*

TORQUE 3 kip-ft
REACTIONS - 93 mph WIND

JACOBS
Jacobs Engineering Group, Inc.
5449 Bells Ferry Road
Acworth, GA 30102
Phone: 770-701-2500
FAX: 770-701-2501

Job: *CT SUFFIELD 2 CAC 801486*
Project: *BU801486_WO1352016*
Client: Crown Castle — Drawn by: LinP — App'd:
Code: TIA-222-G — Date: 01/26/17 — Scale: N
Path: T:\801486 CT SUFFIELD 2 CAC 801486\WO 1352016\Analysis\LC\Models\BU801486_WO1352016.eri — Dwg No.

Tower Input Data

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

Tower is located in Hartford County, Connecticut.
Basic wind speed of 93 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	109.00-95.00	14.00	0.00	18	23.4760	26.7150	0.1875	0.7500	A572-65 (65 ksi)
L2	95.00-48.08	46.92	4.92	18	26.7150	37.5730	0.3125	1.2500	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L3	48.08-0.00	53.00		18	35.8094	48.0750	0.3750	1.5000	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	23.8382	13.8596	949.6645	8.2674	11.9258	79.6310	1900.5786	6.9311	3.8018	20.276
	27.1271	15.7872	1403.5717	9.4173	13.5712	103.4227	2808.9903	7.8951	4.3718	23.316
L2	27.1271	26.1880	2306.3730	9.3729	13.5712	169.9459	4615.7808	13.0965	4.1518	13.286
	38.1526	36.9578	6482.4687	13.2275	19.0871	339.6259	12973.4672	18.4824	6.0628	19.401
L3	37.5180	42.1758	6690.4026	12.5792	18.1912	367.7825	13389.6086	21.0919	5.6425	15.047
	48.8166	56.7749	16320.3992	16.9335	24.4221	668.2635	32662.2732	28.3929	7.8012	20.803

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 109.00-95.00				1	1	1			
L2 95.00-48.08				1	1	1			
L3 48.08-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
***									
CR 50 1873(1-5/8")	C	Surface Ar (CaAa)	62.00 - 0.00	6	6	-0.100 0.100	1.9800		0.83
***									
Safety Line 3/8	C	Surface Ar (CaAa)	109.00 - 0.00	1	1	-0.400 -0.400	0.3750		0.22
***									

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
LDF7-50A(1-5/8")	C	No	Inside Pole	107.00 - 0.00	12	No Ice	0.00	0.82
						1/2" Ice	0.00	0.82
						1" Ice	0.00	0.82
FB-L98B-002-75000(3/8")	C	No	Inside Pole	107.00 - 0.00	1	No Ice	0.00	0.06
						1/2" Ice	0.00	0.06
						1" Ice	0.00	0.06
WR-VG86ST-BRD(3/4)	C	No	Inside Pole	107.00 - 0.00	2	No Ice	0.00	0.58

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
						1/2" Ice	0.00	0.58
						1" Ice	0.00	0.58
2" Rigid Conduit	C	No	Inside Pole	107.00 - 0.00	1	No Ice	0.00	2.80
						1/2" Ice	0.00	2.80
						1" Ice	0.00	2.80
***								
LDF6-50A(1-1/4")	A	No	Inside Pole	90.00 - 0.00	12	No Ice	0.00	0.66
						1/2" Ice	0.00	0.66
						1" Ice	0.00	0.66
MLC HYBRID 6X12 LI(1-1/2)	A	No	Inside Pole	90.00 - 0.00	2	No Ice	0.00	1.85
						1/2" Ice	0.00	1.85
						1" Ice	0.00	1.85
***								
LDF5-50A(7/8")	A	No	Inside Pole	80.00 - 0.00	12	No Ice	0.00	0.33
						1/2" Ice	0.00	0.33
						1" Ice	0.00	0.33
***								
HB114-1-08U4-M5J(1 1/4")	B	No	Inside Pole	72.00 - 0.00	3	No Ice	0.00	1.08
						1/2" Ice	0.00	1.08
						1" Ice	0.00	1.08
HB058-M12-XXXF(5/8")	B	No	Inside Pole	72.00 - 0.00	1	No Ice	0.00	0.24
						1/2" Ice	0.00	0.24
						1" Ice	0.00	0.24
***								

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	109.00-95.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.525	0.000	0.17
L2	95.00-48.08	A	0.000	0.000	0.000	0.000	0.61
		B	0.000	0.000	0.000	0.000	0.08
		C	0.000	0.000	18.296	0.000	0.73
L3	48.08-0.00	A	0.000	0.000	0.000	0.000	0.75
		B	0.000	0.000	0.000	0.000	0.17
		C	0.000	0.000	58.922	0.000	0.92

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	109.00-95.00	A	2.239	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	6.793	0.000	0.27
L2	95.00-48.08	A	2.158	0.000	0.000	0.000	0.000	0.61
		B		0.000	0.000	0.000	0.000	0.08
		C		0.000	0.000	50.193	0.000	1.45
L3	48.08-0.00	A	1.938	0.000	0.000	0.000	0.000	0.75
		B		0.000	0.000	0.000	0.000	0.17
		C		0.000	0.000	119.895	0.000	2.64

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L1	109.00-95.00	0.0411	0.0370	0.3850	0.3467
L2	95.00-48.08	0.0364	0.5703	0.3233	0.9411
L3	48.08-0.00	0.0310	1.3978	0.2582	1.7882

