

STATE OF CONNECTICUT
CONNECTICUT SITING COUNCIL

IN RE:	:	
	:	
A PETITION OF CELLCO PARTNERSHIP D/B/A	:	SUB-PETITION NO. 1133
VERIZON WIRELESS FOR A DECLARATORY	:	655 BASSETT ROAD
RULING FOR APPROVAL OF AN ELIGIBLE	:	WATERTOWN, CT
FACILITY REQUEST FOR MODIFICATIONS	:	
TO AN EXISTING TELECOMMUNICATIONS	:	
TOWER AT 655 BASSETT ROAD,	:	
WATERTOWN, CONNECTICUT	:	DECEMBER 12, 2017

SUB-PETITION FOR DECLARATORY RULING:
ELIGIBLE FACILITIES REQUEST FOR MODIFICATIONS
THAT WILL NOT SUBSTANTIALLY CHANGE THE
PHYSICAL DIMENSIONS OF AN EXISTING TOWER

I. Introduction

Pursuant to Section 6409(a) of the Middle Class Tax Relief and Job Creation Act of 2012, codified at 47 U.S.C. § 1455(a) (“Section 6409(a)”) and the October 21, 2014 Report and Order (FCC-14-153) issued by the Federal Communications Commission (“FCC”) (the “FCC Order”), Cellco Partnership d/b/a Verizon Wireless (“Cellco”) hereby petitions the Connecticut Siting Council (the “Council”) for a declaratory ruling (“Sub-Petition”) that the proposed modifications to an existing American Towers LLC (“ATC”) tower at 655 Bassett Road in Watertown, Connecticut constitutes an Eligible Facilities Request (“EFR”) under the FCC Order. Cellco has designated this site as its “Watertown NE Facility”.

II. Factual Background

ATC maintains a 130-foot tower disguised as a pine tree on a 51.5-acre parcel at 655 Bassett Road in Watertown, Connecticut (the “Property”). See Attachment 1 – Site Vicinity Map and Site Schematic (Aerial Photograph). AT&T currently maintains antennas at the 127-foot

level on the tower. Equipment associated with the AT&T antennas is located near the base of the tower within a fenced facility compound.

III. Cellco's Proposed Watertown NE Facility

Cellco intends to install a total of six (6) antennas and twelve (12) remote radio heads ("RRHs") at a height of 114 feet above ground level ("AGL") on the ATC tower. Cellco will also install a steel platform with a roof canopy to support two equipment cabinets, a battery cabinet and a 20 kW diesel-fueled back-up generator. Power and telephone service to Cellco's equipment will extend from the existing utility backboard at the tower site. Project Plans for the proposed Watertown NE Facility are included in Attachment 2. Specifications for Cellco's antennas, RRHs and back-up generator are included in Attachment 3. A Structural Analysis Report confirming that the tower can accommodate Cellco's proposed modifications is included in Attachment 4.

IV. Discussion

A. The Proposed Modification Will Not Cause a Substantial Change to the Physical Dimensions of the Existing Tower or Base Station

Section 6409(a) provides, in relevant part, that "a State or local government may not deny, and shall approve, any eligible facilities request for a modification of an existing wireless tower or base station that does not substantially change the physical dimensions of such tower or base station." Pursuant to the FCC Order, the proposed modification does not substantially change the physical dimensions of the tower or base station if the following criteria are satisfied.

1. *The proposed modified facility will not increase the height of the tower by more than ten (10) percent or by the height of one additional antenna array with separation from the nearest existing antenna not to exceed twenty (20) feet, whichever is greater.* Cellco proposes to install its antennas and RRHs at a height of 114 feet AGL on the existing 130-foot

tower.

2. *The proposed facility will not protrude from the edge of the structure more than six (6) feet.* The proposed antennas and RRHs will not protrude more than six (6) feet from the edge of the antenna mounting structure.

3. *The proposed facility does not involve installation of more than the standard number of new equipment cabinets for the technology involved, but not to exceed four cabinets.* Cellco intends to install two (2) equipment cabinets to house its radio equipment.

4. *The proposed facility does not entail any excavation or deployment outside the current site of the base station.* All of Cellco's site improvements will remain within the limits of the existing facility compound.

5. *The proposed facility does not defeat the existing concealment elements of the base station.* The ATC tower is a monopine tower. All existing and proposed antennas will be concealed by faux branches.

6. *The proposed facility complies with conditions associated with the prior approval of construction or modification of the base station.* The ATC tower was approved by the Council (Docket No. 422). Cellco's proposed shared use of this tower is consistent with the Council's conditions of the approval.

B. FCC Compliance

Operation of Cellco's Watertown NE Facility will not increase the radio frequency ("RF") emissions at the ATC tower site to a level at or above the FCC Safety standard. A cumulative General Power Density table, including Cellco's proposed modifications is included in Attachment 5.

C. Notice to the Town, Property Owner and Abutting Landowners

On December 12, 2017, a copy of this Sub-Petition was sent to Watertown's Town Manager Robert M. Scannell; Mark Massoud, Watertown's Administrator of Land Use/Zoning Enforcement Officer; The Edward Gustafson Revocable Trust, Frank E. Gustafson, Jr., Trustee and Thomas W Calkins, Independent Trustee, as the owners of the Property; and ATC, the tower owner. Copies of the letters sent to Mr. Scannell, Mr. Massoud, Ronald and The Edward Gustafson Revocable Trust, Frank E. Gustafson, Jr. and Thomas W Calkins and ATC are included in Attachment 6. A copy of this Sub-Petition was also sent to each owner of land that abuts the Property. A sample abutter's cover letter and the list of those abutting landowners who were sent notice and a copy of the Sub-Petition is included in Attachment 7.

V. Conclusion

Based on the information provided above, Celco respectfully submits that the proposed modification of the existing base station at the Property constitutes an "eligible facilities request" under Section 6409(a) and the FCC Order.

Respectfully submitted,

CELLCO PARTNERSHIP d/b/a VERIZON
WIRELESS

By 

Kenneth C. Baldwin, Esq.
Robinson & Cole LLP
280 Trumbull Street
Hartford, CT 06103-3597
(860) 275-8200
Its Attorneys

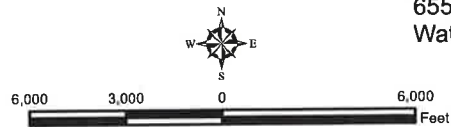
ATTACHMENT 1

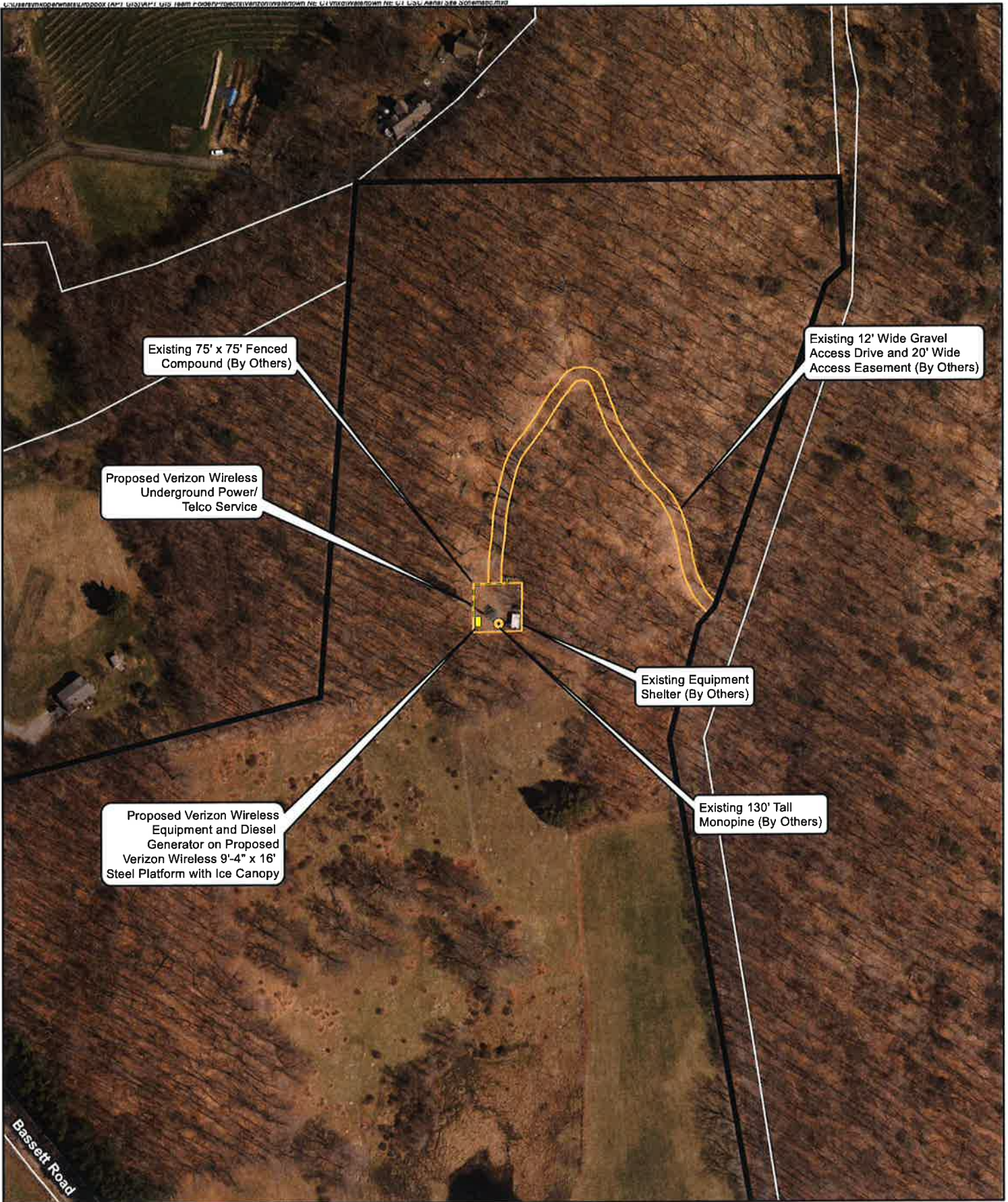


Site Vicinity Map
 Proposed Wireless Telecommunications Facility
 Watertown NE CT
 655 Bassett Road
 Watertown, Connecticut

- Legend**
- ✖ Proposed Verizon Wireless Facility
 - ⊠ Surrounding Verizon Wireless Facilities
 - ▭ Municipal Boundary

Base Map Sources: 2016 Aerial Photograph (CTECO).
 Map Scale: 1 inch = 6,000 feet
 Map Date: November 2017



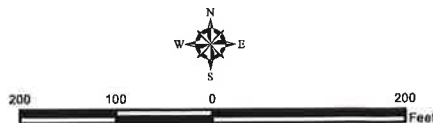


Legend

- Existing Monopine (By Others)
- Existing Site Layout (By Others)
- Proposed Verizon Wireless Equipment
- Proposed Verizon Wireless Power/Telco Service

- Subject Property
- Approximate Parcel Boundary (CTDEEP)

Map Notes:
 Base Map Source: 2016 Aerial Photograph (CTECO)
 Map Scale: 1 inch = 200 feet
 Map Date: December 2017



Site Schematic

Proposed Wireless Telecommunications Facility
 Watertown NE CT
 655 Bassett Road
 Watertown, Connecticut



ATTACHMENT 2

CELLCO PARTNERSHIP



WIRELESS COMMUNICATIONS FACILITY

WATERTOWN NE CT

655 BASSETT ROAD
WATERTOWN, CT. 06795

PREPARED FOR: CELLCO PARTNERSHIP D.B.A.



45 BEECHWOOD DRIVE TEL: (978) 557-5553
N. ANDOVER, MA 01845 FAX: (978) 336-3586



CHECKED BY: DJR

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	11/30/17	REVISED PER COMMENTS	JS
0	06/30/15	ISSUED FOR REVIEW	DJM

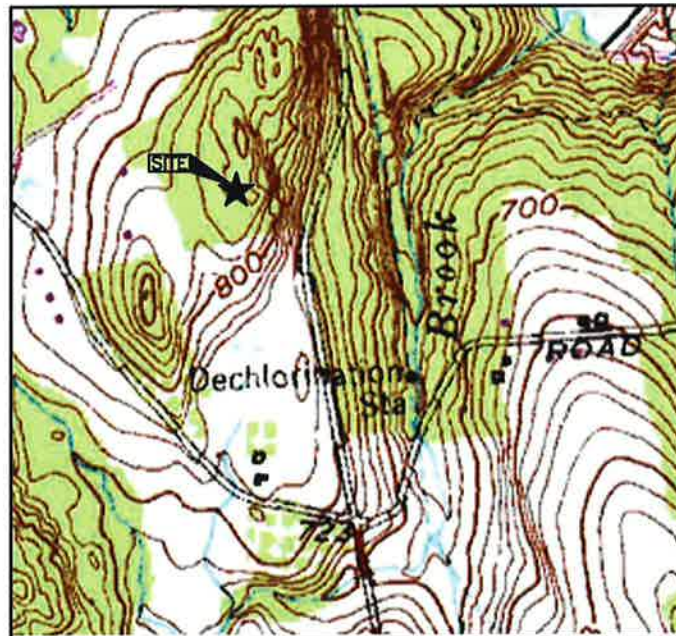
SITE NAME:
WATERTOWN NE CT

SITE ADDRESS:
655 BASSETT ROAD
WATERTOWN, CT 06795

SHEET TITLE
TITLE SHEET

SHEET NUMBER

T-1



VICINITY MAP SCALE: 1"=500'

DIRECTIONS TO SITE: FROM E. HARTFORD CT.

GET ON I-84 W TOWARD HARTFORD/ROUTE 91
TAKE EXIT 20 FOR CT-8N TOWARD TORRINGTON
TAKE EXIT 37 FOR CT-262 TOWARD WATERTOWN
LEFT ONTO CT-262
RIGHT FOLLOWING CT-262/BUCKINGHAM ST
CONTINUE ONTO FERN HILL RD
CONTINUE ONTO SMITH POND RD
RIGHT ONTO LINKFIELD RD
LEFT ONTO BASSETT RD
DESTINATION ON RIGHT

CONSULTANT TEAM

PROJECT ENGINEER

HUDSON DESIGN GROUP, LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: 1-(978)-557-5553
FAX: 1-(978)-336-5586

MEP ENGINEER

HUDSON DESIGN GROUP, LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: 1-(978)-557-5553
FAX: 1-(978)-336-5586

PROJECT SUMMARY

SITE NAME: WATERBURY CT SC9
SITE ADDRESS: 660 PARK ROAD
WATERBURY, CT 06708
APPLICANT: CELLCO PARTNERSHIP
d/b/a VERIZON WIRELESS
PROPERTY OWNER: FRANK E. GUSTAFSON (EST) ET AL
655 BASSETT RD.
WATERTOWN, CT. 06795
SITE ACQUISITION CONTACT: HOLLIS REDDING
STRUCTURE CONSULTING GROUP
(860)966-0989
LEGAL/REGULATORY COUNSEL: KENNETH C. BALDWIN ESQ.
ROBINSON + COLE LLP
(860)275-8345
LATITUDE: N41° 39' 26.00"
LONGITUDE: W73° 08' 11.00"

SCOPE OF WORK INFO.

VERIZON WIRELESS IS PROPOSING TO INSTALL THE FOLLOWING IMPROVEMENTS TO THE EXISTING TELECOMMUNICATION SITE:

- NEW PANEL ANTENNAS: (2) ANTENNAS PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (6) ANTENNAS.
- NEW RRHs: (4) RRHs PER SECTOR WITH (3) SECTORS, FOR A TOTAL OF (12) RRHs
- NEW JUNCTION BOXES: (2) JUNCTION BOXES

ITEMS LISTED ABOVE TO BE MOUNTED ON EXISTING TOWER.

- NEW 16'x9'-4" CUSTOM BUILT STEEL PLATFORM WITH ICE CANOPY.

ITEMS LISTED ABOVE TO BE INSTALLED WITHIN EXISTING FENCED COMPOUND.

- POWER AND TELCO SERVICE SHALL BE ROUTED UNDERGROUND FROM THEIR RESPECTIVE DEMARKS TO PROPOSED EQUIPMENT PLATFORM.
- FINAL UTILITY ROUTING WILL BE DETERMINED/VERIFIED AT THE CONSTRUCTION PHASE OF THE PROJECT.

435 BASSETT ROAD
N/F
ALEX, ROBERT P &
CATHLEEN A
MA 435 BASSETT RD.
WATERTOWN, CT. 06795

465 BASSETT ROAD
N/F
MEMBRINO, DONNA M.
MA 465 BASSETT RD.
WATERTOWN, CT. 06795

489 BASSETT ROAD
N/F
MEMBRINO, PRISCILLA
C/O DARLENE MEMBINO
MA 142 ALLYN ROAD
GOSHEN, CT 06756

486 BASSETT ROAD
N/F
FARROW, ERNEST F &
ZOMBAR, CONSTANCE
MA 32 WHITE OAK RD.
WOODBURY, CT 06798

500 BASSETT ROAD
N/F
GEIGER, MICHAEL A.
CHRISTINE J.
MA 500 BASSETT RD.
WATERTOWN, CT. 06795

514 BASSETT ROAD
N/F
CALIGIURI, SAVERIO
MA 514 BASSETT RD.
WATERTOWN, CT. 06795

655 BASSETT ROAD
N/F
GUSTAFSON, FRANK E
(EST) ET AL
MA 655 BASSETT RD
WATERTOWN, CT 06795

LINKFIELD ROAD
N/F
GUSTAFSON, FRANK E.
(EST) ET AL
MA 936 LINKFIELD RD.
WATERTOWN, CT. 06795

LINKFIELD ROAD
N/F
GUSTAFSON, FRANK E.
(EST) ET AL
MA 936 LINKFIELD RD.
WATERTOWN, CT. 06795

LINKFIELD ROAD
N/F
GUSTAFSON, FRANK E.
(EST) ET AL
MA 936 LINKFIELD RD.
WATERTOWN, CT. 06795

LINKFIELD ROAD
N/F
GUSTAFSON, FRANK E.
(EST) ET AL
MA 936 LINKFIELD RD.
WATERTOWN, CT. 06795

EXISTING 12' WIDE GRAVEL
ACCESS ROAD AND 20'
WIDE ACCESS EASEMENT

EXISTING GRAVEL DRIVEWAY

PROPOSED EQUIPMENT STEEL
PLATFORM WITHIN EXISTING
75'x75' FENCED COMPOUND

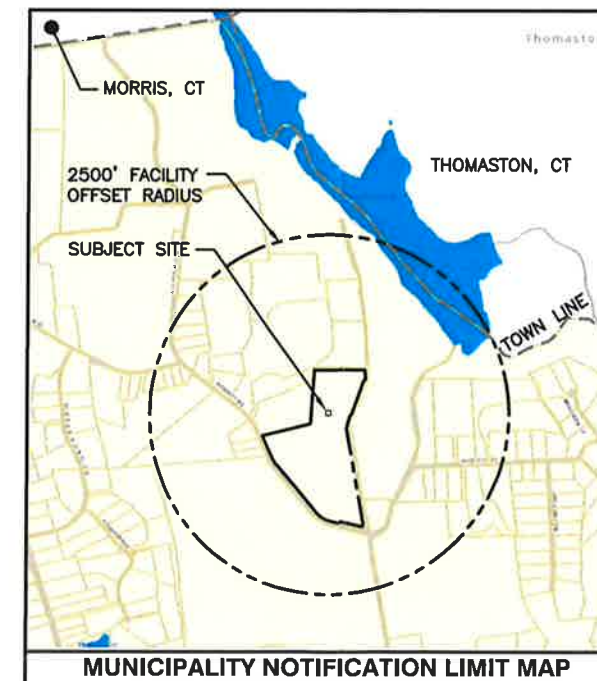
1
A-1

SITE SPECIFIC NOTES:

1. PROPERTY LINE INFORMATION IS COMPILED FROM ASSESSORS PLAN AND RECORD DOCUMENTS AND IS NOT TO BE CONSTRUED AS HAVING BEEN OBTAINED AS THE RESULT OF A FIELD BOUNDARY SURVEY, AND IS SUBJECT TO CHANGE AS AN ACCURATE FIELD SURVEY MAY DISCLOSE. A FULL BOUNDARY SURVEY WAS NOT PERFORMED.
2. VERIFY AZIMUTHS W/ RF ENGINEER.

LEGEND:

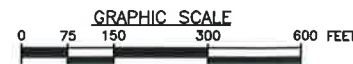
- PROPERTY LINE - SUBJECT PARCEL
- PROPERTY LINE - ABUTTERS
- TOWN BOUNDARY LINE



ABUTTERS PLAN

22x34 SCALE: 1"=150'-0"
11x17 SCALE: 1"=300'-0"

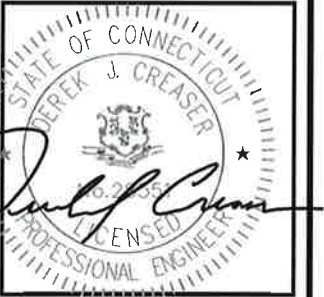
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C-1



PREPARED FOR: CELCO PARTNERSHIP D.B.A.



