

118 Flanders Road
Third Floor
Westborough, MA
01581

Sean Conway
Principal Engineer

October 30, 2019

City Clerk, City of Malden
110 Pleasant Street, 1st Floor
Malden, MA 02148

Re: Small Cell Wireless Application
Applicant: Cellco Partnership d/b/a Verizon Wireless
("Verizon Wireless")

Dear City Clerk and City Council Members:

Enclosed please find Verizon Wireless's application to collocate small wireless facilities (also referred to as "small cells") on existing wooden utility poles located within the public right of way. This application is for five (5) proposed small cell locations, and a check for the \$500.00 application fee is included. Under federal law, municipalities may assess up to \$500.00 for a single application that includes up to five small wireless facilities. *Accelerating Wireless Broadband Deployment*, FCC 18-133, WT Docket No. 17-79, 85 FR 51867, at ¶ 79 (September 26, 2018).

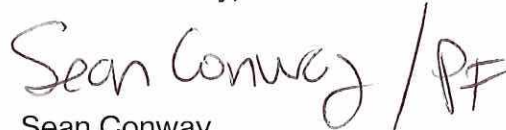
Verizon Wireless also herein provides the acknowledgments required under Section 6.49.12(11) of Malden's Code (adopted January 2018), which governs siting and installation of wireless communications equipment within the City:

Verizon Wireless acknowledges that locating wireless systems in, on and along the public right of way and public airspace of the City affects the City and its inhabitants. Verizon Wireless acknowledges that Verizon Wireless's wireless communications equipment is for Verizon Wireless's commercial enterprise and competitive use and purposes, distinct from any municipal non-profit purpose the City may have to use its public right of way and airspace or to locate municipal equipment. Verizon Wireless agrees to permit the City to place or attach its own equipment to any pole located within the City, whether owned by the City or not, for municipal use purposes as they arise [as long as Verizon Wireless has the authority to permit such use, and the use relates to public safety and does not interfere with Verizon Wireless's use]. Verizon Wireless agrees to pay [bi-annual inspectional fees [to the extent the fee assessed complies with applicable law] to accommodate use of poles in, on and along public right of way and public airspace within the City.



While Verizon Wireless provides this acknowledgement as part of this application, Verizon Wireless does not own any poles in the City and stipulates that payment for bi-annual inspections of Verizon Wireless's small cell facilities are due only if the City actually conducts the inspections and the bi-annual inspection fee represents an objectively reasonable approximation of costs reasonably incurred by the City in conducting the inspections.

Yours sincerely,

Handwritten signature of Sean Conway in black ink, followed by the initials 'PF' written in a similar style.

Sean Conway
Principal Engineer

cc: Nelson Miller, City of Malden Permits, Inspections and Planning Director

Friday, February 21st, 2020

City of Malden: Application for Approval of Proposed Small Cell Infrastructure

1). Applicant Information

| | | | | | |
|------------------------|--|---------------|-----------------------|---------------------------------|-------|
| Applicant Name: | Cellco Partnership d/b/a Verizon Wireless, Attn: Sean Conway | | | | |
| Address: | 118 Flanders Road | | | | |
| City: | Westborough | State: | MA | Zip Code: | 01581 |
| Phone Number: | 508-320-2017 | | Email Address: | Sean.conway@verizonwireless.com | |

2). Applicant Vendor Information

| | | | | | |
|------------------------|---|---------------|-----------------------|-------------------------|-------|
| Applicant Name: | Nexius Solutions, Inc., Attn.: Noah Meunier | | | | |
| Address: | 300 Apollo Drive, Suite 7 | | | | |
| City: | Chelmsford | State: | MA | Zip Code: | 01824 |
| Phone Number: | 978-790-1108 | | Email Address: | Noah.Meunier@nexius.com | |

3). Applicant Vendor Information

VZW NOC: 800-264-6620

- See Attached “Shut Down Procedure” Document for more Information

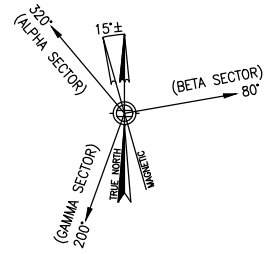
4). Utility Pole Information

| Site Name | Utility Pole # | Nearest Abutting Property | Pole Owner |
|-------------------|----------------|---------------------------|-------------------------|
| BOS_MALDEN_020_MA | 4842 | 490 Eastern Avenue | National Grid / Verizon |
| BOS_MALDEN_039_MA | 2138 | 77 Revere Street | National Grid / Verizon |
| BOS_MALDEN_040_MA | 5123 | 1279 Salem Street | National Grid / Verizon |
| BOS_MALDEN_041_MA | 1 | 12 Fairfield Avenue | National Grid / Verizon |
| BOS_MALDEN_094_MA | 4508 | 135 Main Street | National Grid / Verizon |



Attached Documents

- Lease Exhibit for Each Proposed Small Cell
- Structural Pole Analysis for Each Utility Pole
- National Grid Consent Form
- RF Emissions Report
- FCC Licenses
- Utility Pole Shut Down Procedure



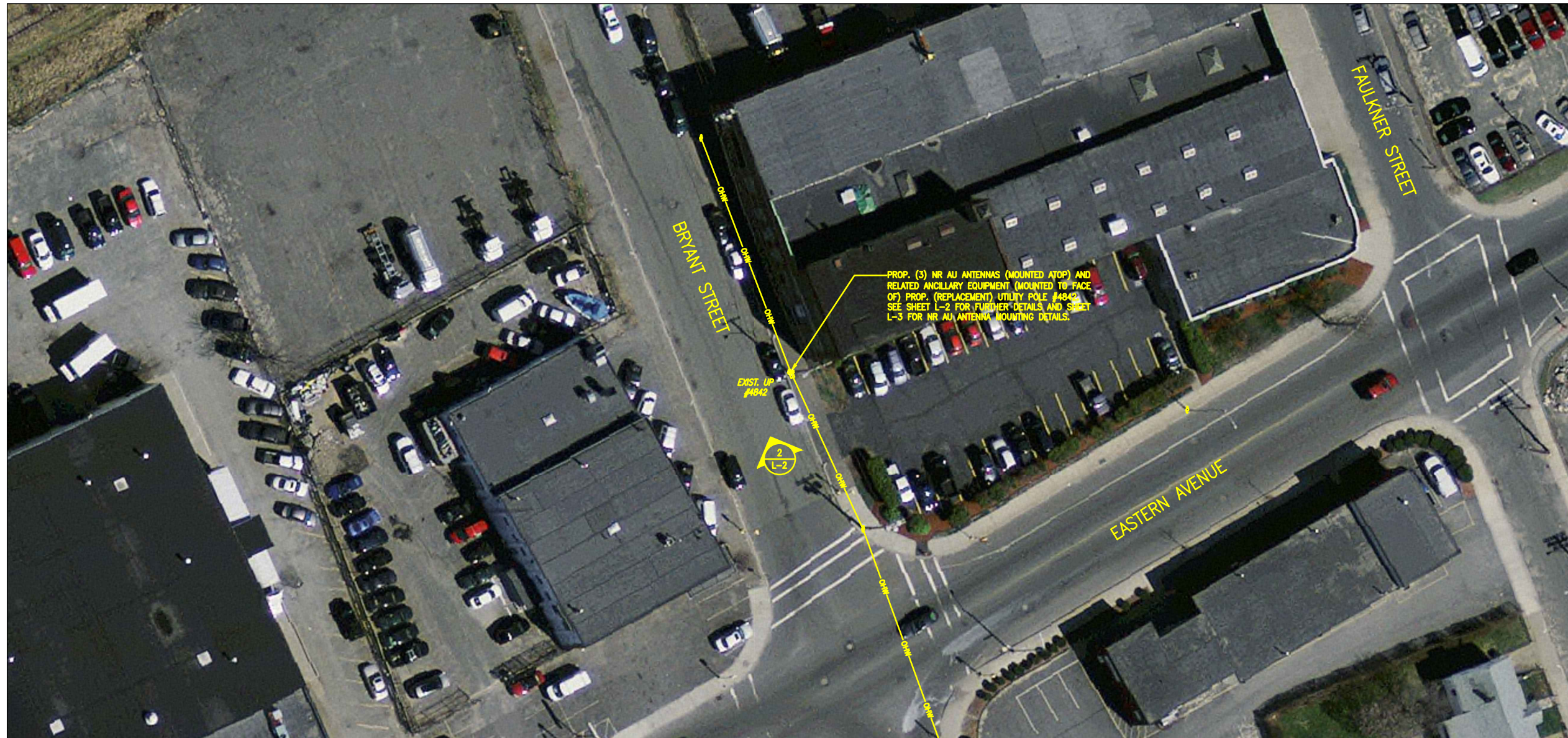
BOS_MALDEN_020_MA

CLUSTER: MALDEN S - EVERETT N

UTILITY POLE #4842 (N.G.)
 490 EASTERN AVENUE, POLE ON BRYANT STREET
 MALDEN, MA 02148



R.K. EXECUTIVE CENTRE
 201 BOSTON POST ROAD WEST, SUITE 101
 MARLBOROUGH, MA 01752
 (508) 481-7400
 www.chappellengineering.com



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

| REVISIONS | | |
|-----------|------------------------------|---------|
| NO. | DESCRIPTION | DATE |
| 0 | ISSUED FOR REVIEW | 7/19/19 |
| 1 | REVISED FOR POLE REPLACEMENT | 8/23/19 |
| | | |
| | | |

SITE NAME:
BOS_MALDEN_020_MA
 UTILITY POLE #4842 (N.G.)
 490 EASTERN AVENUE,
 POLE ON BRYANT STREET
 MALDEN, MA 02148

DRAWING TITLE:
**LOCATION PLAN/
 AERIAL IMAGE**

DRAWING NO:
L-1

LEASE EXHIBIT
 NOT FOR CONSTRUCTION

SITE CONTROL POINT:
 CENTER OF EXISTING UTILITY POLE #4842
 N 42.428737' (42°-25'-43.45")
 W 71.056552' (71°-03'-23.59")
 APPROXIMATE GROUND ELEVATION - 10'± AMSL

LOCATION PLAN/AERIAL IMAGE
 SCALE: 1" = 50'

| SHEET INDEX | | |
|-------------|--|------|
| DWG. | DESCRIPTION | REV. |
| L-1 | LOCATION PLAN/AERIAL IMAGE | 1 |
| L-2 | UTILITY POLE PHOTOGRAPH AND ELEVATION | 1 |
| L-3 | ANTENNA & ANCILLARY EQUIPMENT DETAILS AND ONE-LINE DIAGRAM | 1 |

| | | |
|-------------|----------------------|---------------|
| SCALE: | DESIGNED BY: GRS | LOCATION CODE |
| AS SHOWN | DRAWN BY: NWC | |
| PROJECT NO. | CHECKED BY: GRS | 554164 |
| 1907.0141 | ORIGINAL ISSUE DATE: | 7/19/19 |

GENERAL NOTES:

1. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE INTENDED TO PROVIDE GENERAL INFORMATION REGARDING THE LOCATION, SIZE AND ORIENTATION OF THE PROPOSED WIRELESS TELECOMMUNICATIONS EQUIPMENT INSTALLATION ON THE UTILITY POLE AND ARE NOT SPECIFICALLY INTENDED FOR CONSTRUCTION.
2. VERIZON WIRELESS SHALL PLACE WEATHER RESISTANT PHENOLIC PLACARDS ON UTILITY POLE AND ANCILLARY EQUIPMENT TO IDENTIFY EQUIPMENT OWNERSHIP & CONTACT INFORMATION TO BE UTILIZED IN THE CASE OF EMERGENCY.
3. AN ANALYSIS OF THE CAPACITY OF THE EXISTING UTILITY POLE TO SUPPORT THE PROPOSED LOADING HAS NOT BEEN COMPLETED BY CHAPPELL ENGINEERING ASSOCIATES, LLC. AND THUS, THESE DRAWINGS ARE SUBJECT TO CHANGE PENDING THE OUTCOME OF A STRUCTURAL ANALYSIS (TO BE PERFORMED BY OTHERS).
4. VERIZON WIRELESS' GENERAL CONTRACTOR SHALL EXTEND EFFORTS TO ENSURE THAT ALL PROPOSED EQUIPMENT MEETS THE REQUIREMENTS OF THE EXISTING UTILITY COMPANY OR COMPANIES CURRENTLY OCCUPYING THE UTILITY POLE AND THE 2017 NATIONAL ELECTRICAL SAFETY CODE.