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	17	Safety Line 3/8	95.00 - 109.00	1.0000	1.0000
L2	15	CR 50 1873(1-5/8")	48.08 - 62.00	1.0000	1.0000
L2	17	Safety Line 3/8	48.08 - 95.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
Lighting Rod 3/4" x 4'	C	None		0.0000	111.00	No Ice	0.30	0.30	0.03
						1/2" Ice	0.71	0.71	0.03
						1" Ice	1.00	1.00	0.04
level 107									
800 10121 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	5.39 5.81 6.23	4.60 5.35 6.05	0.07 0.11 0.17
800 10121 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	5.39 5.81 6.23	4.60 5.35 6.05	0.07 0.11 0.17
800 10121 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	5.39 5.81 6.23	4.60 5.35 6.05	0.07 0.11 0.17
P65-17-XLH-RR w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	11.70 12.42 13.15	8.94 10.45 11.99	0.09 0.18 0.27
SBNH-1D6565A w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	6.17 6.74 7.26	5.54 6.44 7.19	0.08 0.14 0.20
SBNH-1D6565A w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	6.17 6.74 7.26	5.54 6.44 7.19	0.08 0.14 0.20

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment°	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
HPA-65R-BUU-H8 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	13.59 14.19 14.80	10.80 12.12 13.17	0.08 0.18 0.29
HPA-65R-BUU-H8 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	13.59 14.19 14.80	10.80 12.12 13.17	0.08 0.18 0.29
HPA-65R-BUU-H8 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	13.59 14.19 14.80	10.80 12.12 13.17	0.08 0.18 0.29
(2) 860 10025	A	From Leg	4.00 0.00 0.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	0.14 0.20 0.26	0.12 0.17 0.23	0.00 0.00 0.01
(2) 860 10025	B	From Leg	4.00 0.00 0.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	0.14 0.20 0.26	0.12 0.17 0.23	0.00 0.00 0.01
(2) 860 10025	C	From Leg	4.00 0.00 0.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	0.14 0.20 0.26	0.12 0.17 0.23	0.00 0.00 0.01
DC6-48-60-18-8F	A	From Leg	4.00 0.00 0.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	0.92 1.46 1.64	0.92 1.46 1.64	0.03 0.05 0.07
(2) RRUS-11	A	From Leg	4.00 0.00 0.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	2.52 2.72 2.92	1.07 1.21 1.36	0.06 0.07 0.10
RRUS-11	B	From Leg	4.00 0.00 0.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	2.52 2.72 2.92	1.07 1.21 1.36	0.06 0.07 0.10
DTMABP7819VG12A	B	From Leg	4.00 0.00 0.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	0.98 1.10 1.23	0.34 0.42 0.51	0.02 0.03 0.04
(2) DTMABP7819VG12A	C	From Leg	4.00 0.00 0.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	0.98 1.10 1.23	0.34 0.42 0.51	0.02 0.03 0.04
RRUS 12	A	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	3.15 3.36 3.59	1.29 1.44 1.60	0.06 0.08 0.11
RRUS 12	B	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	3.15 3.36 3.59	1.29 1.44 1.60	0.06 0.08 0.11
RRUS 12	C	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	3.15 3.36 3.59	1.29 1.44 1.60	0.06 0.08 0.11
RRUS A2	A	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	2.07 2.25 2.43	0.50 0.61 0.72	0.02 0.03 0.05
RRUS A2	B	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	2.07 2.25 2.43	0.50 0.61 0.72	0.02 0.03 0.05
RRUS A2	C	From Leg	4.00 0.00 2.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	2.07 2.25 2.43	0.50 0.61 0.72	0.02 0.03 0.05
8'x2.375" Pipe Mount	A	From Leg	4.00 0.00 0.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
8'x2.375" Pipe Mount	B	From Leg	4.00 0.00 0.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06

tnxTower	Job: CT SUFFIELD 2 CAC 801486	Page: 6 of 10
Jacobs Engineering Group, Inc. 5449 Bells Ferry Road Acworth, GA 30102 Phone: 770-701-2500 FAX: 770-701-2501	Project: BU801486_WO1352016	Date: 14:48:07 01/26/17
	Client: Crown Castle	Designed by: LinP

