CITY OF SOMERVILLE
Commonwealth of Massachusetts
93 Highland Avenue
Somerville, MA 02143
(617) 625-6600

BUSINESS LICENSE APPLICATION - Small Wireless Facility

File #: 22-005568

License #: BL22-000041

Address: 75 MYSTIC AVE

Licensee: Eric Campbell SAI Communications LLC

DBA Name: Verizon Wireless

Business Ownership Type: Partnership / LLP

Legal Name of Entity: Cellco Partnership d/b/a Verizon Wireless

Owners/Officers: , , ,

License Information:
Do you believe this to be a 6409(a) application?: No
Describe the reason for the work, and the intended beneficiaries: installation of a small wireless facility on an existing utility pole in the PROW. The facility will improve wireless communication services for residents, business and visitors in the vicinity.
Provide the detailed description of the work that should appear on the License: installation of a small wireless facility on an existing utility pole located adjacent to a Home Depot parking area near 75 Mystic Avenue. The principal elements of this facility are one 34.5" X 14" top mount antenna including an additional 30" of pole mounted equipment as depicted in the drawings
# of installations on existing poles: 1
# of installations on new poles: 0
Provide the legal name of the entity that will own the License: Cellco Partnership d/b/a Verizon Wireless

Approval Conditions:
Approved By:
John Power, Approved with Conditions
Electrical Review approved, conditional upon electrical permit application/approval for scope of work.
Isabela Maia, Approved with Conditions
APPROVAL CONDITION IMM 2022-03-29: The equipment that is between 8' and 12' cannot extend more than 6 inches beyond the pole.
APPROVAL CONDITION IMM 2022-03-29: The equipment that is between 12' and 15' cannot extend more than 15' inches beyond the pole.

APPROVAL CONDITION IMM 2022-03-29: The side-mounted antenna cannot extend more than 40 inches from the pole to the outside of the antenna, and may not be more than 15" in diameter.

Hans Jensen, Approved

Malik Drayton, Approved with Conditions

APPROVAL CONDITION: MD20220324: Contractor shall take all necessary precautions to avoid damaging any tree or tree part with equipment. APPROVAL CONDITION: MD20220324: All nearby street tree(s) shall be protected prior to and during all construction activities using TREE BOX or TREE WRAPS. . TREE BOX shall be constructed from 2 in. x 4 in. lumber creating a box around the border of the tree pit with 2 in. x 4 in. lumber standing straight up at the corners and wrapped with orange snow fence. Detail attached. . TREE WRAPS (TREE TRUNK WRAPPING PROTECTION LUMBER) shall consist of 2 in. x 4 in. and 8 ft. height lumber wired together in close spacing with zip ties or 16 gauge galvanized steel wire to form a protective enclosure around tree trunks. Use burlap to separate the wood from the bark if necessary to prevent wood from scraping or bruising bark. Do not use staples or puncture the trunk in any way. APPROVAL CONDITION: MD20220324: Any tree roots less than two (2) inches in diameter that cannot be avoided during construction shall be carefully and cleanly cut with a clean pair of pruning shears or loppers. Roots are to be cut back flush with the edge of the trench. If any tree roots greater than two (2) inches in diameter are encountered, stop work immediately and contact the City Urban Forester. Any and all pruning of roots greater than 2 inches in diameter must be completed under the supervision of the City Urban Forester.

Eric Weisman, Approved

Kimberly M. Wells, Approved

15 Chestnut Street
4th Floor
Worcester, MA 06069

Paula Foley
Network Real Estate / Regulatory

March 23, 2022

City of Somerville City Council
c/o City Clerk's Office
93 Highland Avenue
Somerville, MA 02143

Re: Verizon Application for Small Wireless Facilities ("SWF")

Dear City Clerk and City Council Members:

Enclosed please find the application of Cellco Partnership d/b/a Verizon Wireless ("Verizon") for approval to install SWF on an existing wooden utility pole within Somerville's public right of way at the following location:

Site Name	Address	Pole #
ASSEMBLY_SQ_SC01_MA	75 Mystic Avenue	249 / 16

Consistent with the City Clerk's proposed fees for a SWF license approved by the City Council on July 11, 2019, Verizon shall submit a New License Fee of $100.00 for this installation upon approval. Under the City's Ordinance Relative to Small Wireless Facilities in the Public Rights-of-Way ("Ordinance"), Section 12-144(a), no public hearing is required.

Included within the application are a set of plans for the proposed location along with a structural analysis of the existing utility pole as well as a license granted from the pole owner (Eversource) to Verizon to install the SWF at the proposed location. Per the City's Design Standards for Small Wireless Facilities Placement in the Public Right-of-Way ("Design Standards") and as shown on the attached plans, the proposed antenna location is more than the required fifteen (15) feet from a residential window, door opening, porch or balcony. Further, as described in detail below, Verizon respectfully requests a waiver of the requirement in Section 12-148(d) of the Ordinance that requires that "[p]ole-mounted equipment minimum heights to the bottom of the equipment shall be 15 feet above sidewalk elevation."

Request For Waiver

Under the City's Design Standards, an applicant may request a waiver of any of the requirements in the Ordinance or Design Standards as long as the applicant "specif[ies] those provisions for which it seeks a waiver, and . . . include[s] specific explanations as to the need for waiver of each, including an explanation of why compliance with the requirement(s) would prohibit or effectively prohibit the

provision of services as protected by applicable law." This provision acts as a "safety valve" that recognizes that advanced network equipment is evolving and subject to changes over time. Without this safety valve, restrictive dimensional requirements would act as an effective prohibition of wireless services in violation of Federal Communications Commission requirements.

As shown in the detailed plans included with this application, the lowest piece of equipment associated with the SWF facility (i.e., the "load center") is located at a height of 8 feet above sidewalk elevation. It is not technically feasible to locate the load center at 15 feet height or higher because it is the utility pole owner (in this case, Eversource), that establishes SWF equipment height based on the electrical equipment and other attachers already on the pole. Moreover, the load center (also known as a "disconnect box") contains the switch that can be accessed by emergency personnel to shut off power to the antenna in an emergency and must be able to be accessed by emergency personnel. In discussions with City personnel on September 22, 2020 and October 6, 2020, it is Verizon's understanding that the City does not object in principle to this type of waiver request. The City has granted similar waiver requests for six (6) other Verizon small wireless facility applications.