45 BEECHWOOD DRIVE TEL: (978) 557-5553
N. ANDOVER, MA 01845 FAX: (978) 336-5586



CHECKED BY: DJR

APPROVED BY: DPH

SUBMITTALS

REV.	DATE	DESCRIPTION	BY
1	11/30/17	REVISED PER COMMENTS	JS
0	06/30/15	ISSUED FOR REVIEW	DJM

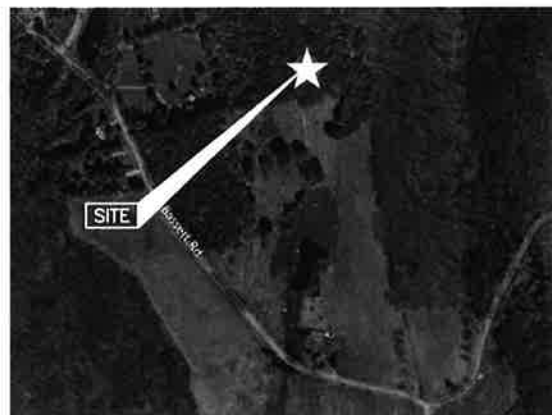
SITE NAME:
WATERTOWN NE CT

SITE ADDRESS:
655 BASSETT ROAD
WATERTOWN, CT 06795

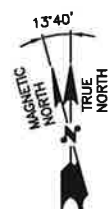
SHEET TITLE
ABUTTERS PLAN

SHEET NUMBER

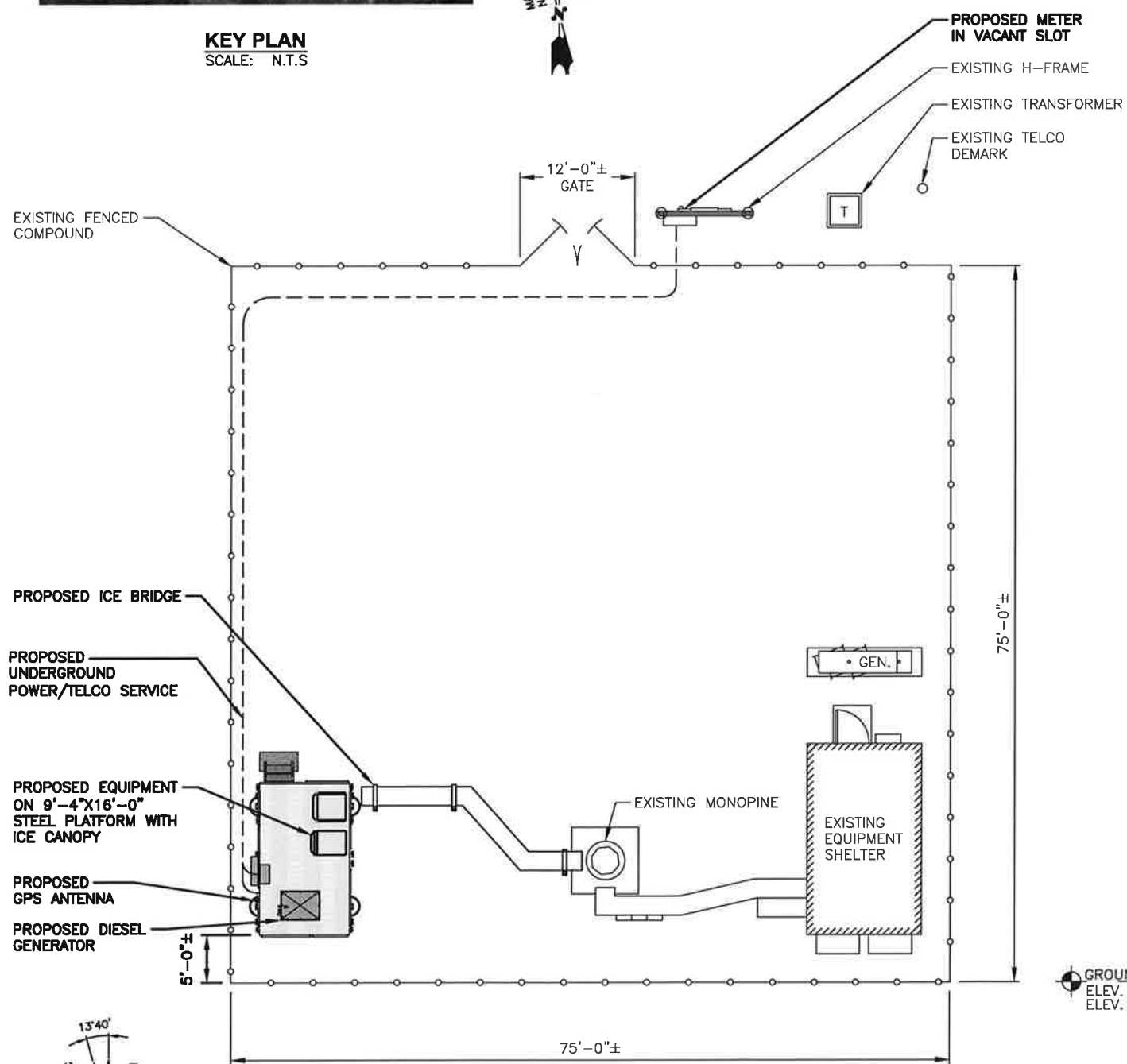
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KEY PLAN
SCALE: N.T.S



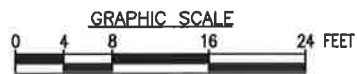
NOTE:
REFER TO STRUCTURAL ANALYSIS REPORT
PREPARED BY AMERICAN TOWER CORPORATION
DATED NOVEMBER 15, 2017



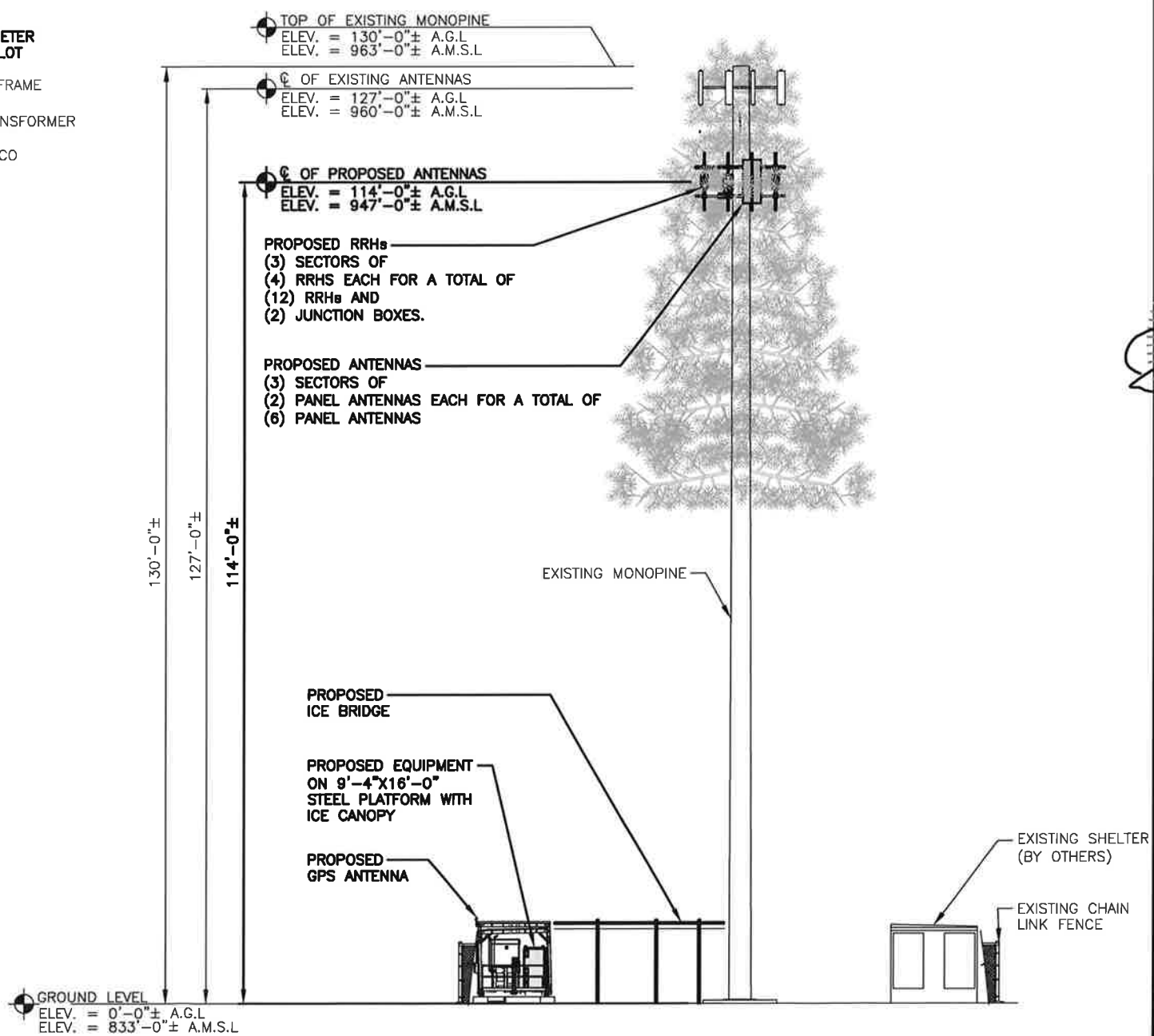
COMPOUND PLAN

22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

1
A-1



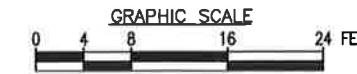
2
A-1



SOUTH ELEVATION

22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

2
A-1



CHECKED BY: DJR
APPROVED BY: DPH

SUBMITTALS			
REV.	DATE	DESCRIPTION	BY
1	11/30/17	REVISED PER COMMENTS	JS
0	06/30/15	ISSUED FOR REVIEW	DJM

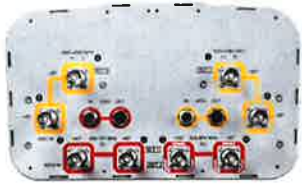
SITE NAME:
WATERTOWN NE CT

SITE ADDRESS:
655 BASSETT ROAD
WATERTOWN, CT 06795

SHEET TITLE
**COMPOUND PLAN
AND ELEVATION**

SHEET NUMBER
A-1

ATTACHMENT 3



JAHH-65B-R3B

Multiband Antenna, 698–787, 824–894 and 2x 1695–2360 MHz, 65° horizontal beamwidth, internal RETs and low bands have diplexers. Internal SBT's on first LB(Port 1) and first HB(Port 5).

- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- One RET for 700MHz, one RET for 850MHz, and one RET for both high bands to ensure same tilt level for 4x Rx or 4x MIMO
- Internal filter on low band and interleaved dipole technology providing for attractive, low wind load mechanical package
- Separate RS-485 RET input/output for low and high band

Electrical Specifications

Frequency Band, MHz	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain, dBi	14.5	15.8	18.0	18.4	18.5	18.8
Beamwidth, Horizontal, degrees	67	65	63	63	65	68
Beamwidth, Vertical, degrees	12.4	10.5	5.7	5.2	4.9	4.4
Beam Tilt, degrees	2–14	2–14	0–10	0–10	0–10	0–10
USLS (First Lobe), dB	18	18	20	20	21	23
Front-to-Back Ratio at 180°, dB	32	34	31	35	36	38
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	698–787	824–894	1695–1880	1850–1990	1920–2200	2300–2360
Gain by all Beam Tilts, average, dBi	14.3	14.9	17.6	18.1	18.2	18.5
Gain by all Beam Tilts Tolerance, dB	±0.3	±0.5	±0.6	±0.4	±0.5	±0.6
	2° 14.3	2° 15.0	0° 17.2	0° 17.6	0° 17.7	0° 17.9
Gain by Beam Tilt, average, dBi	8° 14.3	8° 14.9	5° 17.6	5° 18.2	5° 18.3	5° 18.7
	14° 14.3	14° 15.4	10° 17.6	10° 18.2	10° 18.3	10° 18.7
Beamwidth, Horizontal Tolerance, degrees	±1.2	±1.4	±4	±2.4	±2.9	±2.7
Beamwidth, Vertical Tolerance, degrees	±0.9	±0.5	±0.3	±0.2	±0.3	±0.1
USLS, beampeak to 20° above beampeak, dB	18	17	17	18	19	18
Front-to-Back Total Power at 180° ± 30°, dB	25	24	26	29	27	29
CPR at Boresight, dB	22	23	20	21	21	24
CPR at Sector, dB	11	12	11	11	11	8

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

General Specifications

Operating Frequency Band	1695 – 2360 MHz 698 – 787 MHz 824 – 894 MHz
Antenna Type	Sector
Band	Multiband
Performance Note	Outdoor usage

JAHH-65B-R3B

Mechanical Specifications

RF Connector Quantity, total	8
RF Connector Quantity, low band	4
RF Connector Quantity, high band	4
RF Connector Interface	4.3-10 Female
Color	Light gray
Grounding Type	RF connector 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	746.0 N @ 150 km/h 167.7 lbf @ 150 km/h
Wind Loading, lateral	243.0 N @ 150 km/h 54.6 lbf @ 150 km/h
Wind Loading, rear	776.0 N @ 150 km/h 174.5 lbf @ 150 km/h
Wind Speed, maximum	241 km/h 150 mph

Dimensions

Length	1828.0 mm 72.0 in
Width	350.0 mm 13.8 in
Depth	208.0 mm 8.2 in
Net Weight, without mounting kit	28.7 kg 63.3 lb

Remote Electrical Tilt (RET) Information

Input Voltage	10–30 Vdc
Internal Bias Tee	Port 1 Port 5
Internal RET	High band (1) Low band (2)
Power Consumption, idle state, maximum	2.0 W
Power Consumption, normal conditions, maximum	13.0 W
Protocol	3GPP/AISG 2.0 (Single RET)
RET Interface	8-pin DIN Female 8-pin DIN Male
RET Interface, quantity	2 female 2 male

Packed Dimensions

Length	1975.0 mm 77.8 in
Width	456.0 mm 18.0 in
Depth	357.0 mm 14.1 in
Shipping Weight	42.0 kg 92.6 lb

Regulatory Compliance/Certifications

Agency	Classification
RoHS 2011/65/EU	Compliant by Exemption
China RoHS SJ/T 11364-2006	Above Maximum Concentration Value (MCV)

JAHH-65B-R3B

ISO 9001:2008

Designed, manufactured and/or distributed under this quality management system



Included Products

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

* Footnotes

Performance Note

Severe environmental conditions may degrade optimum performance



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.

General Specifications

Mount Type	Downtilt mounts
Application	Outdoor
Includes	Brackets Hardware
Package Quantity	1

Mechanical Specifications

Color	Silver
Material Type	Galvanized steel

Dimensions

Compatible Diameter, maximum	115.0 mm 4.5 in
Compatible Diameter, minimum	60.0 mm 2.4 in
Net Weight	3.4 kg 7.5 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



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.

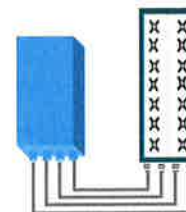


FEATURES

- 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

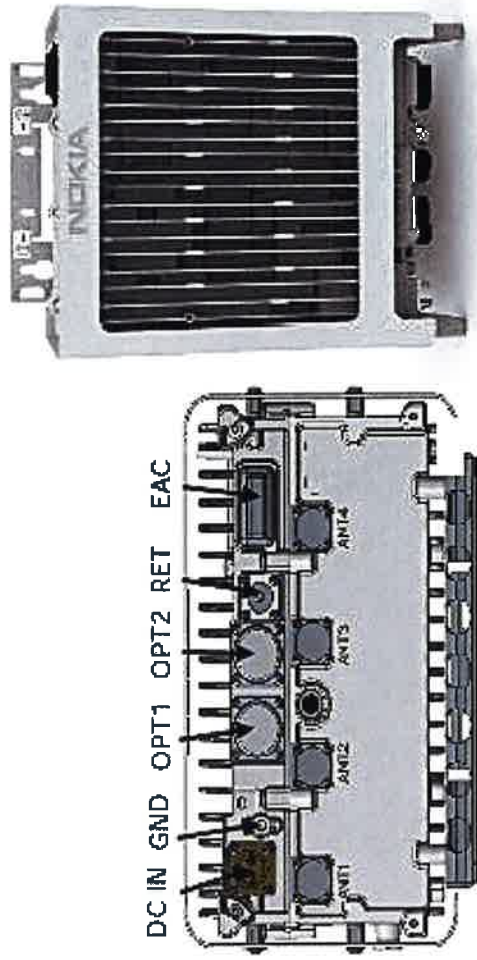
TECHNICAL SPECIFICATIONS

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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AHCA AirScale RRH 4T4R B5 160W

Supported Frequency bands	3GPP band 5
Frequencies	DL 869-894MHz, UL 824-849MHz
Number of TX/RX paths/pipes	4TX/4RX
Instantaneous Bandwidth IBW	25MHz (Full Band)
Occupied Bandwidth OBW	25MHz (Full Band)
Output Power	4T4R @ 40W / 2T4R @ 60W
RF Sharing	LTE, WCDMA, LTE + NB-IOT supported
256 QAM Back Off	No backoff at 40W and 0.3dB at 60W.
Supply Voltage / Voltage Range	DC-48V / -36V to -60V
Typical Power Consumption	365W [50% ETSI Busy Hour Load at 4TX @ 40W] 529W [100% RF Load at 4 TX @ 40W] 574W [100% RF Load at 4 TX @ 40W with SBT and AISG ON]
Antenna Ports	4 Ports, 4.3-10+
Optical Ports	2x CPRI 9.8 Gbps
ALD Control Interfaces	AISG.0 from ANT1, 2, 3, 4 and RET (Power supply ANT1 and ANT3)
Other Interfaces	External Alarm MDR-26 Serial connector (4 inputs, 1 Output) DC Circular Power Connector



Operational Temperature Range	-40°C to 55°C (with solar cover)
Dimensions (mm)	337 x 295 x 165 (radio only)
Height x width x depth	13.3" x 11.7" x 6.5" 428 x 324 x 208 (with bracket and enclosure) 16.9" x 12.8" x 8.2"
Volume (liters)	16.5
Weight (kg)	16/ 35.3 lb - w/o bracket
Ingress protection class	IP65
Installation options	Pole or Wall, Vertical or Horizontal Book Mount
Surge protection	Class II 5kA

NOKIA

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.

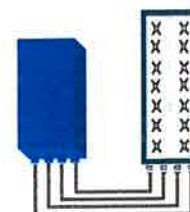


FEATURES

- 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.

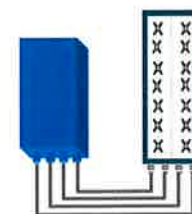


FEATURES

- 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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B25 RRH4x30

ALCATEL-LUCENT DATA SHEET REV1.1 – JANUARY 2015

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.

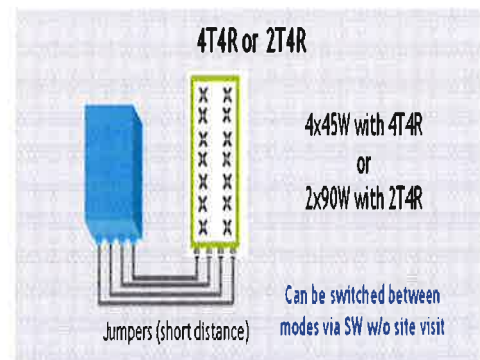
Its compactness and slim design makes the Alcatel-Lucent B66a RRH4x45 easy to install close to the antenna: operators can therefore locate this Remote Radio Head where RF design conditions are deemed ideal, minimizing trade-offs between available sites and RF optimum sites, together with reducing the 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)
Wind load (@150km/h or 93mph)	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

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SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

Standby Power Rating

20 kW AC, 60 Hz



Image used for illustration purposes only



*Built in the USA using domestic and foreign parts

Codes and Standards

Generac products are designed to the following standards:



UL2200, UL508, UL142, UL489



NFPA 37, 70, 99, 110



NEC700, 701, 702, 708



ISO 3046, 7637, 8528, 9001



NEMA ICS10, MG1, 250, ICS6, AB1



ANSI C62.41

Powering Ahead

For over 50 years, Generac has provided innovative design and superior manufacturing.

Generac ensures superior quality by designing and manufacturing most of its generator components, including alternators, enclosures and base tanks, control systems and communications software.

Generac gensets utilize a wide variety of options, configurations and arrangements, allowing us to meet the standby power needs of practically every application.

Generac searched globally to ensure the most reliable engines power our generators. We choose only engines that have already been proven in heavy-duty industrial applications under adverse conditions.

Generac is committed to ensuring our customers' service support continues after their generator purchase.