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
8'x2.375" Pipe Mount	C	From Leg	4.00 0.00 0.00	0.0000	107.00	No Ice 1/2" Ice 1" Ice	1.90 2.73 3.40	1.90 2.73 3.40	0.03 0.04 0.06
Platform Mount [LP 1001-1]	C	None		0.0000	107.00	No Ice 1/2" Ice 1" Ice	42.70 52.50 62.30	42.70 52.50 62.30	2.75 3.30 3.88
level 90									
(2) LPA-80080-4CF-EDIN-0 w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	2.86 3.22 3.59	6.57 7.19 7.84	0.03 0.08 0.13
(2) SC 9012 rev 2 w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	2.77 3.07 3.37	4.04 4.56 5.10	0.02 0.06 0.10
(2) SC 9012 rev 2 w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	2.77 3.07 3.37	4.04 4.56 5.10	0.02 0.06 0.10
(2) SBNHH-1D65B w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	8.29 8.85 9.37	7.00 8.19 9.08	0.08 0.14 0.22
(2) SBNHH-1D65B w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	8.29 8.85 9.37	7.00 8.19 9.08	0.08 0.14 0.22
(2) SBNHH-1D65B w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	8.29 8.85 9.37	7.00 8.19 9.08	0.08 0.14 0.22
B13 RRH 4X30	A	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.32 1.48 1.64	0.06 0.07 0.09
B13 RRH 4X30	B	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.32 1.48 1.64	0.06 0.07 0.09
B13 RRH 4X30	C	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.32 1.48 1.64	0.06 0.07 0.09
RRH2x60-AWS	A	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
RRH2x60-AWS	B	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
RRH2x60-AWS	C	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	3.50 3.76 4.03	1.82 2.05 2.29	0.06 0.08 0.11
PCS B25 RRH4x30	A	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.59	1.74 1.92 2.11	0.06 0.08 0.10
PCS B25 RRH4x30	B	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.59	1.74 1.92 2.11	0.06 0.08 0.10
PCS B25 RRH4x30	C	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	2.20 2.39 2.59	1.74 1.92 2.11	0.06 0.08 0.10
(2) RC2DC-3315-PF-48	A	From Leg	4.00 0.00 1.00	0.0000	90.00	No Ice 1/2" Ice 1" Ice	3.79 4.04 4.30	2.51 2.72 2.94	0.03 0.06 0.10
Platform Mount [LP 1001-1]	C	None		0.0000	90.00	No Ice 1/2" Ice	42.70 52.50	42.70 52.50	2.75 3.30

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						1" Ice	62.30	62.30	3.88
*									
*									
level 80									
level 80									
(4) DB844H90-XY w/ Mount Pipe	A	From Leg	4.00 0.00 1.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice	3.10 3.48 3.85	4.98 5.60 6.23	0.03 0.07 0.11
(4) DB844H90-XY w/ Mount Pipe	B	From Leg	4.00 0.00 1.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice	3.10 3.48 3.85	4.98 5.60 6.23	0.03 0.07 0.11
(4) DB844H90-XY w/ Mount Pipe	C	From Leg	4.00 0.00 1.00	0.0000	80.00	No Ice 1/2" Ice 1" Ice	3.10 3.48 3.85	4.98 5.60 6.23	0.03 0.07 0.11
Platform Mount [LP 1201-1]	C	None		0.0000	80.00	No Ice 1/2" Ice 1" Ice	23.10 26.80 30.50	23.10 26.80 30.50	2.10 2.50 2.90
level 74									
PCS 1900MHz 4x45W-65MHz	A	From Leg	2.00 0.00 0.00	0.0000	74.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
PCS 1900MHz 4x45W-65MHz	B	From Leg	2.00 0.00 0.00	0.0000	74.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
PCS 1900MHz 4x45W-65MHz	C	From Leg	2.00 0.00 0.00	0.0000	74.00	No Ice 1/2" Ice 1" Ice	2.32 2.53 2.74	2.24 2.44 2.65	0.06 0.08 0.11
800MHz 2X50W RRH W/FILTER	A	From Leg	2.00 0.00 0.00	0.0000	74.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
800MHz 2X50W RRH W/FILTER	B	From Leg	2.00 0.00 0.00	0.0000	74.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
800MHz 2X50W RRH W/FILTER	C	From Leg	2.00 0.00 0.00	0.0000	74.00	No Ice 1/2" Ice 1" Ice	2.06 2.24 2.43	1.93 2.11 2.29	0.06 0.09 0.11
(2) 5'x2 1/2" Pipe Mount	A	From Leg	2.00 0.00 0.00	0.0000	74.00	No Ice 1/2" Ice 1" Ice	1.33 1.63 1.95	1.33 1.63 1.95	0.03 0.04 0.05
(2) 5'x2 1/2" Pipe Mount	B	From Leg	2.00 0.00 0.00	0.0000	74.00	No Ice 1/2" Ice 1" Ice	1.33 1.63 1.95	1.33 1.63 1.95	0.03 0.04 0.05
(2) 5'x2 1/2" Pipe Mount	C	From Leg	2.00 0.00 0.00	0.0000	74.00	No Ice 1/2" Ice 1" Ice	1.33 1.63 1.95	1.33 1.63 1.95	0.03 0.04 0.05
Side Arm Mount [SO 102-3]	C	None		0.0000	74.00	No Ice 1/2" Ice 1" Ice	3.00 3.48 3.96	3.00 3.48 3.96	0.08 0.11 0.14
level 72									
APXV9ERR18-C-A20 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	72.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	7.47 8.66 9.56	0.09 0.16 0.24
APXV9ERR18-C-A20 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	72.00	No Ice 1/2" Ice 1" Ice	8.26 8.82 9.35	7.47 8.66 9.56	0.09 0.16 0.24
APXVSPP18-C-A20 w/ Mount Pipe	B	From Leg	4.00 0.00	0.0000	72.00	No Ice 1/2" Ice	8.26 8.82	6.95 8.13	0.08 0.15