Verizon's waiver request allows for the use of the existing utility pole for the placement of small wireless equipment. This benefit is part of the language and intent of the Ordinance and Design Standards. Without granting this waiver request, Verizon's ability to provide service in Somerville would be materially inhibited and would constitute an effective prohibition. For all these reasons, Verizon respectfully requests that the City grant its waiver request and approve the SWF application contained herein.

Respectfully Submitted,

Paula Foley

Paula Foley
Network Real Estate / Regulatory
M. 508.269.0172
Paula.foley@verizonwireless.com

Attachments

SITE NAME:

ASSEMBLY_SQ_SC01_MA

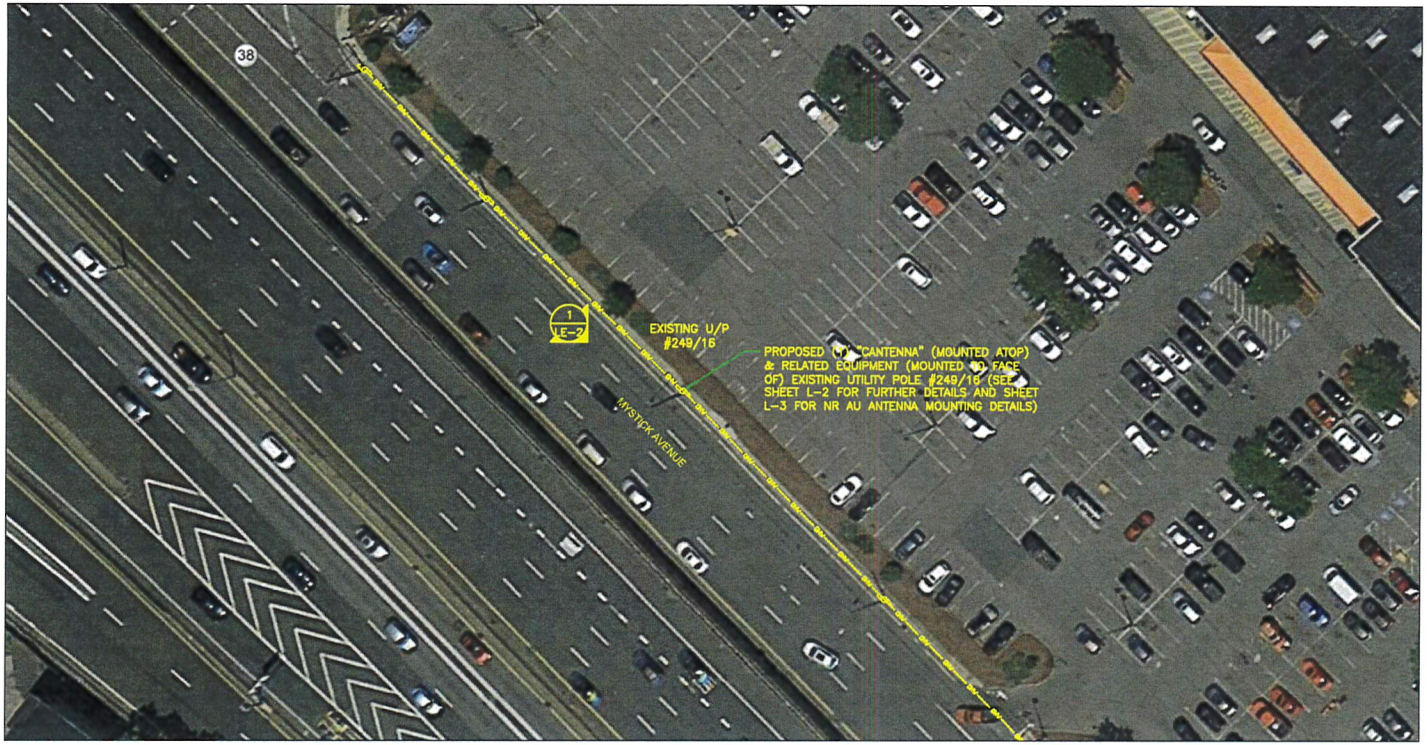
LOCATION CODE:

412227

SITE ADDRESS:

UTILITY POLE NO.: 249/16
75 MYSTIC AVENUE
SOMERVILLE, MA 02145

LEASE EXHIBIT
(NOT FOR CONSTRUCTION)



APPROX. NORTH

1 KEY PLAN
SCALE: 1" = 50'

50 0 50 100 200

GRAPHIC SCALE: 1:50 (IN FEET)

	LATITUDE (NAD83)	LONGITUDE (NAD83)
POLE COORDINATES	N 42.389566° ±	W 71.080850° ±
	N 42° 23' 22.44"	W 71° 04' 51.06"
GROUND ELEVATION	12'± A.M.S.L. (NAVD88)	

SHEET INDEX	
SHEET NO.	SHEET DESCRIPRION
LE-1	KEY PLAN
LE-2	PHOTO DETAIL & ELEVATION
LE-3	EQUIPMENT PLAN, ANTENNA PLAN, DETAILS AND WIRING DIAGRAM

PREPARED BY:

nexius
TRANFORM YOUR BUSINESS...THROUGH WIRELESS

A&E OFFICE:
300 APOLLO DRIVE, SUITE 7
CHELMSFORD, MA 01824
1 (978) 923-7965

PRESIDING POWER COMPANY:

EVERSOURCE

PROFESSIONAL STAMP:

SUBMITTALS

REV	DATE	DESCRIPTION	BY
0	07/17/20	FOR REVIEW	AA
1	09/10/20	REVISED PER COMMENTS	AA

SITE INFO:

SITE NAME:
ASSEMBLY_SQ_SC01_MA

SITE ADDRESS:

U/P NO.: 249/16
75 MYSTIC AVENUE
SOMERVILLE, MA 02145

CHECKED BY:	DATE:
KB	09/10/20

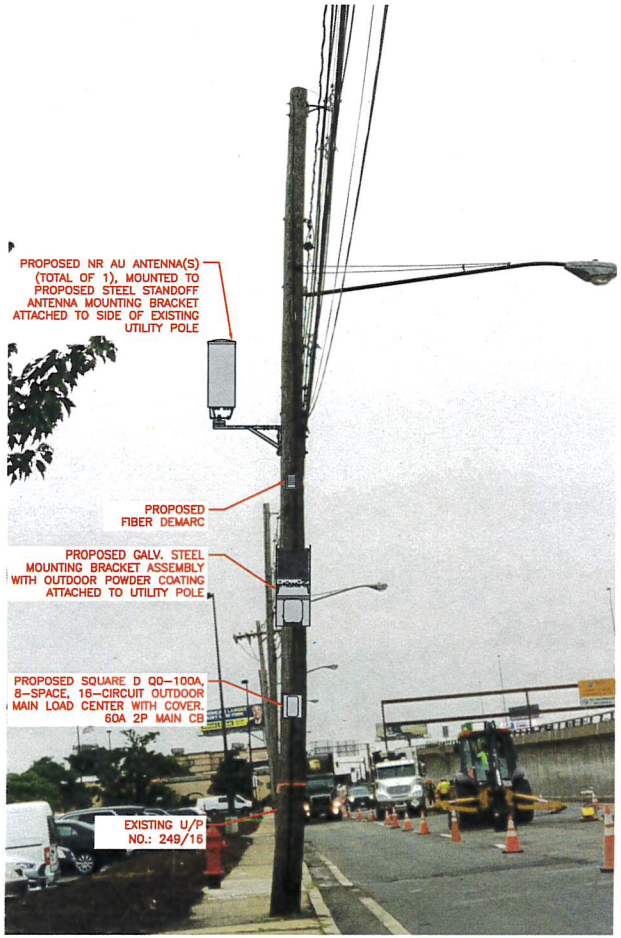
PROJECT NUMBER:
20161364621

SHEET NUMBER:

LE-1

GENERAL NOTES:

1. THIS 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 OF THE UTILITY POLE AND ARE NOT SPECIFICALLY INTENDED FOR CONSTRUCTION.
2. VERIZON WIRELESS SHALL PLACE WEATHER RESISTANT PHENOLIC ON UTILITY POLE AND ANCILLARY EQUIPMENT TO IDENTIFY EQUIPMENT OWNERSHIP AND CONTACT INFORMATION TO UTILIZED IN CASE OF EMERGENCY.
3. AN ANALYSIS OF THE CAPACITY OF THE EXISTING STRUCTURE TO SUPPORT THE PROPOSED LOADING HAS NOT BEEN COMPLETED BY NEXIUS. DRAWINGS ARE SUBJECT TO CHANGE PENDING OUTCOME OF A STRUCTURAL ANALYSIS.
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.



1 PHOTO DETAIL
N.T.S.

ANTENNA AND MOUNT NOTE:

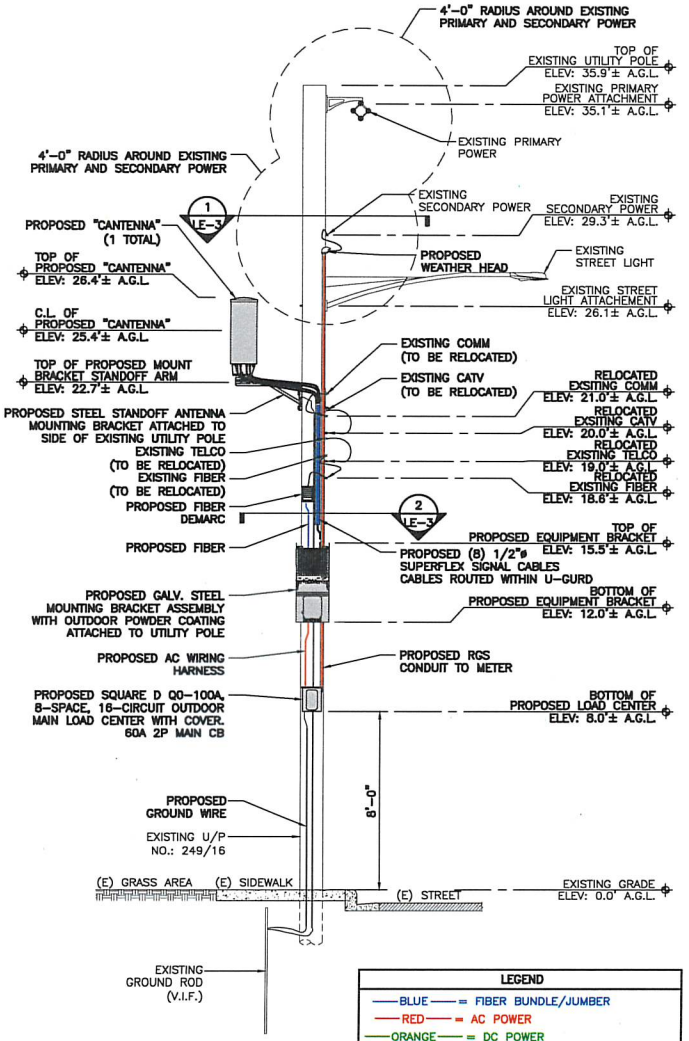
CONTRACTOR SHALL POSITION/ROTATE PROPOSED ANTENNA MOUNT/BRACKET IN SUCH A WAY SO AS TO NOT INTERFERE WITH EXISTING STREET LIGHT, PRIMARY POWER CROSSARM(S) (IF PRESENT), BRACKET, BRACES, SECONDARY POWER SUPPORTS OR ANY OTHER MISCELLANEOUS APPURTENANCES AND RELATED SUPPORT BRACKET ENCOUNTER LOCATED ON THE EXISTING UTILITY POLE.

EQUIPMENT AND MOUNT NOTE:

CONTRACTOR SHALL POSITION/ROTATE PROPOSED EQUIPMENT AND ASSOCIATED MOUNT/BRACKET IN SUCH A WAY SO AS TO NOT INTERFERE WITH EXISTING WIRES/PANEL ETC. OR ANY OTHER MISCELLANEOUS APPURTENANCES AND RELATED SUPPORT BRACKET ENCOUNTER LOCATED ON THE EXISTING UTILITY POLE.

NOTE:

UTILITY POLE, EXISTING APPURTENANCES AND DETAILS OF PROPOSED INSTALLATION SHOWN SCHEMATICALLY.



2 ELEVATION
SCALE: 3/16" = 1'-0"

LEASE EXHIBIT
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PREPARED BY:

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A&E OFFICE:
300 APOLLO DRIVE, SUITE 7
CHELMSFORD, MA 01824
1 (978) 923-7965

PRESIDING POWER COMPANY:

EVERSOURCE

PROFESSIONAL STAMP:

DRAWING SCALES ARE INTENDED FOR 11"x17" SIZE PRINTED MEDIA ONLY. ALL OTHER PRINTED SIZES ARE DEEMED "NOT TO SCALE".