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

STANDARD OPTIONS**ENGINE SYSTEM**

- Oil Drain Extension
- Air Cleaner with Service Indicator
- Fan Guard
- Stainless Steel Flexible Exhaust Connection
- Exhaust Silencer with Drain
- Factory Filled Oil & Coolant

Fuel System

- Primary Fuel Filter

Cooling System

- 120V AC Coolant Heater
- Closed Coolant Recovery System
- UV/Ozone Resistant Hoses
- Factory-Installed Radiator
- 50/50 Ethylene Glycol Antifreeze
- Radiator Drain Extension

Electrical System

- Battery Charging Alternator
- AGM Spill Proof Battery
- Battery Cables
- Rubber-Booted Engine Electrical Connections
- Solenoid Activated Starter Motor

ALTERNATOR SYSTEM

- Class H Insulation Material
- Vented Rotor
- 2/3 Pitch
- Skewed Stator
- Auxiliary Voltage Regulator Power Winding
- Amortisseur Winding
- Brushless Excitation
- Sealed Bearings
- Automated Manufacturing (Winding, Insertion, Lacing and Varnishing)
- Rotor Dynamically Spin Balanced
- Full Load Capacity Alternator
- Protective Thermal Switch

GENERATOR SET

- Single-Side Service
- Internal Genset Puck Style Vibration Isolators
- Separation of Circuits- High/Low Voltage
- Silencer Heat Shield
- High Heat Wrapped Exhaust Piping
- Silencer Enclosed Within Generator
- 5 Year Extended Warranty
- Extended Factory Testing
- 12 Gallon System Spill Containment
- 2.5 Gallon Fuel Fill Spill Containment

ENCLOSURE

- Serviceable Items Accessible Through Single Lift-Off Side Door
- High Performance Sound-Absorbing Material
- Gasketed Door
- Stamped Air-Intake Louvers
- Single Door Latch Lockable with Key & Padlock
- Rhino Coat™ - Textured Polyester Powder Coat
- 150 MPH Wind Rating
- 36" Snow Rating
- 4 Point Lift System

FUEL TANK

- UL 142 Compliant
- Double Wall Construction
- Thermal Valve (Fusible Link)
- Factory Pressure Tested (5 psi)
- Rupture Basin Alarm
- Fuel Level Gauge and Sender
- Check Valve in Supply Line
- Fire Rated Hose
- Rhino Coat™ - Textured Polyester Powder Coat
- Stainless Steel Hardware
- Integrated Fork Pockets

CONTROL SYSTEM

- Digital H Control Panel - Dual 4x20 Display
- Programmable Crank Limiter
- 7-Day Programmable Exerciser
- Special Applications Programmable PLC
- RS-232/485
- All-Phase Sensing DVR
- Full System Status
- Utility Monitoring
- 2-Wire Start Compatible
- Power Output (kW)
- Power Factor
- kW Hours, Total & Last Run
- Real/Reactive/Apparent Power
- All Phase AC Voltage
- All Phase Currents
- Oil Pressure
- Coolant Temperature
- Coolant Level
- Engine Speed

- Battery Voltage
- Frequency
- Date/Time Fault History (Event Log)
- Isochronous Governor Control
- Waterproof/Sealed Connectors
- Audible Alarms and Shutdowns
- Not in Auto (Flashing Light)
- Auto/Off/Manual Switch
- E-Stop (Red Mushroom-Type)
- NFPA110 Level I and II (Programmable)
- Customizable Alarms, Warnings, and Events
- Modbus protocol
- Predictive Maintenance Algorithm
- Sealed Boards
- Password Parameter Adjustment Protection
- Single Point Ground
- 15 Channel Data Logging
- 0.2 msec High Speed Data Logging
- Alarm Information Automatically Comes Up On the Display

Alarms

- Generator Run- Dry Contact
- Major Alarm- Dry Contact
- Minor Alarm- Dry Contact
- Low Fuel Alarm- Dry Contact
- Rupture Basin Alarm- Dry Contact
- Alarms & Warnings Time and Date Stamped
- Alarms & Warnings for Transient and Steady State Conditions
- Snap Shots of Key Operation Parameters During Alarms & Warnings
- Alarms and Warnings Spelled Out (No Alarm Codes)

MODEL OPTIONS**CONTROL SYSTEM**

- 21 Light Annunciator- Shipped Loose Kit and Field Installed
- External E-Stop-Shipped Loose Kit and Field Installed

ENCLOSURE

- Aluminum Enclosure
- Extreme Cold Weather Kit (-40°C)- Shipped Loose Kit and Field Installed

TANKS

- External Fuel Vent- Shipped Loose Kit and Field Installed

SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

APPLICATION AND ENGINEERING DATA

ENGINE SPECIFICATIONS

General

Make	Mitsubishi
EPA Emissions Compliance	Interim Tier 4
Cylinder #	4
Type	In-Line
Displacement - L (Cu In)	2.5 (158)
Bore - mm (in)	88 (3.5)
Stroke - mm (in)	103 (4.1)
Compression Ratio	22:1
Intake Air Method	Naturally Aspirated

Engine Governing

Governor	Electronic Isochronous
Frequency Regulation (Steady State)	± 0.25%

Lubrication System

Oil Pump Type	Trochoid Gear Pump
Oil Filter Type	Filtering Paper, Full Flow
Crankcase Capacity - L (qts)	6.5 (6.9)

Cooling System

Cooling System Type	Forced Circulation
Water Pump Type	Centrifugal Pump
Fan Type	Pusher
Fan Speed (rpm)	2100
Fan Diameter - mm (in)	431.8 (17)
Coolant Heater Wattage	1000
Coolant Heater Standard Voltage	120

Fuel System

Fuel Type	Ultra Low Sulfur Diesel #2
Fuel Specifications	ASTM
Fuel Filtering (microns)	6
Fuel Inject Pump Make	Bosch
Injector Type	Engine Driven Gear
Engine Type	Diesel
Fuel Supply Line - mm (in.)	6.6 (0.26)

Engine Electrical System

System Voltage	12 VDC
Battery Charger Alternator	12V-50A
Battery Size	650 CCA
Battery Group	35
Battery Voltage	12 VDC
Ground Polarity	Negative

ALTERNATOR SPECIFICATIONS

Standard Model	Mecc Alte ECP 28-2L/4
Poles	4
Field Type	Revolving
Insulation Class - Rotor	H
Insulation Class - Stator	H
Total Harmonic Distortion	<5%
Telephone Interference Factor (TIF)	<45
Standard Excitation	Brushless

Bearings	Dual Sealed
Coupling	Belt, Pulley
Load Capacity - Standby	100%
Prototype Short Circuit Test	Yes
Voltage Regulator Type	Digital
Number of Sensed Phases	All
Regulation Accuracy (Steady State)	± 1.0%

RATING DEFINITIONS

Standby - Applicable for a varying emergency load for the duration of a utility power outage with no overload capability.

SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

OPERATING DATA

POWER RATINGS

Single-Phase 120/240 VAC @1.0pf Circuit Breaker	20 kW 100A	Amps: 83
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FUEL CONSUMPTION RATES*

Diesel - gph (lph)	
Percent Load	Standby
25%	0.77 (2.91)
50%	1.03 (3.90)
75%	1.46 (5.53)
100%	1.97 (7.46)

* Fuel supply installation must accommodate fuel consumption rates at 100% load.

COOLING

		Standby
Coolant Flow per Minute	gpm (lpm)	11.9 (45)
Coolant System Capacity	gal (L)	3.5 (13.2)
Heat Rejection to Coolant	BTU/hr	238,200
Max. Operating Ambient Temperature (Before Derate)	°F (°C)	77° (25°)
Maximum Radiator Backpressure	in H ₂ O	0.50

COMBUSTION AIR REQUIREMENTS

	Standby
Flow at Rated Power cfm (m ³ /min)	88 (2.49)

ENGINE

		Standby
Rated Engine Speed	rpm	1800
Horsepower at Rated kW**	hp	33.5
Piston Speed	ft/min	1220.47
BMEP	psi	96.5

EXHAUST

		Standby
Exhaust Flow (Rated Output)	cfm (m ³ /min)	193 (328)
Max. Backpressure (Post Silencer)	inHg (kPa)	1.38 (4.67)
Exhaust Temp (Rated Output - Post Silencer)	°F (°C)	928 (497.7)

** Refer to "Emissions Data Sheet" for maximum bHP for EPA and SCAQMD permitting purposes.

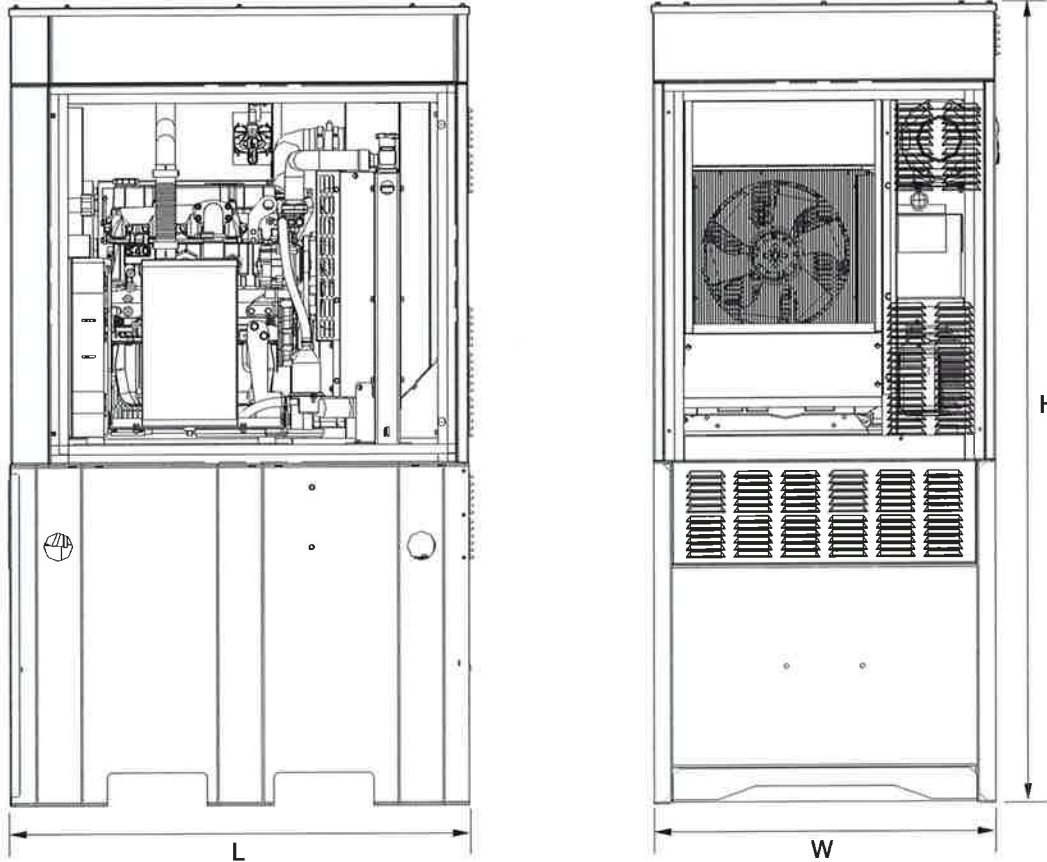
Deration – Operational characteristics consider maximum ambient conditions. Derate factors may apply under atypical site conditions. Please consult a Generac Power Systems Industrial Dealer for additional details. All performance ratings in accordance with ISO3046, BS5514, ISO8528 and DIN6271 standards.

SDC20 | 2.5L | 20 kW - AC

INDUSTRIAL DIESEL GENERATOR SET

EPA Certified Stationary Emergency

DIMENSIONS AND WEIGHTS*



Level 2 Sound Attenuation Enclosure

Run Time Hours	46.7
Usable Capacity Gal (L)	92 (348.2)
L x W x H in (mm)	48 x 36 x 90 (1219.2 x 914.4 x 2286)
Weight lbs (kg)	2400 (1089)
Sound Level	65 dBA

* All measurements are approximate and for estimation purposes only.

YOUR FACTORY RECOGNIZED GENERAC INDUSTRIAL DEALER

Specification characteristics may change without notice. Dimensions and weights are for preliminary purposes only. Please consult a Generac Power Systems Industrial Dealer for detailed installation drawings.

ATTACHMENT 4



AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure : 129 ft Monopole
ATC Site Name : Watertown CT, CT
ATC Site Number : 283424
Engineering Number : OAA713249_C3_04
Proposed Carrier : Verizon
Carrier Site Name : Watertown NE
Carrier Site Number : N/A
Site Location : 655 Bassett Road
Watertown, CT 06795-1139
41.657100,-73.136300
County : Litchfield
Date : November 15, 2017
Max Usage : 99%
Result : Pass

Prepared By:
Kelsey Sargent, E.I.
Structural Engineer I

Reviewed By:



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COA: PEC.0001553



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Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 129 ft monopole to reflect the change in loading by Verizon.

Supporting Documents

Tower Drawings	Larson Camouflage Job #611200, dated September 19, 2002
Foundation Drawing	Larson Camouflage Job #611200, dated September 19, 2002
Geotechnical Report	Berkshire Geo-Technologies, dated July 16, 2012

Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

Basic Wind Speed:	92 mph (3-Second Gust, V_{asd}) / 119 mph (3-Second Gust V_{ult})
Basic Wind Speed w/ Ice:	40 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	C
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	$S_s = 0.19$, $S_1 = 0.06$
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



Existing and Reserved Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
126.0	126.0	3	Ericsson RRUS A2 Module (15.1"Height)	T-Arms	(4) 3" Conduit (6) 0.78" 8 AWG 6 (3) 0.45" Fiber (3) 3/8" (0.38") RET Control Cable	AT&T Mobility
		3	Raycap DC2-48-60-8-18F-02			
		12	Ericsson RRUS 11 (Band 12) (55 lb)			
		3	Ericsson RRUS-12 B2			
		9	Commscope SBNH-1D6565C			
		3	CCI HPA-65R-BUU-H8			

Equipment to be Removed

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
No loading considered as to be removed						

Proposed Equipment

Elevation ¹ (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
114.0	114.0	3	Nokia B5 RRH4x40-850	Sector Frames	(2) 1 5/8" Fiber	Verizon
		3	Alcatel-Lucent B25 RRH4x30			
		3	Alcatel-Lucent B13 RRH4x30-4R			
		3	Alcatel-Lucent B66A RRH 4x45			
		2	RFS DB-T1-6Z-8AB-0Z			
		6	Commscope JAHH-65B-R3B			

¹Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax inside the pole shaft.



Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	75%	Pass
Shaft	99%	Pass
Base Plate	46%	Pass

Foundations

Reaction Component	Original Design Reactions	Analysis Reactions	% of Design
Moment (Kips-Ft)	3,735.0	3,407.5	91%
Shear (Kips)	38.9	33.8	87%

The structure base reactions resulting from this analysis are acceptable when compared to those shown on the original structure drawings, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
114.0	Nokia B5 RRH4x40-850	Verizon	1.483	1.527
	Alcatel-Lucent B25 RRH4x30			
	Alcatel-Lucent B13 RRH4x30-4R			
	Alcatel-Lucent B66A RRH 4x45			
	RFS DB-T1-6Z-8AB-0Z			
	Commscope JAHH-65B-R3B			

*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G



Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessary limited, to:

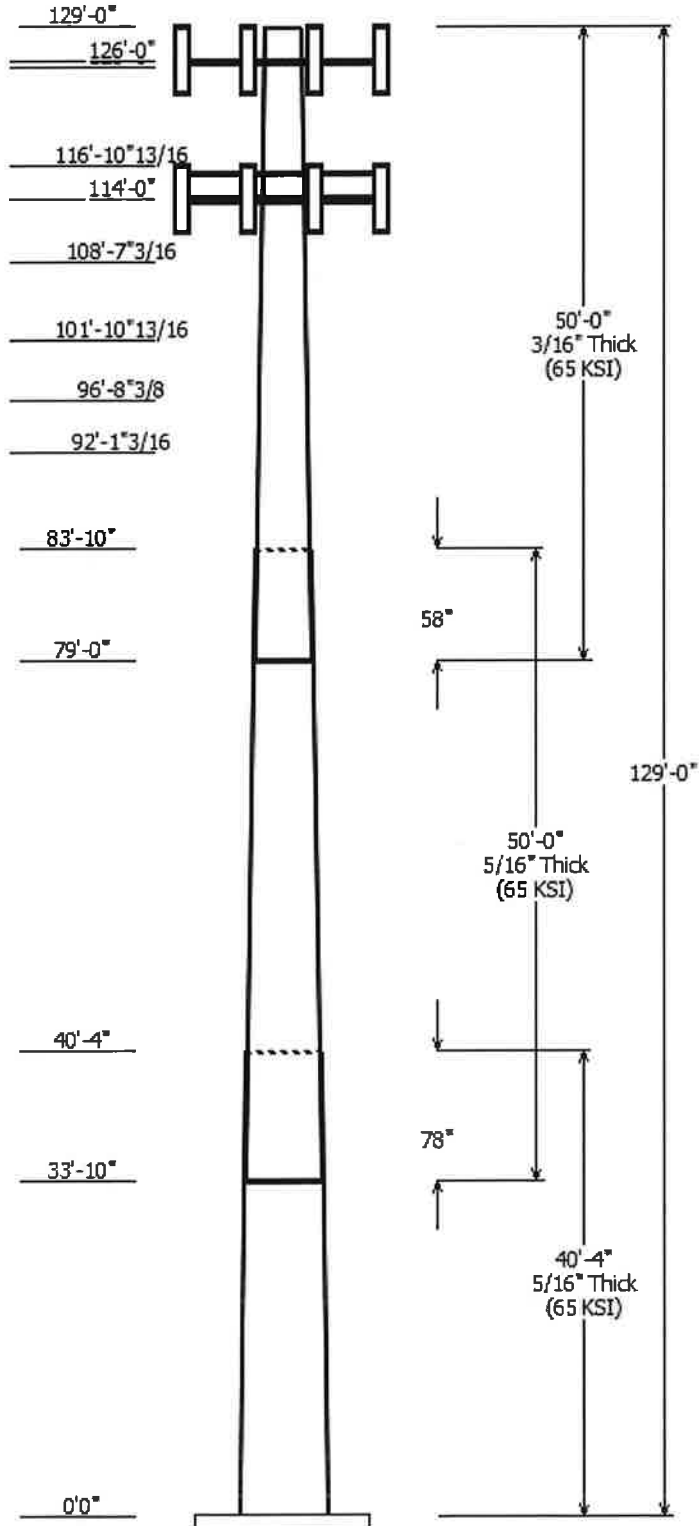
- Information supplied by the client regarding the structure itself, antenna, mounts and feed line loading on the structure and its components, or other relevant information.
- Information from drawings in the possession of American Tower Corporation, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and that their capacity has not significantly changed from the "as new" condition.

Unless explicitly agreed by both the client and American Tower Corporation, all services will be performed in accordance with the current revision of ANSI/TIA -222. The design basic wind speed will be determined based on the minimum basic wind speed as prescribed in ANSI/TIA-222. Although every effort is taken to ensure that the loading considered is adequate to meet the requirements of all applicable regulatory entities, we can provide no assurance to meet any other local and state codes or requirements. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

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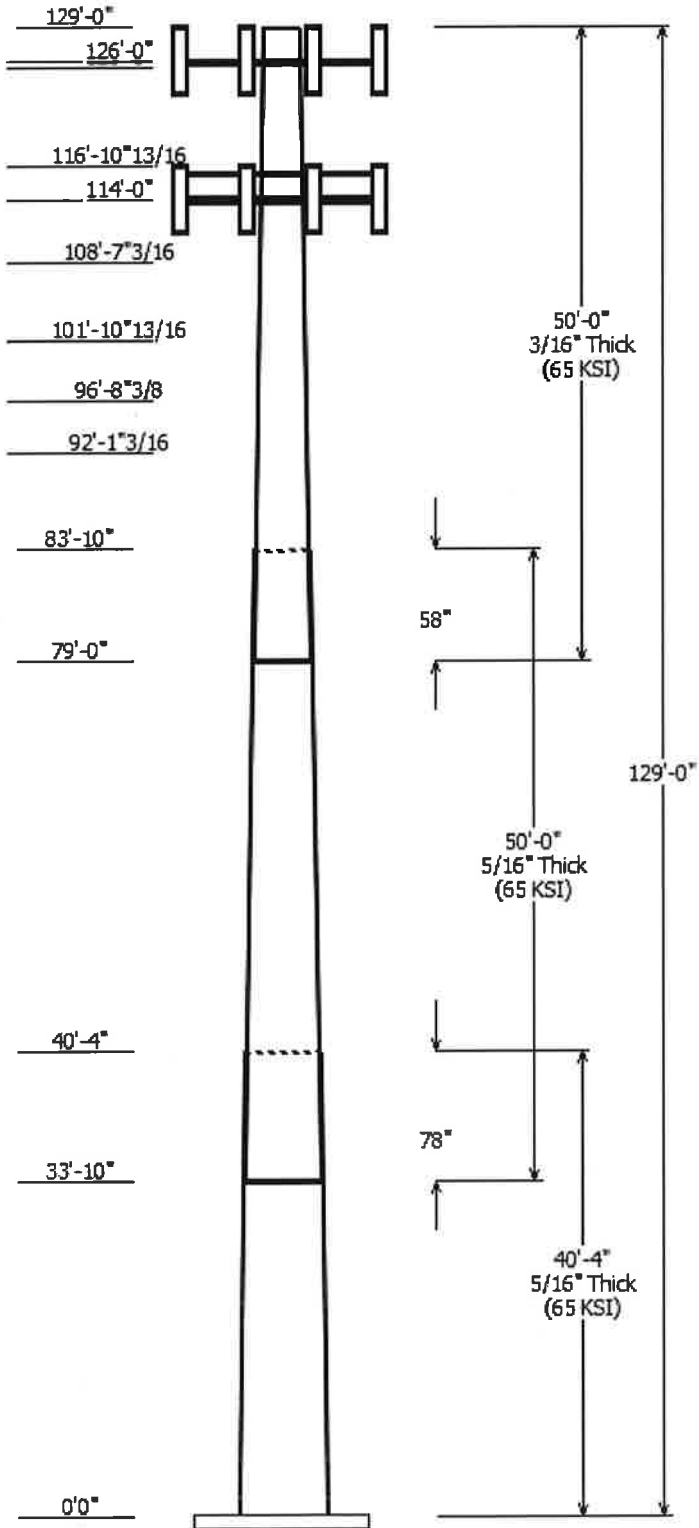
Job Information	
Pole :	283424
Code:	ANSI/TIA-222-G
Description :	
Client :	VERIZON WIRELESS
Struct Class :	II
Location :	WATERTOWN CT, CT
Shape :	18 Sides
Exposure :	C
Height :	129.00 (ft)
Topo :	1
Base Elev (ft):	0.00
Taper:	0.28000@in/ft)

Sections Properties								
Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Type	Overlap Length (in)	Taper (in/ft)	Steel Grade (ksi)
		Accross Top	Flats Bottom					
1	40.333	44.82	56.12	0.313		0.000	0.280000	65
2	50.000	33.27	47.27	0.313	Slip Joint	78.000	0.280000	65
3	50.000	21.00	35.00	0.188	Slip Joint	58.000	0.280000	65