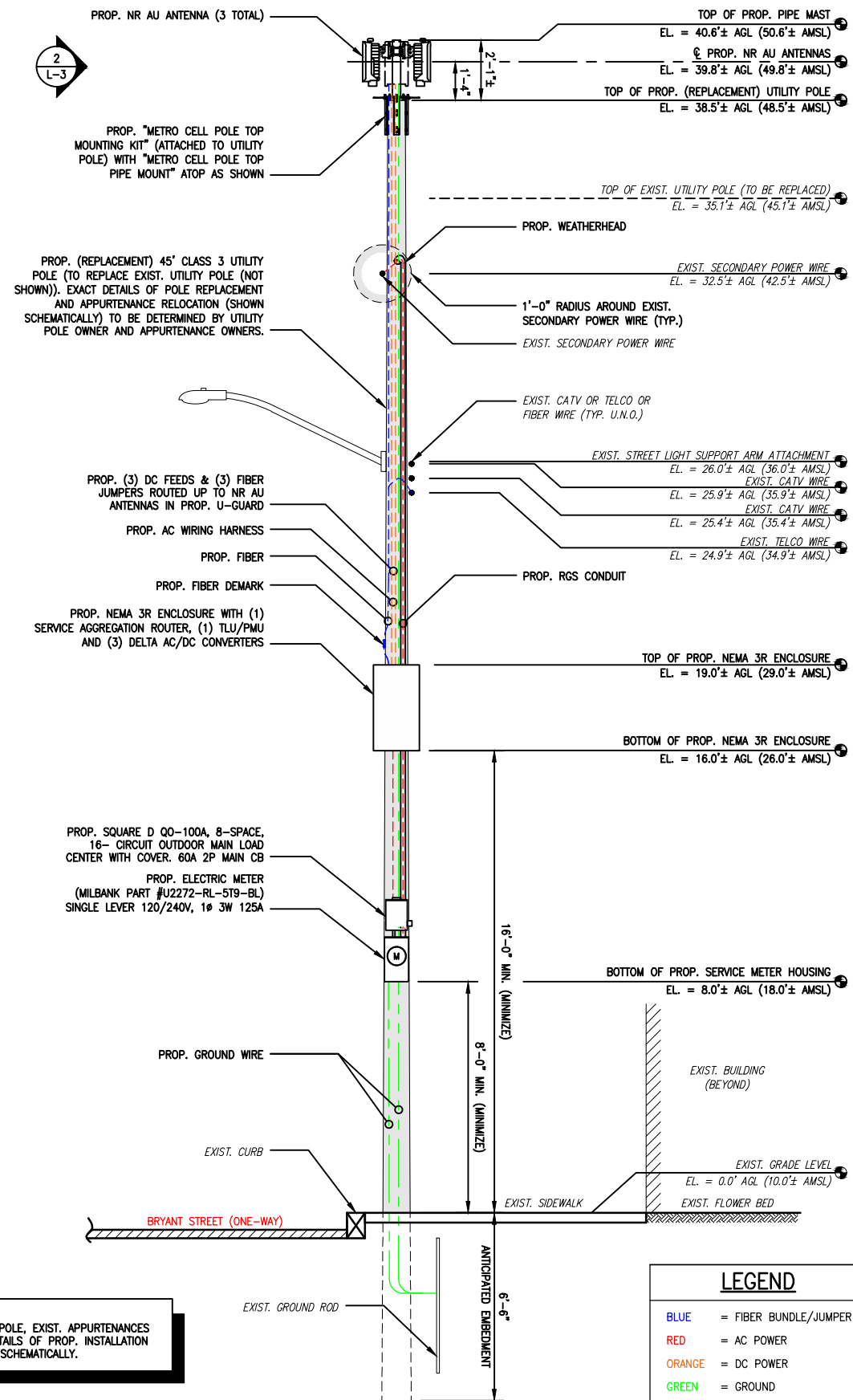
UTILITY POLE #4842 PHOTOGRAPH (EXISTING CONDITIONS)
SCALE: NO SCALE

1
L-2

NOTE:
CONTRACTOR SHALL POSITION/ROTATE PROP. ANTENNA MOUNT/BRAKET IN SUCH A WAY SO AS TO NOT INTERFERE WITH EXIST. STREET LIGHT, PRIMARY POWER CROSSARM(S) (IF PRESENT), BRACKETS, BRACES, SECONDARY POWER SUPPORTS OR ANY OTHER MISCELLANEOUS APPURTENANCES AND RELATED SUPPORT BRACKETS ENCOUNTERED LOCATED AT THE TOP OF THE EXIST. UTILITY POLE.

NOTE:
CONTRACTOR SHALL POSITION/ROTATE PROP. EQUIPMENT AND ASSOCIATED MOUNTS/BRAKETS IN SUCH A WAY SO AS TO NOT INTERFERE WITH EXIST. WIRES/PANELS ETC. OR ANY OTHER MISCELLANEOUS APPURTENANCES AND RELATED SUPPORT BRACKETS ENCOUNTERED LOCATED ON THE FACE OF THE EXIST. UTILITY POLE.

NOTE:
UTILITY POLE, EXIST. APPURTENANCES AND DETAILS OF PROP. INSTALLATION SHOWN SCHEMATICALLY.



UTILITY POLE #4842 ELEVATION (PROPOSED CONDITIONS)

SCALE: 3/16" = 1'-0"
0 5'-4" 10'-8" 16'-0"

2
L-2



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| REVISIONS | | |
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| NO. | DESCRIPTION | DATE |
| 0 | ISSUED FOR REVIEW | 7/19/19 |
| 1 | REVISED FOR POLE REPLACEMENT | 8/23/19 |

SITE NAME:
BOS_MALDEN_020_MA
UTILITY POLE #4842 (N.G.)
490 EASTERN AVENUE,
POLE ON BRYANT STREET
MALDEN, MA 02148

DRAWING TITLE:
UTILITY POLE PHOTOGRAPH AND ELEVATION

DRAWING NO:
L-2

LEASE EXHIBIT NOT FOR CONSTRUCTION

| | | |
|--------------------------|--|-------------------------|
| SCALE: AS SHOWN | DESIGNED BY: GRS DRAWN BY: NWC CHECKED BY: GRS | LOCATION CODE 554164 |
| PROJECT NO. 1907.0141 | ORIGINAL ISSUE DATE: 7/19/19 | |

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| | | |
| | | |
| | | |
| | | |

SITE NAME:

BOS_MALDEN_020_MA

UTILITY POLE #4842 (N.G.)
490 EASTERN AVENUE,
POLE ON BRYANT STREET
MALDEN, MA 02148

DRAWING TITLE:

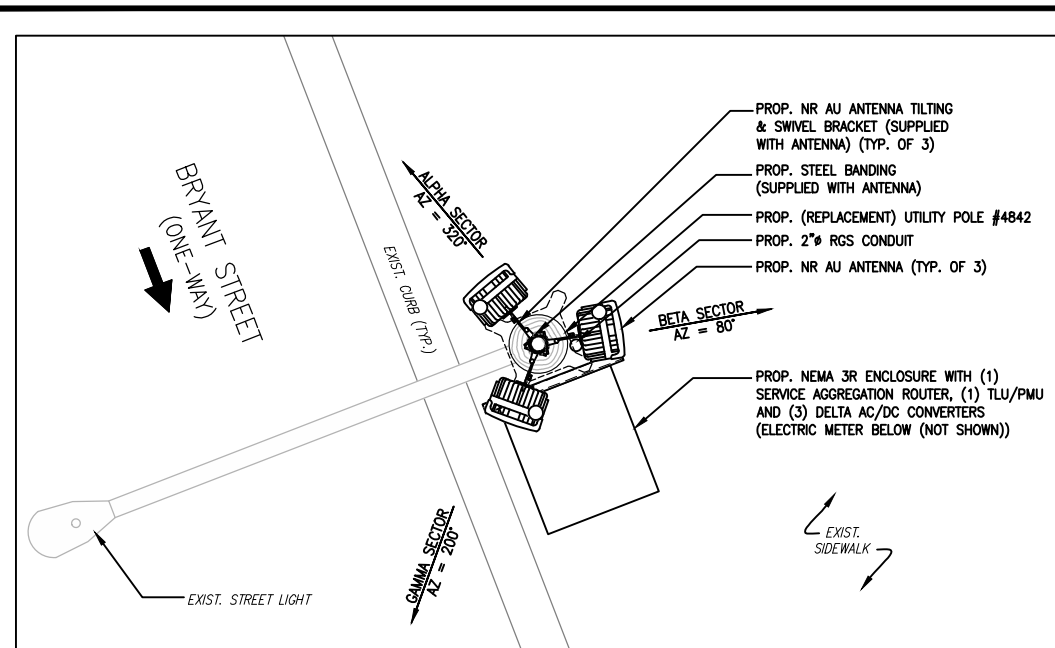
ANTENNA & ANCILLARY EQUIPMENT DETAILS AND ONE-LINE DIAGRAM

DRAWING NO.:

L-3

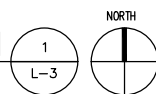
LEASE EXHIBIT
NOT FOR CONSTRUCTION

| | | |
|-------------|----------------------|---------------|
| SCALE: | DESIGNED BY: GRS | LOCATION CODE |
| AS SHOWN | DRAWN BY: NWC | |
| PROJECT NO. | CHECKED BY: GRS | 554164 |
| 1907.0141 | ORIGINAL ISSUE DATE: | 7/19/19 |



EQUIPMENT AND ANTENNA ORIENTATION PLAN

SCALE: 3/8" = 1'-0"



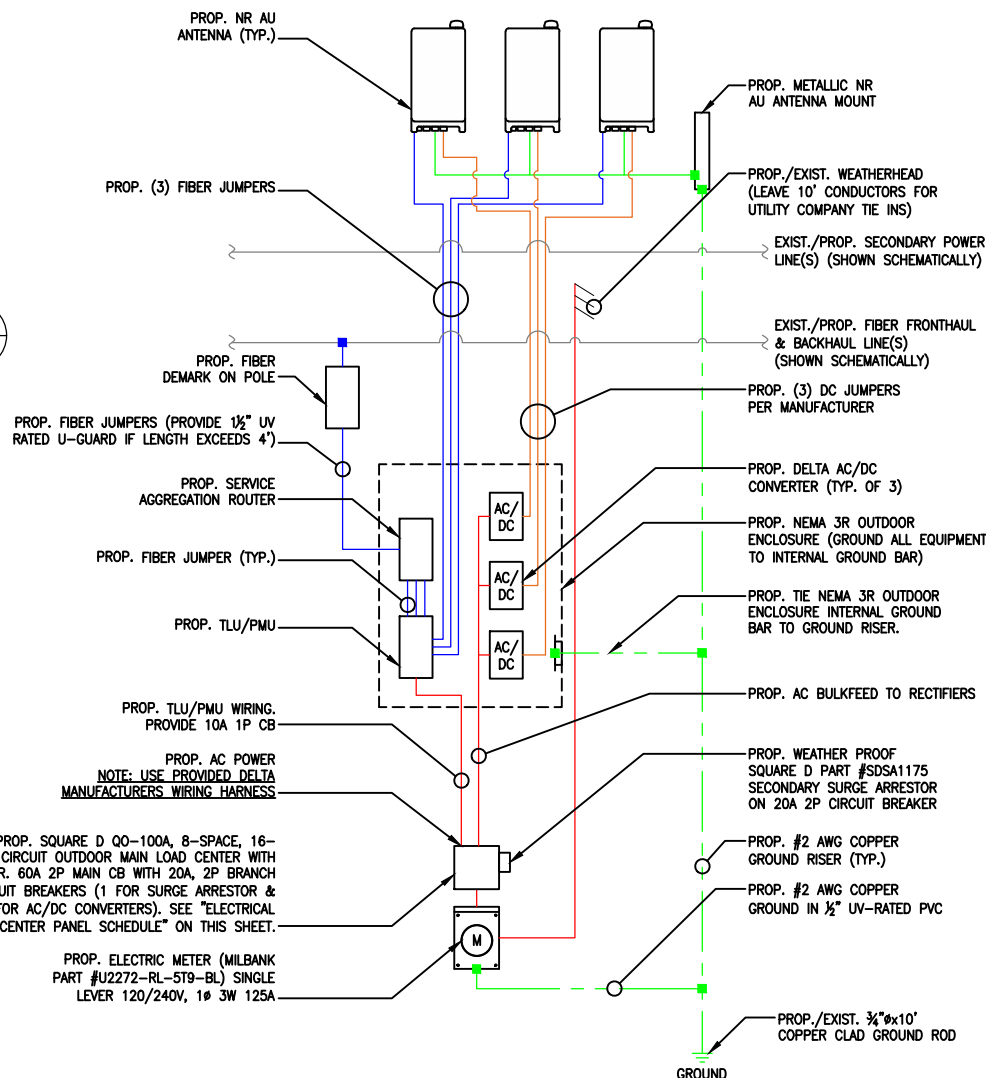
SQUARE D QO-100A, 8-SPACE, 16-CIRCUIT OUTDOOR MAIN LOAD CENTER, SINGLE PHASE IN 3R ENCLOSURE

