

February 22, 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
719 George Washington Turnpike, Burlington, Connecticut**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains twelve (12) antennas at the 160-foot level of the existing 180-foot tower at 719 George Washington Turnpike in Burlington, Connecticut (the “Property”). The tower and underlying property are owned by the Town of Burlington. The Council approved Cellco’s shared use of the existing tower in 1997. Cellco now intends to modify its facility by replacing six (6) of its existing antennas with three (3) model SBNHH-1D65B, 700 MHz antennas and three (3) model SBNHH-1D65B, 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™ 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 Theodore Shafer, First Selectman of the Town of Burlington and Abby Conroy, Burlington’s Zoning Enforcement Officer.

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 structure. Cellco’s new antennas and RRHs will be installed on its existing platform at the 160-foot level of the 180-foot tower.

16177340-v1

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2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A General Power Density table for Cellco's modified facility is included in Attachment 2.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support Cellco's proposed modifications. (*See Structural Analysis Report included in Attachment 3*).

A copy of the Burlington 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:

Theodore Shafer, Burlington First Selectman
Abby Conroy, Burlington Zoning Enforcement Officer
Tim Parks

ATTACHMENT 1



SBNHH-1D65B

Multiband Antenna, 698–896 and 2x 1695–2360 MHz, 65° horizontal beamwidth, internal 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					

Electrical Specifications, BASTA*

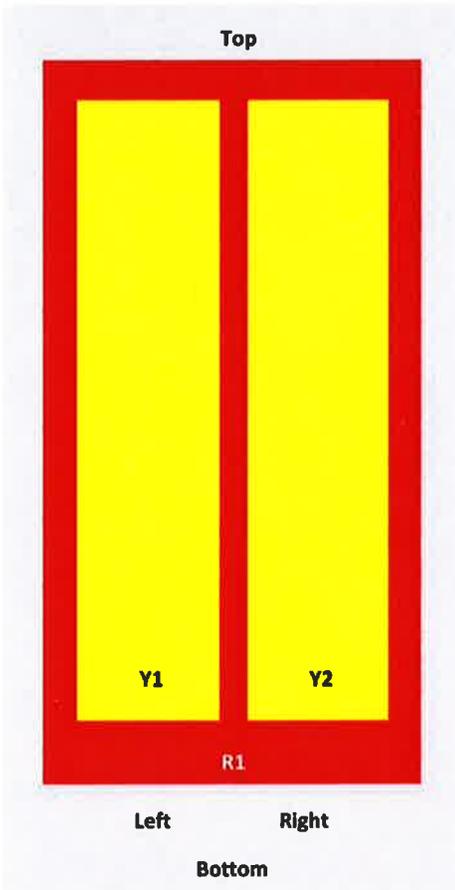
Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.5	14.3	17.4	17.9	18.2	18.3
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.8	±0.4	±0.3	±0.5	±0.3
Gain by Beam Tilt, average, dBi	0° 14.6	0° 14.5	0° 17.4	0° 17.8	0° 18.1	0° 18.2
	7° 14.6	7° 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

SBNHH-1D65B

SBNHH 65



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

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



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.

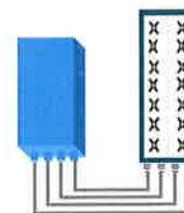


FEATURES

- 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

TECHNICAL SPECIFICATIONS

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.)	550 x 305 x 230 (21.6" x 12.0" x 9") (with solar shield)
Volume in L	38 (with solar shield)
Weight in kg (lb) (w/o mounting HW)	26 (57.2) (with solar shield)
DC voltage range	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	550W typical @100% RF load (in 2Tx or 4TX mode)
Environmental conditions	-40°C (-40°F) / +55°C (+131°F) IP65
Wind load (@150km/h or 93mph)	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

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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.

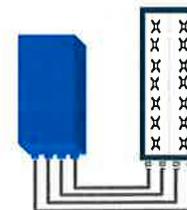


FEATURES

- 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

TECHNICAL SPECIFICATIONS

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)	2.0 dB typ. (<2.5 dB max)
RX Diversity scheme	2 or 4 way Rx diversity
Sizes (HxWxD)(w/ solar shield) in mm (in.)	538 x 304 x 182 (21.2" x 12.0" x 7.2")
Volume (w/ solar shield) in L	30
Weight (w/ solar shield) in kg (lb)	24 (53)
DC voltage range	-40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	580W typical @100% RF load
Environmental conditions	-40°C (-40°F) / +55°C (+131°F) IP65
Wind load (@150km/h or 93mph)	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

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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.

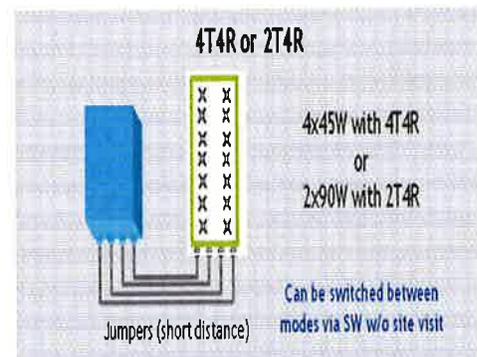
Its compactness and slim design makes the Alcatel-Lucent B66a RRH4x45 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the 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.)	655x299x182 (25.8x11.8x7.2) (with solar shield) 640x290x160 (25.2x11.4x6.3) (without solar shield)
Volume in Liters	35.5 (with solar shield) 29.7 (without solar shield)
Weight in kg (lb) (w/o mounting HW)	25.8kg (56.8lb) (with solar shield)
DC voltage range	Nominal: -48V, -40.5 to -57V at full performance, -38 to -57V with relaxation on power consumption
DC power consumption	750W typical @100% RF load (In 2Tx or 4Tx mode); Add 58W for 2A*29V for AISG
Environmental conditions	-40°C (-40°F) / +55°C (+131°F) UL50E Type 4 Enclosure
Wind load (@150km/h or 93mph)	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

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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.