Discrete Appurtenance				
Attach Elev (ft)	Force Elev (ft)	Qty	Description	
126.000	131.000	3	4' Pine Tree Branches	
126.000	126.000	3	CCI HPA-65R-BUU-H8	
126.000	126.000	9	Commscope SBNH-1D6565C	
126.000	126.000	12	Ericsson RRUS 11 (Band 12) (55	
126.000	126.000	3	Ericsson RRUS-12 B2	
126.000	126.000	3	Raycap DC2-48-60-8-18F-02	
126.000	126.000	3	Ericsson RRUS A2 Module	
126.000	126.000	3	Round T-Arm	
125.500	125.500	26	4' Pine Tree Branches	
116.900	116.900	24	6' Pine Tree Branches	
114.000	114.000	3	Flat Light Sector Frame	
114.000	114.000	6	Commscope JAHH-65B-R3B	
114.000	114.000	2	RFS DB-T1-6Z-8AB-0Z	
114.000	114.000	3	Alcatel-Lucent B66A RRH 4x45	
114.000	114.000	3	Alcatel-Lucent B13 RRH4x30-4R	
114.000	114.000	3	Alcatel-Lucent B25 RRH4x30	
114.000	114.000	3	Nokia B5 RRH4x40-850	
108.600	108.600	24	6' Pine Tree Branches	
101.900	101.900	15	8' Pine Tree Branches	
96.700	96.700	15	8' Pine Tree Branches	
92.100	92.100	12	10' Pine Tree Branches	

Linear Appurtenance			
Elev (ft) From	To	Description	Exposed To Wind
0.000	114.0	1 5/8" Fiber	No
0.000	126.0	0.45" (11.5mm)	No
0.000	126.0	0.78" (19.7mm) 8	No
0.000	126.0	3" Conduit	No
0.000	126.0	3/8" (0.38",	No

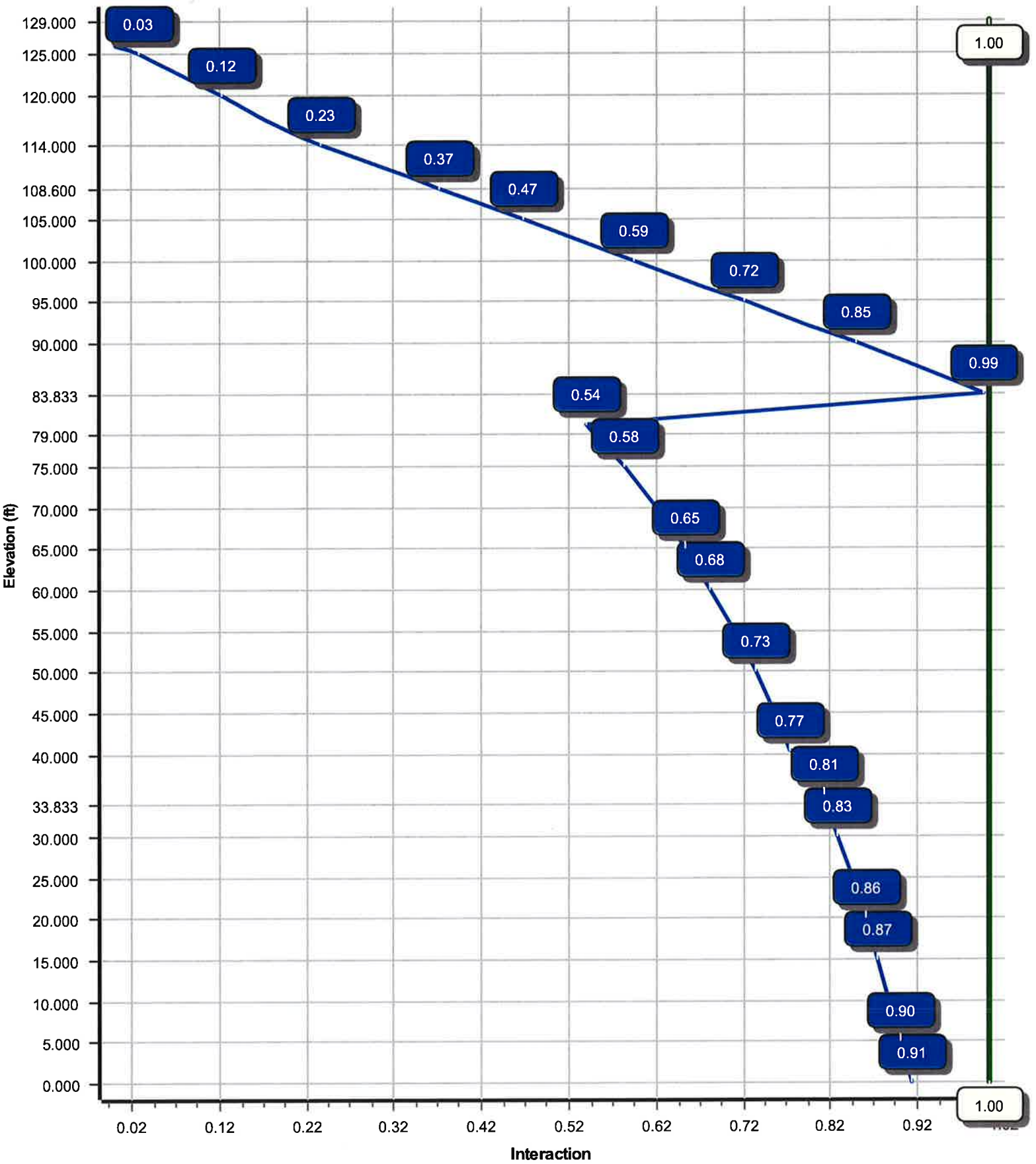
Load Cases	
1.2D + 1.6W	92 mph with No Ice
0.9D + 1.6W	92 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph



Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	3407.48	33.81	43.70
0.9D + 1.6W	3370.32	33.78	32.76
1.2D + 1.0Di + 1.0Wi	568.12	5.77	68.94
(1.2 + 0.2Sds) * DL + E ELFM	167.19	1.54	43.84
(1.2 + 0.2Sds) * DL + E EMAM	286.73	2.60	43.84
(0.9 - 0.2Sds) * DL + E ELFM	164.92	1.54	30.40
(0.9 - 0.2Sds) * DL + E EMAM	282.57	2.60	30.40
1.0D + 1.0W	900.43	8.98	36.47

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000

Load Case : 1.2D + 1.6W
Max Ratio 99.37% at 83.8 ft



Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

Analysis Parameters

Location:	LITCHFIELD County, CT	Height (ft):	129
Code:	ANSI/TIA-222-G	Base Diameter (in):	56.12
Shape:	18 Sides	Top Diameter (in):	21.00
Pole Type:	Taper	Taper (in/ft) :	0.280
Pole Manufacturer:		Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	92 mph
Exposure Category:	C	Design Wind Speed With Ice:	40 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0.0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	2.14		
T _L (sec):	6	p:	1.3
S _s :	0.188	S ₁ :	0.065
F _a :	1.600	F _v :	2.400
S _{ds} :	0.201	S _{d1} :	0.104
		C _s :	0.032
		C _s Max:	0.032
		C _s Min:	0.030

Load Cases

1.2D + 1.6W	92 mph with No Ice
0.9D + 1.6W	92 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	40 mph with 0.75 in Radial Ice
(1.2 + 0.2S _{ds}) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2S _{ds}) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2S _{ds}) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2S _{ds}) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Slip		Weight (lb)	Bottom					Top					Taper (in/ft)		
				Joint Type	Joint Len (in)		Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)		W/t Ratio	D/t Ratio
1-18	40.333	0.3125	65		0.00	6,828	56.12	0.00	55.35	21780.7	29.90	179.58	44.82	40.33	44.15	11053.2	23.53	143.45	0.280000
2-18	50.000	0.3125	65	Slip	78.00	6,743	47.27	33.83	46.58	12976.4	24.91	151.27	33.27	83.83	32.69	4486.7	17.01	106.47	0.280000
3-18	50.000	0.1875	65	Slip	58.00	2,816	35.00	79.00	20.72	3172.1	31.15	186.67	21.00	129.00	12.39	677.8	17.99	112.00	0.280000
Shaft Weight						16,387													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	No Ice			Ice			Distance From Face (ft)	Vert Ecc (ft)
			Weight (lb)	EPAa (sf)	Orientation Factor	Weight (lb)	EPAa (sf)	Orientation Factor		
126.00	4' Pine Tree Branches	3	60.79	1.710	1.00	64.96	1.827	1.00	0.000	5.000
126.00	CCI HPA-65R-BUU-H8	3	68.00	12.980	0.67	320.98	16.506	0.67	0.000	0.000
126.00	Commscope SBNH-1D6565C	9	60.80	11.450	0.70	286.70	14.639	0.70	0.000	0.000
126.00	Ericsson RRUS 11 (Band 12)	12	55.00	2.520	0.50	121.24	3.543	0.50	0.000	0.000
126.00	Ericsson RRUS A2 Module	3	22.00	2.060	0.50	65.32	2.986	0.50	0.000	0.000
126.00	Ericsson RRUS-12 B2	3	58.00	3.150	0.50	137.64	4.293	0.50	0.000	0.000
126.00	Raycap DC2-48-60-8-18F-02	3	14.50	2.500	0.50	76.63	3.522	0.50	0.000	0.000
126.00	Round T-Arm	3	250.00	9.700	0.67	455.77	17.816	0.67	0.000	0.000
125.50	4' Pine Tree Branches	26	60.79	1.710	1.00	64.96	1.827	1.00	0.000	0.000
116.90	6' Pine Tree Branches	24	84.85	2.430	1.00	90.62	2.595	1.00	0.000	0.000
114.00	Alcatel-Lucent B13 RRH4x30-	3	57.80	2.140	0.50	135.58	2.742	0.50	0.000	0.000
114.00	Alcatel-Lucent B25 RRH4x30	3	53.00	2.120	0.50	123.62	2.728	0.50	0.000	0.000
114.00	Alcatel-Lucent B66A RRH	3	67.00	2.580	0.50	149.39	3.259	0.50	0.000	0.000
114.00	Commscope JAHH-65B-R3B	6	60.60	9.110	0.69	283.32	10.416	0.69	0.000	0.000
114.00	Flat Light Sector Frame	3	400.00	17.900	0.67	692.89	32.584	0.67	0.000	0.000
114.00	Nokia B5 RRH4x40-850	3	48.50	1.320	0.50	98.14	1.788	0.50	0.000	0.000
114.00	RFS DB-T1-6Z-8AB-0Z	2	44.00	4.800	0.67	182.87	5.647	0.67	0.000	0.000
108.60	6' Pine Tree Branches	24	84.12	2.440	1.00	89.80	2.605	1.00	0.000	0.000
101.90	8' Pine Tree Branches	15	106.96	3.150	1.00	114.14	3.361	1.00	0.000	0.000
96.70	8' Pine Tree Branches	15	106.24	3.160	1.00	113.33	3.371	1.00	0.000	0.000
92.10	10' Pine Tree Branches	12	128.39	3.860	1.00	136.92	4.116	1.00	0.000	0.000
Totals		178	15332.07			24,137.55			Number of Loadings : 21	

Linear Appurtenance Properties

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Projected Width (in)	Exposed To Wind	Carrier	
0.00	126.00	3	0.45" (11.5mm) Fiber	0.45	0.08	N	0.00	N	AT&T MOBILITY
0.00	126.00	6	0.78" (19.7mm) 8	0.78	0.59	N	0.00	N	AT&T MOBILITY
0.00	126.00	4	3" Conduit	3.50	7.58	N	0.00	N	AT&T MOBILITY
0.00	126.00	3	3/8" (0.38", 9.5mm)	0.38	0.23	N	0.00	N	AT&T MOBILITY
0.00	114.00	2	1 5/8" Fiber	1.63	1.61	N	0.00	N	Verizon

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in ³)	Z (in ³)	Weight (lb)
0.00		0.3125	56.120	55.352	21,780.7	29.90	179.58	66.2	764.4	0.0	0.0
5.00		0.3125	54.720	53.963	20,182.3	29.11	175.10	67.2	726.5	0.0	929.9
10.00		0.3125	53.320	52.575	18,664.1	28.32	170.62	68.1	689.4	0.0	906.3
15.00		0.3125	51.920	51.186	17,224.0	27.53	166.14	69.0	653.4	0.0	882.7
20.00		0.3125	50.520	49.798	15,859.9	26.74	161.66	69.9	618.3	0.0	859.1
25.00		0.3125	49.120	48.409	14,569.8	25.95	157.18	70.9	584.2	0.0	835.4
30.00		0.3125	47.720	47.021	13,351.7	25.16	152.70	71.8	551.1	0.0	811.8
33.83	Bot - Section 2	0.3125	46.647	45.956	12,465.2	24.56	149.27	72.5	526.3	0.0	606.4
35.00		0.3125	46.320	45.632	12,203.4	24.37	148.22	72.7	518.9	0.0	366.1
40.00		0.3125	44.920	44.243	11,122.9	23.58	143.74	73.7	487.7	0.0	1,539.7
40.33	Top - Section 1	0.3125	45.452	44.771	11,525.4	23.88	145.45	73.3	499.4	0.0	101.0
45.00		0.3125	44.145	43.475	10,553.2	23.15	141.26	74.2	470.9	0.0	700.7
50.00		0.3125	42.745	42.086	9,573.9	22.36	136.78	75.1	441.2	0.0	727.9
55.00		0.3125	41.345	40.698	8,657.2	21.57	132.30	76.0	412.4	0.0	704.2
60.00		0.3125	39.945	39.309	7,801.0	20.78	127.82	77.0	384.7	0.0	680.6
65.00		0.3125	38.545	37.920	7,003.1	19.99	123.34	77.9	357.9	0.0	657.0
70.00		0.3125	37.145	36.532	6,261.6	19.20	118.86	78.8	332.0	0.0	633.4
75.00		0.3125	35.745	35.143	5,574.4	18.41	114.38	79.8	307.2	0.0	609.7
79.00	Bot - Section 3	0.3125	34.625	34.032	5,062.3	17.77	110.80	80.5	288.0	0.0	470.8
80.00		0.3125	34.345	33.755	4,939.4	17.62	109.90	80.7	283.3	0.0	185.5
83.83	Top - Section 2	0.1875	33.647	19.912	2,816.4	29.88	179.45	66.3	164.9	0.0	697.2
85.00		0.1875	33.320	19.717	2,734.7	29.57	177.71	66.6	161.7	0.0	78.7
90.00		0.1875	31.920	18.884	2,402.5	28.25	170.24	68.2	148.2	0.0	328.4
92.10		0.1875	31.332	18.534	2,271.4	27.70	167.10	68.8	142.8	0.0	133.7
95.00		0.1875	30.520	18.051	2,098.3	26.94	162.77	69.7	135.4	0.0	180.5
96.70		0.1875	30.044	17.768	2,001.1	26.49	160.23	70.2	131.2	0.0	103.6
100.0		0.1875	29.120	17.218	1,821.0	25.62	155.31	71.3	123.2	0.0	196.4
101.9		0.1875	28.588	16.901	1,722.4	25.12	152.47	71.9	118.7	0.0	110.3
105.0		0.1875	27.720	16.385	1,569.2	24.30	147.84	72.8	111.5	0.0	175.6
108.6		0.1875	26.712	15.785	1,403.1	23.36	142.46	73.9	103.5	0.0	197.0
110.0		0.1875	26.320	15.552	1,341.8	22.99	140.37	74.4	100.4	0.0	74.6
114.0		0.1875	25.200	14.885	1,176.6	21.94	134.40	75.6	92.0	0.0	207.1
115.0		0.1875	24.920	14.718	1,137.5	21.67	132.91	75.9	89.9	0.0	50.4
116.9		0.1875	24.388	14.402	1,065.7	21.17	130.07	76.5	86.1	0.0	94.1
120.0		0.1875	23.520	13.885	955.1	20.36	125.44	77.5	80.0	0.0	149.2
125.0		0.1875	22.120	13.052	793.3	19.04	117.97	79.0	70.6	0.0	229.2
125.5		0.1875	21.980	12.969	778.2	18.91	117.23	79.2	69.7	0.0	22.1
126.0		0.1875	21.840	12.885	763.3	18.78	116.48	79.3	68.8	0.0	22.0
129.0		0.1875	21.000	12.386	677.8	17.99	112.00	80.2	63.6	0.0	129.0
16,387.3											

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

11/15/2017 1:17:37 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W

92 mph with No Ice

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		234.7	0.0					0.0	0.0	234.7	0.0	0.0	0.0
5.00		463.4	1,115.9					0.0	228.1	463.4	1,344.0	0.0	0.0
10.00		451.6	1,087.6					0.0	228.1	451.6	1,315.6	0.0	0.0
15.00		446.6	1,059.2					0.0	228.1	446.6	1,287.3	0.0	0.0
20.00		453.2	1,030.9					0.0	228.1	453.2	1,258.9	0.0	0.0
25.00		462.1	1,002.5					0.0	228.1	462.1	1,230.6	0.0	0.0
30.00		412.0	974.2					0.0	228.1	412.0	1,202.2	0.0	0.0
33.83	Bot - Section 2	234.7	727.7					0.0	174.8	234.7	902.5	0.0	0.0
35.00		292.5	439.3					0.0	53.2	292.5	492.5	0.0	0.0
40.00		253.0	1,847.6					0.0	228.1	253.0	2,075.7	0.0	0.0
40.33	Top - Section 1	236.1	121.2					0.0	15.2	236.1	136.4	0.0	0.0
45.00		454.5	840.8					0.0	212.9	454.5	1,053.6	0.0	0.0
50.00		465.6	873.4					0.0	228.1	465.6	1,101.5	0.0	0.0
55.00		459.5	845.1					0.0	228.1	459.5	1,073.1	0.0	0.0
60.00		452.2	816.7					0.0	228.1	452.2	1,044.8	0.0	0.0
65.00		443.8	788.4					0.0	228.1	443.8	1,016.4	0.0	0.0
70.00		434.4	760.0					0.0	228.1	434.4	988.1	0.0	0.0
75.00		382.7	731.7					0.0	228.1	382.7	959.7	0.0	0.0
79.00	Bot - Section 3	209.9	564.9					0.0	182.4	209.9	747.4	0.0	0.0
80.00		200.3	222.7					0.0	45.6	200.3	268.3	0.0	0.0
83.83	Top - Section 2	206.0	836.7					0.0	174.8	206.0	1,011.5	0.0	0.0
85.00		247.5	94.4					0.0	53.2	247.5	147.6	0.0	0.0
90.00		282.1	394.1					0.0	228.1	282.1	622.1	0.0	0.0
92.10		193.6	160.4					0.0	95.8	193.6	256.2	0.0	0.0
95.00		175.9	216.6					0.0	132.3	175.9	348.9	0.0	0.0
96.70		187.0	124.3					0.0	77.5	187.0	201.9	0.0	0.0
100.00		191.9	235.7					0.0	150.5	191.9	386.2	0.0	0.0
101.90		180.1	132.4					0.0	86.7	180.1	219.0	0.0	0.0
105.00		236.1	210.7					0.0	141.4	236.1	352.1	0.0	0.0
108.60		173.0	236.4					0.0	164.2	173.0	400.6	0.0	0.0
110.00		180.8	89.6					0.0	63.9	180.8	153.4	0.0	0.0
114.00	Appertunance(s)	165.6	248.6	3,398.1	0.0	0.0	2,796.6	0.0	182.4	3,563.7	3,227.6	0.0	0.0
115.00		93.5	60.4					0.0	41.7	93.5	102.2	0.0	0.0
116.90		158.0	113.0					0.0	79.3	158.0	192.3	0.0	0.0
120.00		247.2	179.0					0.0	129.4	247.2	308.5	0.0	0.0
125.00		164.7	275.0					0.0	208.7	164.7	483.7	0.0	0.0
125.50	Appertunance(s)	29.1	26.6	2,138.4	0.0	0.0	1,896.6	0.0	20.9	2,167.5	1,944.1	0.0	0.0
126.00	Appertunance(s)	99.8	26.4	5,763.2	0.0	1,244.9	3,152.5	0.0	20.9	5,863.0	3,199.8	0.0	0.0
129.00		85.3	154.8					0.0	0.0	85.3	154.8	0.0	0.0
Totals:										22,039.3	33,211.2	0.00	0.00