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			2.00			1" Ice	9.35	9.02	0.23
APXVTM14-C-120 w/ Mount Pipe	A	From Leg	4.00 0.00 2.00	0.0000	72.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	B	From Leg	4.00 0.00 2.00	0.0000	72.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
APXVTM14-C-120 w/ Mount Pipe	C	From Leg	4.00 0.00 2.00	0.0000	72.00	No Ice 1/2" Ice 1" Ice	6.58 7.03 7.47	4.96 5.75 6.47	0.08 0.13 0.19
TD-RRH8x20-25	A	From Leg	4.00 0.00 2.00	0.0000	72.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
TD-RRH8x20-25	B	From Leg	4.00 0.00 2.00	0.0000	72.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
TD-RRH8x20-25	C	From Leg	4.00 0.00 2.00	0.0000	72.00	No Ice 1/2" Ice 1" Ice	4.05 4.30 4.56	1.53 1.71 1.90	0.07 0.10 0.13
5' x 2' Pipe Mount	A	From Leg	4.00 0.00 2.00	0.0000	72.00	No Ice 1/2" Ice 1" Ice	1.00 1.39 1.70	1.00 1.39 1.70	0.03 0.04 0.05
5' x 2' Pipe Mount	B	From Leg	4.00 0.00 2.00	0.0000	72.00	No Ice 1/2" Ice 1" Ice	1.00 1.39 1.70	1.00 1.39 1.70	0.03 0.04 0.05
5' x 2' Pipe Mount	C	From Leg	4.00 0.00 2.00	0.0000	72.00	No Ice 1/2" Ice 1" Ice	1.00 1.39 1.70	1.00 1.39 1.70	0.03 0.04 0.05
Platform Mount [LP 1201-1]	C	None		0.0000	72.00	No Ice 1/2" Ice 1" Ice	23.10 26.80 30.50	23.10 26.80 30.50	2.10 2.50 2.90
level 62									
APX18-206516L	A	From Leg	1.00 0.00 0.00	0.0000	62.00	No Ice 1/2" Ice 1" Ice	3.51 3.85 4.19	2.00 2.33 2.66	0.02 0.04 0.06
APX18-206516L	B	From Leg	1.00 0.00 0.00	0.0000	62.00	No Ice 1/2" Ice 1" Ice	3.51 3.85 4.19	2.00 2.33 2.66	0.02 0.04 0.06
APX18-206516L	C	From Leg	1.00 0.00 0.00	0.0000	62.00	No Ice 1/2" Ice 1" Ice	3.51 3.85 4.19	2.00 2.33 2.66	0.02 0.04 0.06
Pipe Mount [PM 602-3]	C	None		0.0000	62.00	No Ice 1/2" Ice 1" Ice	7.68 9.50 11.32	7.68 9.50 11.32	0.28 0.35 0.43
level 47									

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	109 - 95 (1)	TP26.715x23.476x0.1875	14.00	0.00	0.0	15.7872	-5.54	1051.09	0.005
L2	95 - 48.08 (2)	TP37.573x26.715x0.3125	46.92	0.00	0.0	35.8284	-24.33	2558.23	0.010
L3	48.08 - 0 (3)	TP48.075x35.8094x0.375	53.00	0.00	0.0	56.7749	-38.95	3931.05	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	109 - 95 (1)	TP26.715x23.476x0.1875	94.09	573.81	0.164	0.00	573.81	0.000
L2	95 - 48.08 (2)	TP37.573x26.715x0.3125	856.05	1898.72	0.451	0.00	1898.72	0.000
L3	48.08 - 0 (3)	TP48.075x35.8094x0.375	2211.87	3855.83	0.574	0.00	3855.83	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	109 - 95 (1)	TP26.715x23.476x0.1875	7.58	525.54	0.014	0.15	1149.03	0.000
L2	95 - 48.08 (2)	TP37.573x26.715x0.3125	23.78	1279.11	0.019	0.06	3802.08	0.000
L3	48.08 - 0 (3)	TP48.075x35.8094x0.375	27.22	1965.52	0.014	0.06	7721.10	0.000