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

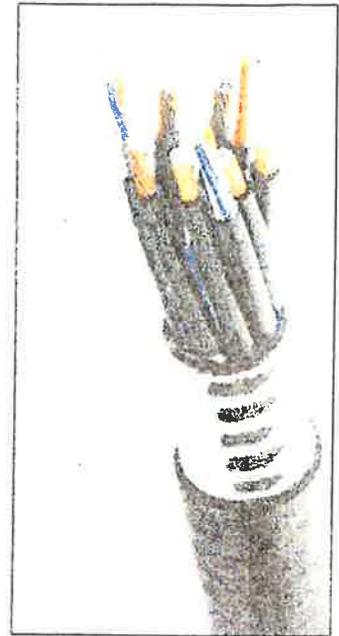


Figure 1: HYBRIFLEX Series

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			
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)
Electrical Properties			
DC-Resistance Outer Conductor Armor		[Ω/km (Ω/1000ft)]	068 (0.205)
DC-Resistance Power Cable, 8.4mm ² (8AWG)		[Ω/km (Ω/1000ft)]	2.1 (0.307)
Optical Properties			
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
DC Power Cable Properties			
Size (Power)		[mm (AWG)]	8.4 (8)
Quantity, Wire Count (Power)			16 (8 pairs)
Size (Alarm)		[mm (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
Operating Conditions			
Installation Temperature		[°C (°F)]	-40 to +65 (-40 to 149)
Operation Temperature		[°C (°F)]	-40 to +65 (-40 to 149)

* This data is provisional and subject to change

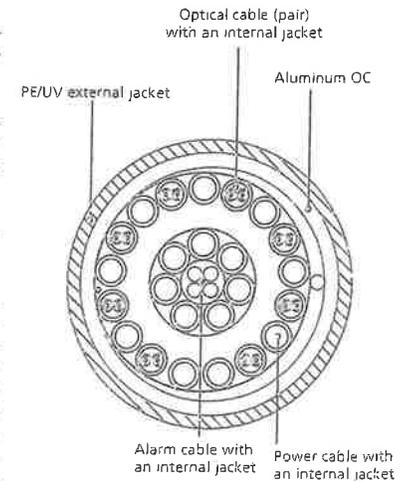


Figure 2: Construction Detail

All information contained in the present datasheet is subject to confirmation at time of ordering.

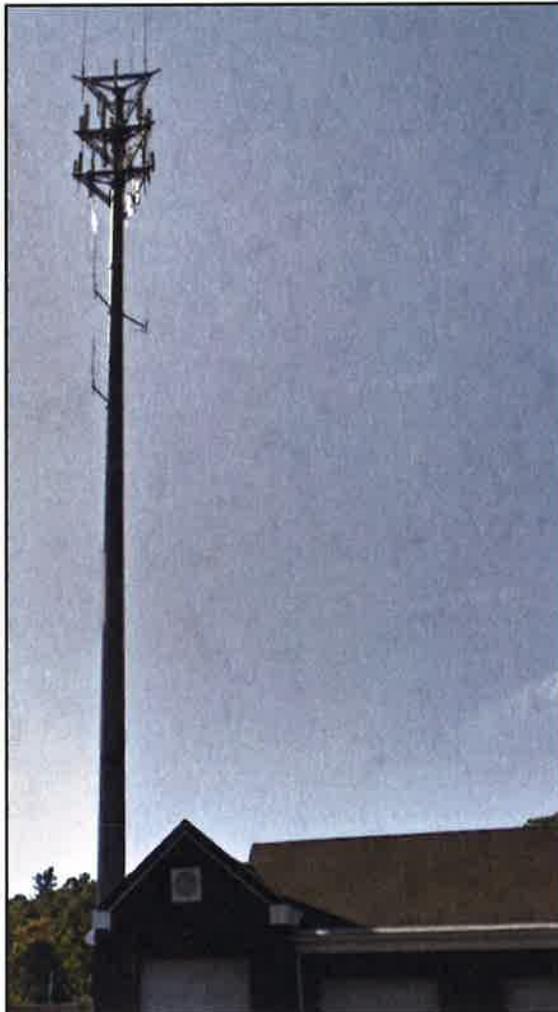
ATTACHMENT 2

ATTACHMENT 3

**STRUCTURAL ANALYSIS REPORT
MONOPOLE**



Prepared For:
NEXIUS
2595 North Dallas Parkway
Frisco, TX 75034



Structure Rating

Monopole: Pass (95.3%)

Sincerely,
Destek Engineering, LLC
License No: PEC0001429



Ahmet Colakoglu, PE
Connecticut Professional Engineer
License No: 27057

Site Name: Burlington CT
719 George Washington Turnpike
Burlington, CT 06013

CONTENTS

1.0 - SUBJECT AND REFERENCES

1.1 - STRUCTURE

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1.0 SUBJECT AND REFERENCES

The purpose of this analysis is to evaluate the structural capacity of the existing 179 feet high monopole tower, located at 719 George Washington Turnpike, Burlington, CT 06013 for the alteration and addition of wireless telecommunication appurtenances proposed by Verizon.

The structural analysis is based on the following documentation provided to Destek Engineering, LLC (Destek):

- RFDS Sheet provided by Verizon, dated 10/8/2015.
- Structural Analysis Report - Upgrade Rev. 1 prepared by Atlantis Group, dated 11/18/2014
- Structural Analysis Report prepared by Centek Engineering, dated 2/16/2016

1.1 STRUCTURE

The structure is a 179' monopole consisting of (4) 18-sided, slip-jointed bent plate tubes. Flat-to-flat dimensions range from 1'-7.69" at the top to 4'-9.5" at the base. The monopole tower is attached to the foundation with a base plate and anchor bolts. It is formed by the following sections:

Section Length (Feet)	Lap Splice (Inches)	Shaft Thickness (Inches)	Top Diameter (Inches)	Bottom Diameter (Inches)	Yield Strength (ksi)
39.83	0.00	0.1875	19.69	28.04	65
45.96	0.00	0.2500	28.04	37.65	65
47.00	0.00	0.3750	37.65	47.10	65
46.21	--	0.3750	47.10	57.50	65