| CKT # | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------------|------------------|---------|-------|-------|-------|-------|----------------|---|
| DESCRIPTION | AC/DC CONVERTERS | TLU/PMU | BLANK | BLANK | BLANK | BLANK | SURGE ARRESTOR | |
| AMP | 20 | 10 | - | - | - | - | 20 | |

ELECTRICAL LOAD CENTER PANEL SCHEDULE

SCALE: N/A

4A



ONE-LINE DIAGRAM NOTES:
1) PROVIDE WEATHER TIGHT SEAL CONNECTORS ON ALL CONNECTIONS EACH SIDE OF ENCLOSURE HOUSING.
2) COORDINATE ANY FURTHER MISCELLANEOUS WIRING AND CONDUIT REQUIREMENTS WITH VERIZON WIRELESS AND ELECTRIC COMPANY.

| LEGEND | |
|--------|-----------------------|
| BLUE | = FIBER BUNDLE/JUMPER |
| RED | = AC POWER |
| ORANGE | = DC POWER |
| GREEN | = GROUND |

14 mm. WIDE SAE 304 S.S. PASSIVATED BANDING (AVAILABLE FROM ANTENNA MANUFACTURER) (TYP.). INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S WRITTEN SPECIFICATIONS.

PROF. ALUMINUM ALLOY TILTING & SWIVEL BRACKET (AVAILABLE FROM ANTENNA MANUFACTURER) (TYP.) AT EACH ANTENNA. INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S WRITTEN SPECIFICATIONS. STAGGER MOUNTING BRACKETS AS REQUIRED TO ACCOMMODATE (3) NR AU ANTENNAS.

PROF. "METRO CELL POLE TOP PIPE MOUNT" (COMMSCOPE PART #860644677), 3/4" O.D. x 23 3/4"± LONG SCHED. 40 GALV. STEEL PIPE MAST AND LOWER MOUNTING FLANGE TO BE ATTACHED TO WOOD POLE TOP MOUNTING KIT WITH 1/2" MOUNTING HARDWARE (SUPPLIED WITH KIT)

PROF. NR AU ANTENNA (TYP. OF 3)
PROF. "METRO CELL POLE TOP MOUNTING KIT" FOR WOOD POLES OF 8" TO 14" DIAMETER (COMMSCOPE PART #860636779-WP)

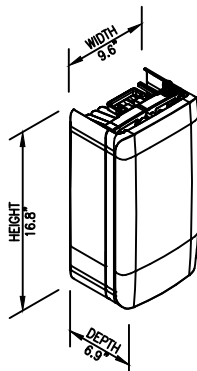
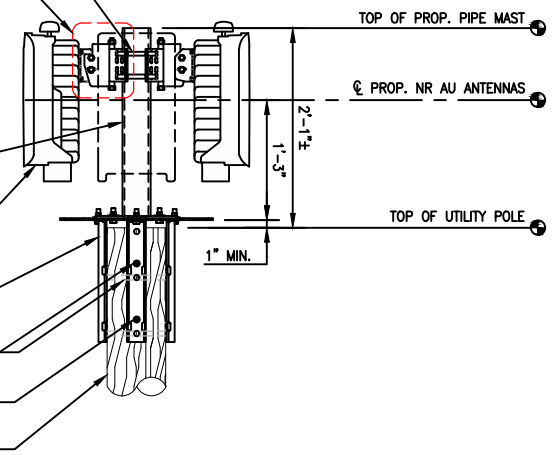
ATTACH MOUNTING KIT VERTICALS TO WOOD POLE WITH APPROPRIATELY SIZED GALV. STEEL THRU-BOLTS (LENGTH AS REQUIRED), TYP.
PROF. GALV. STEEL HEAVY DUTY WASHER, LOCK WASHER AND HEAVY HEX NUT (TYP.)

EXIST. UTILITY POLE OR PROF. (REPLACEMENT) UTILITY POLE

NR AU ANTENNA MOUNT DETAIL

SCALE: 1/2" = 1'-0"

NOTES:
1.) CONFIRM DOWNTILT REQUIREMENTS (IF ANY) AND AZIMUTH SPECIFICATIONS WITH VERIZON WIRELESS RF ENGINEER AT TIME OF CONSTRUCTION.
2.) MOUNT SHALL BE INSTALLED IN SUCH A WAY TO ENSURE PLUMB INSTALLATION OF PIPE MAST.
3.) EXIST. UTILITY POLE APPURTENANCES NOT SHOWN FOR CLARITY.



| TYPICAL NR AU ANTENNA | |
|-----------------------|--------------------------|
| DIMENSIONS: | 16.8"H x 9.6"W x 6.9"D |
| WEIGHT: | 33 LBS EACH |
| QUANTITY: | 1 PER SECTOR, TOTAL OF 3 |

TYPICAL NR AU ANTENNA SPECIFICATIONS

SCALE: N.T.S.

3



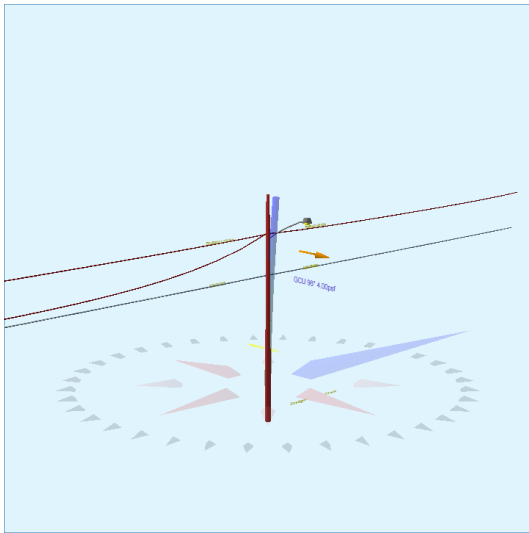
FIBER/ELECTRICAL ONE-LINE DIAGRAM

SCALE: N.T.S.

4



| | | | | | | | |
|------------|-----------------------|-------------------------|----------------------|----------------------|------------------|-----------------------|------------------------|
| Pole Num: | 4842_BRYANT ST | Pole Length / Class: | 40 / 3 | Code: | NESC | Structure Type: | Unguyed Tangent |
| Aux Data 1 | Unset | Species: | SOUTHERN PINE | NESC Rule: | Rule 250B | Status | Unguyed |
| Aux Data 2 | Unset | Setting Depth (ft): | 6.38 | Construction Grade: | C | Pole Strength Factor: | 0.85 |
| Aux Data 3 | Unset | G/L Circumference (in): | 38.00 | Loading District: | Heavy | Transverse Wind LF: | 1.75 |
| Aux Data 4 | Unset | G/L Fiber Stress (psi): | 8,000 | Ice Thickness (in): | 0.50 | Wire Tension LF: | 1.00 |
| Aux Data 5 | Unset | Allowable Stress (psi): | 6,800 | Wind Speed (mph): | 39.53 | Vertical LF: | 1.90 |
| Aux Data 6 | Unset | Fiber Stress Ht. Reduc: | No | Wind Pressure (psf): | 4.00 | | |
| Latitude: | 0.000000 Deg | Longitude: | 0.000000 Deg | Elevation: | 0 Feet | | |



| Pole Capacity Utilization (%) | Height (ft) | Wind Angle (deg) |
|-------------------------------|-------------|------------------|
| Maximum | 12.7 | 0.0 |
| Groundline | 12.7 | 0.0 |
| Vertical | 3.7 | 17.8 |

| Pole Moments (ft-lb) | Load Angle (deg) | Wind Angle (deg) |
|----------------------|------------------|------------------|
| Max Cap Util | 12,188 | 105.8 |
| Groundline | 12,188 | 105.8 |
| GL Allowable | 98,453 | |

| | Shear Load* (lbs) | Applied Load (%) | Bending Moment (ft-lb) | Applied Moment (%) | Pole Capacity (%) | Bending Stress (+/- psi) | Vertical Load (lbs) | Vertical Stress (psi) | Total Stress (psi) | Pole Capacity (%) |
|-----------------------|-------------------|------------------|------------------------|--------------------|-------------------|--------------------------|---------------------|-----------------------|--------------------|-------------------|
| Powers | 199 | 37.9 | 5,494 | 45.1 | 5.6 | 380 | 385 | 3 | 383 | 5.6 |
| Comms | 115 | 21.9 | 2,061 | 16.9 | 2.1 | 143 | 334 | 3 | 145 | 2.1 |
| Pole | 187 | 35.6 | 3,175 | 26.1 | 3.2 | 220 | 2,010 | 17 | 237 | 3.5 |
| Streetlights | 23 | 4.4 | 1,448 | 11.9 | 1.5 | 100 | 142 | 1 | 101 | 1.5 |
| Insulators | 1 | 0.1 | 10 | 0.1 | 0.0 | 1 | 13 | 0 | 1 | 0.0 |
| Pole Load | 526 | 100.0 | 12,188 | 100.0 | 12.4 | 843 | 2,885 | 25 | 868 | 12.8 |
| Pole Reserve Capacity | | | 86,265 | | 87.6 | 5,957 | | | 5,932 | 87.2 |

| Load Summary by Owner - Reporting Angle Mode: Load - Reporting Angle: 105.8° | | | | | | | | | | |
|--|-------------------|------------------|------------------------|--------------------|-------------------|--------------------------|---------------------|-----------------------|--------------------|-------------------|
| | Shear Load* (lbs) | Applied Load (%) | Bending Moment (ft-lb) | Applied Moment (%) | Pole Capacity (%) | Bending Stress (+/- psi) | Vertical Load (lbs) | Vertical Stress (psi) | Total Stress (psi) | Pole Capacity (%) |
| NGrid | 200 | 38.0 | 5,509 | 45.2 | 5.6 | 381 | 389 | 3 | 384 | 5.7 |
| Telco | 115 | 21.9 | 2,056 | 16.9 | 2.1 | 142 | 344 | 3 | 145 | 2.1 |
| Pole | 187 | 35.6 | 3,175 | 26.1 | 3.2 | 220 | 2,010 | 17 | 237 | 3.5 |
| Municipal | 23 | 4.4 | 1,448 | 11.9 | 1.5 | 100 | 142 | 1 | 101 | 1.5 |
| Totals: | 526 | 100.0 | 12,188 | 100.0 | 12.4 | 843 | 2,885 | 25 | 868 | 12.8 |