SUBMITTALS

REV	DATE	DESCRIPTION	BY
0	07/17/20	FOR REVIEW	AA
1	09/10/20	REVISED PER COMMENTS	AA

SITE INFO:

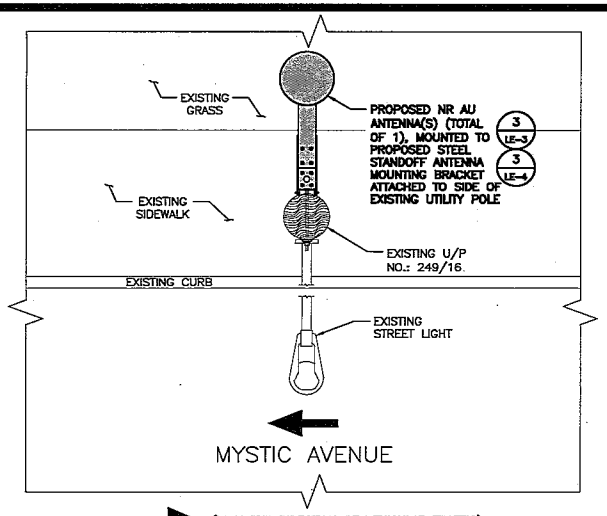
SITE NAME:
ASSEMBLY_SQ_SC01_MA

SITE ADDRESS:
U/P NO.: 249/16
75 MYSTIC AVENUE
SOMERVILLE, MA 02145

CHECKED BY:	DATE:
KB	09/10/20

PROJECT NUMBER:
20161364621

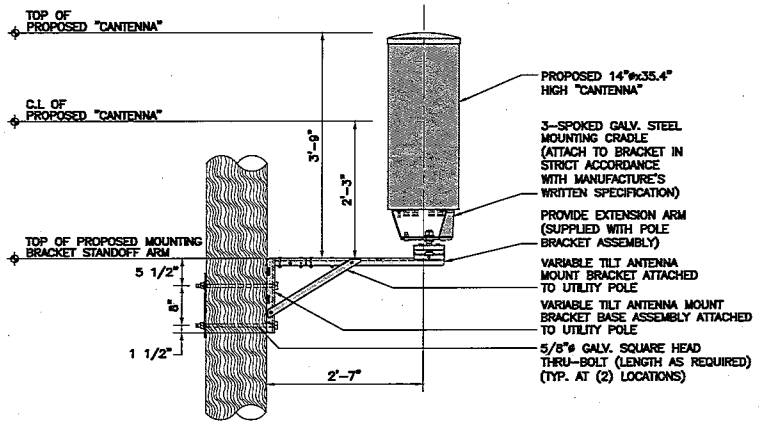
SHEET NUMBER:
LE-2



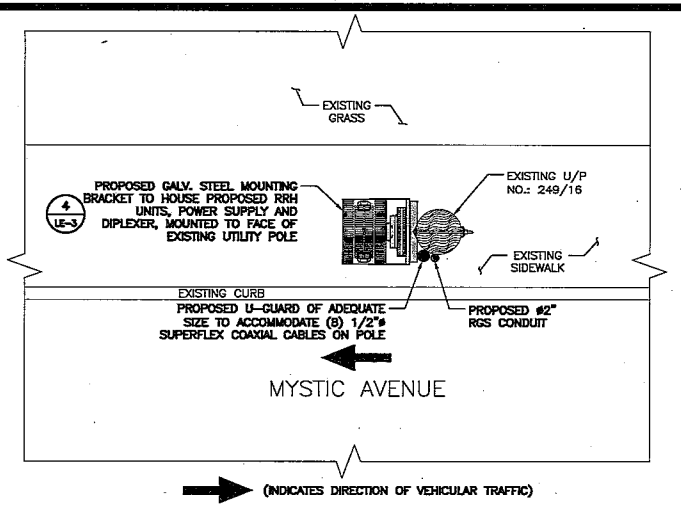
1 ANTENNA PLAN
SCALE: N.T.S.

APPROX. NORTH

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



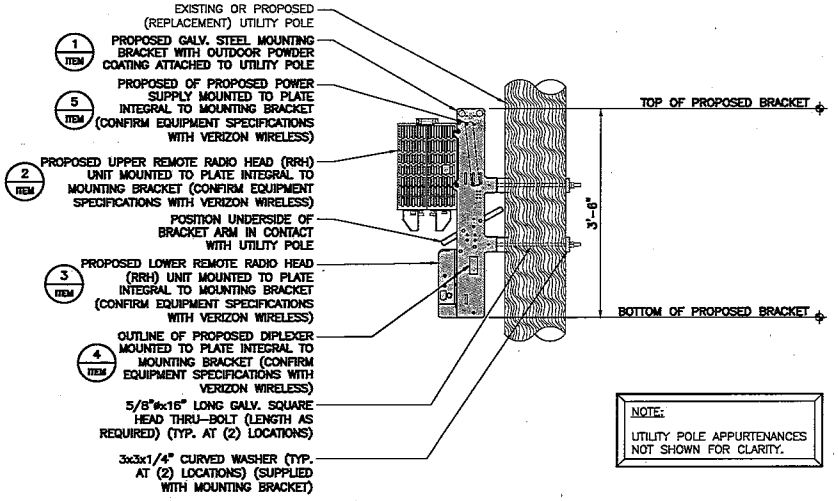
3 ANTENNA MOUNTING DETAIL
N.T.S.



2 EQUIPMENT PLAN
SCALE: N.T.S.

APPROX. NORTH

ITEM ID (SEE DETAIL)	DESCRIPTION	WEIGHT (lbs)
1	MOUNTING BRACKET	32.2±
2	UPPER RRH UNIT	102.5±
3	LOWER RRH UNIT	21.4±
4	DIPLEXER	7.6±
5	POWER SUPPLY	25.6±
		TOTAL-189.3± (lbs) (SAY 190 lbs)



NOTE:
UTILITY POLE APPURTENANCES NOT SHOWN FOR CLARITY.