2.0 EXISTING AND PROPOSED APPURTENANCES

Existing Configuration of Verizon Appurtenances:

Rad Center (ft.)	Antennas & Equipment	Coax	Mount
160	(6) RFS APL866513 (6) RFS FD9R6004/2C-3L (3) Antel BXA-70063-6CF (3) Antel BXA-171063-8BF	(12) 1-5/8"	(1) Low-Profile Platform

Proposed and Final Configuration of Verizon Appurtenances:

Rad Center (ft.)	Antennas & Equipment	Coax	Mount
160	(6) RFS APL866513 (6) RFS FD9R6004/2C-3L (6) Andrew SBNHH-1D65B (3) Alcatel-Lucent RRH2x60-700 (3) Alcatel-Lucent RRH2x60-PCS (3) Alcatel-Lucent RRH4x45/2x90-AWS (2) Raycap RC2DC-3315-PF-48	(14) 1-5/8"	(1) Low-Profile Platform

Existing Configuration of Appurtenances by Others:

Carrier	Rad Center (ft.)	Antennas & Equipment	Coax	Mount
Town	191	(3) 20 ft. Omni	(3) 1-5/8"	(1) Low-Profile Platform
T-Mobile	179	(6) Ericsson AIR21	(6) 1-5/8" (1) 1-1/4"	
AT&T	170	(6) Ericsson RRUS-11 (1) Raycap DC6-48-60-18-8F	(1) Fiber (2) DC Control	(1) Universal Ring Mount
		(6) Powerwave 7770.00 (3) Powerwave P65-17-XLH-RR (6) LGP21401 TMA (6) LGP13519	(12) 1-5/8"	(1) Low-Profile Platform
Town	138.5	(1) 20 ft. Dipole	(1) 1-5/8"	(1) 3-ft Standoff
	132.5	(1) 8 ft. Omni (1) 3 ft. Yagi	(1) 1-5/8" (1) 1/2"	(1) 3-ft Standoff
	112.5	(1) 10 ft. Dipole	(1) 1-5/8"	(1) 3-ft Standoff

3.0 CODES AND LOADING

The tower was analyzed per *TIA-222-G* as referenced by the *2016 Connecticut State Building Code* with all of the adopted Addendums and Supplements. The following wind loading was used in compliance with the standard for Burlington, CT:

- Ultimate wind speed 120 mph converted to a Basic wind speed 93 mph without ice (V)
- Basic wind speed 50 mph with 1.00" escalating ice (V_i)
- Exposure Category C
- Topographic Category 1
- Structure Class II ($I_w = 1.0$)

The following load combinations were used with wind blowing at 0° , 30° , 45° , 60° , and 90° , measured from a line normal to the face of the tower:

- $1.2 D + 1.0 D_g + 1.6 W_o$
- $0.9 D + 1.0 D_g + 1.6 W_o$
- $1.2 D + 1.0 D_g + 1.0 D_i + 1.0 W_i + 1.0 T_i$

D: Dead load of structures and appurtenances, excluding guy assemblies

D_g : Dead load of guy assemblies

D_i : Weight of ice due to factored ice thickness (based upon t_i)

T_i : Load effects due to temperature

W_o : Wind load without ice (based upon V)

W_i : Wind load with ice (based upon V_i)

4.0 STANDARD CONDITIONS FOR ENGINEERING SERVICES ON EXISTING STRUCTURES

The analysis is based on the information provided and is assumed to be current and correct. Unless otherwise noted, the structure is assumed to be in good condition, free of defects and can achieve theoretical strength.

It is assumed that the structure has been maintained and shall be maintained during its service. The superstructure and the foundation system are assumed to be designed with proper engineering practice and fabricated, constructed and erected in accordance with the design documents. Destek will accept no liability which may arise due to any existing deficiency in design, material, fabrication, erection, construction, etc. or lack of maintenance.

The analysis does not include a qualification of the mounts attached on the structure or their connections. The analysis is performed to verify the capacity of the main structural members, which is the current practice in the tower industry.

The analysis results presented in this report are only applicable for the previously mentioned existing and proposed appurtenances. Any deviation of the appurtenances and placement, etc., will require Destek to generate an additional structural analysis.

5.0 ANALYSIS AND ASSUMPTIONS

The tower was analyzed by utilizing tnxTower, a non-linear, three-dimensional, finite element-analysis software package, a product of Tower Numerics, Inc. Software output for this analysis is provided in Appendix A of this report.

6.0 CONCLUSION AND RESULTS

Based on an analysis per TIA-222-G, the existing tower has **adequate** structural capacity for the proposed changes by Verizon. For the code specified load combinations and as a maximum, the tower shaft will be stressed to **95.3%** of capacity. The base plate will be stressed to **81.1%** of capacity. The anchor rods will be stressed to **62.8%** of capacity.

The tower foundation has **adequate** structural capacity for the proposed changes by Verizon. For the code specified load combinations and as a maximum, the foundation will be stressed to **60.8%** of capacity.

Therefore, the additions and alterations proposed by Verizon **can** be implemented as intended and with the conditions outlined in this report.

Should you have any questions about this report or require any additional information, please contact Ahmet Colakoglu at (770) 693-0835 or acolakoglu@destekengineering.com.