Detailed Load Components:

| Power | Owner | Height (ft) | Horiz. Offset (in) | Cable Diameter (in) | Sag at Max Temp (ft) | Cable Weight (lbs/ft) | Lead/Span Length (ft) | Span Angle (deg) | Wire Length (ft) | Tension (lbs) | Tension Moment* (ft-lb) | Offset Moment* (ft-lb) | Wind Moment* (ft-lb) | Moment at GL* (ft-lb) | |
|----------------|------------------|-------------|--------------------|---------------------|----------------------|-----------------------|-----------------------|------------------|------------------|---------------|-------------------------|------------------------|----------------------|-----------------------|--------|
| Secondary | TRIPLEX 1/0 10-5 | NGrid | 26.97 | 6.32 | 1.0300 | 0.84 | 0.399 | 72.0 | 0.0 | 72.0 | 1,065 | -7,817 | 47 | 1,101 | -6,669 |
| Secondary | TRIPLEX 1/0 10-5 | NGrid | 26.97 | 6.32 | 1.0300 | 1.43 | 0.399 | 114.0 | 180.0 | 114.0 | 1,065 | 7,817 | 74 | 1,744 | 9,635 |
| Secondary | TRIPLEX 1/0 10-5 | NGrid | 26.87 | 6.33 | 1.0300 | 1.43 | 0.399 | 114.0 | 180.0 | 115.2 | 107 | 779 | 21 | 1,737 | 2,537 |
| Totals: | | | | | | | | | | | 779 | 142 | 4,582 | 5,502 | |

| Comm | Owner | Height (ft) | Horiz. Offset (in) | Cable Diameter (in) | Sag at Max Temp (ft) | Cable Weight (lbs/ft) | Lead/Span Length (ft) | Span Angle (deg) | Wire Length (ft) | Tension (lbs) | Tension Moment* (ft-lb) | Offset Moment* (ft-lb) | Wind Moment* (ft-lb) | Moment at GL* (ft-lb) | |
|-------------------|-------------|-------------|--------------------|---------------------|----------------------|-----------------------|-----------------------|------------------|------------------|---------------|-------------------------|------------------------|----------------------|-----------------------|--------|
| Overlashed Bundle | 6.6M STRAND | Telco | 19.54 | 7.03 | 0.2500 | 0.38 | 0.121 | 72.0 | 0.0 | 72.0 | 1,663 | -8,839 | -25 | 633 | -8,232 |
| Telco | Telco | Telco | 19.49 | 7.03 | 1.0000 | 0.700 | 72.0 | 0.0 | 72.0 | | | -48 | 239 | 192 | |
| Overlashed Bundle | 6.6M STRAND | Telco | 19.54 | 7.03 | 0.2500 | 0.94 | 0.121 | 114.0 | 180.0 | 114.0 | 1,663 | 8,839 | -40 | 1,002 | 9,801 |
| Telco | Telco | Telco | 19.49 | 7.03 | 1.0000 | 0.700 | 114.0 | 180.0 | 114.0 | | | -75 | 379 | 303 | |
| Totals: | | | | | | | | | | | 0 | -188 | 2,253 | 2,064 | |

| Streetlight | Owner | Height (ft) | Horiz. Offset (in) | Offset Angle (deg) | Rotate Angle (deg) | Unit Weight (lbs) | Unit Height (in) | Unit Depth (in) | Unit Diameter (in) | Unit Length (in) | Offset Moment* (ft-lb) | Wind Moment* (ft-lb) | Moment at GL* (ft-lb) | |
|----------------|-------------------------|-------------|--------------------|--------------------|--------------------|-------------------|------------------|-----------------|--------------------|------------------|------------------------|----------------------|-----------------------|-------|
| General | Streetlight - 8 ft. Arm | Municipal | 26.17 | 4.12 | 90.0 | 90.0 | 75.00 | 48.00 | 20.00 | 3.00 | 96.00 | 839 | 611 | 1,450 |
| Totals: | | | | | | | | | | | 839 | 611 | 1,450 | |

| Insulator | Owner | Height (ft) | Horiz. Offset (in) | Offset Angle (deg) | Rotate Angle (deg) | Unit Weight (lbs) | Unit Diameter (in) | Unit Length (in) | Offset Moment* (ft-lb) | Wind Moment* (ft-lb) | Moment at GL* (ft-lb) | |
|----------------|-----------------|-------------|--------------------|--------------------|--------------------|-------------------|--------------------|------------------|------------------------|----------------------|-----------------------|----|
| Spool | Spool Insulator | NGrid | 26.97 | 0.00 | 90.0 | 0.0 | 1.00 | 2.50 | 2.12 | 1 | 7 | 8 |
| Bolt | Three Bolt 1.0" | Telco | 19.54 | 0.00 | 270.0 | 0.0 | 5.00 | 3.00 | 0.00 | -5 | 0 | -5 |
| Spool | Spool Insulator | NGrid | 26.87 | 0.00 | 180.0 | 180.0 | 1.00 | 2.50 | 2.12 | 0 | 7 | 7 |
| Totals: | | | | | | | | | | -4 | 14 | 10 |

| Pole Buckling | | | | | | | | | | | | | |
|----------------------|------------------------------|--|--------------------------------|--------------------------------------|----------------------|---------------------|-----------------------------|--------------------|-------------------|----------------------|--|---------------------------------------|--------------------------------|
| Buckling Constant | Buckling Column Height* (ft) | Buckling Section Height (% Buckling Col. Hgt.) | Buckling Section Diameter (in) | Minimum Buckling Diameter at GL (in) | Diameter at Tip (in) | Diameter at GL (in) | Modulus of Elasticity (psi) | Pole Density (pcf) | Ice Density (pcf) | Pole Tip Height (ft) | Buckling Load Capacity at Height (lbs) | Buckling Load Applied at Height (lbs) | Buckling Load Factor of Safety |
| 2.00 | 17.76 | 33.13 | 11.26 | 11.16 | 7.32 | 12.10 | 2.13e+6 | 60.00 | 57.00 | 33.62 | 77,570 | 779.60 | 27.03 |



February 7, 2020

Attn: Malden, MA City Council

To Whom It May Concern:

National Grid, as owner of certain utility poles in public rights-of-way in Malden, MA, is aware and authorizes Verizon Wireless to complete the process of permitting for the installation of necessary telecommunications equipment and corresponding aerial fiber optic cable on National Grid-owned utility poles at the following locations;

| Site Name | Street Address | Pole |
|-------------------|---|---------------|
| BOS_MALDEN_020_MA | 490 Eastern Ave - Pole on Bryant St | Post No. 4842 |
| BOS_MALDEN_040_MA | 1279 Salem St - Pole on Bentwood St | Pole No. 5123 |
| BOS_MALDEN_041_MA | 12 Fairfield Ave - Pole on Salem St | Pole No. 1 |
| BOS_MALDEN_039_MA | 77 Revere St | Pole No. 2138 |
| BOS_MALDEN_094_MA | 135 Main St | Pole No. 4508 |

Accordingly, National Grid hereby submits its authorization for Verizon Wireless to install its antennae and appurtenant equipment and aerial fiber routes to National Grid poles at the above locations. Please be advised that the undersigned has entered into a master lease agreement authorizing Verizon Wireless to install, attach, maintain, repair, upgrade and use wireless communications equipment and appurtenances on certain utility poles. The installations on National Grid utility poles will be subject to the underlying terms and conditions of the aforementioned agreement by and between National Grid and Verizon Wireless, as the same may be in effect from time to time.

Sincerely,

Amy Sullivan
National Grid



12/23/2019

To: City of Malden

Transmitted via email

RE: Verizon Wireless Small Cell Sites

Dear City of Malden,

Verizon is installing additional wireless telecommunications facilities in order to meet the growing demand for Verizon Wireless service by residents, businesses, visitors, and emergency responders.

To ensure general public safety, it is important that you contact Verizon Wireless personnel at least 24 hours in advance should general maintenance need to be performed in areas of potential concern as marked on the next page of this document. This is required to comply with FCC guidelines and ensure the environment is safe for general maintenance workers who may require RF Safety & Awareness training. With notification, Verizon Wireless is able to evaluate appropriate actions needed relating to the antennas and proximity of the work location.

Thank you for your inquiry. Verizon has a process to deactivate power on small cells (regardless of whether the small cell is 4G or 5G) while work is being done on the pole (including joint use poles). The information needed to have a small cell powered down for work to occur on the pole (including contact numbers and pole identifiers) is provided at a safe distance from the small cell on the pole itself. Please contact Verizon Wireless personnel at least 24 hours in advance if you need to perform maintenance at that site. If you have any additional questions, our point of contact in that area is Luis Teves.

You also expressed concerns about the health effects of RF emissions from Verizon's network equipment. The Federal Communications Commission (FCC) has developed safety rules for human exposure to RF emissions in consultation with numerous other federal agencies, including the Environmental Protection Agency, the Food and Drug Administration, and the Occupational Safety and Health Administration. These rules can be found at 47 C.F.R § 1.1310. No matter which generation of technology we use, all Verizon equipment must comply with these safety requirements.

The FCC supported and adopted the standards after examining the RF research that scientists in the US and around the world conducted for decades. The research continues to this day, and agencies continue to monitor it. Based on that research, federal agencies have concluded that equipment that has been deployed in a manner that complies with the safety standards poses no known health risks. You can obtain further information about the safety of RF emissions from cell towers on the FCC's website, which you can access via this link: <http://www.fcc.gov/oet/rfsafety/rf-faqs.html>.

Thank you for reaching out to us regarding your concerns. We appreciate the chance to explain our activities regarding the wireless facility at issue. Questions related to compliance with federal regulations should be directed to VZWRFCCompliance@verizonwireless.com. Please contact your local Verizon Wireless resource below if you have any additional questions.

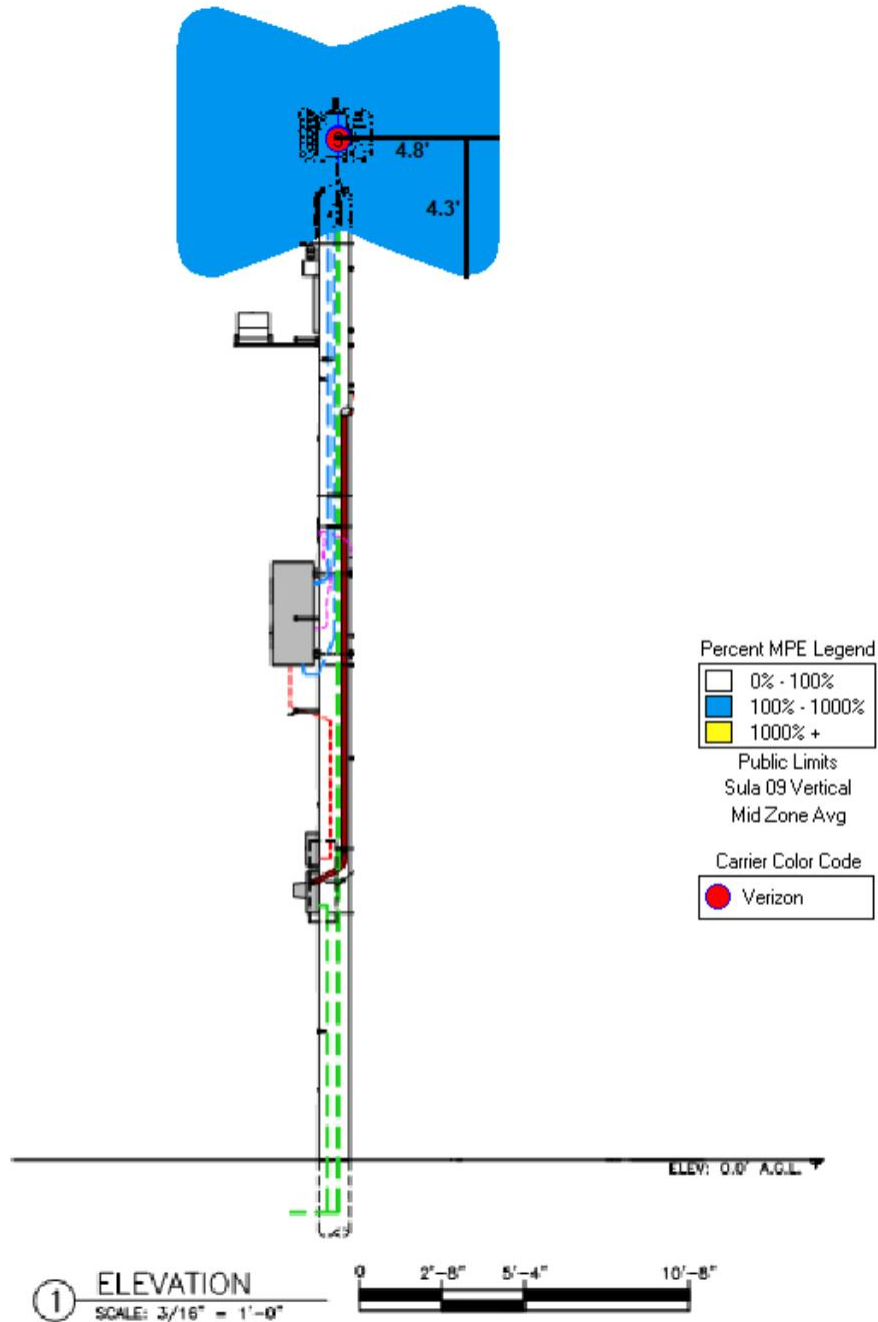
| Contact Name | Contact Email | Contact Phone |
|--------------|--|---------------|
| Luis Teves | Luis.Teves@VerizonWireless.com | 508-479-3197 |