4 EQUIPMENT MOUNTING DETAIL
N.T.S.

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PRESIDING POWER COMPANY:
EVERSOURCE

PROFESSIONAL STAMP:

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SUBMITTALS

REV	DATE	DESCRIPTION	BY
0	07/17/20	FOR REVIEW	AA
1	09/10/20	REVISED PER COMMENTS	AA

SITE INFO:

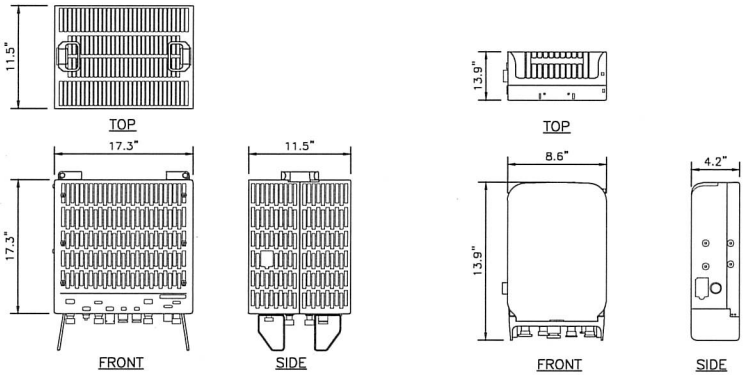
SITE NAME:
ASSEMBLY_SQ_SC01_MA

SITE ADDRESS:
U/P NO.: 249/16
75 MYSTIC AVENUE
SOMERVILLE, MA 02145

CHECKED BY:	DATE:
KB	09/10/20

PROJECT NUMBER:
20161364621

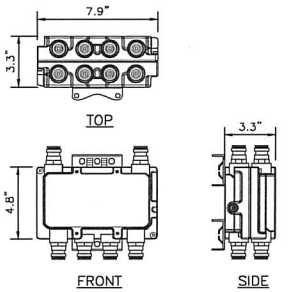
SHEET NUMBER:
LE-3



RRH SPECIFICATIONS	
DIMENSIONS	17.3"H x 17.3"W X 11.5"D
WEIGHT	102.5 LBS

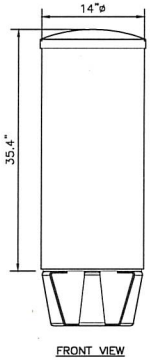
RRH SPECIFICATIONS	
DIMENSIONS	13.9"H x 9.8"W X 4.8"D
WEIGHT	102.5 LBS

1 RRH DETAILS
N.T.S.



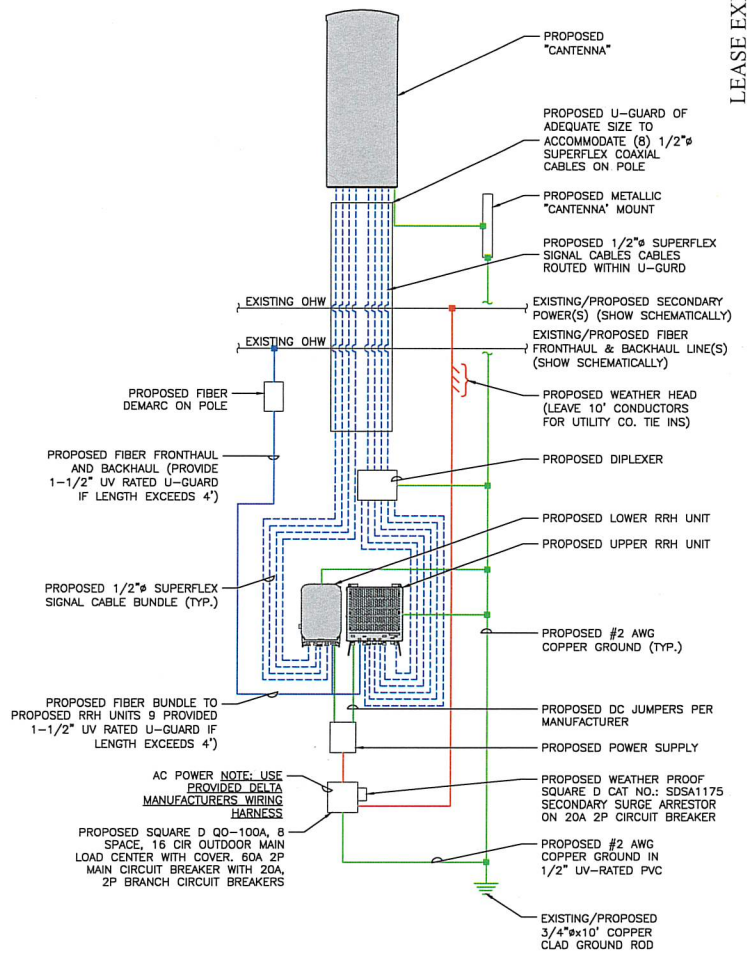
DIPLEXER SPECIFICATIONS	
DIMENSIONS	35.4"H x 7.9"W X 3.3"D
WEIGHT	7.6 LBS

2 DIPLEXER DETAIL
N.T.S.



ANTENNA SPECIFICATIONS	
DIMENSIONS	35.4"H x 14"ø
WEIGHT	35 LBS

3 ANTENNA DETAIL
N.T.S.



WIRING DIAGRAM NOTES:

1. PROVIDE WEATHER TIGHT SEAL CONNECTOR ON ALL CONNECTIONS EACH SIDE OF ENCLOSURE HOUSING.
2. COORDINATE ANY FURTHER MISCELLANEOUS WIRING AND CONDUIT REQUIREMENTS WITH VERIZON WIRELESS AND ELECTRIC.

LEGEND
BLUE = FIBER BUNDLE/JUMBER
RED = AC POWER
ORANGE = DC POWER
GREEN = GROUND
BLUE = 1/2"ø SUPERFLEX SIGNAL CABLE

4 GENERAL WIRING DIAGRAM
N.T.S.

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CHELMSFORD, MA 01824
1 (978) 923-7965

PRESIDING POWER COMPANY:
EVERSOURCE

PROFESSIONAL STAMP:

SUBMITTALS

REV	DATE	DESCRIPTION	BY
0	07/17/20	FOR REVIEW	AA
1	09/10/20	REVISED PER COMMENTS	AA

SITE INFO:

SITE NAME:
ASSEMBLY_SQ_SC01_MA

SITE ADDRESS:
U/P NO.: 249/16
75 MYSTIC AVENUE
SOMERVILLE, MA 02145

CHECKED BY:	DATE:
KB	09/10/20

PROJECT NUMBER:
20161364621

SHEET NUMBER:
LE-4

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Engineering Structural Analysis Report

ASSEMBLY_SQ_SC01_MA

Existing

412227

3/15/2022

ADEQUATE

nexius

Engineering Structural Analysis Report

Reference: Assessment of the existing 40-ft Wooden Pole.
Site Name: ASSEMBLY_SQ_SC01_MA
FUZE ID #: 412227
Site Address: 75 MYSTIC AVENUE, SOMERVILLE, MA 02145

We are pleased to provide you with our engineering assessment of the 40-ft Wooden Pole located at 75 MYSTIC AVENUE, SOMERVILLE, MA 02145.