Pole Interaction Design Data

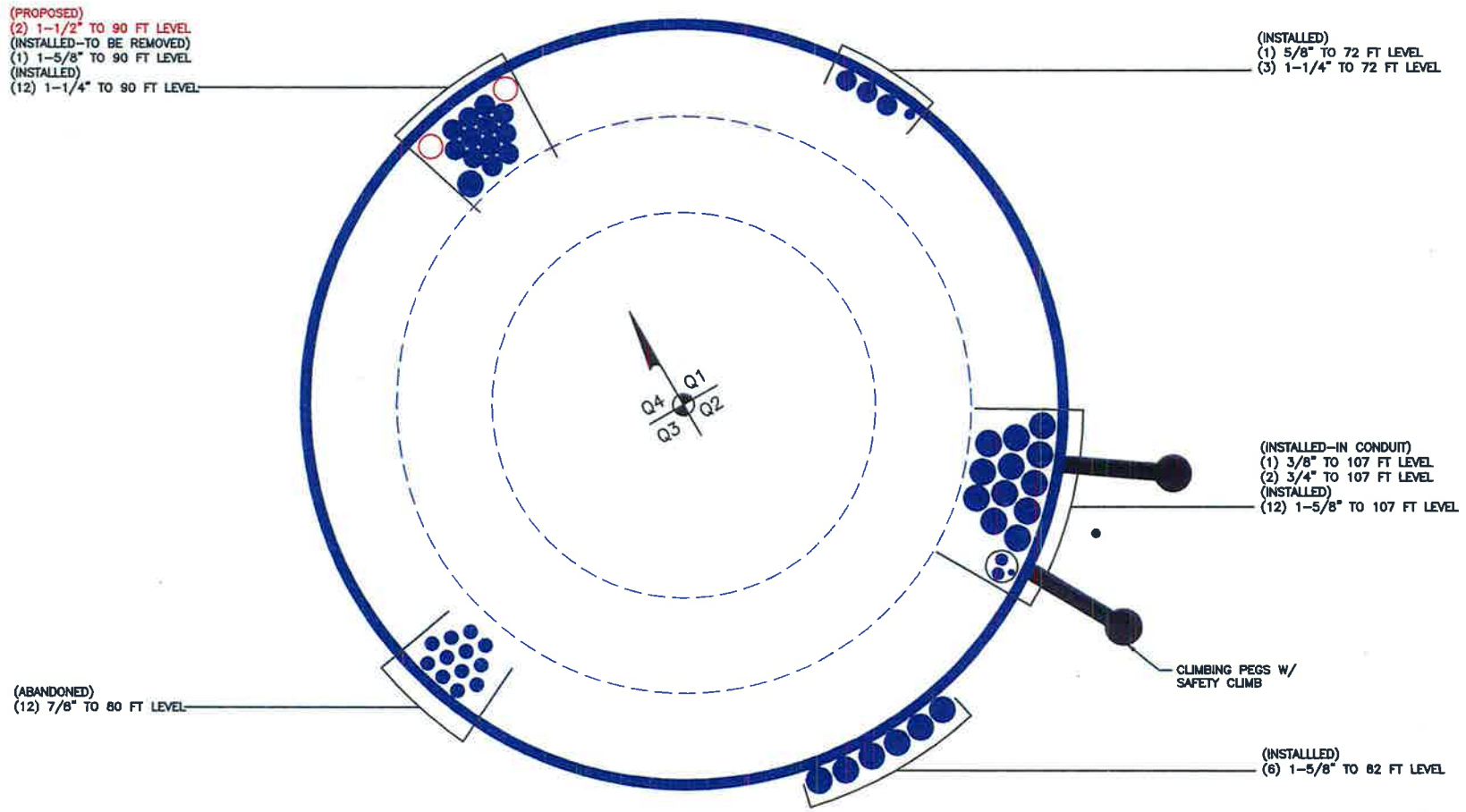
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	109 - 95 (1)	0.005	0.164	0.000	0.014	0.000	0.169 ✔	1.000	4.8.2 ✔
L2	95 - 48.08 (2)	0.010	0.451	0.000	0.019	0.000	0.461 ✔	1.000	4.8.2 ✔
L3	48.08 - 0 (3)	0.010	0.574	0.000	0.014	0.000	0.584 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	109 - 95	Pole	TP26.715x23.476x0.1875	1	-5.54	1051.09	16.9	Pass
L2	95 - 48.08	Pole	TP37.573x26.715x0.3125	2	-24.33	2558.23	46.1	Pass
L3	48.08 - 0	Pole	TP48.075x35.8094x0.375	3	-38.95	3931.05	58.4	Pass
							Summary	
						Pole (L3)	58.4	Pass
						RATING =	**58.4**	**Pass**

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 801486 TOWER ID: C_BASELEVEL

APPENDIX C

ADDITIONAL CALCULATIONS

Stiffened or Unstiffened, Exterior Flange Plate - Any Bolt Material TIA Rev G

Reactions		
Mu	94	ft-kips
Axial, Pu:	5.5	kips
Shear, Vu:	7.6	kips
Elevation:	95	feet

Bolt Threads:
X-Excluded
φVn=φ(0.55*Ab*Fu)
φ=0.75, φ*Vn (kips):
38.88

Site Data

BU#: *801486*
Site Name: *CT SUFFIELD 2 CAC 801486*
App #: *360695 Rev. 1*

Pole Manufacturer:	Other

If No stiffeners, Criteria:	TIA G	<-Only Applcable to Unstiffened Cases

Bolt Data			
Qty:	20		
Diameter (in.):	1	Bolt Fu:	120
Bolt Material:	A325	Bolt Fy:	92
N/A:	75	<-- Disregard	
N/A:	55	<-- Disregard	
Circle (in.):	33		

Plate Data		
Diam:	36	in
Thick, t:	2.25	in
Grade (Fy):	60	ksi
Strength, Fu:	80	ksi
Single-Rod B-eff:	4.24	in

Stiffener Data (Welding at Both Sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	26.715	in
Thick:	0.1875	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Flange Bolt Results

Bolt Tension Capacity, φ*Tn,**B1**:	54.54	kips	Rigid
Adjusted φ*Tn (due to Vu=Vu/Qty), **B**:	54.54	kips	φ*Tn
Max Bolt directly applied Tu:	6.56	Kips	φTn[(1-(Vu/φVn)^2]^0.5
Min. PL "tc" for **B** cap. **w/o** Pry:	1.381	in	
Min PL "treq" for actual **T w/ Pry:**	0.362	in	
Min PL "t1" for actual **T w/o Pry:**	0.479	in	
T allowable w/o Prying:	54.54	kips	α'<0 case
Prying Force, q:	0.00	kips	
Total Bolt Tension=Tu+q:	6.56	kips	
Non-Prying Bolt Stress Ratio, Tu/B:	12.0%	Pass	

Exterior Flange Plate Results Flexural Check

Compression Side Plate Stress:	2.4	ksi	Rigid
Allowable Plate Stress:	54.0	ksi	TIA G
Compression Plate Stress Ratio:	4.4%	Pass	φ*Fy
No Prying			Comp. Y.L. Length:
Tension Side Stress Ratio, (treq/t)^2:	2.6%	Pass	19.37

n/a

Stiffener Results

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

Pole Results

Pole Punching Shear Check: n/a

* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

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

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev G Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data