Sincerely,

Michael Creamer
Sr Manager - RF Design
Verizon Wireless

Verizon Wireless (VZW) Radiofrequency (RF) Emissions Map

The following site layout represents a current snapshot in time of the predicted Verizon Wireless RF emissions from transmitting antennas on this facility. Contact Verizon Wireless should maintenance need to be performed in any non-white areas.



| Color | % Public MPE | Instructions |
|-------|---------------------|---|
| | 0 to 100 | Safe In Relation to VZW. Contact Other Carriers Before Entering This Area Contact VZW Before Accessing This Area |
| | 100 to 1000 | |
| | Greater Than 1,000 | |
| | Greater Than 10,000 | |

Property Owner Responsibilities (M.E.N.U)

RF exposure safety and the protection of every licensee's infrastructure are very important. Property owners and licensees have a shared responsibility in maintaining a safe and secure RF environment. Property owners can help in this significant endeavor by:

- ⇒ **Maintaining** all necessary wireless licensee contact information.
- ⇒ **Enforcing** restricted access (help maintain a Controlled Environment). **Ensuring** all building/maintenance personnel are aware that the potential for exposure exists, and follow all appropriate entry and safety procedures.
- ⇒ **Notifying** all licensees when any non-carrier requests access to any area with antennas **at least 24 hours in advance**.
- ⇒ **Understanding** that compliance with the FCC and OSHA can be achieved with RF Exposure levels above the applicable limit if the proper signage, physical/indicative barrier, and access restrictions are implemented. Commitment to compliance and willingness to cooperate are essential.



For General RF Safety & Awareness Questions

Verizon Wireless

E-mail: VZWRFCCompliance@vzw.com

E-mail Subject: "ATTN: RF Compliance"

In The Event That Emergency Maintenance Is Required

24-Hour Network Operations Center:

RF Safety & Awareness Training Contacts

Dtech Communications

(michelle@dtechcom.com.)

EBI Consulting

(spenta@ebiconsulting.com)

SiteSafe

(cbagley@sitesafe.com)

Waterford Consultants

Sbaier-

anderson@waterfordconsultants.com

Radio Frequency (RF) Emissions

S A F E T Y
&
A W A R E N E S S



Federal Compliance Requirements

The Federal Communications Commission (FCC) has established safety guidelines relating to RF exposure from cell sites. The FCC developed those standards, known as Maximum Permissible Exposure (MPE) limits, in consultation with numerous other federal agencies, including the Environmental Protection Agency, the Food and Drug Administration, and the Occupational Safety and Health Administration. The standards were developed by expert scientists and engineers after extensive reviews of the scientific literature related to RF biological effects. The FCC explains that its standards incorporate prudent margins of safety. The following represents an overview of the most applicable information:

Classifications for Exposure Limits

Occupational

Persons are “exposed as a consequence of their employment” and are “fully aware of the potential for exposure and can exercise control over their exposure”.

General Population

Any persons that “may not be made fully aware of the potential for exposure or cannot exercise control over their exposure”.

Those in this category do not have RF Safety & Awareness Training.

Ensuring Compliance With FCC Guidelines

Areas or portions of any transmitter site may be susceptible to high power densities that could cause personnel exposures in excess of the FCC guidelines.

Wireless Licensees are required by law to implement the following:

- **Restrict access** (lock doors/ladders)
- **Post notification signage on every access point** to increase awareness of the potential for exposure BEFORE one enters an area with antennas.
- **Place additional notification signage and visual indicators** in an area with antennas (beyond an access point) where RF exposure levels may start to exceed the FCC’s limits.

Compliance Materials

Notification Signage



(Notice) RF Guidelines - Informs viewer of the basic safety guidelines for working in an RF Environment.



Information– Provides relevant contact information for any questions or requests.



(Blue) Notice - Informs viewer that beyond the sign, RF exposure levels may exceed the General Population MPE limit but will remain below the Occupational MPE limit.



(Yellow) Caution - Informs viewer that beyond the sign, RF exposure levels may exceed the General Population and Occupational MPE limit.



(Red) Warning - Informs viewer that beyond the sign, RF exposure levels may substantially exceed the General Population and Occupational MPE limit.

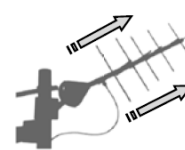
Indicative Barriers

In addition to physical barriers such as locked doors or ladders, wireless licensees may also be required to place indicative barriers as a means of visually demarcating an area where RF levels are expected to exceed the FCC’s limits. **Examples of Indicative Barrier Materials:** plastic chains, buckets, reflective paint or tape, plastic cones, fiber-glass fences, and poles mounted in cinderblocks.



Antenna Safety

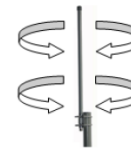
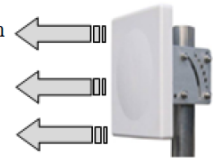
Antenna Types



Yagi - Antenna that radiates energy in one direction. RF energy has a narrow beam. **Walk behind or under this antenna.**

Panel-

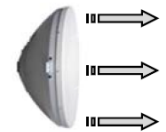
Antenna that radiates energy in one direction. RF energy beam can range from narrow to very wide. **Walk behind this antenna. Stay out of the general direction that the antenna is pointing.**



Whip - Antenna that radiates energy equally in all directions. **Maintain as much distance as possible from this antenna.**

Microwave - An-

tenna that radiates energy in one direction. RF energy has a narrow beam. **Walk under or behind this antenna.**



When In An Environment With Antennas:

- ⇒ Maintain at least a 3-foot clearance from all antennas. A 10-foot separation distance is preferred.
- ⇒ Never touch an antenna. Assume all are active.
- ⇒ Read and obey ALL signs on an access point.
- ⇒ Read and obey ALL signs in the environment with antennas.
- ⇒ Never walk past an indicative barrier without first confirming transmitter inactivity.
- ⇒ Never walk in front of or stand in front of an antenna whenever possible. Keep walking.
- ⇒ Contact all wireless licensees **at least 24 hours in advance** of scheduled maintenance.

ULS License

AWS, 1710-1755/2110-2155 MHz bands License - WQGA900 - Cellco Partnership

| | | | |
|---------------|---|------------------------------|--|
| Call Sign | WQGA900 | Radio Service | AW - AWS, 1710-1755/2110-2155 MHz bands |
| Status | Active | Auth Type | Regular |
| Market | | | |
| Market | BEA003 - Boston-Worcester-Lawrence-Lowell-Brockton, MA-NH-RI-VT | Channel Block | B |
| Submarket | 1 | Associated Frequencies (MHz) | 001720.00000000-001730.00000000 002120.00000000-002130.00000000 |

Dates

| | | | |
|-----------|------------|--------------|------------|
| Grant | 11/29/2006 | Expiration | 11/29/2021 |
| Effective | 09/13/2012 | Cancellation | |

Buildout Deadlines

| | |
|-----|-----|
| 1st | 2nd |
|-----|-----|

Notification Dates

| | |
|-----|-----|
| 1st | 2nd |
|-----|-----|

Licensee

| | | | |
|-----|------------|------|---------------------|
| FRN | 0003290673 | Type | General Partnership |
|-----|------------|------|---------------------|

Licensee

| | |
|---|--|
| Cellco Partnership 1120 Sanctuary Pkwy, Ste 150 GASA5REG Alpharetta, GA 30009 ATTN Licensing Manager | P: (770)797-1070 F: (770)797-1036 E: LicensingCompliance@VerizonWireless.com |
|---|--|

Contact

| | |
|---|--|
| Verizon Wireless 1120 Sanctuary Pkwy, Ste 150 GASA5REG Alpharetta, GA 30009 ATTN Licensing Manager | P: (770)797-1070 F: (770)797-1036 E: LicensingCompliance@VerizonWireless.com |
|---|--|

Ownership and Qualifications

| | | | |
|--------------------|--------------------|----------------|----|
| Radio Service Type | Fixed, Mobile | | |
| Regulatory Status | Non-Common Carrier | Interconnected | No |

Alien Ownership

| | |
|--|----|
| Is the applicant a foreign government or the representative of any foreign government? | No |
| Is the applicant an alien or the representative of an alien? | No |

Is the applicant a corporation organized under the laws of any foreign government? **No**

Is the applicant a corporation of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives or by a foreign government or representative thereof or by any corporation organized under the laws of a foreign country? **No**

Is the applicant directly or indirectly controlled by any other corporation of which more than one-fourth of the capital stock is owned of record or voted by aliens, their representatives, or by a foreign government or representative thereof, or by any corporation organized under the laws of a foreign country? **Yes**

If the answer to the above question is 'Yes', has the applicant received a ruling(s) under Section 310(b)(4) of the Communications Act with respect to the same radio service involved in this application? **Yes**

Basic Qualifications

The Applicant answered "No" to each of the Basic Qualification questions.

Tribal Land Bidding Credits

This license did not have tribal land bidding credits.

Demographics

Race

Ethnicity

Gender

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
1120 SANCTUARY PKWY, #150 GASA5REG
ALPHARETTA, GA 30009-7630

Table with Call Sign (WQGB266), File Number (0006150458), and Radio Service (AW - AWS (1710-1755 MHz and 2110-2155 MHz)).

FCC Registration Number (FRN): 0003290673

Table with columns: Grant Date, Effective Date, Expiration Date, Print Date, Market Number, Channel Block, Sub-Market Designator, Market Name, 1st Build-out Date, 2nd Build-out Date, 3rd Build-out Date, 4th Build-out Date.

Waivers/Conditions:

This authorization is conditioned upon the licensee, prior to initiating operations from any base or fixed station, making reasonable efforts to coordinate frequency usage with known co-channel and adjacent channel incumbent federal users operating in the 1710-1755 MHz band whose facilities could be affected by the proposed operations.

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS).