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

11/15/2017 1:17:38 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W

92 mph with No Ice

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-43.70	-33.81	0.00	-3,407.48	0.00	3,407.48	3,299.40	1,649.70	7,582.99	3,797.13	0.00	0.00	0.911
5.00	-42.23	-33.50	0.00	-3,238.46	0.00	3,238.46	3,261.75	1,630.88	7,307.36	3,659.11	0.12	-0.22	0.898
10.00	-40.78	-33.20	0.00	-3,070.95	0.00	3,070.95	3,221.78	1,610.89	7,031.03	3,520.74	0.46	-0.44	0.885
15.00	-39.37	-32.90	0.00	-2,904.94	0.00	2,904.94	3,179.49	1,589.75	6,754.40	3,382.22	1.05	-0.67	0.872
20.00	-37.98	-32.59	0.00	-2,740.44	0.00	2,740.44	3,134.88	1,567.44	6,477.88	3,243.76	1.87	-0.90	0.857
25.00	-36.62	-32.26	0.00	-2,577.50	0.00	2,577.50	3,087.95	1,543.97	6,201.87	3,105.54	2.94	-1.14	0.842
30.00	-35.31	-31.96	0.00	-2,416.21	0.00	2,416.21	3,038.69	1,519.34	5,926.77	2,967.79	4.27	-1.38	0.826
33.83	-34.34	-31.77	0.00	-2,293.72	0.00	2,293.72	2,999.35	1,499.68	5,716.73	2,862.61	5.46	-1.57	0.813
35.00	-33.77	-31.56	0.00	-2,256.65	0.00	2,256.65	2,987.11	1,493.55	5,652.99	2,830.70	5.85	-1.64	0.809
40.00	-31.63	-31.32	0.00	-2,098.85	0.00	2,098.85	2,933.21	1,466.60	5,380.93	2,694.46	7.70	-1.89	0.790
40.33	-31.43	-31.15	0.00	-2,088.41	0.00	2,088.41	2,953.95	1,476.98	5,484.02	2,746.08	7.83	-1.91	0.772
45.00	-30.26	-30.79	0.00	-1,943.05	0.00	1,943.05	2,902.37	1,451.19	5,231.21	2,619.49	9.82	-2.15	0.753
50.00	-29.05	-30.41	0.00	-1,789.12	0.00	1,789.12	2,844.86	1,422.43	4,962.62	2,485.00	12.21	-2.40	0.731
55.00	-27.86	-30.03	0.00	-1,637.08	0.00	1,637.08	2,785.03	1,392.52	4,696.79	2,351.89	14.86	-2.66	0.707
60.00	-26.71	-29.64	0.00	-1,486.95	0.00	1,486.95	2,722.88	1,361.44	4,434.11	2,220.35	17.78	-2.91	0.680
65.00	-25.59	-29.26	0.00	-1,338.74	0.00	1,338.74	2,658.40	1,329.20	4,174.99	2,090.60	20.96	-3.17	0.650
70.00	-24.49	-28.88	0.00	-1,192.43	0.00	1,192.43	2,591.60	1,295.80	3,919.84	1,962.83	24.42	-3.43	0.617
75.00	-23.45	-28.53	0.00	-1,048.02	0.00	1,048.02	2,522.48	1,261.24	3,669.06	1,837.26	28.15	-3.68	0.580
79.00	-22.65	-28.32	0.00	-933.89	0.00	933.89	2,465.51	1,232.76	3,471.85	1,738.50	31.32	-3.88	0.547
80.00	-22.34	-28.15	0.00	-905.57	0.00	905.57	2,451.04	1,225.52	3,423.05	1,714.07	32.14	-3.94	0.538
83.83	-21.29	-27.92	0.00	-797.65	0.00	797.65	1,187.39	593.69	1,636.13	819.28	35.37	-4.12	0.994
85.00	-21.05	-27.74	0.00	-765.08	0.00	765.08	1,182.21	591.10	1,613.00	807.70	36.39	-4.18	0.967
90.00	-20.33	-27.51	0.00	-626.36	0.00	626.36	1,158.57	579.29	1,513.58	757.92	40.96	-4.54	0.846
92.10	-18.34	-25.12	0.00	-568.60	0.00	568.60	1,147.95	573.98	1,471.76	736.97	42.99	-4.69	0.789
95.00	-17.95	-24.96	0.00	-495.76	0.00	495.76	1,132.61	566.31	1,414.01	708.05	45.90	-4.88	0.718
96.70	-15.98	-22.48	0.00	-453.33	0.00	453.33	1,123.26	561.63	1,380.19	691.12	47.66	-4.99	0.672
100.00	-15.56	-22.30	0.00	-379.14	0.00	379.14	1,104.33	552.17	1,314.67	658.31	51.18	-5.19	0.592
101.90	-13.59	-19.79	0.00	-336.77	0.00	336.77	1,092.98	546.49	1,277.08	639.49	53.27	-5.30	0.540
105.00	-13.21	-19.56	0.00	-275.42	0.00	275.42	1,073.73	536.86	1,215.99	608.90	56.76	-5.45	0.466
108.60	-10.65	-16.41	0.00	-205.02	0.00	205.02	1,050.26	525.13	1,145.57	573.64	60.93	-5.61	0.369
110.00	-10.49	-16.24	0.00	-182.04	0.00	182.04	1,040.80	520.40	1,118.36	560.01	62.58	-5.66	0.336
114.00	-7.62	-12.38	0.00	-117.10	0.00	117.10	1,012.79	506.40	1,041.29	521.42	67.38	-5.79	0.233
115.00	-7.52	-12.28	0.00	-104.73	0.00	104.73	1,005.56	502.78	1,022.19	511.86	68.59	-5.82	0.213
116.90	-5.18	-9.11	0.00	-81.40	0.00	81.40	991.55	495.78	986.11	493.79	70.91	-5.86	0.170
120.00	-4.89	-8.83	0.00	-53.17	0.00	53.17	967.99	483.99	927.88	464.63	74.73	-5.92	0.120
125.00	-4.43	-8.62	0.00	-8.99	0.00	8.99	928.10	464.05	835.84	418.54	80.95	-5.96	0.027
125.50	-2.72	-6.26	0.00	-4.68	0.00	4.68	923.98	461.99	826.77	414.00	81.57	-5.97	0.014
126.00	-0.15	-0.10	0.00	-0.30	0.00	0.30	919.84	459.92	817.74	409.48	82.20	-5.97	0.001
129.00	0.00	-0.09	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	85.94	-5.97	0.000

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

11/15/2017 1:17:38 PM

Customer: VERIZON WIRELESS

Load Case: 0.9D + 1.6W

92 mph with No Ice (Reduced DL)

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		234.7	0.0					0.0	0.0	234.7	0.0	0.0	0.0
5.00		463.4	836.9					0.0	171.0	463.4	1,008.0	0.0	0.0
10.00		451.6	815.7					0.0	171.0	451.6	986.7	0.0	0.0
15.00		446.6	794.4					0.0	171.0	446.6	965.5	0.0	0.0
20.00		453.2	773.2					0.0	171.0	453.2	944.2	0.0	0.0
25.00		462.1	751.9					0.0	171.0	462.1	922.9	0.0	0.0
30.00		412.0	730.6					0.0	171.0	412.0	901.7	0.0	0.0
33.83	Bot - Section 2	234.7	545.8					0.0	131.1	234.7	676.9	0.0	0.0
35.00		292.5	329.5					0.0	39.9	292.5	369.4	0.0	0.0
40.00		253.0	1,385.7					0.0	171.0	253.0	1,556.8	0.0	0.0
40.33	Top - Section 1	236.1	90.9					0.0	11.4	236.1	102.3	0.0	0.0
45.00		454.5	630.6					0.0	159.6	454.5	790.2	0.0	0.0
50.00		465.6	655.1					0.0	171.0	465.6	826.1	0.0	0.0
55.00		459.5	633.8					0.0	171.0	459.5	804.9	0.0	0.0
60.00		452.2	612.6					0.0	171.0	452.2	783.6	0.0	0.0
65.00		443.8	591.3					0.0	171.0	443.8	762.3	0.0	0.0
70.00		434.4	570.0					0.0	171.0	434.4	741.1	0.0	0.0
75.00		382.7	548.8					0.0	171.0	382.7	719.8	0.0	0.0
79.00	Bot - Section 3	209.9	423.7					0.0	136.8	209.9	560.5	0.0	0.0
80.00		200.3	167.0					0.0	34.2	200.3	201.2	0.0	0.0
83.83	Top - Section 2	206.0	627.5					0.0	131.1	206.0	758.7	0.0	0.0
85.00		247.5	70.8					0.0	39.9	247.5	110.7	0.0	0.0
90.00		282.1	295.5					0.0	171.0	282.1	466.6	0.0	0.0
92.10		193.6	120.3					0.0	71.8	193.6	192.2	0.0	0.0
95.00		175.9	162.5					0.0	99.2	175.9	261.7	0.0	0.0
96.70		187.0	93.2					0.0	58.2	187.0	151.4	0.0	0.0
100.00		191.9	176.8					0.0	112.9	191.9	289.7	0.0	0.0
101.90		180.1	99.3					0.0	65.0	180.1	164.3	0.0	0.0
105.00		236.1	158.0					0.0	106.0	236.1	264.1	0.0	0.0
108.60		173.0	177.3					0.0	123.2	173.0	300.5	0.0	0.0
110.00		180.8	67.2					0.0	47.9	180.8	115.1	0.0	0.0
114.00	Appertunance(s)	165.6	186.4	3,398.1	0.0	0.0	2,097.4	0.0	136.8	3,563.7	2,420.7	0.0	0.0
115.00		93.5	45.3					0.0	31.3	93.5	76.6	0.0	0.0
116.90		158.0	84.7					0.0	59.5	158.0	144.2	0.0	0.0
120.00		247.2	134.3					0.0	97.1	247.2	231.3	0.0	0.0
125.00		164.7	206.2					0.0	156.6	164.7	362.8	0.0	0.0
125.50	Appertunance(s)	29.1	19.9	2,138.4	0.0	0.0	1,422.5	0.0	15.7	2,167.5	1,458.1	0.0	0.0
126.00	Appertunance(s)	99.8	19.8	5,763.2	0.0	1,244.9	2,364.4	0.0	15.7	5,863.0	2,399.8	0.0	0.0
129.00		85.3	116.1					0.0	0.0	85.3	116.1	0.0	0.0
Totals:										22,039.3	24,908.4	0.00	0.00

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

11/15/2017 1:17:39 PM

Customer: VERIZON WIRELESS

Load Case: 0.9D + 1.6W

92 mph with No Ice (Reduced DL)

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor 1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-32.76	-33.78	0.00	-3,370.32	0.00	3,370.32	3,299.40	1,649.70	7,582.99	3,797.13	0.00	0.00	0.898
5.00	-31.62	-33.44	0.00	-3,201.40	0.00	3,201.40	3,261.75	1,630.88	7,307.36	3,659.11	0.12	-0.21	0.885
10.00	-30.51	-33.10	0.00	-3,034.22	0.00	3,034.22	3,221.78	1,610.89	7,031.03	3,520.74	0.46	-0.43	0.872
15.00	-29.42	-32.76	0.00	-2,868.72	0.00	2,868.72	3,179.49	1,589.75	6,754.40	3,382.22	1.04	-0.66	0.858
20.00	-28.35	-32.41	0.00	-2,704.92	0.00	2,704.92	3,134.88	1,567.44	6,477.88	3,243.76	1.85	-0.89	0.843
25.00	-27.30	-32.05	0.00	-2,542.87	0.00	2,542.87	3,087.95	1,543.97	6,201.87	3,105.54	2.91	-1.12	0.828
30.00	-26.29	-31.71	0.00	-2,382.65	0.00	2,382.65	3,038.69	1,519.34	5,926.77	2,967.79	4.22	-1.37	0.812
33.83	-25.55	-31.52	0.00	-2,261.08	0.00	2,261.08	2,999.35	1,499.68	5,716.73	2,862.61	5.39	-1.55	0.799
35.00	-25.11	-31.28	0.00	-2,224.31	0.00	2,224.31	2,987.11	1,493.55	5,652.99	2,830.70	5.78	-1.61	0.795
40.00	-23.49	-31.04	0.00	-2,067.90	0.00	2,067.90	2,933.21	1,466.60	5,380.93	2,694.46	7.61	-1.86	0.776
40.33	-23.32	-30.85	0.00	-2,057.56	0.00	2,057.56	2,953.95	1,476.98	5,484.02	2,746.08	7.74	-1.88	0.758
45.00	-22.42	-30.46	0.00	-1,913.59	0.00	1,913.59	2,902.37	1,451.19	5,231.21	2,619.49	9.70	-2.12	0.739
50.00	-21.48	-30.06	0.00	-1,761.28	0.00	1,761.28	2,844.86	1,422.43	4,962.62	2,485.00	12.05	-2.37	0.717
55.00	-20.57	-29.66	0.00	-1,610.98	0.00	1,610.98	2,785.03	1,392.52	4,696.79	2,351.89	14.67	-2.62	0.693
60.00	-19.68	-29.25	0.00	-1,462.70	0.00	1,462.70	2,722.88	1,361.44	4,434.11	2,220.35	17.55	-2.87	0.666
65.00	-18.81	-28.85	0.00	-1,316.43	0.00	1,316.43	2,658.40	1,329.20	4,174.99	2,090.60	20.69	-3.13	0.637
70.00	-17.97	-28.46	0.00	-1,172.16	0.00	1,172.16	2,591.60	1,295.80	3,919.84	1,962.83	24.10	-3.38	0.605
75.00	-17.17	-28.10	0.00	-1,029.87	0.00	1,029.87	2,522.48	1,261.24	3,669.06	1,837.26	27.77	-3.63	0.568
79.00	-16.56	-27.89	0.00	-917.48	0.00	917.48	2,465.51	1,232.76	3,471.85	1,738.50	30.89	-3.83	0.535
80.00	-16.32	-27.71	0.00	-889.59	0.00	889.59	2,451.04	1,225.52	3,423.05	1,714.07	31.70	-3.88	0.526
83.83	-15.52	-27.48	0.00	-783.37	0.00	783.37	1,187.39	593.69	1,636.13	819.28	34.89	-4.06	0.971
85.00	-15.32	-27.29	0.00	-751.31	0.00	751.31	1,182.21	591.10	1,613.00	807.70	35.89	-4.12	0.945
90.00	-14.76	-27.03	0.00	-614.88	0.00	614.88	1,158.57	579.29	1,513.58	757.92	40.40	-4.47	0.826
92.10	-13.30	-24.67	0.00	-558.11	0.00	558.11	1,147.95	573.98	1,471.76	736.97	42.40	-4.62	0.771
95.00	-12.99	-24.51	0.00	-486.55	0.00	486.55	1,132.61	566.31	1,414.01	708.05	45.26	-4.81	0.701
96.70	-11.55	-22.07	0.00	-444.89	0.00	444.89	1,123.26	561.63	1,380.19	691.12	46.99	-4.92	0.656
100.00	-11.22	-21.88	0.00	-372.06	0.00	372.06	1,104.33	552.17	1,314.67	658.31	50.46	-5.11	0.577
101.90	-9.79	-19.41	0.00	-330.48	0.00	330.48	1,092.98	546.49	1,277.08	639.49	52.51	-5.21	0.527
105.00	-9.50	-19.18	0.00	-270.30	0.00	270.30	1,073.73	536.86	1,215.99	608.90	55.95	-5.37	0.454
108.60	-7.64	-16.10	0.00	-201.25	0.00	201.25	1,050.26	525.13	1,145.57	573.64	60.05	-5.52	0.359
110.00	-7.51	-15.92	0.00	-178.71	0.00	178.71	1,040.80	520.40	1,118.36	560.01	61.68	-5.57	0.327
114.00	-5.44	-12.14	0.00	-115.02	0.00	115.02	1,012.79	506.40	1,041.29	521.42	66.40	-5.70	0.227
115.00	-5.36	-12.05	0.00	-102.88	0.00	102.88	1,005.56	502.78	1,022.19	511.86	67.59	-5.73	0.207
116.90	-3.68	-8.95	0.00	-79.99	0.00	79.99	991.55	495.78	986.11	493.79	69.88	-5.77	0.166
120.00	-3.47	-8.68	0.00	-52.26	0.00	52.26	967.99	483.99	927.88	464.63	73.64	-5.82	0.116
125.00	-3.12	-8.48	0.00	-8.86	0.00	8.86	928.10	464.05	835.84	418.54	79.76	-5.87	0.025
125.50	-1.89	-6.17	0.00	-4.62	0.00	4.62	923.98	461.99	826.77	414.00	80.37	-5.87	0.013
126.00	-0.11	-0.10	0.00	-0.29	0.00	0.29	919.84	459.92	817.74	409.48	80.99	-5.87	0.001
129.00	0.00	-0.09	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	84.67	-5.87	0.000

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

11/15/2017 1:17:40 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0Di + 1.0Wi

40 mph with 0.75 in Radial Ice

22 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Wind Importance Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		53.3	0.0					0.0	0.0	53.3	0.0	0.0	0.0
5.00		105.5	1,521.6					0.0	228.1	105.5	1,749.7	0.0	0.0
10.00		103.3	1,530.1					0.0	228.1	103.3	1,758.2	0.0	0.0
15.00		102.5	1,513.6					0.0	228.1	102.5	1,741.6	0.0	0.0
20.00		104.3	1,488.8					0.0	228.1	104.3	1,716.9	0.0	0.0
25.00		106.7	1,459.8					0.0	228.1	106.7	1,687.8	0.0	0.0
30.00		95.3	1,428.0					0.0	228.1	95.3	1,656.1	0.0	0.0
33.83	Bot - Section 2	54.4	1,073.3					0.0	174.8	54.4	1,248.1	0.0	0.0
35.00		67.9	545.9					0.0	53.2	67.9	599.2	0.0	0.0
40.00		58.7	2,295.5					0.0	228.1	58.7	2,523.5	0.0	0.0
40.33	Top - Section 1	55.0	151.2					0.0	15.2	55.0	166.4	0.0	0.0
45.00		106.0	1,251.8					0.0	212.9	106.0	1,464.7	0.0	0.0
50.00		108.9	1,305.1					0.0	228.1	108.9	1,533.1	0.0	0.0
55.00		107.8	1,267.4					0.0	228.1	107.8	1,495.5	0.0	0.0
60.00		106.4	1,229.2					0.0	228.1	106.4	1,457.2	0.0	0.0
65.00		104.7	1,190.4					0.0	228.1	104.7	1,418.4	0.0	0.0
70.00		102.9	1,151.1					0.0	228.1	102.9	1,379.2	0.0	0.0
75.00		90.9	1,111.5					0.0	228.1	90.9	1,339.5	0.0	0.0
79.00	Bot - Section 3	50.0	861.5					0.0	182.4	50.0	1,043.9	0.0	0.0
80.00		47.8	297.2					0.0	45.6	47.8	342.8	0.0	0.0
83.83	Top - Section 2	49.2	1,115.0					0.0	174.8	49.2	1,289.9	0.0	0.0
85.00		59.3	178.6					0.0	53.2	59.3	231.8	0.0	0.0
90.00		67.7	741.7					0.0	228.1	67.7	969.8	0.0	0.0
92.10		46.7	304.5					0.0	95.8	46.7	400.3	0.0	0.0
95.00		42.5	411.2					0.0	132.3	42.5	543.5	0.0	0.0
96.70		45.3	237.0					0.0	77.5	45.3	314.5	0.0	0.0
100.00		46.6	448.6					0.0	150.5	46.6	599.1	0.0	0.0
101.90		43.9	253.1					0.0	86.7	43.9	339.8	0.0	0.0
105.00		57.7	402.6					0.0	141.4	57.7	544.0	0.0	0.0
108.60		42.4	452.4					0.0	164.2	42.4	616.6	0.0	0.0
110.00		44.5	172.6					0.0	63.9	44.5	236.5	0.0	0.0
114.00	Appertunance(s)	40.8	476.9	569.6	0.0	0.0	5,800.6	0.0	182.4	610.5	6,459.9	0.0	0.0
115.00		23.1	117.1					0.0	41.7	23.1	158.8	0.0	0.0
116.90		39.2	218.5					0.0	79.3	39.2	297.8	0.0	0.0
120.00		61.7	345.9					0.0	129.4	61.7	475.3	0.0	0.0
125.00		41.3	530.1					0.0	208.7	41.3	738.8	0.0	0.0
125.50	Appertunance(s)	7.3	52.0	270.0	0.0	0.0	2,935.6	0.0	20.9	277.3	3,008.4	0.0	0.0
126.00	Appertunance(s)	25.2	51.7	925.2	0.0	157.2	6,707.1	0.0	20.9	950.4	6,779.6	0.0	0.0
129.00		21.5	301.3					0.0	0.0	21.5	301.3	0.0	0.0
Totals:										4,303.10	50,627.6	0.00	0.00

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

11/15/2017 1:17:41 PM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.0Di + 1.0Wi

40 mph with 0.75 in Radial Ice

22 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Wind Importance Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-68.94	-5.77	0.00	-568.12	0.00	568.12	3,299.40	1,649.70	7,582.99	3,797.13	0.00	0.00	0.171
5.00	-67.19	-5.71	0.00	-539.25	0.00	539.25	3,261.75	1,630.88	7,307.36	3,659.11	0.02	-0.04	0.168
10.00	-65.43	-5.65	0.00	-510.70	0.00	510.70	3,221.78	1,610.89	7,031.03	3,520.74	0.08	-0.07	0.165
15.00	-63.68	-5.59	0.00	-482.46	0.00	482.46	3,179.49	1,589.75	6,754.40	3,382.22	0.17	-0.11	0.163
20.00	-61.96	-5.52	0.00	-454.53	0.00	454.53	3,134.88	1,567.44	6,477.88	3,243.76	0.31	-0.15	0.160
25.00	-60.27	-5.45	0.00	-426.93	0.00	426.93	3,087.95	1,543.97	6,201.87	3,105.54	0.49	-0.19	0.157
30.00	-58.61	-5.39	0.00	-399.68	0.00	399.68	3,038.69	1,519.34	5,926.77	2,967.79	0.71	-0.23	0.154
33.83	-57.36	-5.35	0.00	-379.04	0.00	379.04	2,999.35	1,499.68	5,716.73	2,862.61	0.91	-0.26	0.152
35.00	-56.76	-5.30	0.00	-372.80	0.00	372.80	2,987.11	1,493.55	5,652.99	2,830.70	0.97	-0.27	0.151
40.00	-54.24	-5.25	0.00	-346.29	0.00	346.29	2,933.21	1,466.60	5,380.93	2,694.46	1.28	-0.31	0.147
40.33	-54.07	-5.22	0.00	-344.54	0.00	344.54	2,953.95	1,476.98	5,484.02	2,746.08	1.30	-0.32	0.144
45.00	-52.60	-5.14	0.00	-320.20	0.00	320.20	2,902.37	1,451.19	5,231.21	2,619.49	1.63	-0.36	0.140
50.00	-51.06	-5.06	0.00	-294.51	0.00	294.51	2,844.86	1,422.43	4,962.62	2,485.00	2.03	-0.40	0.136
55.00	-49.57	-4.97	0.00	-269.23	0.00	269.23	2,785.03	1,392.52	4,696.79	2,351.89	2.47	-0.44	0.132
60.00	-48.11	-4.89	0.00	-244.36	0.00	244.36	2,722.88	1,361.44	4,434.11	2,220.35	2.95	-0.48	0.128
65.00	-46.69	-4.81	0.00	-219.90	0.00	219.90	2,658.40	1,329.20	4,174.99	2,090.60	3.48	-0.52	0.123
70.00	-45.30	-4.73	0.00	-195.85	0.00	195.85	2,591.60	1,295.80	3,919.84	1,962.83	4.05	-0.57	0.117
75.00	-43.96	-4.65	0.00	-172.22	0.00	172.22	2,522.48	1,261.24	3,669.06	1,837.26	4.66	-0.61	0.111
79.00	-42.92	-4.60	0.00	-153.62	0.00	153.62	2,465.51	1,232.76	3,471.85	1,738.50	5.19	-0.64	0.106
80.00	-42.57	-4.57	0.00	-149.02	0.00	149.02	2,451.04	1,225.52	3,423.05	1,714.07	5.32	-0.65	0.104
83.83	-41.28	-4.52	0.00	-131.51	0.00	131.51	1,187.39	593.69	1,636.13	819.28	5.86	-0.68	0.195
85.00	-41.05	-4.48	0.00	-126.24	0.00	126.24	1,182.21	591.10	1,613.00	807.70	6.03	-0.69	0.191
90.00	-40.08	-4.43	0.00	-103.83	0.00	103.83	1,158.57	579.29	1,513.58	757.92	6.78	-0.75	0.172
92.10	-37.81	-4.11	0.00	-94.52	0.00	94.52	1,147.95	573.98	1,471.76	736.97	7.12	-0.77	0.161
95.00	-37.26	-4.08	0.00	-82.61	0.00	82.61	1,132.61	566.31	1,414.01	708.05	7.60	-0.81	0.150
96.70	-33.34	-3.72	0.00	-75.68	0.00	75.68	1,123.26	561.63	1,380.19	691.12	7.89	-0.83	0.139
100.00	-32.74	-3.68	0.00	-63.41	0.00	63.41	1,104.33	552.17	1,314.67	658.31	8.47	-0.86	0.126
101.90	-28.77	-3.31	0.00	-56.43	0.00	56.43	1,092.98	546.49	1,277.08	639.49	8.82	-0.88	0.115
105.00	-28.22	-3.26	0.00	-46.17	0.00	46.17	1,073.73	536.86	1,215.99	608.90	9.39	-0.90	0.102
108.60	-23.03	-2.79	0.00	-34.44	0.00	34.44	1,050.26	525.13	1,145.57	573.64	10.09	-0.93	0.082
110.00	-22.80	-2.75	0.00	-30.53	0.00	30.53	1,040.80	520.40	1,118.36	560.01	10.36	-0.94	0.076
114.00	-16.35	-2.04	0.00	-19.53	0.00	19.53	1,012.79	506.40	1,041.29	521.42	11.15	-0.96	0.054
115.00	-16.19	-2.01	0.00	-17.49	0.00	17.49	1,005.56	502.78	1,022.19	511.86	11.36	-0.96	0.050
116.90	-11.28	-1.54	0.00	-13.66	0.00	13.66	991.55	495.78	986.11	493.79	11.74	-0.97	0.039
120.00	-10.80	-1.48	0.00	-8.88	0.00	8.88	967.99	483.99	927.88	464.63	12.37	-0.98	0.030
125.00	-10.07	-1.42	0.00	-1.50	0.00	1.50	928.10	464.05	835.84	418.54	13.41	-0.99	0.014
125.50	-7.06	-1.09	0.00	-0.78	0.00	0.78	923.98	461.99	826.77	414.00	13.51	-0.99	0.010
126.00	-0.30	-0.03	0.00	-0.08	0.00	0.08	919.84	459.92	817.74	409.48	13.61	-0.99	0.001
129.00	0.00	-0.02	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	14.23	-0.99	0.000