BU#: *801486*
Site Name: *CT SUFFIELD 2 CAC 801486*
App #: *360695 Rev. 1*

Pole Manufacturer:	*Other*

Anchor Rod Data		
Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	55	in

Plate Data		
Diam:	61	in
Thick:	2.75	in
Grade:	60	ksi
Single-Rod B-eff:	9.54	in

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data		
Diam:	48.075	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Reactions		
Mu:	2212	ft-kips
Axial, Pu:	39	kips
Shear, Vu:	27	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

If No stiffeners, Criteria:	AISC LRFD	<-Only Applcable to Unstiffened Cases

Anchor Rod Results

		Rigid
Max Rod (Cu+ Vu/ή):	126.5 Kips	AISC LRFD
Allowable Axial, Φ*Fu*Anet:	260.0 Kips	φ*Tn
Anchor Rod Stress Ratio:	48.6% Pass	

Base Plate Results Flexural Check

		Rigid
Base Plate Stress:	14.6 ksi	AISC LRFD
Allowable Plate Stress:	54.0 ksi	φ*Fy
Base Plate Stress Ratio:	27.1% Pass	Y.L. Length: 26.72

n/a

Stiffener Results

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

Pole Results

Pole Punching Shear Check: n/a

* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

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

(Bearing and Stability Checks) Tool for TIA Rev F or G - Application (MP, SST with unitbase)

Site Data

BU#: *801486*
Site Name: *CT SUFFIELD 2 CAC 801486*
App #: *360695 Rev. 1*

Loads Already Factored		
For P (DL)	1.2	<----Disregard
For P,V, and M (WL)	1.35	<----Disregard

Pad & Pier Data		
Base PL Dist. Above Pier:	0	in
Pier Dist. Above Grade:	6	in
Pad Bearing Depth, D:	6.5	ft
Pad Thickness, T:	2.5	ft
Pad Width=Length, L:	26	ft
Pier Cross Section Shape:	Round	<--Pull Down
Enter Pier Diameter:	6.5	ft
Concrete Density:	150.0	pcf
Pier Cross Section Area:	33.18	ft^2
Pier Height:	4.50	ft
Soil (above pad) Height:	4.00	ft

Soil Parameters		
Unit Weight, γ:	120.0	pcf
Ultimate Bearing Capacity, qn:	8.00	ksf
Strength Reduct. factor, ϕ:	0.75	
Angle of Friction, Φ:	0.0	degrees
Undrained Shear Strength, Cu:	1.15	ksf
Allowable Bearing: ϕ*qn:	6.00	ksf
Passive Pres. Coeff., Kp	1.00	

Forces/Moments due to Wind and Lateral Soil		
Minimum of (φ*Ultimate Pad Passive Force, Vu):	27.0	kips
Pad Force Location Above D:	1.23	ft
ϕ(Passive Pressure Moment):	33.17	ft-kips
Factored O.T. M(WL), "1.6W":	2401.0	ft-kips
Factored OT (MW-Msoil), M1	2367.83	ft-kips

Resistance due to Foundation Gravity		
Soil Wedge Projection grade, a:	0.00	ft
Sum of Soil Wedges Wt:	0.00	kips
Soil Wedges ecc, K1:	0.00	ft
Ftg+Soil above Pad wt:	584.5	kips
Unfactored (Total ftg-soil Wt):	584.45	kips
1.2D. **No Soil Wedges.**	740.34	kips
0.9D. **With Soil Wedges**	555.26	kips

Resistance due to Cohesion (Vertical)		
ϕ*(1/2*Cu)(Total Vert. Planes)	65.45	kips
Cohesion Force Eccentricity, K2	12.06	ft

Monopole Base Reaction Forces		
TIA Revision:	G	<--Pull Down
Factored DL Axial, PDu:	39	kips
Factored WL Axial, PWu:	0	kips
Factored WL Shear, Vu:	27	kips
Factored WL Moment, Mu:	2212	ft-kips

Load Factor	Shaft Factored Loads		
1.00	1.2D+1.6W, Pu:	39	kips
0.90	0.9D+1.6W, Pu:	29.25	kips
1.00	Vu:	27	kips
	Mu:	2212	ft-kips

1.2D+1.6W Load Combination, Bearing Results:

(**No Soil Wedges**) [Reaction+Conc+Soil]	740.34	P1="1.2D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil), M1	2367.83	ft-kips

Orthogonal Direction:

ecc1 = M1/P1 =	3.20	ft
Orthogonal qu=	1.63	ksf
qu/ϕ*qn Ratio=	**27.23%**	Pass

Diagonal Direction:

ecc2 = (0.707M1)/P1 =	2.26	ft
Diagonal qu=	1.60	ksf
qu/ϕ*qn Ratio=	**26.75%**	Pass

Run <-- Press Upon Completing All Input

Overturning Stability Check

0.9D+1.6W Load Combination, Bearing Results:

(**w/ Soil Wedges**) [Reaction+Conc+Soil]	555.26	P2="0.9D+1.6W" (Kips)
Factored "1.6W" Overturning Moment (MW-Msoil) - 0.9(M of Wedge + M of Cohesion), M2	1657.43	ft-kips

Orthogonal ecc3 = M2/P2 =	2.98	ft
Ortho Non Bearing Length,NBL=	5.97	ft
Orthogonal qu=	1.20	ksf
Diagonal qu=	1.17	ksf