Licensee Name: CELLCO PARTNERSHIP

Call Sign: WQGB266

File Number: 0006150458

Print Date: 02-14-2014

The license is subject to compliance with the provisions of the January 12, 2001 Agreement between Deutsche Telekom AG, VoiceStream Wireless Corporation, VoiceStream Wireless Holding Corporation and the Department of Justice (DOJ) and the Federal Bureau of Investigation (FBI), which addresses national security, law enforcement, and public safety issues of the FBI and the DOJ regarding the authority granted by this license. Nothing in the Agreement is intended to limit any obligation imposed by Federal law or regulation including, but not limited to, 47 U.S.C. Section 222(a) and (c)(1) and the FCC's implementing regulations. The Agreement is published at VoiceStream-DT Order, IB Docket No. 00-187, FCC 01-142, 16 FCC Rcd 9779, 9853 (2001).

Reference Copy

REFERENCE COPY

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**Federal Communications Commission
Wireless Telecommunications Bureau**

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
1120 SANCTUARY PKWY, #150 GASAS5REG
ALPHARETTA, GA 30009-7630

| | |
|---------------------------------------|----------------------------------|
| Call Sign KNKA201 | File Number 0006356224 |
| Radio Service CL - Cellular | |
| Market Numer CMA006 | Channel Block B |
| Sub-Market Designator 0 | |

FCC Registration Number (FRN): 0003290673

| |
|--|
| Market Name Boston-Lowell-Brockton-Lawrenc |
|--|

| | | | | |
|---------------------------------|-------------------------------------|--------------------------------------|-------------------------------|---------------------------------|
| Grant Date 08-26-2014 | Effective Date 08-26-2014 | Expiration Date 10-01-2024 | Five Yr Build-Out Date | Print Date 08-26-2014 |
|---------------------------------|-------------------------------------|--------------------------------------|-------------------------------|---------------------------------|

Site Information:

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 1 | 42-38-26.3 N | 070-36-25.2 W | 36.3 | 35.7 | |

Address: (Rockport) Thatcher Road

City: Rockport **County:** ESSEX **State:** MA **Construction Deadline:**

| | | | | | | | | |
|---|----------|-----------|-----------|------------|------------|------------|------------|------------|
| Antenna: 5 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 70.400 | 34.100 | 34.100 | 34.100 | 70.400 | 67.800 | 55.200 | 61.300 |
| Transmitting ERP (watts) | 246.920 | 325.500 | 33.310 | 0.940 | 0.820 | 0.820 | 1.210 | 20.070 |
| Antenna: 6 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 70.400 | 34.100 | 34.100 | 34.100 | 70.400 | 67.800 | 55.200 | 61.300 |
| Transmitting ERP (watts) | 0.820 | 3.330 | 54.020 | 373.730 | 191.670 | 10.780 | 0.820 | 0.820 |
| Antenna: 7 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 70.400 | 34.100 | 34.100 | 34.100 | 70.400 | 67.800 | 55.200 | 61.300 |
| Transmitting ERP (watts) | 3.330 | 0.820 | 0.820 | 0.820 | 7.810 | 126.630 | 409.780 | 89.650 |

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKA201

File Number: 0006356224

Print Date: 08-26-2014

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 4 | 42-08-56.4 N | 071-24-55.2 W | 75.6 | 44.2 | |

Address: 113 Main Street

City: Medway County: NORFOLK State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|--------|--------|--------|--------|--------|--------|---------|--------|
| Antenna: 4 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 59.500 | 66.700 | 61.200 | 46.900 | 23.900 | 39.300 | 13.900 | 12.300 |
| Transmitting ERP (watts) | 81.280 | 89.130 | 24.550 | 1.120 | 0.200 | 0.200 | 0.420 | 16.600 |
| Antenna: 5 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 59.500 | 66.700 | 61.200 | 46.900 | 23.900 | 39.300 | 13.900 | 12.300 |
| Transmitting ERP (watts) | 0.200 | 2.000 | 33.800 | 95.500 | 67.610 | 10.700 | 0.200 | 0.200 |
| Antenna: 6 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 59.500 | 66.700 | 61.200 | 46.900 | 23.900 | 39.300 | 13.900 | 12.300 |
| Transmitting ERP (watts) | 3.890 | 0.200 | 0.200 | 0.200 | 6.760 | 57.540 | 100.000 | 44.670 |

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 9 | 42-11-42.4 N | 070-49-10.2 W | 57.9 | 56.1 | |

Address: (Scituate) OFF CLAPP RD

City: SCITUATE County: PLYMOUTH State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|---------|---------|--------|---------|---------|---------|---------|---------|
| Antenna: 7 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 105.300 | 106.100 | 93.800 | 85.900 | 95.600 | 76.500 | 81.800 | 104.300 |
| Transmitting ERP (watts) | 172.400 | 167.230 | 26.990 | 1.190 | 0.960 | 0.960 | 1.720 | 28.870 |
| Antenna: 8 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 105.300 | 106.100 | 93.800 | 85.900 | 95.600 | 76.500 | 81.800 | 104.300 |
| Transmitting ERP (watts) | 0.980 | 3.910 | 54.020 | 409.780 | 200.700 | 15.220 | 0.980 | 0.980 |
| Antenna: 9 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 105.300 | 106.100 | 93.800 | 85.900 | 95.600 | 76.500 | 81.800 | 104.300 |
| Transmitting ERP (watts) | 4.490 | 0.980 | 0.980 | 1.300 | 10.060 | 123.750 | 449.320 | 96.060 |

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKA201

File Number: 0006356224

Print Date: 08-26-2014

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 10 | 42-52-57.3 N | 071-16-28.2 W | 163.0 | 58.2 | |

Address: (Derry) 46 FLOYD ROAD

City: DERRY County: ROCKINGHAM State: NH Construction Deadline:

| | | | | | | | | |
|--------------------------------------|--------|---------|---------|---------|---------|---------|---------|---------|
| Antenna: 4 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 82.200 | 129.400 | 144.500 | 155.100 | 136.800 | 127.900 | 126.200 | 118.100 |
| Transmitting ERP (watts) | 31.810 | 146.820 | 102.310 | 15.410 | 1.000 | 1.000 | 1.000 | 1.130 |
| Antenna: 5 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 82.200 | 129.400 | 144.500 | 155.100 | 136.800 | 127.900 | 126.200 | 118.100 |
| Transmitting ERP (watts) | 1.000 | 1.000 | 4.660 | 82.110 | 250.350 | 80.300 | 3.790 | 1.000 |
| Antenna: 6 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 80.200 | 129.400 | 144.500 | 155.100 | 136.800 | 127.900 | 126.200 | 118.100 |
| Transmitting ERP (watts) | 32.480 | 1.680 | 1.000 | 1.000 | 1.000 | 13.740 | 107.220 | 143.470 |

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 12 | 41-52-08.3 N | 070-52-56.1 W | 29.6 | 58.2 | |

Address: (Middleboro) E. GROVE ST.

City: MIDDLESBORO County: PLYMOUTH State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|---------|---------|--------|---------|---------|--------|---------|--------|
| Antenna: 7 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 57.600 | 32.400 | 40.200 | 47.600 | 44.900 | 41.300 | 50.300 | 52.600 |
| Transmitting ERP (watts) | 277.330 | 364.730 | 40.890 | 2.250 | 0.960 | 0.960 | 2.410 | 20.640 |
| Antenna: 8 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 57.600 | 32.400 | 40.200 | 47.600 | 44.900 | 41.300 | 50.300 | 52.600 |
| Transmitting ERP (watts) | 0.960 | 3.730 | 61.620 | 418.280 | 215.780 | 13.090 | 1.700 | 0.960 |
| Antenna: 9 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 57.600 | 32.400 | 40.200 | 47.600 | 44.900 | 41.300 | 50.300 | 52.600 |
| Transmitting ERP (watts) | 5.070 | 1.130 | 0.610 | 1.600 | 5.050 | 89.040 | 278.490 | 66.210 |

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKA201

File Number: 0006356224

Print Date: 08-26-2014

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 14 | 42-28-06.3 N | 071-27-16.2 W | 102.1 | 54.0 | |

Address: Main Street

City: South Acton County: MIDDLESEX State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|--------|--------|---------|--------|--------|--------|--------|--------|
| Antenna: 4 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 69.000 | 79.000 | 105.500 | 96.200 | 72.600 | 76.300 | 47.400 | 58.700 |
| Transmitting ERP (watts) | 65.200 | 77.960 | 20.970 | 2.400 | 0.200 | 0.200 | 2.000 | 13.720 |
| Antenna: 5 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 69.000 | 79.900 | 105.500 | 96.200 | 72.600 | 76.300 | 47.400 | 58.700 |
| Transmitting ERP (watts) | 0.200 | 3.880 | 23.800 | 59.780 | 43.360 | 10.290 | 0.830 | 0.200 |
| Antenna: 6 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 76.400 | 65.500 | 105.500 | 96.200 | 72.600 | 76.300 | 47.400 | 58.700 |
| Transmitting ERP (watts) | 5.010 | 0.420 | 0.200 | 0.740 | 6.570 | 43.660 | 91.210 | 34.920 |

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 15 | 42-30-08.4 N | 070-55-02.2 W | 39.6 | 46.3 | |

Address: 12 First Street

City: Salem County: ESSEX State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Antenna: 7 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 63.400 | 62.100 | 62.800 | 77.900 | 77.500 | 70.500 | 40.900 | 50.900 |
| Transmitting ERP (watts) | 49.150 | 56.730 | 19.190 | 2.360 | 0.200 | 0.200 | 1.930 | 12.920 |
| Antenna: 8 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 63.400 | 62.100 | 62.800 | 77.900 | 77.500 | 70.500 | 40.900 | 50.900 |
| Transmitting ERP (watts) | 0.100 | 1.550 | 9.520 | 23.920 | 17.350 | 4.120 | 0.330 | 0.100 |
| Antenna: 9 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 63.400 | 62.100 | 62.800 | 77.900 | 77.500 | 70.500 | 40.900 | 50.900 |
| Transmitting ERP (watts) | 5.010 | 0.380 | 0.200 | 0.680 | 6.510 | 35.500 | 64.630 | 29.380 |

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKA201

File Number: 0006356224

Print Date: 08-26-2014

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 16 | 42-16-51.4 N | 071-02-04.2 W | 5.2 | 53.0 | |

Address: 100 HANCOCK STREET

City: QUINCY County: NORFOLK State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|----------|-----------|-----------|------------|------------|------------|------------|------------|
| Antenna: 5 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 43.000 | 44.100 | 42.200 | 29.000 | 8.300 | 14.800 | 12.100 | 31.500 |
| Transmitting ERP (watts) | 7.170 | 6.480 | 6.790 | 0.320 | 0.100 | 0.100 | 0.160 | 5.630 |
| Antenna: 6 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 40.900 | 41.900 | 40.000 | 26.800 | 6.200 | 12.600 | 9.900 | 29.300 |
| Transmitting ERP (watts) | 0.100 | 0.340 | 3.140 | 2.480 | 2.970 | 1.500 | 0.100 | 0.100 |
| Antenna: 7 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 43.000 | 44.100 | 42.200 | 29.000 | 8.300 | 14.800 | 12.100 | 31.500 |
| Transmitting ERP (watts) | 0.100 | 0.100 | 0.100 | 0.120 | 2.640 | 2.770 | 2.720 | 2.360 |

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 21 | 42-30-36.4 N | 070-51-21.2 W | 23.2 | 47.2 | |

Address: Tioga Way

City: Marblehead County: ESSEX State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|----------|-----------|-----------|------------|------------|------------|------------|------------|
| Antenna: 2 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 44.200 | 46.700 | 37.200 | 60.400 | 60.400 | 54.600 | 28.000 | 43.700 |
| Transmitting ERP (watts) | 0.100 | 0.130 | 3.130 | 7.860 | 6.600 | 1.220 | 0.100 | 0.100 |
| Antenna: 3 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 44.200 | 46.700 | 37.200 | 60.400 | 60.400 | 54.600 | 28.000 | 43.700 |
| Transmitting ERP (watts) | 0.410 | 0.100 | 0.100 | 0.100 | 0.530 | 5.070 | 8.210 | 4.870 |
| Antenna: 4 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 44.200 | 46.700 | 37.200 | 60.400 | 60.400 | 54.600 | 28.000 | 43.700 |
| Transmitting ERP (watts) | 6.780 | 7.760 | 2.800 | 0.100 | 0.100 | 0.100 | 0.100 | 1.540 |