APPENDIX A
SOFTWARE OUTPUT

Additional Calculations



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Site BU: _____
 Work Order: _____

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	179	39.83	0	18	19.69	28.04	0.1875	0.75	A572-65
2	139.17	45.96	0	18	28.04	37.65	0.25	1	A572-65
3	93.21	47	0	18	37.65	47.1	0.375	1.5	A572-65
4	46.21	46.21	0	18	47.10	57.5	0.375	1.5	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1	92.71	144.71	plate	CCI-SFP-045100	3	1						1											
2																							
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Reinforcement Details

	B (in)	H (in)	Gross Area (in ²)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L _v (in)	Net Area (in ²)	Bolt Hole Size (in)	Reinforcement Material
1	4.5	1	4.5	0.5	18.000	18.000	20.000	3.250	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (In)	Bottom Diameter (in)	Wall Thickness (In)	Tapered Pole Grade	Weight Multiplier
1	179 - 174	5		18	19.690	20.738	0.1875	A572-65	1.000
2	174 - 169	5		18	20.738	21.786	0.1875	A572-65	1.000
3	169 - 164	5		18	21.786	22.835	0.1875	A572-65	1.000
4	164 - 159	5		18	22.835	23.883	0.1875	A572-65	1.000
5	159 - 154	5		18	23.883	24.931	0.1875	A572-65	1.000
6	154 - 149	5		18	24.931	25.979	0.1875	A572-65	1.000
7	149 - 144.71	4.29		18	25.979	26.879	0.1875	A572-65	1.000
8	144.71 - 144.46	0.25		18	26.879	26.931	0.36875	A572-65	0.946
9	144.46 - 139.46	5		18	26.931	27.979	0.3625	A572-65	0.945
10	139.46 - 139.17	0.29	0	18	27.979	28.040	0.3625	A572-65	0.944
11	139.17 - 134.17	5		18	28.040	29.085	0.25	A572-65	1.000
12	134.17 - 129.17	5		18	29.085	30.131	0.25	A572-65	1.000
13	129.17 - 124.17	5		18	30.131	31.176	0.25	A572-65	1.000
14	124.17 - 119.17	5		18	31.176	32.222	0.25	A572-65	1.000
15	119.17 - 114.17	5		18	32.222	33.267	0.25	A572-65	1.000
16	114.17 - 109.17	5		18	33.267	34.313	0.25	A572-65	1.000
17	109.17 - 104.17	5		18	34.313	35.358	0.25	A572-65	1.000
18	104.17 - 99.17	5		18	35.358	36.404	0.25	A572-65	1.000
19	99.17 - 94.17	5		18	36.404	37.449	0.25	A572-65	1.000
20	94.17 - 93.21	0.96	0	18	37.449	37.650	0.25	A572-65	1.000
21	93.21 - 92.71	0.5		18	37.650	37.751	0.375	A572-65	1.000
22	92.71 - 92.46	0.25		18	37.751	37.801	0.375	A572-65	1.000
23	92.46 - 87.46	5		18	37.801	38.806	0.375	A572-65	1.000
24	87.46 - 82.46	5		18	38.806	39.811	0.375	A572-65	1.000
25	82.46 - 77.46	5		18	39.811	40.817	0.375	A572-65	1.000
26	77.46 - 72.46	5		18	40.817	41.822	0.375	A572-65	1.000
27	72.46 - 67.46	5		18	41.822	42.827	0.375	A572-65	1.000
28	67.46 - 62.46	5		18	42.827	43.833	0.375	A572-65	1.000
29	62.46 - 57.46	5		18	43.833	44.838	0.375	A572-65	1.000
30	57.46 - 52.46	5		18	44.838	45.843	0.375	A572-65	1.000
31	52.46 - 47.46	5		18	45.843	46.849	0.375	A572-65	1.000
32	47.46 - 46.21	1.25	0	18	46.819	47.100	0.375	A572-65	1.000
33	46.21 - 41.21	5		18	47.100	48.225	0.375	A572-65	1.000
34	41.21 - 36.21	5		18	48.225	49.351	0.375	A572-65	1.000
35	36.21 - 31.21	5		18	49.351	50.476	0.375	A572-65	1.000
36	31.21 - 26.21	5		18	50.476	51.601	0.375	A572-65	1.000
37	26.21 - 21.21	5		18	51.601	52.726	0.375	A572-65	1.000
38	21.21 - 16.21	5		18	52.726	53.852	0.375	A572-65	1.000
39	16.21 - 11.21	5		18	53.852	54.977	0.375	A572-65	1.000
40	11.21 - 6.21	5		18	54.977	56.102	0.375	A572-65	1.000
41	6.21 - 1.21	5		18	56.102	57.228	0.375	A572-65	1.000
42	1.21 - 0	1.21		18	57.228	57.500	0.375	A572-65	1.000

TNX Section Forces

Increment (ft):		5	TNX Output		
	Section Height (ft)	P _u (K)	M _{ux} (kip-ft)	V _u (K)	
1	179 - 174	2.1795	32.872	4.4859	
2	174 - 169	3.3874	59.28	8.2591	
3	169 - 164	5.3516	106.9	10.084	
4	164 - 159	6.3868	161.83	14.446	
5	159 - 154	8.5306	240.24	16.26	
6	154 - 149	9.104	322.03	16.558	
7	149 - 144.71	9.6227	393.74	16.888	
8	144.71 - 144.46	9.6796	398.21	20.026	
9	144.46 - 139.46	10.513	483.6	17.36	
10	139.46 - 139.17	10.572	488.79	19.75	
11	139.17 - 134.17	11.359	578.09	18.04	
12	134.17 - 129.17	12.192	669.78	18.836	
13	129.17 - 124.17	12.999	764.31	19.252	
14	124.17 - 119.17	13.83	860.94	19.667	
15	119.17 - 114.17	14.684	959.72	19.981	
16	114.17 - 109.17	15.62	1061.7	20.715	
17	109.17 - 104.17	16.529	1165.8	21.127	
18	104.17 - 99.17	17.461	1272	21.537	
19	99.17 - 94.17	18.415	1380.3	21.889	
20	94.17 - 93.21	18.601	1401.3	21.969	
21	93.21 - 92.71	18.733	1412.3	22.376	
22	92.71 - 92.46	18.797	1417.9	23.529	
23	92.46 - 87.46	20.028	1529.1	22.518	
24	87.46 - 82.46	21.296	1642.8	22.997	
25	82.46 - 77.46	22.591	1758.9	23.473	
26	77.46 - 72.46	23.915	1877.4	23.945	
27	72.46 - 67.46	25.266	1998.2	24.414	
28	67.46 - 62.46	26.645	2121.4	24.878	
29	62.46 - 57.46	28.051	2246.8	25.335	
30	57.46 - 52.46	29.485	2374.6	25.786	
31	52.46 - 47.46	30.946	2504.5	26.229	
32	47.46 - 46.21	31.313	2537.3	26.339	
33	46.21 - 41.21	32.812	2670	26.769	
34	41.21 - 36.21	34.337	2804.8	27.191	
35	36.21 - 31.21	35.892	2941.7	27.601	
36	31.21 - 26.21	37.475	3080.6	27.997	
37	26.21 - 21.21	39.087	3221.5	28.376	
38	21.21 - 16.21	40.728	3364.2	28.732	
39	16.21 - 11.21	42.4	3508.6	29.1	
40	11.21 - 6.21	44.1	3654.7	29.4	
41	6.21 - 1.21	45.7	3802.5	29.7	
42	1.21 - 0	46.1	3838.5	29.8	