Max Reaction Moment (ft-kips) so that qu=φ*qn = 100% Capacity Rating			
Actual M:	2212.00		
M Orthogonal:	6723.08	**32.90%**	Pass
M Diagonal:	6723.08	**32.90%**	Pass

Project Name:	CT SUFFIELD 2 CAC 801486	JACOBS® Jacobs Engineering Group, Inc.	Created On: 6/3/2014
Project Number:	801486		Checked By: DW
Job Number:	1352016		Revised On: 12/1/2016
Date:	1/26/2017		Revision No.: 1.7

Monopole Pad & Pier Foundation

Foundation Parameters

Load		
Code	G	
Axial	39	kips
Shear	27	kips
Moment	2212	k-ft
Soil Unit Weight	120	pcf
Friction Angle	0	
Cohesion	1150	psf

Material		
Concrete Strength (F'c)	3000	psi
Concrete Density	150	pcf
Rebar Tensile (Fy)	60	ksi
Clear Cover	3.5	in

Pad		
Thickness	2.5	ft
Bearing Depth	6.5	ft
Width	26	ft
Rebar Size	9	
Rebar Quantity	22	

Pier		
Pier type	Circle	
Diameter	6.5	ft
Height above Grade	0.5	ft
Rebar Size	9	
Rebar Quantity	32	
Tie Size	5	
Tie C/C Spacing	9	in

Structural Checks

Pad Beam Shear Capacity	635.9	kips
Pad Beam Shear	305.0	kips
Pad Beam Shear Check	48.0%	Pass

Pad Bending Moment Capacity	2373.9	k-ft
Pad Bending Moment	1611.8	k-ft
Pad Bending Moment Check	67.9%	Pass

Punching Shear Capacity	1316.6	kips
Punching Shear	338.5	kips
Punching Shear Check	25.7%	Pass

Pad-Pier Bearing Capacity	15840.3	kips
Pad-Pier Bearing	740.3	kips
Pad-Pier Bearing Check	4.7%	Pass

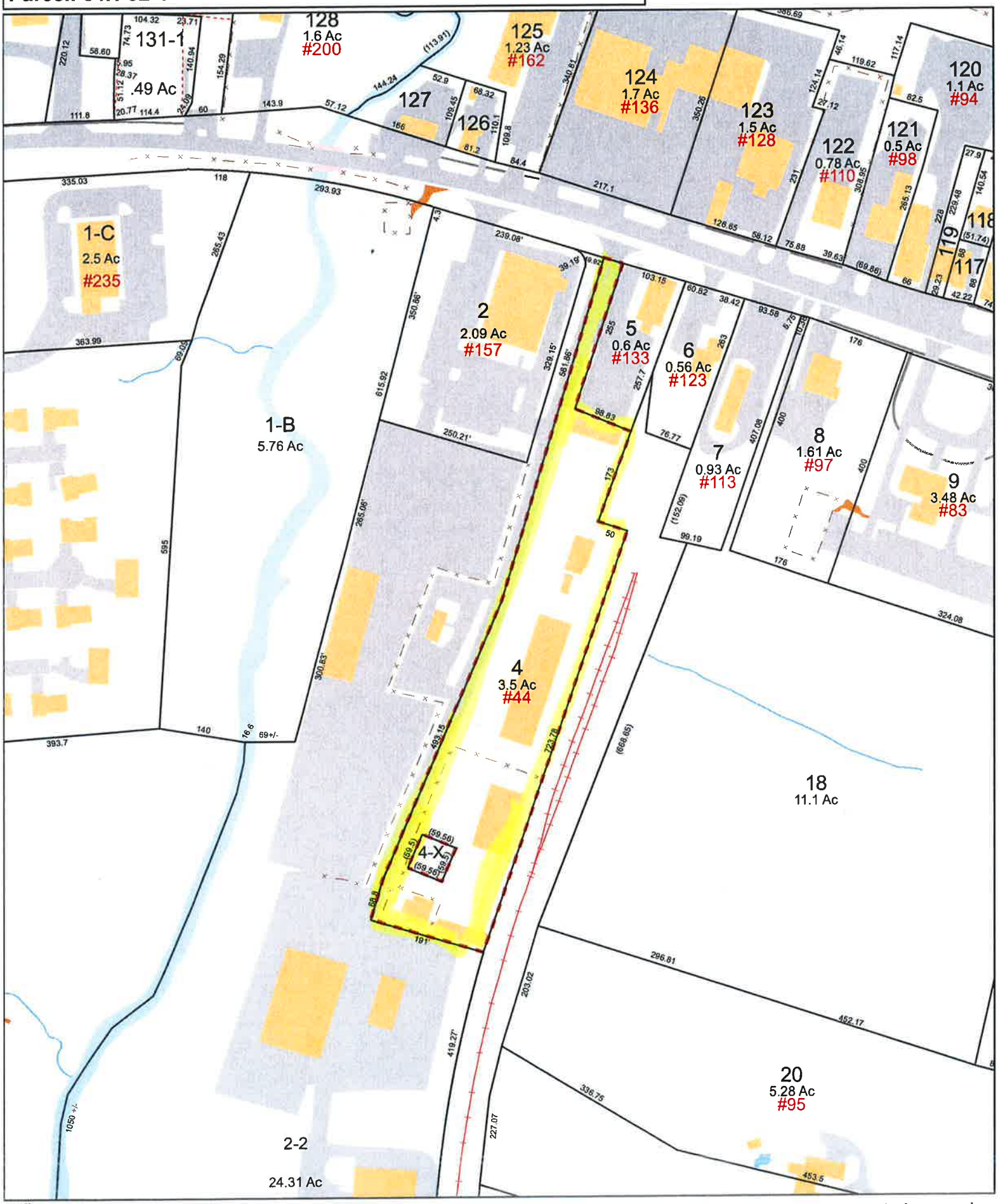
Pier Beam Shear Capacity	455.4	kips
Pier Beam Shear	27.0	kips
Pier Beam Shear Check	5.9%	Pass