The pole analyzed for this project is a 40-ft tall, Class H1 pole. The program calculates an applied wind load on the surface area of the attachments and multiplies that by the height of the attachment to determine a bending moment in the pole (WL load and BM). It also calculates the vertical loads applied and adds the moment due to the applied gravity loads. The calculated moment is compared to the pole capacity and capacity utilization is calculated. The final calculations for this pole indicate a capacity utilization is 64.8%. This is below the maximum allowable capacity utilization, 100%, so it is determined that the applied loads and configuration is acceptable for this pole.

Existing information such as pole height, line types, line heights and depth of set are based on site photographs gathered by Nexius staff. Line and equipment heights are determined based on standard spacing requirements set forth by the pole owner and standard industry practices. If any of these assumptions are not valid or made in error, the conclusion of this assessment may be affected and NEXIUS should review the effect on the structural integrity of the pole.

To the best of our knowledge and based on the result of this pole loading calculation, the additional loadings to the existing pole will not compromise the structural integrity of this utility/streetlight pole. This pole loading calculation satisfies the minimum requirements set forth by the National Electric Code, National Electric Safety Code, ANSI O5 utility pole standards, and the pole owner's attachment standards. If any of these assumptions are not valid or made in error, the conclusion of this assessment may be affected and NEXIUS should review the effect on the structural integrity of the pole.

Please contact us if you have any questions.

ASSUMPTIONS AND LIMITATIONS OF ANALYSIS

Please note the following assumptions and limitations inherent in this analysis and report:

A) The equipment configuration is as per
"4G LE-Assembly_SQ_SC01_MA_412227_Rev2_03142022" Drawings by NEXIUS.

If any of these assumptions are not valid or made in error, the conclusion of this assessment may be affected and NEXIUS should review the effect on the structural integrity of the pole.

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CONCLUSIONS & RECOMMENDATIONS:

The existing 40-ft wooden pole has been found **ADEQUATE** to support its overall and total load subject to the attached Standard Conditions on **page 4** and the above-mentioned assumptions and limitations.

Please note that the soils report for the foundation were not available to us at the time of this analysis, therefore, the soil conditions have been assumed.

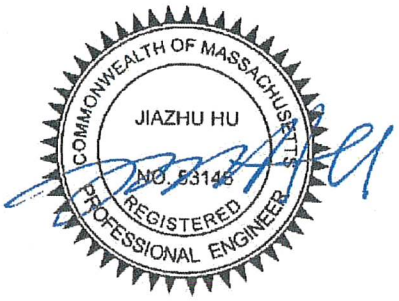
Should you have any questions, comments or require additional information, please do not hesitate to call.

Sincerely,

Analysis by: Binod Paudel

Reviewed by: Jiazhu Hu, P.E.

Digitally signed by Jiazhu Hu, Ph.D., P.E.
DN: cn=Jiazhu Hu, Ph.D., P.E., o=Nexius, ou=Engineering, email=Jiazhu.Hu@Nexius.com, c=US
Date: 2022.03.15 11:55:22 -04'00'



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Standard Conditions for Providing Structural Consulting Services on Existing Structures

1. If the existing conditions are not as represented in this structural report or attached sketches, we should be contacted to evaluate the significance of the deviation and revise the structural assessment accordingly.

2. The structural analysis has been performed assuming that the structure is in "like new" condition. No allowance was made for excessive corrosion, damaged or missing structural members, loose bolts, etc. If there are any known deficiencies in the structure that potentially compromise structural integrity, we should be made aware of the deficiencies. If we are aware of a deficiency that exists in a structure at the time of our analysis, a general explanation of the structural concern due to the deficiency will be included in the structural report, but the deficiency will not be reflected in capacity calculations.

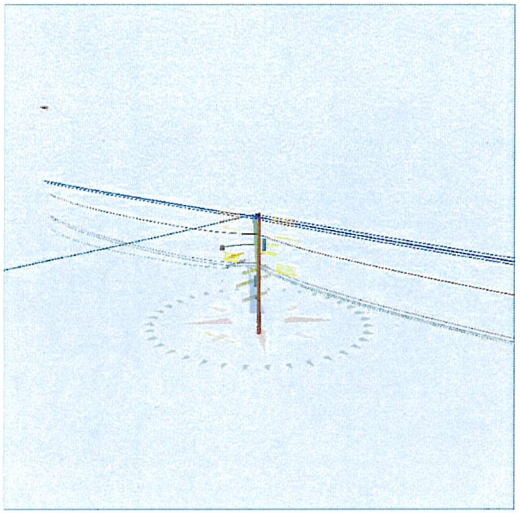
3. The structural analysis provided is an assessment of the primary load carrying capacity of the structure. We provide a limited scope of service, in that we have not verified the capacity of every weld, plate, connection detail, etc. In most cases, structural fabrication details are unknown at the time of our analysis, and the detailed field measurement of this information is beyond the scope of our services. In instances where we have not performed connection/component capacity calculations, it is assumed that existing manufactured connection/component develop the full capacity of the primary members being calculated.

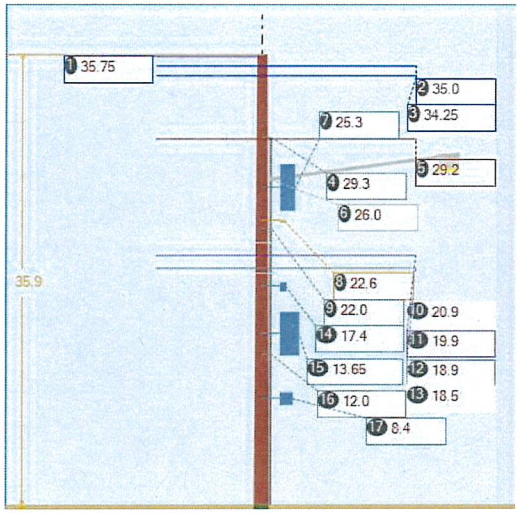
4. We will not accept any liability for the adequacy of the existing foundation system unless accurate structural foundation drawings are provided with a site-specific geotechnical report. Foundations will be assumed installed per the drawings with no construction deficiency due to initial installation or age.

5. Miscellaneous items such as antenna mounts, coax supports, etc. have not been designed, detailed, or specified as part of our work. It is assumed that material of adequate size and strength will be purchased from a reputable component manufacturer. The attached report and sketches are schematic in nature and should not be used to fabricate or purchase hardware and accessories to be attached to the structure. We recommend field measurement of the structure before fabricating or purchasing new hardware and accessories. We are not responsible for proper fit and clearance of hardware and accessory items in the field.