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
179 - 174	Pole	TP20.738x19.69x0.1875	Pole	9.0%	Pass
174 - 169	Pole	TP21.786x20.738x0.1875	Pole	14.9%	Pass
169 - 164	Pole	TP22.835x21.786x0.1875	Pole	24.8%	Pass
164 - 159	Pole	TP23.883x22.835x0.1875	Pole	34.7%	Pass
159 - 154	Pole	TP24.931x23.883x0.1875	Pole	47.9%	Pass
154 - 149	Pole	TP25.979x24.931x0.1875	Pole	59.7%	Pass
149 - 144.71	Pole	TP26.879x25.979x0.1875	Pole	69.0%	Pass
144.71 - 144.46	Pole + Reinf.	TP26.931x26.879x0.3688	Reinf. 1 Bolt-Shaft Bearing	61.2%	Pass
144.46 - 139.46	Pole + Reinf.	TP27.979x26.931x0.3625	Reinf. 1 Tension Rupture	64.5%	Pass
139.46 - 139.17	Pole + Reinf.	TP28.04x27.979x0.3625	Reinf. 1 Tension Rupture	65.0%	Pass
139.17 - 134.17	Pole	TP29.085x28.04x0.25	Pole	60.4%	Pass
134.17 - 129.17	Pole	TP30.131x29.085x0.25	Pole	65.9%	Pass
129.17 - 124.17	Pole	TP31.176x30.131x0.25	Pole	70.9%	Pass
124.17 - 119.17	Pole	TP32.222x31.176x0.25	Pole	75.5%	Pass
119.17 - 114.17	Pole	TP33.267x32.222x0.25	Pole	79.8%	Pass
114.17 - 109.17	Pole	TP34.313x33.267x0.25	Pole	83.9%	Pass
109.17 - 104.17	Pole	TP35.358x34.313x0.25	Pole	87.7%	Pass
104.17 - 99.17	Pole	TP36.404x35.358x0.25	Pole	91.3%	Pass
99.17 - 94.17	Pole	TP37.449x36.404x0.25	Pole	94.7%	Pass
94.17 - 93.21	Pole	TP37.65x37.449x0.25	Pole	95.3%	Pass
93.21 - 92.71	Pole	TP37.751x37.65x0.375	Pole	56.3%	Pass
92.71 - 92.46	Pole	TP37.801x37.751x0.375	Pole	56.3%	Pass
92.46 - 87.46	Pole	TP38.806x37.801x0.375	Pole	58.0%	Pass
87.46 - 82.46	Pole	TP39.811x38.806x0.375	Pole	59.6%	Pass
82.46 - 77.46	Pole	TP40.817x39.811x0.375	Pole	61.1%	Pass
77.46 - 72.46	Pole	TP41.822x40.817x0.375	Pole	62.5%	Pass
72.46 - 67.46	Pole	TP42.827x41.822x0.375	Pole	63.8%	Pass
67.46 - 62.46	Pole	TP43.833x42.827x0.375	Pole	65.1%	Pass
62.46 - 57.46	Pole	TP44.838x43.833x0.375	Pole	66.4%	Pass
57.46 - 52.46	Pole	TP45.843x44.838x0.375	Pole	67.5%	Pass
52.46 - 47.46	Pole	TP46.849x45.843x0.375	Pole	68.7%	Pass
47.46 - 46.21	Pole	TP47.1x46.819x0.375	Pole	69.0%	Pass
46.21 - 41.21	Pole	TP48.225x47.1x0.375	Pole	69.7%	Pass
41.21 - 36.21	Pole	TP49.351x48.225x0.375	Pole	70.5%	Pass
36.21 - 31.21	Pole	TP50.476x49.351x0.375	Pole	71.3%	Pass
31.21 - 26.21	Pole	TP51.601x50.476x0.375	Pole	72.0%	Pass
26.21 - 21.21	Pole	TP52.726x51.601x0.375	Pole	72.7%	Pass
21.21 - 16.21	Pole	TP53.852x52.726x0.375	Pole	73.4%	Pass
16.21 - 11.21	Pole	TP54.977x53.852x0.375	Pole	74.0%	Pass
11.21 - 6.21	Pole	TP56.102x54.977x0.375	Pole	74.7%	Pass
6.21 - 1.21	Pole	TP57.228x56.102x0.375	Pole	75.3%	Pass
1.21 - 0	Pole	TP57.5x57.228x0.375	Pole	75.4%	Pass
				Summary	
			Pole	95.3%	Pass
			Reinforcement	65.0%	Pass
			Overall	95.3%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in ⁴)			Area (in ²)			% Capacity	
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1
179 - 174	652	n/a	652	12.23	n/a	12.23	9.0%	
174 - 169	757	n/a	757	12.85	n/a	12.85	14.9%	
169 - 164	873	n/a	873	13.48	n/a	13.48	24.8%	
164 - 159	1000	n/a	1000	14.10	n/a	14.10	34.7%	
159 - 154	1139	n/a	1139	14.72	n/a	14.72	47.9%	
154 - 149	1290	n/a	1290	15.35	n/a	15.35	59.7%	
149 - 144.71	1429	n/a	1429	15.88	n/a	15.88	69.0%	
144.71 - 144.46	1438	1328	2766	15.92	13.50	29.42	40.5%	61.2%
144.46 - 139.46	1613	1429	3042	16.54	13.50	30.04	46.3%	64.5%
139.46 - 139.17	1624	1435	3059	16.58	13.50	30.08	46.7%	65.0%
139.17 - 134.17	2403	n/a	2403	22.88	n/a	22.88	60.4%	
134.17 - 129.17	2674	n/a	2674	23.71	n/a	23.71	65.9%	
129.17 - 124.17	2964	n/a	2964	24.54	n/a	24.54	70.9%	
124.17 - 119.17	3275	n/a	3275	25.37	n/a	25.37	75.5%	
119.17 - 114.17	3607	n/a	3607	26.20	n/a	26.20	79.8%	
114.17 - 109.17	3961	n/a	3961	27.03	n/a	27.03	83.9%	
109.17 - 104.17	4337	n/a	4337	27.86	n/a	27.86	87.7%	
104.17 - 99.17	4736	n/a	4736	28.69	n/a	28.69	91.3%	
99.17 - 94.17	5159	n/a	5159	29.52	n/a	29.52	94.7%	
94.17 - 93.21	5243	n/a	5243	29.68	n/a	29.68	95.3%	
93.21 - 92.71	7849	n/a	7849	44.48	n/a	44.48	56.3%	
92.71 - 92.46	7880	n/a	7880	44.54	n/a	44.54	56.3%	
92.46 - 87.46	8532	n/a	8532	45.74	n/a	45.74	58.0%	
87.46 - 82.46	9220	n/a	9220	46.94	n/a	46.94	59.6%	
82.46 - 77.46	9943	n/a	9943	48.13	n/a	48.13	61.1%	
77.46 - 72.46	10703	n/a	10703	49.33	n/a	49.33	62.5%	
72.46 - 67.46	11501	n/a	11501	50.53	n/a	50.53	63.8%	
67.46 - 62.46	12337	n/a	12337	51.72	n/a	51.72	65.1%	
62.46 - 57.46	13213	n/a	13213	52.92	n/a	52.92	66.4%	
57.46 - 52.46	14130	n/a	14130	54.12	n/a	54.12	67.5%	
52.46 - 47.46	15088	n/a	15088	55.31	n/a	55.31	68.7%	
47.46 - 46.21	15334	n/a	15334	55.61	n/a	55.61	69.0%	
46.21 - 41.21	16469	n/a	16469	56.95	n/a	56.95	69.7%	
41.21 - 36.21	17659	n/a	17659	58.29	n/a	58.29	70.5%	
36.21 - 31.21	18904	n/a	18904	59.63	n/a	59.63	71.3%	
31.21 - 26.21	20207	n/a	20207	60.97	n/a	60.97	72.0%	
26.21 - 21.21	21568	n/a	21568	62.31	n/a	62.31	72.7%	
21.21 - 16.21	22989	n/a	22989	63.65	n/a	63.65	73.4%	
16.21 - 11.21	24471	n/a	24471	64.99	n/a	64.99	74.0%	
11.21 - 6.21	26015	n/a	26015	66.33	n/a	66.33	74.7%	
6.21 - 1.21	27623	n/a	27623	67.67	n/a	67.67	75.3%	
1.21 - 0	28022	n/a	28022	67.99	n/a	67.99	75.4%	