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

11/15/2017 1:17:41 PM

Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W

Serviceability 60 mph

22 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces			Sum of Forces			
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		62.4	0.0					0.0	0.0	62.4	0.0	0.0	0.0
5.00		123.2	929.9					0.0	190.1	123.2	1,120.0	0.0	0.0
10.00		120.0	906.3					0.0	190.1	120.0	1,096.4	0.0	0.0
15.00		118.7	882.7					0.0	190.1	118.7	1,072.7	0.0	0.0
20.00		120.5	859.1					0.0	190.1	120.5	1,049.1	0.0	0.0
25.00		122.8	835.4					0.0	190.1	122.8	1,025.5	0.0	0.0
30.00		109.5	811.8					0.0	190.1	109.5	1,001.9	0.0	0.0
33.83	Bot - Section 2	62.4	606.4					0.0	145.7	62.4	752.1	0.0	0.0
35.00		77.8	366.1					0.0	44.3	77.8	410.4	0.0	0.0
40.00		67.2	1,539.7					0.0	190.1	67.2	1,729.7	0.0	0.0
40.33	Top - Section 1	62.8	101.0					0.0	12.7	62.8	113.6	0.0	0.0
45.00		120.8	700.7					0.0	177.4	120.8	878.0	0.0	0.0
50.00		123.8	727.9					0.0	190.1	123.8	917.9	0.0	0.0
55.00		122.2	704.2					0.0	190.1	122.2	894.3	0.0	0.0
60.00		120.2	680.6					0.0	190.1	120.2	870.7	0.0	0.0
65.00		118.0	657.0					0.0	190.1	118.0	847.0	0.0	0.0
70.00		115.5	633.4					0.0	190.1	115.5	823.4	0.0	0.0
75.00		101.7	609.7					0.0	190.1	101.7	799.8	0.0	0.0
79.00	Bot - Section 3	55.8	470.8					0.0	152.0	55.8	622.8	0.0	0.0
80.00		53.3	185.5					0.0	38.0	53.3	223.6	0.0	0.0
83.83	Top - Section 2	54.8	697.2					0.0	145.7	54.8	843.0	0.0	0.0
85.00		65.8	78.7					0.0	44.3	65.8	123.0	0.0	0.0
90.00		75.0	328.4					0.0	190.1	75.0	518.4	0.0	0.0
92.10		51.5	133.7					0.0	79.8	51.5	213.5	0.0	0.0
95.00		46.7	180.5					0.0	110.2	46.7	290.7	0.0	0.0
96.70		49.7	103.6					0.0	64.6	49.7	168.2	0.0	0.0
100.00		51.0	196.4					0.0	125.4	51.0	321.9	0.0	0.0
101.90		47.9	110.3					0.0	72.2	47.9	182.5	0.0	0.0
105.00		62.8	175.6					0.0	117.8	62.8	293.4	0.0	0.0
108.60		46.0	197.0					0.0	136.8	46.0	333.9	0.0	0.0
110.00		48.1	74.6					0.0	53.2	48.1	127.9	0.0	0.0
114.00	Appertunance(s)	44.0	207.1	903.3	0.0	0.0	2,330.5	0.0	152.0	947.3	2,689.7	0.0	0.0
115.00		24.8	50.4					0.0	34.8	24.8	85.2	0.0	0.0
116.90		42.0	94.1					0.0	66.1	42.0	160.2	0.0	0.0
120.00		65.7	149.2					0.0	107.8	65.7	257.0	0.0	0.0
125.00		43.8	229.2					0.0	174.0	43.8	403.1	0.0	0.0
125.50	Appertunance(s)	7.7	22.1	568.5	0.0	0.0	1,580.5	0.0	17.4	576.2	1,620.1	0.0	0.0
126.00	Appertunance(s)	26.5	22.0	1,532.0	0.0	330.9	2,627.1	0.0	17.4	1,558.6	2,666.5	0.0	0.0
129.00		22.7	129.0					0.0	0.0	22.7	129.0	0.0	0.0
Totals:										5,858.76	27,676.0	0.00	0.00

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W

Serviceability 60 mph

22 Iterations

Gust Response Factor :1.10

Wind Importance Factor 1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-36.47	-8.98	0.00	-900.43	0.00	900.43	3,299.40	1,649.70	7,582.99	3,797.13	0.00	0.00	0.248
5.00	-35.34	-8.89	0.00	-855.52	0.00	855.52	3,261.75	1,630.88	7,307.36	3,659.11	0.03	-0.06	0.245
10.00	-34.23	-8.81	0.00	-811.05	0.00	811.05	3,221.78	1,610.89	7,031.03	3,520.74	0.12	-0.12	0.241
15.00	-33.15	-8.72	0.00	-767.02	0.00	767.02	3,179.49	1,589.75	6,754.40	3,382.22	0.28	-0.18	0.237
20.00	-32.09	-8.63	0.00	-723.41	0.00	723.41	3,134.88	1,567.44	6,477.88	3,243.76	0.49	-0.24	0.233
25.00	-31.06	-8.54	0.00	-680.25	0.00	680.25	3,087.95	1,543.97	6,201.87	3,105.54	0.78	-0.30	0.229
30.00	-30.05	-8.45	0.00	-637.55	0.00	637.55	3,038.69	1,519.34	5,926.77	2,967.79	1.13	-0.37	0.225
33.83	-29.29	-8.40	0.00	-605.15	0.00	605.15	2,999.35	1,499.68	5,716.73	2,862.61	1.44	-0.42	0.221
35.00	-28.87	-8.34	0.00	-595.34	0.00	595.34	2,987.11	1,493.55	5,652.99	2,830.70	1.55	-0.43	0.220
40.00	-27.14	-8.28	0.00	-553.63	0.00	553.63	2,933.21	1,466.60	5,380.93	2,694.46	2.03	-0.50	0.215
40.33	-27.02	-8.23	0.00	-550.87	0.00	550.87	2,953.95	1,476.98	5,484.02	2,746.08	2.07	-0.50	0.210
45.00	-26.14	-8.13	0.00	-512.45	0.00	512.45	2,902.37	1,451.19	5,231.21	2,619.49	2.59	-0.57	0.205
50.00	-25.21	-8.03	0.00	-471.79	0.00	471.79	2,844.86	1,422.43	4,962.62	2,485.00	3.22	-0.63	0.199
55.00	-24.31	-7.92	0.00	-431.65	0.00	431.65	2,785.03	1,392.52	4,696.79	2,351.89	3.92	-0.70	0.192
60.00	-23.43	-7.82	0.00	-392.03	0.00	392.03	2,722.88	1,361.44	4,434.11	2,220.35	4.69	-0.77	0.185
65.00	-22.58	-7.72	0.00	-352.93	0.00	352.93	2,658.40	1,329.20	4,174.99	2,090.60	5.54	-0.84	0.177
70.00	-21.75	-7.62	0.00	-314.34	0.00	314.34	2,591.60	1,295.80	3,919.84	1,962.83	6.45	-0.90	0.169
75.00	-20.94	-7.52	0.00	-276.26	0.00	276.26	2,522.48	1,261.24	3,669.06	1,837.26	7.43	-0.97	0.159
79.00	-20.31	-7.47	0.00	-246.17	0.00	246.17	2,465.51	1,232.76	3,471.85	1,738.50	8.27	-1.02	0.150
80.00	-20.09	-7.42	0.00	-238.70	0.00	238.70	2,451.04	1,225.52	3,423.05	1,714.07	8.48	-1.04	0.147
83.83	-19.24	-7.36	0.00	-210.26	0.00	210.26	1,187.39	593.69	1,636.13	819.28	9.34	-1.09	0.273
85.00	-19.11	-7.31	0.00	-201.67	0.00	201.67	1,182.21	591.10	1,613.00	807.70	9.61	-1.10	0.266
90.00	-18.59	-7.25	0.00	-165.10	0.00	165.10	1,158.57	579.29	1,513.58	757.92	10.81	-1.20	0.234
92.10	-16.84	-6.62	0.00	-149.88	0.00	149.88	1,147.95	573.98	1,471.76	736.97	11.35	-1.24	0.218
95.00	-16.55	-6.58	0.00	-130.69	0.00	130.69	1,132.61	566.31	1,414.01	708.05	12.12	-1.29	0.199
96.70	-14.79	-5.92	0.00	-119.51	0.00	119.51	1,123.26	561.63	1,380.19	691.12	12.58	-1.32	0.186
100.00	-14.47	-5.88	0.00	-99.96	0.00	99.96	1,104.33	552.17	1,314.67	658.31	13.51	-1.37	0.165
101.90	-12.70	-5.21	0.00	-88.79	0.00	88.79	1,092.98	546.49	1,277.08	639.49	14.06	-1.40	0.151
105.00	-12.40	-5.15	0.00	-72.63	0.00	72.63	1,073.73	536.86	1,215.99	608.90	14.99	-1.44	0.131
108.60	-10.07	-4.33	0.00	-54.08	0.00	54.08	1,050.26	525.13	1,145.57	573.64	16.09	-1.48	0.104
110.00	-9.94	-4.28	0.00	-48.02	0.00	48.02	1,040.80	520.40	1,118.36	560.01	16.52	-1.49	0.095
114.00	-7.27	-3.26	0.00	-30.90	0.00	30.90	1,012.79	506.40	1,041.29	521.42	17.79	-1.53	0.066
115.00	-7.19	-3.24	0.00	-27.64	0.00	27.64	1,005.56	502.78	1,022.19	511.86	18.11	-1.53	0.061
116.90	-5.01	-2.40	0.00	-21.49	0.00	21.49	991.55	495.78	986.11	493.79	18.73	-1.55	0.049
120.00	-4.76	-2.33	0.00	-14.04	0.00	14.04	967.99	483.99	927.88	464.63	19.73	-1.56	0.035
125.00	-4.35	-2.28	0.00	-2.38	0.00	2.38	928.10	464.05	835.84	418.54	21.38	-1.57	0.010
125.50	-2.75	-1.66	0.00	-1.24	0.00	1.24	923.98	461.99	826.77	414.00	21.54	-1.57	0.006
126.00	-0.13	-0.03	0.00	-0.08	0.00	0.08	919.84	459.92	817.74	409.48	21.71	-1.57	0.000
129.00	0.00	-0.02	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	22.70	-1.57	0.000

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period (S_s):	0.19
Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.06
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.14
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.82
Total Unfactored Dead Load:	36.47 k
Seismic Base Shear (E):	1.54 k

Load Case (1.2 + 0.2Sds) * DL + E ELFM

Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
38	127.50	129	875	0.007	11	160
37	125.75	39	261	0.002	3	49
36	125.25	40	260	0.002	3	49
35	122.50	403	2,542	0.021	33	500
34	118.45	257	1,525	0.013	20	319
33	115.95	160	914	0.008	12	199
32	114.50	85	475	0.004	6	106
31	112.00	359	1,924	0.016	25	445
30	109.30	128	655	0.005	8	159
29	106.80	334	1,641	0.014	21	414
28	103.45	293	1,360	0.011	18	364
27	100.95	183	809	0.007	10	226
26	98.35	322	1,361	0.011	18	399
25	95.85	168	679	0.006	9	209
24	93.55	291	1,123	0.009	14	361
23	91.05	214	785	0.007	10	265
22	87.50	518	1,772	0.015	23	643
21	84.42	123	394	0.003	5	153
20	81.92	843	2,556	0.021	33	1,045
19	79.50	224	642	0.005	8	277
18	77.00	623	1,687	0.014	22	772
17	72.50	800	1,942	0.016	25	992
16	67.50	823	1,756	0.015	23	1,021

Site Number: 283424

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

15	62.50	847	1,570	0.013	20	1,050
14	57.50	871	1,387	0.012	18	1,080
13	52.50	894	1,207	0.010	16	1,109
12	47.50	918	1,033	0.009	13	1,138
11	42.67	878	812	0.007	10	1,089
10	40.17	114	94	0.001	1	141
9	37.50	1,730	1,265	0.011	16	2,145
8	34.42	410	257	0.002	3	509
7	31.92	752	410	0.003	5	933
6	27.50	1,002	417	0.003	5	1,242
5	22.50	1,025	296	0.002	4	1,272
4	17.50	1,049	192	0.002	2	1,301
3	12.50	1,073	106	0.001	1	1,330
2	7.50	1,096	43	0.000	1	1,360
1	2.50	1,120	6	0.000	0	1,389
4' Pine Tree Branche	126.00	182	1,211	0.010	16	226
Ericsson RRUS A2 Mod	126.00	66	438	0.004	6	82
Raycap DC2-48-60-8-1	126.00	43	289	0.002	4	54
Ericsson RRUS 11 (Ba	126.00	660	4,381	0.037	56	818
Ericsson RRUS-12 B2	126.00	174	1,155	0.010	15	216
Round T-Arm	126.00	750	4,979	0.042	64	930
Commscope SBNH-1D656	126.00	547	3,633	0.030	47	679
CCI HPA-65R-BUU-H8	126.00	204	1,354	0.011	17	253
4' Pine Tree Branche	125.50	1,581	10,417	0.087	134	1,960
6' Pine Tree Branche	116.90	2,036	11,795	0.099	152	2,525
Nokia B5 RRH4x40-850	114.00	146	805	0.007	10	180
Alcatel-Lucent B25 R	114.00	159	880	0.007	11	197
Alcatel-Lucent B13 R	114.00	173	959	0.008	12	215
Alcatel-Lucent B66A	114.00	201	1,112	0.009	14	249
RFS DB-T1-6Z-8AB-0Z	114.00	88	487	0.004	6	109
Commscope JAHH-65B-R	114.00	364	2,012	0.017	26	451
Flat Light Sector Fr	114.00	1,200	6,640	0.056	85	1,488
6' Pine Tree Branche	108.60	2,019	10,226	0.086	132	2,504
8' Pine Tree Branche	101.90	1,604	7,238	0.061	93	1,990
8' Pine Tree Branche	96.70	1,594	6,535	0.055	84	1,976
10' Pine Tree Branch	92.10	1,541	5,782	0.048	74	1,911
		36,470	119,361	1.000	1,536	45,227

Load Case (0.9 - 0.2Sds) * DL + E E LFM

Seismic (Reduced DL) Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
38	127.50	129	875	0.007	11	111
37	125.75	39	261	0.002	3	34
36	125.25	40	260	0.002	3	34
35	122.50	403	2,542	0.021	33	347
34	118.45	257	1,525	0.013	20	221
33	115.95	160	914	0.008	12	138
32	114.50	85	475	0.004	6	73
31	112.00	359	1,924	0.016	25	309
30	109.30	128	655	0.005	8	110
29	106.80	334	1,641	0.014	21	287
28	103.45	293	1,360	0.011	18	252
27	100.95	183	809	0.007	10	157
26	98.35	322	1,361	0.011	18	277
25	95.85	168	679	0.006	9	145
24	93.55	291	1,123	0.009	14	250
23	91.05	214	785	0.007	10	184
22	87.50	518	1,772	0.015	23	446
21	84.42	123	394	0.003	5	106

Site Number: 283424

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

20	81.92	843	2,556	0.021	33	725
19	79.50	224	642	0.005	8	192
18	77.00	623	1,687	0.014	22	536
17	72.50	800	1,942	0.016	25	688
16	67.50	823	1,756	0.015	23	708
15	62.50	847	1,570	0.013	20	728
14	57.50	871	1,387	0.012	18	749
13	52.50	894	1,207	0.010	16	769
12	47.50	918	1,033	0.009	13	789
11	42.67	878	812	0.007	10	755
10	40.17	114	94	0.001	1	98
9	37.50	1,730	1,265	0.011	16	1,487
8	34.42	410	257	0.002	3	353
7	31.92	752	410	0.003	5	647
6	27.50	1,002	417	0.003	5	861
5	22.50	1,025	296	0.002	4	882
4	17.50	1,049	192	0.002	2	902
3	12.50	1,073	106	0.001	1	922
2	7.50	1,096	43	0.000	1	943
1	2.50	1,120	6	0.000	0	963
4' Pine Tree Branche	126.00	182	1,211	0.010	16	157
Ericsson RRUS A2 Mod	126.00	66	438	0.004	6	57
Raycap DC2-48-60-8-1	126.00	43	289	0.002	4	37
Ericsson RRUS 11 (Ba	126.00	660	4,381	0.037	56	568
Ericsson RRUS-12 B2	126.00	174	1,155	0.010	15	150
Round T-Arm	126.00	750	4,979	0.042	64	645
Commscope SBNH-1D656	126.00	547	3,633	0.030	47	471
CCI HPA-65R-BUU-H8	126.00	204	1,354	0.011	17	175
4' Pine Tree Branche	125.50	1,581	10,417	0.087	134	1,359
6' Pine Tree Branche	116.90	2,036	11,795	0.099	152	1,751
Nokia B5 RRH4x40-850	114.00	146	805	0.007	10	125
Alcatel-Lucent B25 R	114.00	159	880	0.007	11	137
Alcatel-Lucent B13 R	114.00	173	959	0.008	12	149
Alcatel-Lucent B66A	114.00	201	1,112	0.009	14	173
RFS DB-T1-6Z-8AB-0Z	114.00	88	487	0.004	6	76
Commscope JAHH-65B-R	114.00	364	2,012	0.017	26	313
Flat Light Sector Fr	114.00	1,200	6,640	0.056	85	1,032
6' Pine Tree Branche	108.60	2,019	10,226	0.086	132	1,736
8' Pine Tree Branche	101.90	1,604	7,238	0.061	93	1,380
8' Pine Tree Branche	96.70	1,594	6,535	0.055	84	1,370
10' Pine Tree Branch	92.10	1,541	5,782	0.048	74	1,325
		36,470	119,361	1.000	1,536	31,360