Pier Bending Moment Capacity	4623.4	k-ft
Pier Bending Moment	2321.9	k-ft
Pier Bending Moment Check	50.2%	Pass

ATTACHMENT 4

Town of Suffield, Connecticut - Assessment Parcel Map

Parcel: 34H-32-4 **Address: 44 FFYLER PL**



0 50 100 200 300 400 Feet

Scale 1:2,400

Map Produced: May 2017
Grand List: October 2016

Town of Suffield, CT

Property Listing Report

Map Block Lot: 34H-32-4 | Account: 34522

Property Information

Property Location	44 FFYLER PL
Owner	SUFFIELD TOWN OF
Co-Owner	
Mailing Address	83 MOUNTAIN RD SUFFIELD CT 06078
Land Use	9031 Municipal MDL-96
Land Class	E
Zoning Code	TCV
Census Tract	4771.01

Neighborhood	D
Acreage	3.5
Utilities	
Lot Setting/Desc	
Additional Info	

Photo

Sketch

Primary Construction Details

Year Built	2000
Stories	1
Building Style	Pre-Eng Garage
Building Use	Industrial
Building Condition	02
Floors	Concrete
Total Rooms	

Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Gable
Roof Cover	Asphalt

Exterior Walls	MASONRY
Interior Walls	Minimum
Heating Type	Hot Air-No Duc
Heating Fuel	Oil
AC Type	None
Gross Bldg Area	736
Total Living Area	736

Report Created On 7/20/2017

Town of Suffield, CT

Property Listing Report | Map Block Lot 34H-32-4 | Account 34522

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	531800	372260
Extras	34200	23940
Improvements	619500	433650
Outbuildings	53500	37450
Land	229000	160300
Total	848500	593950

Outbuilding and Extra Items

Type	Description
Shed	1920 S.F.
Kennel - Ave	640 S.F.
Fence - 6' Chain	142 L.F.
Paving - Asphalt	14000 S.F.
Garage - Ave	2408 S.F.
Shed	360 S.F.
Paving - Asphalt	880 S.F.
Mezzanine Unfinished	837 S.F.
Canopy Ave	1600 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	736	736
Total Area	6000	6000

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
SUFFIELD TOWN OF	134/ 430	6/8/1973	0
SUFFIELD TOWN OF	53/ 210	12/22/1920	0
SUFFIELD TOWN OF	53/ 151	4/15/1920	0
SUFFIELD TOWN OF	53/ 141	3/11/1920	0

Report Created On 7/20/2017

Town of Suffield, CT

Property Listing Report

Map Block Lot 34H-32-4

Account 34522

Photo

Sketch

Primary Construction Details

Year Built	1974
Stories	1
Building Style	Garage/Office
Building Use	Industrial
Building Condition	03
Floors	Concrete
Total Rooms	
Bedrooms	
Bathrooms	
Bath Style	
Half Bath	

Kitchen Style	
Roof Style	Gable
Roof Cover	Tar & Gravel
Exterior Walls	STEEL
Interior Walls	Minimum
Heating Type	Hot Air-No Duc
Heating Fuel	Gas
AC Type	None
Gross Bldg Area	
Total Living Area	

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	10772	10772
Upper Story,	1643	1643
Total Area		

Photo

Sketch

Primary Construction Details

Year Built	2000
Stories	1
Building Style	Pre-Eng Garage
Building Use	Industrial
Building Condition	02
Floors	Concrete
Total Rooms	
Bedrooms	
Bathrooms	
Bath Style	
Half Bath	

Kitchen Style	
Roof Style	Gable
Roof Cover	Enam Mtl Shing
Exterior Walls	WOOD FRAME
Interior Walls	Minimum
Heating Type	None
Heating Fuel	Coal or Wood
AC Type	None
Gross Bldg Area	
Total Living Area	

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	6000	6000
Total Area		

Report Created On 7/20/2017

ATTACHMENT 5

UNITED STATES POSTAL SERVICE®

Certificate of Mailing — Firm

Name and Address of Sender	TOTAL NO. of Pieces Listed by Sender	TOTAL NO. of Pieces Received at Post Office™	Affix Stamp Here *Postmark with Date of Receipt.*
Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103	2	[redacted]	neopost 07/21/2017 US POSTAGE $002.38 ZIP 06103 041L1220838
	Postmaster, per *(name of receiving employee)*		ASYLUM STREET STATION 06103 JUL 21 2017 U.S.P.S.

USPS® Tracking Number / Firm-specific Identifier	Address (Name, Street, City, State, and ZIP Code™)	Postage	Fee	Special Handling	Parcel Airlift
1.	Melissa Mack, First Selectman Town of Suffield 83 Mountain Road Suffield, CT 06078				
2.	Bill Hawkins, AICP, Town Planner Town of Suffield 230C Mountain Road Suffield, CT 06078				
3.					
4.					
5.					
6.					