Note: Section capacity checked in 5 degree increments.

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
20' x 3" Dia Omni	191	SBNHH-1D65B	160
20' x 3" Dia Omni	191	APL866513-42T0	160
20' x 3" Dia Omni	191	APL866513-42T0	160
AIR21 B2A/B4P	179	SBNHH-1D65B	160
AIR21 B2A/B4P	179	SBNHH-1D65B	160
AIR21 B2A/B4P	179	APL866513-42T0	160
AIR21 B2A/B4P	179	APL866513-42T0	160
AIR21 B2A/B4P	179	SBNHH-1D65B	160
AIR21 B2A/B4P	179	SBNHH-1D65B	160
EEL Low Profile Platform	179	APL866513-42T0	160
(2) RRUS-11	170	(2) FD9R6004/2C-3L	160
(2) RRUS-11	170	(2) FD9R6004/2C-3L	160
(2) RRUS-11	170	(2) FD9R6004/2C-3L	160
DC6-48-60-18-9F Surge Arrestor	170	RRH4x45/2x90-AWS	160
Valmont Uni-Tri Bracket	170	RRH4x45/2x90-AWS	160
7770.00	170	RRH4x45/2x90-AWS	160
P65-17-XLH-RR	170	RRH 2x60-700	160
7770.00	170	RRH 2x60-700	160
7770.00	170	RRH 2x60-700	160
P65-17-XLH-RR	170	RRH2x60-PCS	160
7770.00	170	RRH2x60-PCS	160
7770.00	170	RRH2x60-PCS	160
P65-17-XLH-RR	170	RC2DC-3315-PF-48	160
7770.00	170	RC2DC-3315-PF-48	160
(2) LGP21401 TMA	170	EEL Low Profile Platform	158
(2) LGP21401 TMA	170	20' 4-Bay Dipole	138.5
(2) LGP21401 TMA	170	3' Pipe Mount Side Arm	138.5
(2) LPG13519 Diplexer	170	8' x 3" Dia Omni	132.5
(2) LPG13519 Diplexer	170	3' Yagi	132.5
(2) LPG13519 Diplexer	170	3' Pipe Mount Side Arm	132.5
EEL Low Profile Platform	168	3' Pipe Mount Side Arm	112.5
APL866513-42T0	160	10' Dipole	112.5
SBNHH-1D65B	160		