6. The structural analysis has been performed considering minimum code requirements or recommendations. If alternate wind, ice, or deflection criteria are to be considered, then we shall be made aware of the alternate criteria.

Pole Num:	**249/16**	Pole Length / Class:	**40 / H1**	Code:	**NESC**	Structure Type:	**Unguyed Tangent**
Customer:	**Unset**	Species:	**SOUTHERN PINE**	NESC Rule:	**Rule 250B**	Status	**Unguyed**
USID:	**Unset**	Setting Depth (ft):	**4.1**	Construction Grade:	**B**	Pole Strength Factor:	**0.65**
PACE #:	**Unset**	G/L Circumference (in):	**44.31**	Loading District:	**Heavy**	Transverse Wind LF:	**2.50**
FA #:	**Unset**	G/L Fiber Stress (psi):	**8,000**	Ice Thickness (in):	**0.50**	Wire Tension LF:	**1.10**
Pole Owner:	**Unset**	Allowable Stress (psi):	**5,200**	Wind Speed (mph):	**39.53**	Vertical LF:	**1.50**
Proposed RAD Center (AGL):	**Unset**	Fiber Stress Ht. Reduc:	**No**	Wind Pressure (psf):	**4.00**		
Latitude:		**42.389566**	Longitude:		**-71.08085**	Elevation:	**12' 0"**





Pole Capacity Utilization (%)		Height (ft)	Wind Angle (deg)
Maximum	**64.8**	0.0	217.9
Groundline	**64.8**	0.0	217.9
Vertical	**7.3**	20.3	217.9

Pole Moments (ft-lb)		Load Angle (deg)	Wind Angle (deg)
Max Cap Util	**76,610**	204.8	217.9
Groundline	**76,610**	204.8	217.9
GL Allowable	**119,368**		

Groundline Load Summary - Reporting Angle Mode: Load - Reporting Angle: 204.8°

	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 (%)
Powers	1,312	48.2	**46,984**	61.3	**39.4**	**2,012**	587	4	**2,016**	**38.8**
Comms	770	28.3	**15,712**	20.5	**13.2**	**673**	924	6	**679**	**13.1**
GenericEquipments	116	4.3	**1,827**	2.4	**1.5**	**78**	398	3	**81**	**1.6**
Pole	340	12.5	**6,343**	8.3	**5.3**	**272**	2,434	16	**287**	**5.5**
Risers	101	3.7	**1,600**	2.1	**1.3**	**69**	95	1	**69**	**1.3**
Streetlights	57	2.1	**3,289**	4.3	**2.8**	**141**	172	1	**142**	**2.7**
Insulators	24	0.9	**854**	1.1	**0.7**	**37**	98	1	**37**	**0.7**
Pole Load	2,719	100.0	**76,610**	100.0	**64.2**	**3,281**	4,707	30	**3,311**	**63.7**
Pole Reserve Capacity			**42,758**		**35.8**	**1,919**			**1,889**	**36.3**

Load Summary by Owner - Reporting Angle Mode: Load - Reporting Angle: 204.8°

	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 (%)
<Undefined>	2,379	87.5	**70,267**	91.7	**58.9**	**3,010**	2,273	15	**3,024**	**58.2**
Pole	340	12.5	**6,343**	8.3	**5.3**	**272**	2,434	16	**287**	**5.5**
Totals:	2,719	100.0	**76,610**	100.0	**64.2**	**3,281**	4,707	30	**3,311**	**63.7**

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)
Primary	ACSR 2 AWG 7/1 SPARATE		35.75	20.27	0.3250	0.17	0.107	120.0	135.0	120.0	500	6,904	90	2,245	9,238
Primary	ACSR 2 AWG 7/1 SPARATE		35.75	20.27	0.3250	0.13	0.107	125.0	225.0	125.0	500	18,778	94	107	18,979
Primary	ACSR 2 AWG 7/1 SPARATE		35.00	25.68	0.3250	0.17	0.107	120.0	315.0	120.0	500	-6,759	114	2,197	-4,447
Primary	ACSR 2 AWG 7/1 SPARATE		35.00	25.68	0.3250	0.18	0.107	125.0	135.0	125.0	500	6,759	119	2,289	9,166
Primary	ACSR 2 AWG 7/1 SPARATE		35.00	19.68	0.3250	0.17	0.107	120.0	315.0	120.0	500	-6,759	87	2,197	-4,474
Primary	ACSR 2 AWG 7/1 SPARATE		35.00	19.68	0.3250	0.18	0.107	125.0	135.0	125.0	500	6,759	91	2,289	9,139
Primary	ACSR 2 AWG 7/1 SPARATE		34.25	20.27	0.3250	0.17	0.107	120.0	315.0	120.0	500	-6,614	90	2,150	-4,374

Primary	ACSR 2 AWG 7/1 SPARATE	34.25	20.27	0.3250	0.18	0.107	125.0	135.0	125.0	500	6,614	94	2,240	8,948
Secondary	DUPLEX 6 AWG	29.20	7.32	0.5370	3.34	0.071	120.0	315.0	120.3	493	-5,544	-14	2,126	-3,432
Secondary	DUPLEX 6 AWG	29.20	7.32	0.5370	3.36	0.071	125.0	135.0	125.3	537	6,041	-14	2,214	8,241
										Totals:	**26,179**	**750**	**20,055**	**46,984**

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	6M		20.90	8.13	0.2420	4.28	0.104	120.0	315.0	120.5	284	-2,281	34	1,259	-989
Overlashed Bundle	6M		20.90	8.13	0.2420	4.32	0.104	125.0	135.0	125.5	306	2,464	35	1,311	3,811
CATV	CATV .50		19.90	8.20	0.5700	4.28	0.600	120.0	315.0	120.5	583	-4,471	74	1,480	-2,917
CATV	CATV .50		19.90	8.20	0.5700	4.31	0.600	125.0	135.0	125.5	635	4,870	77	1,542	6,489
Telco	TELE 1.0		18.90	8.27	1.0000	4.42	0.400	120.0	315.0	120.5	641	-4,668	79	1,790	-2,799
Telco	TELE 1.0		18.90	8.27	1.0000	4.45	0.400	125.0	135.0	125.5	700	5,104	82	1,865	7,052
Overlashed Bundle	8M		18.50	8.30	0.2720	4.34	0.131	120.0	315.0	120.5	708	-5,048	43	1,537	-3,468
Telco	BELOPTIX AT120 - 144 FIBERS - ARMORED (0.897)		18.43	8.30	0.8970		0.338	120.0	315.0	120.5			55	658	713
Overlashed Bundle	8M		18.50	8.30	0.2720	4.38	0.131	125.0	135.0	125.5	760	5,426	47	1,601	7,074
Telco	BELOPTIX AT120 - 144 FIBERS - ARMORED (0.897)		18.43	8.30	0.8970		0.338	125.0	135.0	125.5			60	686	745
											Totals:	**1,396**	**586**	**13,730**	**15,712**