Site Number: 283424

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

Load Case (1.2 + 0.2Sds) * DL + E ELFM

Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-43.84	-1.54	0.00	-167.19	0.00	167.19	3,299.40	1,649.70	7,582.99	3,797.13	0.00	0.00	0.057
5.00	-42.48	-1.55	0.00	-159.49	0.00	159.49	3,261.75	1,630.88	7,307.36	3,659.11	0.01	-0.01	0.057
10.00	-41.15	-1.55	0.00	-151.75	0.00	151.75	3,221.78	1,610.89	7,031.03	3,520.74	0.02	-0.02	0.056
15.00	-39.85	-1.56	0.00	-143.98	0.00	143.98	3,179.49	1,589.75	6,754.40	3,382.22	0.05	-0.03	0.055
20.00	-38.57	-1.56	0.00	-136.19	0.00	136.19	3,134.88	1,567.44	6,477.88	3,243.76	0.09	-0.04	0.054
25.00	-37.33	-1.56	0.00	-128.38	0.00	128.38	3,087.95	1,543.97	6,201.87	3,105.54	0.15	-0.06	0.053
30.00	-36.40	-1.56	0.00	-120.57	0.00	120.57	3,038.69	1,519.34	5,926.77	2,967.79	0.21	-0.07	0.053
33.83	-35.89	-1.56	0.00	-114.57	0.00	114.57	2,999.35	1,499.68	5,716.73	2,862.61	0.27	-0.08	0.052
35.00	-33.74	-1.55	0.00	-112.75	0.00	112.75	2,987.11	1,493.55	5,652.99	2,830.70	0.29	-0.08	0.051
40.00	-33.60	-1.55	0.00	-105.00	0.00	105.00	2,933.21	1,466.60	5,380.93	2,694.46	0.38	-0.09	0.050
40.33	-32.51	-1.54	0.00	-104.49	0.00	104.49	2,953.95	1,476.98	5,484.02	2,746.08	0.39	-0.09	0.049
45.00	-31.37	-1.53	0.00	-97.29	0.00	97.29	2,902.37	1,451.19	5,231.21	2,619.49	0.49	-0.11	0.048
50.00	-30.27	-1.52	0.00	-89.61	0.00	89.61	2,844.86	1,422.43	4,962.62	2,485.00	0.61	-0.12	0.047
55.00	-29.19	-1.51	0.00	-82.00	0.00	82.00	2,785.03	1,392.52	4,696.79	2,351.89	0.74	-0.13	0.045
60.00	-28.13	-1.49	0.00	-74.45	0.00	74.45	2,722.88	1,361.44	4,434.11	2,220.35	0.88	-0.15	0.044
65.00	-27.11	-1.47	0.00	-66.98	0.00	66.98	2,658.40	1,329.20	4,174.99	2,090.60	1.04	-0.16	0.042
70.00	-26.12	-1.45	0.00	-59.61	0.00	59.61	2,591.60	1,295.80	3,919.84	1,962.83	1.21	-0.17	0.040
75.00	-25.35	-1.43	0.00	-52.35	0.00	52.35	2,522.48	1,261.24	3,669.06	1,837.26	1.40	-0.18	0.039
79.00	-25.07	-1.43	0.00	-46.62	0.00	46.62	2,465.51	1,232.76	3,471.85	1,738.50	1.56	-0.19	0.037
80.00	-24.03	-1.39	0.00	-45.19	0.00	45.19	2,451.04	1,225.52	3,423.05	1,714.07	1.60	-0.20	0.036
83.83	-23.87	-1.39	0.00	-39.85	0.00	39.85	1,187.39	593.69	1,636.13	819.28	1.76	-0.21	0.069
85.00	-23.23	-1.37	0.00	-38.23	0.00	38.23	1,182.21	591.10	1,613.00	807.70	1.81	-0.21	0.067
90.00	-22.97	-1.36	0.00	-31.39	0.00	31.39	1,158.57	579.29	1,513.58	757.92	2.04	-0.23	0.061
92.10	-20.69	-1.27	0.00	-28.52	0.00	28.52	1,147.95	573.98	1,471.76	736.97	2.14	-0.23	0.057
95.00	-20.49	-1.26	0.00	-24.85	0.00	24.85	1,132.61	566.31	1,414.01	708.05	2.29	-0.24	0.053
96.70	-18.11	-1.15	0.00	-22.70	0.00	22.70	1,123.26	561.63	1,380.19	691.12	2.37	-0.25	0.049
100.00	-17.88	-1.14	0.00	-18.90	0.00	18.90	1,104.33	552.17	1,314.67	658.31	2.55	-0.26	0.045
101.90	-15.53	-1.02	0.00	-16.73	0.00	16.73	1,092.98	546.49	1,277.08	639.49	2.65	-0.26	0.040
105.00	-15.12	-1.00	0.00	-13.56	0.00	13.56	1,073.73	536.86	1,215.99	608.90	2.83	-0.27	0.036
108.60	-12.46	-0.85	0.00	-9.95	0.00	9.95	1,050.26	525.13	1,145.57	573.64	3.04	-0.28	0.029
110.00	-12.01	-0.82	0.00	-8.76	0.00	8.76	1,040.80	520.40	1,118.36	560.01	3.12	-0.28	0.027
114.00	-9.02	-0.64	0.00	-5.47	0.00	5.47	1,012.79	506.40	1,041.29	521.42	3.36	-0.29	0.019
115.00	-8.82	-0.63	0.00	-4.83	0.00	4.83	1,005.56	502.78	1,022.19	511.86	3.42	-0.29	0.018
116.90	-5.97	-0.44	0.00	-3.64	0.00	3.64	991.55	495.78	986.11	493.79	3.53	-0.29	0.013
120.00	-5.47	-0.40	0.00	-2.28	0.00	2.28	967.99	483.99	927.88	464.63	3.72	-0.29	0.011
125.00	-3.47	-0.26	0.00	-0.25	0.00	0.25	928.10	464.05	835.84	418.54	4.03	-0.30	0.004
125.50	-3.42	-0.25	0.00	-0.13	0.00	0.13	923.98	461.99	826.77	414.00	4.07	-0.30	0.004
126.00	0.00	0.00	0.00	0.00	0.00	0.00	919.84	459.92	817.74	409.48	4.10	-0.30	0.000
129.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	4.28	-0.30	0.000

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

Load Case (0.9 - 0.2Sds) * DL + E ELFM

Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-30.40	-1.54	0.00	-164.92	0.00	164.92	3,299.40	1,649.70	7,582.99	3,797.13	0.00	0.00	0.053
5.00	-29.45	-1.54	0.00	-157.23	0.00	157.23	3,261.75	1,630.88	7,307.36	3,659.11	0.01	-0.01	0.052
10.00	-28.53	-1.55	0.00	-149.51	0.00	149.51	3,221.78	1,610.89	7,031.03	3,520.74	0.02	-0.02	0.051
15.00	-27.63	-1.55	0.00	-141.77	0.00	141.77	3,179.49	1,589.75	6,754.40	3,382.22	0.05	-0.03	0.051
20.00	-26.75	-1.55	0.00	-134.02	0.00	134.02	3,134.88	1,567.44	6,477.88	3,243.76	0.09	-0.04	0.050
25.00	-25.88	-1.55	0.00	-126.27	0.00	126.27	3,087.95	1,543.97	6,201.87	3,105.54	0.14	-0.06	0.049
30.00	-25.24	-1.55	0.00	-118.52	0.00	118.52	3,038.69	1,519.34	5,926.77	2,967.79	0.21	-0.07	0.048
33.83	-24.88	-1.55	0.00	-112.58	0.00	112.58	2,999.35	1,499.68	5,716.73	2,862.61	0.27	-0.08	0.048
35.00	-23.40	-1.53	0.00	-110.77	0.00	110.77	2,987.11	1,493.55	5,652.99	2,830.70	0.28	-0.08	0.047
40.00	-23.30	-1.53	0.00	-103.11	0.00	103.11	2,933.21	1,466.60	5,380.93	2,694.46	0.38	-0.09	0.046
40.33	-22.54	-1.52	0.00	-102.60	0.00	102.60	2,953.95	1,476.98	5,484.02	2,746.08	0.38	-0.09	0.045
45.00	-21.75	-1.51	0.00	-95.48	0.00	95.48	2,902.37	1,451.19	5,231.21	2,619.49	0.48	-0.11	0.044
50.00	-20.99	-1.50	0.00	-87.91	0.00	87.91	2,844.86	1,422.43	4,962.62	2,485.00	0.60	-0.12	0.043
55.00	-20.24	-1.49	0.00	-80.40	0.00	80.40	2,785.03	1,392.52	4,696.79	2,351.89	0.73	-0.13	0.041
60.00	-19.51	-1.47	0.00	-72.96	0.00	72.96	2,722.88	1,361.44	4,434.11	2,220.35	0.87	-0.14	0.040
65.00	-18.80	-1.45	0.00	-65.61	0.00	65.61	2,658.40	1,329.20	4,174.99	2,090.60	1.02	-0.16	0.038
70.00	-18.11	-1.43	0.00	-58.37	0.00	58.37	2,591.60	1,295.80	3,919.84	1,962.83	1.19	-0.17	0.037
75.00	-17.58	-1.41	0.00	-51.23	0.00	51.23	2,522.48	1,261.24	3,669.06	1,837.26	1.38	-0.18	0.035
79.00	-17.38	-1.40	0.00	-45.61	0.00	45.61	2,465.51	1,232.76	3,471.85	1,738.50	1.53	-0.19	0.033
80.00	-16.66	-1.37	0.00	-44.21	0.00	44.21	2,451.04	1,225.52	3,423.05	1,714.07	1.57	-0.19	0.033
83.83	-16.55	-1.36	0.00	-38.97	0.00	38.97	1,187.39	593.69	1,636.13	819.28	1.73	-0.20	0.062
85.00	-16.11	-1.34	0.00	-37.38	0.00	37.38	1,182.21	591.10	1,613.00	807.70	1.78	-0.20	0.060
90.00	-15.92	-1.33	0.00	-30.68	0.00	30.68	1,158.57	579.29	1,513.58	757.92	2.00	-0.22	0.054
92.10	-14.35	-1.24	0.00	-27.88	0.00	27.88	1,147.95	573.98	1,471.76	736.97	2.10	-0.23	0.050
95.00	-14.20	-1.23	0.00	-24.28	0.00	24.28	1,132.61	566.31	1,414.01	708.05	2.25	-0.24	0.047
96.70	-12.56	-1.13	0.00	-22.19	0.00	22.19	1,123.26	561.63	1,380.19	691.12	2.33	-0.24	0.043
100.00	-12.40	-1.12	0.00	-18.47	0.00	18.47	1,104.33	552.17	1,314.67	658.31	2.51	-0.25	0.039
101.90	-10.77	-1.00	0.00	-16.35	0.00	16.35	1,092.98	546.49	1,277.08	639.49	2.61	-0.26	0.035
105.00	-10.48	-0.98	0.00	-13.25	0.00	13.25	1,073.73	536.86	1,215.99	608.90	2.78	-0.27	0.032
108.60	-8.64	-0.83	0.00	-9.73	0.00	9.73	1,050.26	525.13	1,145.57	573.64	2.98	-0.27	0.025
110.00	-8.33	-0.81	0.00	-8.56	0.00	8.56	1,040.80	520.40	1,118.36	560.01	3.06	-0.28	0.023
114.00	-6.25	-0.62	0.00	-5.34	0.00	5.34	1,012.79	506.40	1,041.29	521.42	3.30	-0.28	0.016
115.00	-6.11	-0.61	0.00	-4.72	0.00	4.72	1,005.56	502.78	1,022.19	511.86	3.36	-0.28	0.015
116.90	-4.14	-0.43	0.00	-3.56	0.00	3.56	991.55	495.78	986.11	493.79	3.47	-0.29	0.011
120.00	-3.79	-0.40	0.00	-2.23	0.00	2.23	967.99	483.99	927.88	464.63	3.66	-0.29	0.009
125.00	-2.40	-0.25	0.00	-0.25	0.00	0.25	928.10	464.05	835.84	418.54	3.96	-0.29	0.003
125.50	-2.37	-0.25	0.00	-0.12	0.00	0.12	923.98	461.99	826.77	414.00	3.99	-0.29	0.003
126.00	0.00	0.00	0.00	0.00	0.00	0.00	919.84	459.92	817.74	409.48	4.02	-0.29	0.000
129.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	4.20	-0.29	0.000

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period (S_s):	0.19
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a :	1.60
Site Coefficient F_v :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.14
Redundancy Factor (ρ):	1.30

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
38	127.50	129	1.846	1.757	1.059	0.354	40	160
37	125.75	39	1.796	1.520	0.970	0.321	11	49
36	125.25	40	1.782	1.457	0.946	0.312	11	49
35	122.50	403	1.704	1.139	0.821	0.265	93	500
34	118.45	257	1.594	0.759	0.661	0.201	45	319
33	115.95	160	1.527	0.570	0.575	0.166	23	199
32	114.50	85	1.489	0.474	0.530	0.147	11	106
31	112.00	359	1.425	0.332	0.458	0.116	36	445
30	109.30	128	1.357	0.207	0.389	0.086	10	159
29	106.80	334	1.295	0.114	0.332	0.061	18	414
28	103.45	293	1.215	0.020	0.266	0.032	8	364
27	100.95	183	1.157	-0.032	0.224	0.014	2	226
26	98.35	322	1.099	-0.071	0.186	-0.002	-1	399
25	95.85	168	1.043	-0.096	0.154	-0.015	-2	209
24	93.55	291	0.994	-0.111	0.128	-0.025	-6	361
23	91.05	214	0.942	-0.120	0.104	-0.032	-6	265
22	87.50	518	0.870	-0.121	0.076	-0.038	-17	643
21	84.42	123	0.809	-0.114	0.057	-0.039	-4	153
20	81.92	843	0.762	-0.104	0.044	-0.037	-27	1,045
19	79.50	224	0.718	-0.092	0.033	-0.033	-6	277
18	77.00	623	0.673	-0.078	0.025	-0.027	-15	772
17	72.50	800	0.597	-0.052	0.014	-0.012	-9	992
16	67.50	823	0.517	-0.023	0.008	0.006	4	1,021
15	62.50	847	0.444	0.004	0.006	0.024	17	1,050
14	57.50	871	0.376	0.026	0.007	0.037	28	1,080
13	52.50	894	0.313	0.042	0.011	0.046	36	1,109
12	47.50	918	0.256	0.054	0.016	0.051	40	1,138
11	42.67	878	0.207	0.062	0.022	0.052	40	1,089
10	40.17	114	0.183	0.065	0.025	0.052	5	141
9	37.50	1,730	0.160	0.067	0.029	0.052	78	2,145
8	34.42	410	0.135	0.069	0.032	0.051	18	509
7	31.92	752	0.116	0.070	0.035	0.050	33	933
6	27.50	1,002	0.086	0.071	0.039	0.049	43	1,242
5	22.50	1,025	0.057	0.071	0.041	0.047	42	1,272

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Customer: VERIZON WIRELESS

4	17.50	1,049	0.035	0.069	0.041	0.045	41	1,301
3	12.50	1,073	0.018	0.063	0.037	0.041	38	1,330
2	7.50	1,096	0.006	0.048	0.027	0.033	32	1,360
1	2.50	1,120	0.001	0.021	0.011	0.016	15	1,389
4' Pine Tree Branche	126.00	182	1.803	1.553	0.983	0.326	52	226
Ericsson RRUS A2 Mod	126.00	66	1.803	1.553	0.983	0.326	19	82
Raycap DC2-48-60-8-1	126.00	43	1.803	1.553	0.983	0.326	12	54
Ericsson RRUS 11 (Ba	126.00	660	1.803	1.553	0.983	0.326	186	818
Ericsson RRUS-12 B2	126.00	174	1.803	1.553	0.983	0.326	49	216
Round T-Arm	126.00	750	1.803	1.553	0.983	0.326	212	930
Commscope SBNH-	126.00	547	1.803	1.553	0.983	0.326	155	679
CCI HPA-65R-BUU-H8	126.00	204	1.803	1.553	0.983	0.326	58	253
4' Pine Tree Branche	125.50	1,581	1.789	1.488	0.958	0.317	434	1,960
6' Pine Tree Branche	116.90	2,036	1.552	0.638	0.607	0.179	316	2,525
Nokia B5 RRH4x40-850	114.00	146	1.476	0.444	0.515	0.140	18	180
Alcatel-Lucent B25 R	114.00	159	1.476	0.444	0.515	0.140	19	197
Alcatel-Lucent B13 R	114.00	173	1.476	0.444	0.515	0.140	21	215
Alcatel-Lucent B66A	114.00	201	1.476	0.444	0.515	0.140	24	249
RFS DB-T1-6Z-8AB-0Z	114.00	88	1.476	0.444	0.515	0.140	11	109
Commscope JAHH-65B-	114.00	364	1.476	0.444	0.515	0.140	44	451
Flat Light Sector Fr	114.00	1,200	1.476	0.444	0.515	0.140	146	1,488
6' Pine Tree Branche	108.60	2,019	1.339	0.179	0.372	0.079	138	2,504
8' Pine Tree Branche	101.90	1,604	1.179	-0.014	0.240	0.020	28	1,990
8' Pine Tree Branche	96.70	1,594	1.062	-0.089	0.164	-0.011	-15	1,976
10' Pine Tree Branch	92.10	1,541	0.963	-0.117	0.114	-0.029	-39	1,911
		36,470	62.245	25.751	22.363	6.613	2,611	45,227

Load Case (0.9 - 0.2Sds) * DL + E EMAM

Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
38	127.50	129	1.846	1.757	1.059	0.354	40	111
37	125.75	39	1.796	1.520	0.970	0.321	11	34
36	125.25	40	1.782	1.457	0.946	0.312	11	34
35	122.50	403	1.704	1.139	0.821	0.265	93	347
34	118.45	257	1.594	0.759	0.661	0.201	45	221
33	115.95	160	1.527	0.570	0.575	0.166	23	138
32	114.50	85	1.489	0.474	0.530	0.147	11	73
31	112.00	359	1.425	0.332	0.458	0.116	36	309
30	109.30	128	1.357	0.207	0.389	0.086	10	110
29	106.80	334	1.295	0.114	0.332	0.061	18	287
28	103.45	293	1.215	0.020	0.266	0.032	8	252
27	100.95	183	1.157	-0.032	0.224	0.014	2	157
26	98.35	322	1.099	-0.071	0.186	-0.002	-1	277
25	95.85	168	1.043	-0.096	0.154	-0.015	-2	145
24	93.55	291	0.994	-0.111	0.128	-0.025	-6	250
23	91.05	214	0.942	-0.120	0.104	-0.032	-6	184
22	87.50	518	0.870	-0.121	0.076	-0.038	-17	446
21	84.42	123	0.809	-0.114	0.057	-0.039	-4	106
20	81.92	843	0.762	-0.104	0.044	-0.037	-27	725
19	79.50	224	0.718	-0.092	0.033	-0.033	-6	192
18	77.00	623	0.673	-0.078	0.025	-0.027	-15	536
17	72.50	800	0.597	-0.052	0.014	-0.012	-9	688
16	67.50	823	0.517	-0.023	0.008	0.006	4	708
15	62.50	847	0.444	0.004	0.006	0.024	17	728
14	57.50	871	0.376	0.026	0.007	0.037	28	749
13	52.50	894	0.313	0.042	0.011	0.046	36	769
12	47.50	918	0.256	0.054	0.016	0.051	40	789
11	42.67	878	0.207	0.062	0.022	0.052	40	755

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

10	40.17	114	0.183	0.065	0.025	0.052	5	98
9	37.50	1,730	0.160	0.067	0.029	0.052	78	1,487
8	34.42	410	0.135	0.069	0.032	0.051	18	353
7	31.92	752	0.116	0.070	0.035	0.050	33	647
6	27.50	1,002	0.086	0.071	0.039	0.049	43	861
5	22.50	1,025	0.057	0.071	0.041	0.047	42	882
4	17.50	1,049	0.035	0.069	0.041	0.045	41	902
3	12.50	1,073	0.018	0.063	0.037	0.041	38	922
2	7.50	1,096	0.006	0.048	0.027	0.033	32	943
1	2.50	1,120	0.001	0.021	0.011	0.016	15	963
4' Pine Tree Branche	126.00	182	1.803	1.553	0.983	0.326	52	157
Ericsson RRUS A2 Mod	126.00	66	1.803	1.553	0.983	0.326	19	57
Raycap DC2-48-60-8-1	126.00	43	1.803	1.553	0.983	0.326	12	37
Ericsson RRUS 11 (Ba	126.00	660	1.803	1.553	0.983	0.326	186	568
Ericsson RRUS-12 B2	126.00	174	1.803	1.553	0.983	0.326	49	150
Round T-Arm	126.00	750	1.803	1.553	0.983	0.326	212	645
Commscope SBNH-	126.00	547	1.803	1.553	0.983	0.326	155	471
CCI HPA-65R-BUU-H8	126.00	204	1.803	1.553	0.983	0.326	58	175
4' Pine Tree Branche	125.50	1,581	1.789	1.488	0.958	0.317	434	1,359
6' Pine Tree Branche	116.90	2,036	1.552	0.638	0.607	0.179	316	1,751
Nokia B5 RRH4x40-850	114.00	146	1.476	0.444	0.515	0.140	18	125
Alcatel-Lucent B25 R	114.00	159	1.476	0.444	0.515	0.140	19	137
Alcatel-Lucent B13 R	114.00	173	1.476	0.444	0.515	0.140	21	149
Alcatel-Lucent B66A	114.00	201	1.476	0.444	0.515	0.140	24	173
RFS DB-T1-6Z-8AB-0Z	114.00	88	1.476	0.444	0.515	0.140	11	76
Commscope JAHH-65B-	114.00	364	1.476	0.444	0.515	0.140	44	313
Flat Light Sector Fr	114.00	1,200	1.476	0.444	0.515	0.140	146	1,032
6' Pine Tree Branche	108.60	2,019	1.339	0.179	0.372	0.079	138	1,736
8' Pine Tree Branche	101.90	1,604	1.179	-0.014	0.240	0.020	28	1,380
8' Pine Tree Branche	96.70	1,594	1.062	-0.089	0.164	-0.011	-15	1,370
10' Pine Tree Branch	92.10	1,541	0.963	-0.117	0.114	-0.029	-39	1,325
		36,470	62.245	25.751	22.363	6.613	2,611	31,360