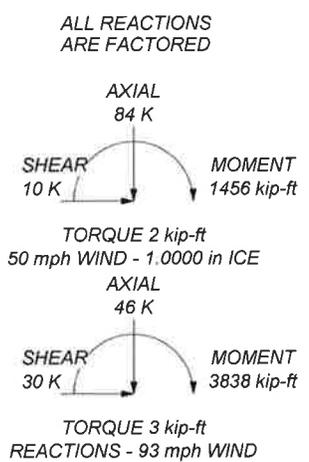
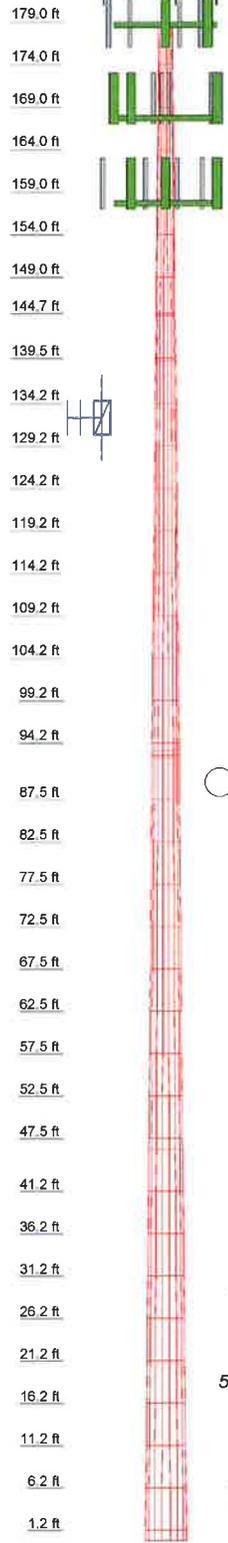
MATERIAL STRENGTH

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: 95.3%

Section	Length (ft)	Number of Sides	Thickness (in)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
2	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
3	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
4	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
5	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
6	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
7	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
8	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
9	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
10	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
11	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
12	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
13	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
14	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
15	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
16	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
17	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
18	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
19	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
20	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
21	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
22	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
23	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
24	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
25	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
26	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
27	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
28	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
29	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
30	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
31	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
32	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
33	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
34	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
35	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
36	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
37	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
38	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
39	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
40	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
41	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
42	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
43	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
44	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
45	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
46	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
47	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
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50	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
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52	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
53	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
54	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
55	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
56	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
57	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
58	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
59	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
60	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
61	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
62	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
63	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
64	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
65	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
66	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
67	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
68	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
69	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
70	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
71	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
72	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
73	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
74	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
75	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
76	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
77	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
78	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
79	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
80	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
81	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
82	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
83	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
84	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
85	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
86	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
87	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
88	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
89	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
90	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
91	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
92	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
93	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
94	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
95	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
96	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
97	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
98	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
99	5.00	18	0.3750	1215.00	1215.00	1.1	23.8
100	5.00	18	0.3750	1215.00	1215.00	1.1	23.8



<p>Destek Engineering, LLC 1281 Kennestone Circle, Ste. 100 Marietta, GA 30066 Phone: (770) 693-0835 FAX:</p>	Job: Burlington CT Project: 1774008		
	Client: Nexus Code: TIA-222-G Path:	Drawn by: Ahmet Colakoglu Date: 02/16/17	App'd: Scale: N Dwg No.:

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#:	
Site Name:	
App #:	
Pole Manufacturer:	Other

Reactions		
Mu:	3838	ft-kips
Axial, Pu:	46	kips
Shear, Vu:	30	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

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

Anchor Rod Data		
Qty:	18	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	65	in

Anchor Rod Results
 Max Rod ($C_u + V_u/\eta$): 163.3 Kips
 Allowable Axial, $\Phi * F_u * A_{net}$: 260.0 Kips
 Anchor Rod Stress Ratio: 62.8% **Pass**

Rigid
AISC LRFD
$\phi * T_n$

Plate Data		
Diam:	71	in
Thick:	2	in
Grade:	60	ksi
Single-Rod B-eff:	9.92	in

Base Plate Results Flexural Check
 Base Plate Stress: 43.8 ksi
 Allowable Plate Stress: 54.0 ksi
 Base Plate Stress Ratio: 81.1% **Pass**

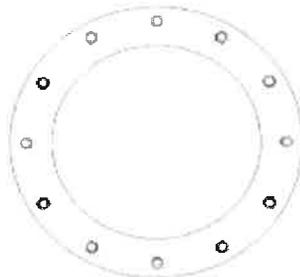
Rigid
AISC LRFD
$\phi * F_y$
Y.L. Length: 32.57

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:	Fillet	
Groove Depth:	0.25	<-- Disregard
Groove Angle:	45	<-- Disregard
Fillet H. Weld:	0.25	in
Fillet V. Weld:	0.3125	in
Width:	5	in
Height:	18	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

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

Pole Results
 Pole Punching Shear Check: n/a

Pole Data		
Diam:	56.25	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None



* 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

BU:
 Site Name: Burlington CT
 App Number:
 Work Order:



Monopole Drilled Pier

Input

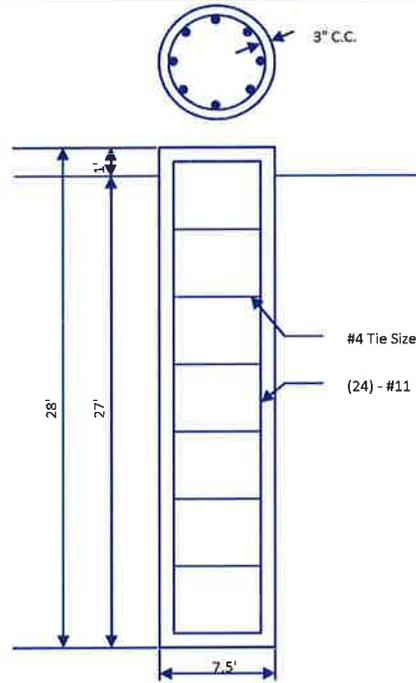
Criteria
 TIA Revision: G
 ACI 318 Revision: 2008
 Seismic Category: D

Forces
 Compression: 46 kips
 Shear: 30 kips
 Moment: 3838 k-ft
 Swelling Force: 0 kips

Foundation Dimensions
 Pier Diameter: 7.5 ft
 Ext. above grade: 1 ft
 Depth below grade: 27 ft

Material Properties
 Number of Rebar: 24
 Rebar Size: 11
 Tie Size: 4
 Rebar tensile strength: 60 ksi
 Concrete Strength: 4000 psi
 Ultimate Concrete Strain: 0.003 in/in
 Clear Cover to Ties: 3 in