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKA201

File Number: 0006356224

Print Date: 08-26-2014

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 22 | 42-51-55.4 N | 070-56-13.2 W | 94.5 | 50.9 | |

Address: (Amesbury) 10 DENNET WAY

City: AMESBURY County: ESSEX State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Antenna: 4 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 117.000 | 123.800 | 125.500 | 137.800 | 126.100 | 109.800 | 94.200 | 100.300 |
| Transmitting ERP (watts) | 178.880 | 225.190 | 34.880 | 0.860 | 0.860 | 0.860 | 0.860 | 10.780 |
| Antenna: 5 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 117.000 | 123.800 | 125.500 | 137.800 | 126.100 | 109.800 | 94.200 | 100.300 |
| Transmitting ERP (watts) | 0.860 | 1.240 | 35.690 | 258.560 | 148.780 | 12.380 | 0.860 | 0.860 |
| Antenna: 6 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 117.000 | 123.800 | 125.500 | 137.800 | 126.100 | 109.800 | 94.200 | 100.300 |
| Transmitting ERP (watts) | 3.110 | 0.830 | 0.860 | 0.860 | 3.110 | 89.650 | 270.740 | 81.760 |

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 24 | 42-03-31.4 N | 071-17-29.2 W | 105.5 | 59.1 | |

Address: (Wrentham) 415 Washington St. - Route 1

City: WRENTHAM County: NORFOLK State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Antenna: 4 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 99.900 | 78.700 | 94.600 | 120.300 | 114.800 | 77.800 | 71.700 | 95.700 |
| Transmitting ERP (watts) | 2.580 | 85.500 | 401.990 | 363.280 | 54.920 | 1.060 | 0.850 | 0.850 |
| Antenna: 5 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 99.900 | 78.700 | 94.600 | 120.300 | 114.800 | 77.800 | 71.700 | 95.700 |
| Transmitting ERP (watts) | 0.850 | 0.850 | 0.850 | 8.930 | 146.240 | 311.250 | 197.740 | 18.980 |
| Antenna: 6 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 99.900 | 78.700 | 94.600 | 120.300 | 114.800 | 77.800 | 71.700 | 95.700 |
| Transmitting ERP (watts) | 352.500 | 136.390 | 5.560 | 0.980 | 0.980 | 0.980 | 39.210 | 263.760 |

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKA201

File Number: 0006356224

Print Date: 08-26-2014

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 25 | 43-10-34.3 N | 071-12-24.2 W | 335.3 | 31.4 | |

Address: (Northwood) SADDLEBACK MOUNTAIN

City: NORTHWOOD County: ROCKINGHAM State: NH Construction Deadline:

| | | | | | | | | |
|--------------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Antenna: 4 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 152.900 | 213.700 | 260.100 | 268.500 | 234.000 | 215.400 | 150.700 | 173.600 |
| Transmitting ERP (watts) | 45.240 | 219.790 | 199.540 | 31.860 | 1.550 | 1.000 | 1.000 | 2.360 |
| Antenna: 5 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 152.900 | 213.700 | 260.100 | 268.500 | 234.000 | 215.400 | 150.700 | 173.600 |
| Transmitting ERP (watts) | 1.000 | 1.000 | 6.160 | 105.350 | 236.610 | 142.220 | 7.190 | 1.780 |
| Antenna: 6 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 152.900 | 213.700 | 260.100 | 268.500 | 234.000 | 215.400 | 150.700 | 173.600 |
| Transmitting ERP (watts) | 55.630 | 1.980 | 1.000 | 1.000 | 2.260 | 8.170 | 110.540 | 141.320 |

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 27 | 41-41-13.4 N | 070-48-25.1 W | 22.9 | 59.4 | |

Address: (Mattapoisett) Industrial Drive

City: Mattapoisett County: PLYMOUTH State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|---------|---------|---------|---------|--------|---------|---------|--------|
| Antenna: 4 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 61.700 | 76.400 | 79.200 | 79.900 | 80.600 | 75.400 | 56.100 | 60.600 |
| Transmitting ERP (watts) | 217.540 | 281.390 | 29.930 | 2.050 | 0.980 | 0.980 | 2.340 | 21.270 |
| Antenna: 5 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 61.700 | 76.400 | 79.300 | 79.900 | 80.600 | 75.400 | 56.100 | 60.600 |
| Transmitting ERP (watts) | 0.980 | 10.610 | 118.800 | 349.190 | 74.510 | 4.550 | 0.980 | 0.980 |
| Antenna: 6 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 61.700 | 76.400 | 79.200 | 79.900 | 80.600 | 75.400 | 56.100 | 60.600 |
| Transmitting ERP (watts) | 2.220 | 0.980 | 0.980 | 2.540 | 27.640 | 252.570 | 253.110 | 22.510 |

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKA201

File Number: 0006356224

Print Date: 08-26-2014

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 29 | 41-55-21.0 N | 070-39-05.0 W | 39.6 | 77.4 | 1021869 |

Address: (Plymouth) CALEB ST

City: Plymouth County: PLYMOUTH State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|---------|---------|--------|---------|---------|---------|---------|--------|
| Antenna: 4 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 94.600 | 84.200 | 79.500 | 67.900 | 61.400 | 63.600 | 52.500 | 63.200 |
| Transmitting ERP (watts) | 252.450 | 246.240 | 37.800 | 1.470 | 0.940 | 0.940 | 2.080 | 39.370 |
| Antenna: 5 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 94.600 | 84.200 | 79.500 | 67.900 | 61.400 | 63.600 | 52.500 | 63.200 |
| Transmitting ERP (watts) | 1.000 | 3.000 | 53.330 | 346.500 | 184.150 | 15.870 | 1.000 | 1.000 |
| Antenna: 6 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 94.600 | 84.200 | 79.500 | 67.900 | 61.400 | 63.600 | 52.500 | 63.200 |
| Transmitting ERP (watts) | 4.660 | 1.000 | 1.000 | 1.000 | 5.610 | 128.480 | 425.450 | 99.740 |

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 31 | 42-14-40.0 N | 071-30-38.0 W | 142.6 | 102.0 | 1009024 |

Address: 1.25 MI NNE

City: HOPKINTON County: MIDDLESEX State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|---------|---------|---------|---------|---------|--------|--------|--------|
| Antenna: 4 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 107.800 | 138.000 | 130.800 | 126.800 | 101.200 | 85.900 | 73.000 | 97.500 |
| Transmitting ERP (watts) | 23.200 | 21.890 | 16.370 | 2.550 | 0.130 | 0.100 | 1.640 | 13.250 |
| Antenna: 5 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 107.800 | 138.000 | 130.800 | 126.800 | 101.200 | 85.900 | 73.000 | 97.500 |
| Transmitting ERP (watts) | 0.940 | 9.100 | 53.990 | 96.320 | 78.580 | 26.320 | 3.730 | 0.460 |
| Antenna: 6 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 107.800 | 138.000 | 130.800 | 126.800 | 101.200 | 85.900 | 73.000 | 97.500 |
| Transmitting ERP (watts) | 13.400 | 1.700 | 0.620 | 2.340 | 18.300 | 72.460 | 95.170 | 63.740 |

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKA201

File Number: 0006356224

Print Date: 08-26-2014

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 34 | 42-23-29.5 N | 071-07-22.9 W | 7.9 | 26.8 | |

Address: 2067 MASSACHUSETTS AVENUE

City: CAMBRIDGE County: SUFFOLK State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|--------|-------|--------|--------|--------|--------|---------|---------|
| Antenna: 4 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | -3.400 | 5.800 | 21.700 | 28.600 | 13.000 | -2.600 | -14.400 | -21.300 |
| Transmitting ERP (watts) | 6.780 | 7.760 | 2.800 | 0.100 | 0.100 | 0.100 | 0.100 | 1.540 |
| Antenna: 5 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | -3.400 | 5.800 | 21.700 | 28.600 | 13.000 | -2.600 | -14.400 | -21.300 |
| Transmitting ERP (watts) | 0.100 | 0.130 | 3.130 | 7.860 | 6.600 | 1.220 | 0.100 | 0.100 |
| Antenna: 6 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | -3.400 | 5.800 | 21.700 | 28.300 | 13.000 | -2.600 | -14.400 | -21.300 |
| Transmitting ERP (watts) | 0.410 | 0.100 | 0.100 | 0.100 | 0.530 | 5.070 | 8.210 | 4.870 |

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 35 | 42-39-16.7 N | 071-44-12.3 W | 192.6 | 51.2 | |

Address: 84 Bayberry Hill Road

City: Townsend County: MIDDLESEX State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|--------|---------|---------|---------|---------|--------|---------|---------|
| Antenna: 2 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 57.900 | 139.500 | 149.200 | 136.100 | 102.200 | 42.700 | -79.000 | -25.700 |
| Transmitting ERP (watts) | 0.580 | 7.080 | 42.660 | 95.500 | 77.620 | 22.390 | 2.820 | 0.460 |
| Antenna: 4 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 51.300 | 146.600 | 148.900 | 136.600 | 101.300 | 25.000 | -79.700 | -22.300 |
| Transmitting ERP (watts) | 35.060 | 35.620 | 17.670 | 2.660 | 0.200 | 0.150 | 1.860 | 13.500 |
| Antenna: 5 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 51.300 | 146.600 | 148.900 | 136.600 | 101.300 | 25.000 | -79.700 | -22.300 |
| Transmitting ERP (watts) | 5.360 | 0.690 | 0.250 | 0.930 | 7.320 | 28.980 | 38.070 | 25.500 |

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKA201

File Number: 0006356224

Print Date: 08-26-2014

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 38 | 42-38-45.8 N | 071-05-37.7 W | 117.3 | 52.4 | |

Address: 5 Boston Hill Road

City: North Andover County: ESSEX State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|--------|--------|---------|---------|---------|---------|---------|---------|
| Antenna: 4 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 96.900 | 98.200 | 110.000 | 111.300 | 110.000 | 101.700 | 90.300 | 106.200 |
| Transmitting ERP (watts) | 83.180 | 87.100 | 23.990 | 2.290 | 0.200 | 0.200 | 1.820 | 20.420 |
| Antenna: 5 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 96.900 | 98.100 | 110.000 | 111.300 | 110.000 | 101.700 | 90.200 | 106.200 |
| Transmitting ERP (watts) | 0.240 | 4.170 | 38.020 | 97.720 | 66.070 | 11.750 | 1.050 | 0.200 |
| Antenna: 6 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 96.900 | 98.200 | 110.000 | 111.300 | 110.000 | 101.700 | 90.200 | 106.200 |
| Transmitting ERP (watts) | 5.250 | 0.340 | 0.200 | 0.830 | 9.770 | 60.262 | 100.000 | 42.660 |

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 39 | 42-18-13.0 N | 071-13-05.0 W | 44.8 | 96.0 | 1018331 |

Address: 140 CABOT ST

City: NEEDHAM County: NORFOLK State: MA Construction Deadline:

| | | | | | | | | |
|--------------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Antenna: 1 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 44.200 | 68.400 | 58.900 | 48.800 | 36.300 | 40.300 | 44.100 | 41.600 |
| Transmitting ERP (watts) | 30.340 | 35.650 | 9.380 | 0.920 | 0.100 | 0.100 | 0.610 | 6.050 |
| Antenna: 2 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 44.200 | 68.400 | 58.900 | 48.800 | 36.300 | 40.300 | 44.100 | 41.600 |
| Transmitting ERP (watts) | 0.100 | 1.230 | 10.440 | 23.990 | 19.000 | 4.420 | 0.370 | 0.100 |
| Antenna: 3 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | 44.200 | 68.400 | 58.900 | 48.800 | 36.300 | 40.300 | 44.100 | 41.600 |
| Transmitting ERP (watts) | 2.200 | 0.190 | 0.100 | 0.300 | 2.700 | 19.270 | 35.660 | 16.260 |

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNKA201

File Number: 0006356224

Print Date: 08-26-2014

| Location | Latitude | Longitude | Ground Elevation (meters) | Structure Hgt to Tip (meters) | Antenna Structure Registration No. |
|----------|--------------|---------------|---------------------------|-------------------------------|------------------------------------|
| 41 | 42-22-16.6 N | 071-05-49.6 W | 6.3 | 18.6 | |

Address: (Cambridge Donnelly Field site) 284 Norfolk Street

City: Cambridge County: MIDDLESEX State: MA Construction Deadline: 07-03-2014

| | | | | | | | | |
|--------------------------------------|---------|---------|--------|---------|--------|---------|---------|---------|
| Antenna: 1 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | -11.600 | 16.500 | 20.700 | 21.000 | 2.200 | -20.400 | 2.300 | -16.900 |
| Transmitting ERP (watts) | 48.150 | 197.980 | 63.920 | 1.080 | 0.680 | 0.680 | 0.680 | 0.850 |
| Antenna: 2 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | -11.600 | 16.500 | 20.700 | 21.000 | 2.200 | -20.400 | 2.300 | -16.900 |
| Transmitting ERP (watts) | 0.670 | 0.670 | 18.990 | 128.120 | 74.750 | 3.300 | 0.670 | 0.670 |
| Antenna: 3 Azimuth (from true north) | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 |
| Antenna Height AAT (meters) | -10.600 | 17.600 | 21.700 | 22.000 | 3.200 | -19.400 | 3.400 | -15.900 |
| Transmitting ERP (watts) | 28.690 | 0.650 | 0.650 | 0.650 | 0.650 | 5.700 | 114.450 | 208.740 |

Control Points:

Control Pt. No. 3

Address: 500 W. Dove Rd.