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

Load Case (1.2 + 0.2Sds) * DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-43.84	-2.60	0.00	-286.73	0.00	286.73	3,299.40	1,649.70	7,582.99	3,797.13	0.00	0.00	0.089
5.00	-42.48	-2.58	0.00	-273.72	0.00	273.72	3,261.75	1,630.88	7,307.36	3,659.11	0.01	-0.02	0.088
10.00	-41.15	-2.56	0.00	-260.80	0.00	260.80	3,221.78	1,610.89	7,031.03	3,520.74	0.04	-0.04	0.087
15.00	-39.84	-2.53	0.00	-248.01	0.00	248.01	3,179.49	1,589.75	6,754.40	3,382.22	0.09	-0.06	0.086
20.00	-38.57	-2.50	0.00	-235.36	0.00	235.36	3,134.88	1,567.44	6,477.88	3,243.76	0.16	-0.08	0.085
25.00	-37.33	-2.47	0.00	-222.86	0.00	222.86	3,087.95	1,543.97	6,201.87	3,105.54	0.25	-0.10	0.084
30.00	-36.39	-2.45	0.00	-210.51	0.00	210.51	3,038.69	1,519.34	5,926.77	2,967.79	0.36	-0.12	0.083
33.83	-35.89	-2.43	0.00	-201.14	0.00	201.14	2,999.35	1,499.68	5,716.73	2,862.61	0.46	-0.14	0.082
35.00	-33.74	-2.36	0.00	-198.30	0.00	198.30	2,987.11	1,493.55	5,652.99	2,830.70	0.50	-0.14	0.081
40.00	-33.60	-2.36	0.00	-186.50	0.00	186.50	2,933.21	1,466.60	5,380.93	2,694.46	0.66	-0.16	0.081
40.33	-32.51	-2.32	0.00	-185.71	0.00	185.71	2,953.95	1,476.98	5,484.02	2,746.08	0.67	-0.16	0.079
45.00	-31.37	-2.29	0.00	-174.86	0.00	174.86	2,902.37	1,451.19	5,231.21	2,619.49	0.84	-0.19	0.078
50.00	-30.26	-2.27	0.00	-163.40	0.00	163.40	2,844.86	1,422.43	4,962.62	2,485.00	1.05	-0.21	0.076
55.00	-29.18	-2.25	0.00	-152.07	0.00	152.07	2,785.03	1,392.52	4,696.79	2,351.89	1.28	-0.23	0.075
60.00	-28.13	-2.24	0.00	-140.84	0.00	140.84	2,722.88	1,361.44	4,434.11	2,220.35	1.53	-0.26	0.074
65.00	-27.11	-2.24	0.00	-129.66	0.00	129.66	2,658.40	1,329.20	4,174.99	2,090.60	1.82	-0.28	0.072
70.00	-26.11	-2.25	0.00	-118.46	0.00	118.46	2,591.60	1,295.80	3,919.84	1,962.83	2.12	-0.31	0.070
75.00	-25.34	-2.27	0.00	-107.19	0.00	107.19	2,522.48	1,261.24	3,669.06	1,837.26	2.46	-0.33	0.068
79.00	-25.06	-2.29	0.00	-98.09	0.00	98.09	2,465.51	1,232.76	3,471.85	1,738.50	2.75	-0.35	0.067
80.00	-24.02	-2.31	0.00	-95.81	0.00	95.81	2,451.04	1,225.52	3,423.05	1,714.07	2.82	-0.36	0.066
83.83	-23.86	-2.32	0.00	-86.95	0.00	86.95	1,187.39	593.69	1,636.13	819.28	3.12	-0.38	0.126
85.00	-23.22	-2.34	0.00	-84.24	0.00	84.24	1,182.21	591.10	1,613.00	807.70	3.21	-0.38	0.124
90.00	-22.95	-2.36	0.00	-72.53	0.00	72.53	1,158.57	579.29	1,513.58	757.92	3.63	-0.43	0.116
92.10	-20.68	-2.39	0.00	-67.58	0.00	67.58	1,147.95	573.98	1,471.76	736.97	3.83	-0.44	0.110
95.00	-20.47	-2.40	0.00	-60.64	0.00	60.64	1,132.61	566.31	1,414.01	708.05	4.10	-0.47	0.104
96.70	-18.10	-2.40	0.00	-56.56	0.00	56.56	1,123.26	561.63	1,380.19	691.12	4.27	-0.48	0.098
100.00	-17.87	-2.41	0.00	-48.63	0.00	48.63	1,104.33	552.17	1,314.67	658.31	4.61	-0.50	0.090
101.90	-15.51	-2.35	0.00	-44.06	0.00	44.06	1,092.98	546.49	1,277.08	639.49	4.82	-0.52	0.083
105.00	-15.10	-2.34	0.00	-36.77	0.00	36.77	1,073.73	536.86	1,215.99	608.90	5.16	-0.54	0.074
108.60	-12.44	-2.17	0.00	-28.35	0.00	28.35	1,050.26	525.13	1,145.57	573.64	5.57	-0.56	0.061
110.00	-11.99	-2.13	0.00	-25.32	0.00	25.32	1,040.80	520.40	1,118.36	560.01	5.74	-0.57	0.057
114.00	-9.00	-1.81	0.00	-16.81	0.00	16.81	1,012.79	506.40	1,041.29	521.42	6.22	-0.59	0.041
115.00	-8.80	-1.78	0.00	-15.00	0.00	15.00	1,005.56	502.78	1,022.19	511.86	6.35	-0.59	0.038
116.90	-5.96	-1.39	0.00	-11.61	0.00	11.61	991.55	495.78	986.11	493.79	6.58	-0.60	0.030
120.00	-5.46	-1.30	0.00	-7.30	0.00	7.30	967.99	483.99	927.88	464.63	6.97	-0.60	0.021
125.00	-3.46	-0.83	0.00	-0.82	0.00	0.82	928.10	464.05	835.84	418.54	7.61	-0.61	0.006
125.50	-3.41	-0.82	0.00	-0.41	0.00	0.41	923.98	461.99	826.77	414.00	7.67	-0.61	0.005
126.00	0.00	0.00	0.00	0.00	0.00	0.00	919.84	459.92	817.74	409.48	7.74	-0.61	0.000
129.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	8.12	-0.61	0.000

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

Load Case (0.9 - 0.2Sds) * DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-30.40	-2.60	0.00	-282.57	0.00	282.57	3,299.40	1,649.70	7,582.99	3,797.13	0.00	0.00	0.084
5.00	-29.45	-2.58	0.00	-269.57	0.00	269.57	3,261.75	1,630.88	7,307.36	3,659.11	0.01	-0.02	0.083
10.00	-28.53	-2.55	0.00	-256.68	0.00	256.68	3,221.78	1,610.89	7,031.03	3,520.74	0.04	-0.04	0.082
15.00	-27.63	-2.52	0.00	-243.94	0.00	243.94	3,179.49	1,589.75	6,754.40	3,382.22	0.09	-0.06	0.081
20.00	-26.74	-2.48	0.00	-231.36	0.00	231.36	3,134.88	1,567.44	6,477.88	3,243.76	0.16	-0.08	0.080
25.00	-25.88	-2.45	0.00	-218.96	0.00	218.96	3,087.95	1,543.97	6,201.87	3,105.54	0.25	-0.10	0.079
30.00	-25.23	-2.42	0.00	-206.72	0.00	206.72	3,038.69	1,519.34	5,926.77	2,967.79	0.36	-0.12	0.078
33.83	-24.88	-2.41	0.00	-197.44	0.00	197.44	2,999.35	1,499.68	5,716.73	2,862.61	0.46	-0.13	0.077
35.00	-23.39	-2.33	0.00	-194.63	0.00	194.63	2,987.11	1,493.55	5,652.99	2,830.70	0.49	-0.14	0.077
40.00	-23.30	-2.33	0.00	-182.98	0.00	182.98	2,933.21	1,466.60	5,380.93	2,694.46	0.65	-0.16	0.076
40.33	-22.54	-2.29	0.00	-182.20	0.00	182.20	2,953.95	1,476.98	5,484.02	2,746.08	0.66	-0.16	0.074
45.00	-21.75	-2.26	0.00	-171.50	0.00	171.50	2,902.37	1,451.19	5,231.21	2,619.49	0.83	-0.18	0.073
50.00	-20.98	-2.23	0.00	-160.21	0.00	160.21	2,844.86	1,422.43	4,962.62	2,485.00	1.03	-0.21	0.072
55.00	-20.23	-2.21	0.00	-149.06	0.00	149.06	2,785.03	1,392.52	4,696.79	2,351.89	1.26	-0.23	0.071
60.00	-19.50	-2.19	0.00	-138.03	0.00	138.03	2,722.88	1,361.44	4,434.11	2,220.35	1.51	-0.25	0.069
65.00	-18.79	-2.19	0.00	-127.06	0.00	127.06	2,658.40	1,329.20	4,174.99	2,090.60	1.79	-0.28	0.068
70.00	-18.10	-2.21	0.00	-116.09	0.00	116.09	2,591.60	1,295.80	3,919.84	1,962.83	2.09	-0.30	0.066
75.00	-17.57	-2.23	0.00	-105.05	0.00	105.05	2,522.48	1,261.24	3,669.06	1,837.26	2.42	-0.33	0.064
79.00	-17.37	-2.24	0.00	-96.14	0.00	96.14	2,465.51	1,232.76	3,471.85	1,738.50	2.70	-0.35	0.062
80.00	-16.65	-2.26	0.00	-93.91	0.00	93.91	2,451.04	1,225.52	3,423.05	1,714.07	2.77	-0.35	0.062
83.83	-16.54	-2.27	0.00	-85.24	0.00	85.24	1,187.39	593.69	1,636.13	819.28	3.06	-0.37	0.118
85.00	-16.10	-2.29	0.00	-82.59	0.00	82.59	1,182.21	591.10	1,613.00	807.70	3.15	-0.38	0.116
90.00	-15.91	-2.30	0.00	-71.14	0.00	71.14	1,158.57	579.29	1,513.58	757.92	3.57	-0.42	0.108
92.10	-14.34	-2.34	0.00	-66.31	0.00	66.31	1,147.95	573.98	1,471.76	736.97	3.76	-0.43	0.102
95.00	-14.19	-2.35	0.00	-59.52	0.00	59.52	1,132.61	566.31	1,414.01	708.05	4.03	-0.46	0.097
96.70	-12.54	-2.35	0.00	-55.53	0.00	55.53	1,123.26	561.63	1,380.19	691.12	4.19	-0.47	0.092
100.00	-12.38	-2.35	0.00	-47.76	0.00	47.76	1,104.33	552.17	1,314.67	658.31	4.53	-0.49	0.084
101.90	-10.75	-2.31	0.00	-43.29	0.00	43.29	1,092.98	546.49	1,277.08	639.49	4.73	-0.51	0.078
105.00	-10.46	-2.29	0.00	-36.14	0.00	36.14	1,073.73	536.86	1,215.99	608.90	5.07	-0.53	0.069
108.60	-8.62	-2.13	0.00	-27.89	0.00	27.89	1,050.26	525.13	1,145.57	573.64	5.47	-0.55	0.057
110.00	-8.31	-2.09	0.00	-24.92	0.00	24.92	1,040.80	520.40	1,118.36	560.01	5.64	-0.56	0.052
114.00	-6.24	-1.78	0.00	-16.55	0.00	16.55	1,012.79	506.40	1,041.29	521.42	6.11	-0.57	0.038
115.00	-6.10	-1.75	0.00	-14.78	0.00	14.78	1,005.56	502.78	1,022.19	511.86	6.23	-0.58	0.035
116.90	-4.13	-1.37	0.00	-11.45	0.00	11.45	991.55	495.78	986.11	493.79	6.46	-0.58	0.027
120.00	-3.78	-1.28	0.00	-7.19	0.00	7.19	967.99	483.99	927.88	464.63	6.85	-0.59	0.019
125.00	-2.40	-0.82	0.00	-0.81	0.00	0.81	928.10	464.05	835.84	418.54	7.47	-0.60	0.005
125.50	-2.36	-0.81	0.00	-0.40	0.00	0.40	923.98	461.99	826.77	414.00	7.53	-0.60	0.004
126.00	0.00	0.00	0.00	0.00	0.00	0.00	919.84	459.92	817.74	409.48	7.60	-0.60	0.000
129.00	0.00	0.00	0.00	0.00	0.00	0.00	894.51	447.26	764.11	382.62	7.97	-0.60	0.000

Site Number: 283424

Code: ANSI/TIA-222-G

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	33.81	0.00	43.70	0.00	0.00	3407.48	83.83	0.99
0.9D + 1.6W	33.78	0.00	32.76	0.00	0.00	3370.32	83.83	0.97
1.2D + 1.0Di + 1.0Wi	5.77	0.00	68.94	0.00	0.00	568.12	83.83	0.20
(1.2 + 0.2Sds) * DL + E ELFM	1.54	0.00	43.84	0.00	0.00	167.19	83.83	0.07
(1.2 + 0.2Sds) * DL + E EMAM	2.60	0.00	43.84	0.00	0.00	286.73	83.83	0.13
(0.9 - 0.2Sds) * DL + E ELFM	1.54	0.00	30.40	0.00	0.00	164.92	83.83	0.06
(0.9 - 0.2Sds) * DL + E EMAM	2.60	0.00	30.40	0.00	0.00	282.57	83.83	0.12
1.0D + 1.0W	8.98	0.00	36.47	0.00	0.00	900.43	83.83	0.27

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Site Name: WATERTOWN CT, CT

Engineering Number: OAA713249_C3_04

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Customer: VERIZON WIRELESS

Base Summary

Reactions

Original Design			Analysis			
Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment (kip-ft)	Axial (kip)	Shear (kip)	Moment Design %
3,735.00	63.60	38.90	3,407.48	68.94	33.81	91.23

Base Plate

Yield (ksi)	Thick (in)	Width (in)	Style	Poly Sides	Clip Len (in)	Effective Len (in)	Mu (kip-in)	Phi Mn (kip-in)	Ratio
50.0	2.500	69.500	Round	0	0.00	12.723	413.71	894.57	0.46

Anchor Bolts

Bolt Circle	Num Bolts	Bolt Type	Bolt Dia (in)	Yield (ksi)	Ultimate (ksi)	Arrange	Cluster Dist (in)	Start Angle (deg)	Compression			Tension		
									Force (kip)	Allow (kip)	Ratio	Force (kip)	Allow (kip)	Ratio
63.50	14	2.25" 18J	2.25	75.00	100.00	Radial	0.00	0.0	188.91	260.00	0.75	179.06	260.00	0.71

ATTACHMENT 5

ATTACHMENT 6

December 12, 2017

Via Certificate of Mailing

Robert M. Scannell, Town Manager
Town Hall Annex
424 Main Street
Watertown, CT 06795

Re: **Proposed Shared Use of an Existing Telecommunications Facility at 655 Bassett Road, Watertown, Connecticut**

Dear Mr. Scannell:

This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”). Today, Cellco filed a Sub-Petition for Declaratory Ruling (“Sub-Petition”) with the Connecticut Siting Council (“Council”) seeking approval to share the existing telecommunications facility at 655 Bassett Road in Watertown (the “Property”). Cellco intends to install six (6) antennas and twelve (12) remote radio heads on the existing “tree tower” at a height of 114 feet above ground level. Equipment cabinets, a battery cabinet and a back-up generator will be located on a steel platform near the base of the tower and within the existing facility compound.

As presented in the Sub-Petition, the proposed facility modifications at the Property constitute an eligible facility request pursuant to Section 6409(a) of the Federal Middle Class Tax Relief and Job Creation act of 2012 (47 U.S.C. § 1455(a)) and the October 21, 2014 Order of the Federal Communications Commission (FCC-14-533). A copy of the full Sub-Petition is attached for your review. Landowners whose property abuts the Property were also sent notice of this filing along with a copy of the Sub-Petition.

Robinson + Cole

Robert M. Scannell, Town Manager
December 12, 2017
Page 2

Pursuant to its decision in Petition No. 1133, comments or concerns regarding this proposal should be submitted to the Council within thirty (30) days of the date of the attached Sub-Petition.

Please contact me if you have any questions regarding this proposal.

Sincerely,



Kenneth C. Baldwin

Attachment

December 12, 2017

Via Certificate of Mailing

Mark Massoud, Administrator of Land Use/Zoning Enforcement Officer
Watertown Municipal Government Center
Land Use Department
61 Echo Lake Road
Watertown, CT 06795

Re: **Proposed Shared Use of an Existing Telecommunications Facility at 655 Bassett Road, Watertown, Connecticut**

Dear Mr. Massoud:

This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”). Today, Cellco filed a Sub-Petition for Declaratory Ruling (“Sub-Petition”) with the Connecticut Siting Council (“Council”) seeking approval to share the existing telecommunications facility at 655 Bassett Road in Watertown (the “Property”). Cellco intends to install six (6) antennas and twelve (12) remote radio heads on the existing “tree tower” at a height of 114 feet above ground level. Equipment cabinets, a battery cabinet and a back-up generator will be located on a steel platform near the base of the tower and within the existing facility compound.

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Robinson + Cole

Mark Massoud, Administrator of Land Use/Zoning Enforcement Officer
December 12, 2017
Page 2

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Sincerely,



Kenneth C. Baldwin

Attachment

December 12, 2017

Via Certificate of Mailing

Frank E. Gustafson Est.
655 Bassett Road
Watertown, CT 06795

Re: **Proposed Shared Use of an Existing Telecommunications Facility at 655 Bassett Road, Watertown, Connecticut**

Dear Sir or Madam:

This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”). Today, Cellco filed a Sub-Petition for Declaratory Ruling (“Sub-Petition”) with the Connecticut Siting Council (“Council”) seeking approval to share the existing telecommunications facility at 655 Bassett Road in Watertown (the “Property”). Cellco intends to install six (6) antennas and twelve (12) remote radio heads on the existing “tree tower” at a height of 114 feet above ground level. Equipment cabinets, a battery cabinet and a back-up generator will be located on a steel platform near the base of the tower and within the existing facility compound.

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Robinson + Cole

Frank E. Gustafson Est.
December 12, 2017
Page 2

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Please contact me if you have any questions regarding this proposal.

Sincerely,



Kenneth C. Baldwin

Attachment

December 12, 2017

Via Certificate of Mailing

Heather Douglas Wilkins
Territory Manager – Business Development
Northeast (New England/NY)
American Tower Corporation
10 Presidential Way
Woburn, MA 01801

Re: Proposed Shared Use of an Existing Telecommunications Facility at 655 Bassett Road, Watertown, Connecticut

Dear Sir or Madam:

This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”). Today, Cellco filed a Sub-Petition for Declaratory Ruling (“Sub-Petition”) with the Connecticut Siting Council (“Council”) seeking approval to share the existing telecommunications facility at 655 Bassett Road in Watertown (the “Property”). Cellco intends to install six (6) antennas and twelve (12) remote radio heads on the existing “tree tower” at a height of 114 feet above ground level. Equipment cabinets, a battery cabinet and a back-up generator will be located on a steel platform near the base of the tower and within the existing facility compound.

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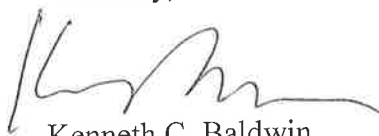
Robinson + Cole

Heather Douglas Wilkins
December 12, 2017
Page 2

Pursuant to its decision in Petition No. 1133, comments or concerns regarding this proposal should be submitted to the Council within thirty (30) days of the date of the attached Sub-Petition.

Please contact me if you have any questions regarding this proposal.

Sincerely,

A handwritten signature in black ink, appearing to read 'K. Baldwin', written over a horizontal line.

Kenneth C. Baldwin

Attachment

ATTACHMENT 7

KENNETH C. BALDWIN

280 Trumbull Street
Hartford, CT 06103-3597
Main (860) 275-8200
Fax (860) 275-8299
kbaldwin@rc.com
Direct (860) 275-8345

Also admitted in Massachusetts

December 12, 2017

Via Certificate of Mailing

«Name_and_Address»

Re: Proposed Shared Use of an Existing Telecommunications Facility at 655 Bassett Road, Watertown, Connecticut

Dear «Salutation»:

This firm represents Cellco Partnership d/b/a Verizon Wireless (“Cellco”). Today, Cellco filed a Sub-Petition for Declaratory Ruling (“Sub-Petition”) with the Connecticut Siting Council (“Council”) seeking approval to share the existing telecommunications facility at 655 Bassett Road in Watertown (the “Property”). Cellco intends to install six (6) antennas and twelve (12) remote radio heads on the existing “tree tower” at a height of 114 feet above ground level. Equipment cabinets, a battery cabinet and a back-up generator will be located on a steel platform near the base of the tower and within the existing facility compound.

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December 12, 2017

Page 2

Pursuant to its decision in Petition No. 1133, comments or concerns regarding this proposal should be submitted to the Council within thirty (30) days of the date of the attached Sub-Petition.

This notice is being sent to you because you are listed as an owner of land that abuts the Property. If you have any questions regarding the Sub-Petition, the Council's process for reviewing the Sub-Petition or the details of the filing itself, please feel free to contact me at the number listed above. You may also contact the Council directly at 860-827-2935.

Sincerely,

A handwritten signature in black ink, appearing to read "Kenneth C. Baldwin". The signature is fluid and cursive, with a long horizontal stroke at the end.

Kenneth C. Baldwin

Attachment

CELLCO PARTNERSHIP D/B/A VERIZON WIRELESS

ABUTTERS LIST

**655 BASSETT ROAD
WATERTOWN, CONNECTICUT**

	<u>Property Address</u>	<u>Owner and Mailing Address</u>
1.	489 Bassett Road	Priscilla Membrino c/o Darlene Membrino 142 Allyn Road Goshen, CT 06756
2.	465 Bassett Road	Donna Membrino 465 Bassett Road Watertown, CT 06795
3.	435 Bassett Road	Robert P. and Cathleen A. Alex 435 Bassett Road Watertown, CT 06795
4.	486 Bassett Road	Ernest F. Farrow and Constance Zombar 32 White Oak Road Woodbury, CT 06798
5.	500 Bassett Road	Michael A. and Christine J. Geiger 500 Bassett Road Watertown, CT 06795
6.	514 Bassett Road	Saverio Caliguiri 514 Bassett Road Watertown, CT 06795
7.	Linkfield Road	Frank E. Gustafson (Est.) Et Al 936 Linkfield Road Watertown, CT 06795
8.	Linkfield Road	Frank E. Gustafson (Est.) Et Al 936 Linkfield Road Watertown, CT 06795
9.	Linkfield Road	Frank E. Gustafson (Est.) Et Al 936 Linkfield Road Watertown, CT 06795

	<u>Property Address</u>	<u>Owner and Mailing Address</u>
10.	Linkfield Road	Frank E. Gustafson (Est.) Et Al 936 Linkfield Road Watertown, CT 06795