Soil Profile: Burlington CT



Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Friction (ksf)	Ultimate Comp. Skin Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	3.33	0	3.33	130	0	0	0	0	0	
2	23.67	3.33	27	130	0	34	0	0	3	

Analysis Results

Soil Lateral Capacity
 Depth to Zero Shear: 5.99 ft
 Max Moment, Mu: 3991.11 k-ft
 Soil Safety Factor: 4.27
 Safety Factor Req'd: 1.33
RATING: 31.1%

Soil Axial Capacity
 Skin Friction (k): 0.00 kips
 End Bearing (k): 99.40 kips
 Comp. Capacity (k), φCn: 99.40 kips
 Comp. (k), Cu: 46.00 kips
RATING: 46.3%

Concrete/Steel Check
 Mu (from soil analysis): 3991.11 k-ft
 φMn: 6567.29 k-ft
RATING: 60.8%

rho provided: 0.59
 rho required: 0.50 OK

Rebar Spacing: 9.27
 Spacing required: 22.56 OK

Dev. Length required: 20.76
 Dev. Length provided: 53.51 OK

Overall Foundation Rating: 60.8%

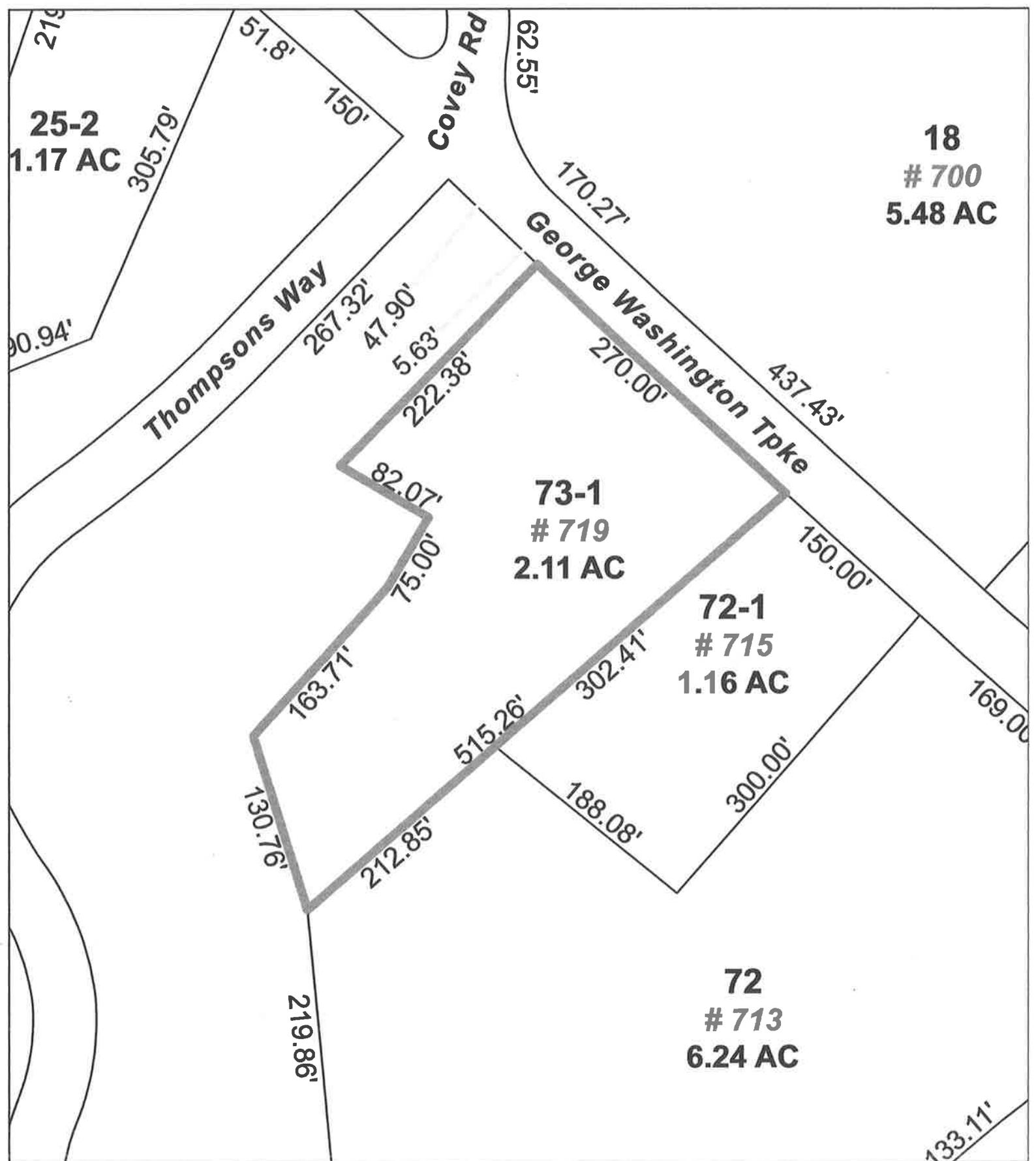
ATTACHMENT 4



Town of Burlington, Connecticut. Assessment Parcel Map

Map-Block-Lot 4-08-73-1

Address: 719 GEO WASHINGTON TPKE



1 inch = 100 feet

N

Disclaimer: This map is for informational purposes only. All information is subject to verification by any user. The Town of Burlington and its mapping.



Town of Burlington, CT

Property Listing Report

Map Block Lot

4-08-73-1

Account

00037000

Valuation Summary (Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	977900	684530
Extras	27100	18970
Improvements	1044600	731220
Outbuildings	39600	27720
Land	159200	111440
Total	1203800	842660

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Basement, Finished	3912	0
First Floor	9880	9880
Cathedral	5968	0
Porch, Enclosed	160	0
Total Area	19920	9880

Outbuilding and Extra Items

Type	Description
Fram Shedw/Ele	400.00 S.F.
Open Porch	1040.00 S.F.
Air Condition	8500.00 UNITS
Paving-Asphalt	10000.00 S.F.
Light w/Pole	5.00 UNITS

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
BURLINGTON TOWN OF	00091/0528		0