City: Southlake County: TARRANT State: TX Telephone Number: (800)264-6620

Waivers/Conditions:

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

THE FOLLOWING CELLULAR GEOGRAPHIC SERVICE AREAS HAVE BEEN COMBINED (LISTED BY CALL SIGN, MARKET NUMBER AND BLOCK, AND MARKET NAME): KNKA201 6B BOSTON, MASSACHUSETTS KNKA251 76B

REFERENCE COPY

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: AIRTOUCH CELLULAR

ATTN: REGULATORY
AIRTOUCH CELLULAR
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

Table with Call Sign (KNLF646), File Number, and Radio Service (CW - PCS Broadband).

FCC Registration Number (FRN): 0006146468

Table with columns: Grant Date, Effective Date, Expiration Date, Print Date, Market Number, Channel Block, Sub-Market Designator, Market Name, 1st Build-out Date, 2nd Build-out Date, 3rd Build-out Date, 4th Build-out Date.

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

Grant of the request to update licensee name is conditioned on it not reflecting an assignment or transfer of control (see Rule 1.948); if an assignment or transfer occurred without proper notification or FCC approval, the grant is void and the station is licensed under the prior name.

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS).

Licensee Name: AIRTOUCH CELLULAR

Call Sign: KNLF646

File Number:

Print Date:

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

Reference Copy

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

| | |
|--|----------------------------------|
| Call Sign KNLH242 | File Number 0007716969 |
| Radio Service CW - PCS Broadband | |

FCC Registration Number (FRN): 0003290673

| | | | |
|---|-------------------------------------|--------------------------------------|-----------------------------------|
| Grant Date 06-02-2017 | Effective Date 06-02-2017 | Expiration Date 06-27-2027 | Print Date 06-06-2017 |
| Market Number BTA051 | Channel Block F | | Sub-Market Designator 0 |
| Market Name Boston, MA | | | |
| 1st Build-out Date 06-27-2002 | 2nd Build-out Date | 3rd Build-out Date | 4th Build-out Date |

Waivers/Conditions:

This authorization is subject to the condition that, in the event that systems using the same frequencies as granted herein are authorized in an adjacent foreign territory (Canada/United States), future coordination of any base station transmitters within 72 km (45 miles) of the United States/Canada border shall be required to eliminate any harmful interference to operations in the adjacent foreign territory and to ensure continuance of equal access to the frequencies by both countries.

This authorization is conditioned upon the full and timely payment of all monies due pursuant to Sections 1.2110 and 24.716 of the Commission's Rules and the terms of the Commission's installment plan as set forth in the Note and Security Agreement executed by the licensee. Failure to comply with this condition will result in the automatic cancellation of this authorization.

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at <http://wireless.fcc.gov/uls/index.htm?job=home> and select "License Search". Follow the instructions on how to search for license information.

Licensee Name: CELLCO PARTNERSHIP

Call Sign: KNLH242

File Number: 0007716969

Print Date: 06-06-2017

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: AIRTOUCH CELLULAR

ATTN: REGULATORY
AIRTOUCH CELLULAR
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

| | |
|--|--------------------|
| Call Sign KNLH310 | File Number |
| Radio Service CW - PCS Broadband | |

FCC Registration Number (FRN): 0006146468

| | | | |
|---|-------------------------------------|--------------------------------------|---------------------------|
| Grant Date 06-08-2017 | Effective Date 11-30-2017 | Expiration Date 06-27-2027 | Print Date |
| Market Number BTA051 | Channel Block E | Sub-Market Designator 0 | |
| Market Name Boston, MA | | | |
| 1st Build-out Date 06-27-2002 | 2nd Build-out Date | 3rd Build-out Date | 4th Build-out Date |

Waivers/Conditions:

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

Conditions:

Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein. Neither the license nor the right granted thereunder shall be assigned or otherwise transferred in violation of the Communications Act of 1934, as amended. See 47 U.S.C. § 310(d). This license is subject in terms to the right of use or control conferred by §706 of the Communications Act of 1934, as amended. See 47 U.S.C. §606.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS). To view the license record, go to the ULS homepage at <http://wireless.fcc.gov/uls/index.htm?job=home> and select "License Search". Follow the instructions on how to search for license information.

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Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CELLCO PARTNERSHIP

ATTN: REGULATORY
CELLCO PARTNERSHIP
5055 NORTH POINT PKWY, NP2NE NETWORK ENGINEERING
ALPHARETTA, GA 30022

Table with Call Sign (WQJQ689), File Number (0008587211), and Radio Service (WU - 700 MHz Upper Band (Block C)).

FCC Registration Number (FRN): 0003290673

Table with columns: Grant Date, Effective Date, Expiration Date, Print Date, Market Number, Channel Block, Sub-Market Designator, Market Name, 1st Build-out Date, 2nd Build-out Date, 3rd Build-out Date, 4th Build-out Date.

Waivers/Conditions:

If the facilities authorized herein are used to provide broadcast operations, whether exclusively or in combination with other services, the licensee must seek renewal of the license either within eight years from the commencement of the broadcast service or within the term of the license had the broadcast service not been provided, whichever period is shorter in length. See 47 CFR §27.13(b).

License renewal granted on a conditional basis, subject to the outcome of FCC proceeding WT Docket No. 10-112 (see FCC 10-86, paras. 113 and 126).

This authorization is conditioned upon compliance with section 27.16 of the Commission's rules

Conditions: Pursuant to §309(h) of the Communications Act of 1934, as amended, 47 U.S.C. §309(h), this license is subject to the following conditions: This license shall not vest in the licensee any right to operate the station nor any right in the use of the frequencies designated in the license beyond the term thereof nor in any other manner than authorized herein.

This license may not authorize operation throughout the entire geographic area or spectrum identified on the hardcopy version. To view the specific geographic area and spectrum authorized by this license, refer to the Spectrum and Market Area information under the Market Tab of the license record in the Universal Licensing System (ULS).

Licensee Name: CELLCO PARTNERSHIP

Call Sign: WQJQ689

File Number: 0008587211

Print Date:

700 MHz Relicensed Area Information:

| Market | Market Name | Buildout Deadline | Buildout Notification | Status |
|---------------|--------------------|--------------------------|------------------------------|---------------|
|---------------|--------------------|--------------------------|------------------------------|---------------|

Reference Copy

GENERAL METHOD OF PROCEDURE

JOB DESCRIPTION: POWERING DOWN VZW ANTENNAS ON UTILITY POLES

MOP PREPARED BY: Sean Conway **DATE:** 7/9/2020 (UPDATED)

EMERGENCY TURN-DOWNS

- 1. TURN OFF POWER AT DISCONNECT**
- 2. VERIFY POWER IS OFF BY NOTING GREEN LIGHT ON BOTTOM OF RADIO IS OFF (SEE FIGURE 2)**
- 3. IF POSSIBLE, AFTER EMERGENCY HAS ENDED---CONTACT VZW NOC at 800-264-6620**
- 4. IF POSSIBLE (SAFETY ALLOWS), TURN POWER BACK ON AT DISCONNECT**
- 5. VERIFY GREEN LIGHT ON BOTTOM OF RADIO IS ON**

NON-EMERGENCY TURN-DOWN

1. WHEN YOU ARRIVE ON SITE TO PERFORM SCHEDULED MAINTENANCE WORK CONTACT VZW NOC (EAST) at **800-264-6620**
 - a. CHOOSE OPTION 1 (TECH MONITORING YOUR AREA)
 - b. NEXT CHOOSE OPTION 2 (TECH MONITORING CELL SITES)
 - i. TELL THEM THAT YOU NEED TO PERFORM MAINTENANCE WORK ON A TELEPHONE POLE THAT HAS A VZW SMALL CELL ON IT AND YOU ARE GOING TO SHUT OFF THE POWER AT THAT NODE
 - ii. GIVE THEM INFORMATION FROM GREEN INFORMATION TAG (FIGURE 1) AT LOCATION--STATE, SWITCH, SITE ID, SECTOR/NODE
2. VZW NOC WILL SEND NOTIFICATION TO LOCAL CELL TECH SO THAT THEY KNOW TO EXPECT THE NODE TO GO OUT OF SERVICE
3. **CELL TECH / NOC WILL VERIFY THERE ARE NO USERS ON THAT RADIO AND WILL LOCK IT OUT PRIOR TO POWER SHUT-OFF**

4. TURN OFF POWER IN FIELD
5. **VERIFY RADIO IS OFF BY NOTING GREEN LIGHT ON BOTTOM OF RADIO IS OFF**
(SEE FIGURE 2 FOR LOCATION OF LIGHT)
6. PERFORM REQUIRED WORK
7. CONTACT VZW NOC at **800-264-6620** WHEN WORK IS COMPLETE
 - a. NOC MAY HAVE YOU CONTACT LOCAL CELL TECH DIRECTLY INSTEAD
8. TURN POWER BACK ON--GREEN LIGHT ON BOTTOM OF RADIO WILL START BLINKING AND THEN HOPEFULLY GO SOLID GREEN

NOTE---EVERY LOCATION HAS AN INFORMATIONAL STICKER WITH CONTACT AND LOCATION INFORMATION ON IT (SEE FIGURE 1)

FIGURE 1



FIGURE 2



VOID TO LIGHT TO VIEW TRUE WATERMARK IN PAPER HEAT SENSITIVE RED LOCK DISAPPEARS WHEN HEATED

2667

NEXIUS SOLUTIONS, INC.
NEW ENGLAND MARKET ACCOUNT
2595 DALLAS PARKWAY, SUITE 300
FRISCO, TEXAS 75034
(972) 581-9888

11-24/1210

DATE 2/7/20

PAY
TO THE
ORDER OF

CITY OF MALDEN

\$ 500

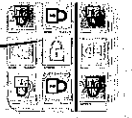
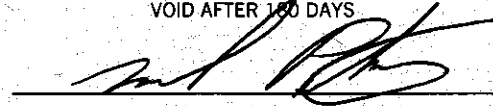
FIVE HUNDRED AND ~~00~~/~~100~~

DOLLARS

WELLS FARGO BANK N.A.

VOID AFTER 180 DAYS

FOR ZONING APP FEE / UZ11162
BATCH # 2



⑈002667⑈ ⑆121000248⑆ 4519027882⑈

Details on back
Security Features