GenericEquipment		**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)**
Cylinder	CANTENNA		25.30	30.33	45.0	0.0	35.00	45.00	–	14.00	--	-127	1,097	970
Box	STANDOFF MOUNT		22.60	16.02	45.0	0.0	10.00	2.00	31.00	--	4.50	-19	28	9
Box	FIBER DEMARC		17.40	8.87	315.0	0.0	10.00	8.50	6.00	--	6.00	-4	98	94
Box	EQUIPMENT BRACKET H:13.75		13.65	12.13	315.0	0.0	190.00	42.00	12.00	--	18.00	-101	774	673
Box	LOAD CENTER H:8.5		8.40	10.48	315.0	0.0	20.00	12.00	8.00	--	12.00	-9	91	82
											Totals:	**-260**	**2,087**	**1,827**

Riser		**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)**
Riser- 2" 300.0° H:29.3	Riser- 2"		29.30	7.06	300.0	300.0	29.30	351.60	2.00	2.00	351.60	-2	936	935
Riser- 2" 322.5° H:22.0	Riser- 2"		22.00	7.06	322.5	322.5	22.00	264.00	2.00	2.00	264.00	-6	516	509
Riser- 2" 311.3° H:12.0	Riser- 2"		12.00	7.06	311.3	311.3	12.00	144.00	2.00	2.00	144.00	-2	158	156
											Totals:	**-10**	**1,610**	**1,600**

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 - 15 ft. Arm		26.00	5.29	225.0	225.0	115.00	24.00	20.00	3.00	180.00	1,787	1,503	3,289
											Totals:	1,787	1,503	3,289

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)
Post	Post Insulator - 15 kV		35.00	0.00	225.0	225.0	11.00	4.75	18.00	0	210	210
Post	Post Insulator - 15 kV		35.00	0.00	225.0	225.0	11.00	4.75	21.00	0	246	246
Post	Post Insulator - 15 kV		35.00	0.00	225.0	225.0	11.00	4.75	15.00	0	175	175
Post	Post Insulator - 15 kV		35.00	0.00	225.0	225.0	11.00	4.75	18.00	0	210	210
Spool	Spool 2.5"		29.20	0.00	315.0	225.0	1.00	2.50	2.12	0	11	11
Bolt	Single Bolt		20.90	0.00	225.0	225.0	5.00	3.00	0.10	0	0	0
Bolt	Single Bolt		19.90	0.00	225.0	225.0	5.00	3.00	0.10	0	0	0
Bolt	Single Bolt		18.90	0.00	225.0	225.0	5.00	3.00	0.10	0	0	0
Bolt	Single Bolt		18.50	0.00	225.0	225.0	5.00	3.00	0.10	0	0	0
									Totals:	0	854	854

Pole Buckling

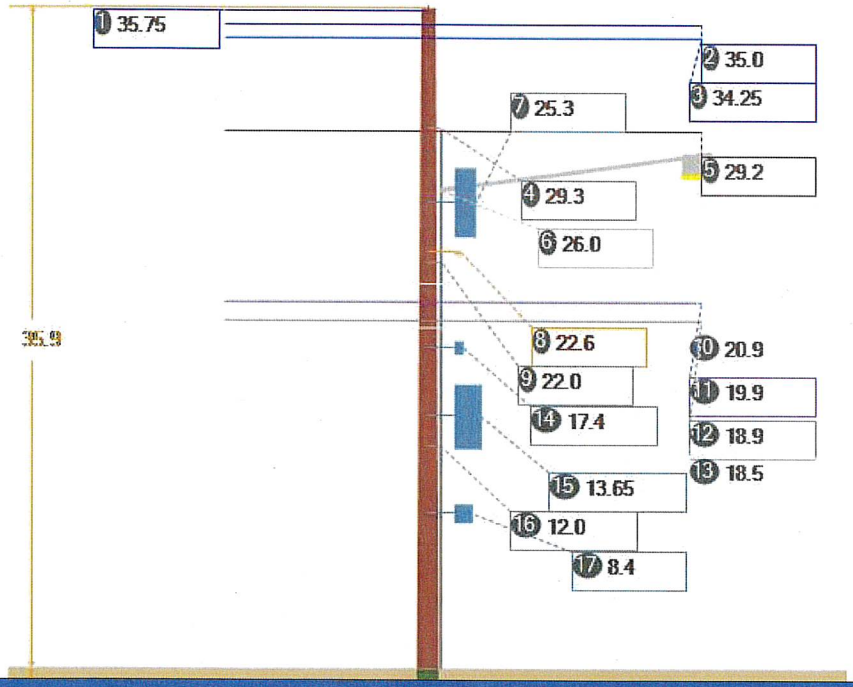
Buckling Constant	Buckling Column Height* (ft)	Buckling Section Height (% Buckling Col. Hgt.)	Buckling Section Diameter (in)	Minimum Buckling Diameter at GL (in)	Diameter at Tip (in)	Diameter at GL (in)	Modulus of Elasticity (psi)	Pole Density (pcf)	Ice Density (pcf)	Pole Tip Height (ft)	Buckling Load Capacity at Height (lbs)	Buckling Load Applied at Height (lbs)	Buckling Load Factor of Safety
2.00	20.28	32.93	13.20	7.33	9.24	14.11	1.60e+6	60.00	57.00	35.90	64,525	**644.82**	**13.70**

O-Calc® Pro Schematic View

Pole Identification: 249/16

Report Created: 3/15/2022

File: 4G LE-Assembly_SQ_SC01_Pole SA.pplx



1 - 35.75

Primary 135° 120.0 0.325" (ACSR 2 AWG 7/1 SPARATE)
Primary 225° 125.0 0.325" (ACSR 2 AWG 7/1 SPARATE)

2 - 35.0

Primary 315° 120.0 0.325" (ACSR 2 AWG 7/1 SPARATE)
Primary 135° 125.0 0.325" (ACSR 2 AWG 7/1 SPARATE)
Primary 315° 120.0 0.325" (ACSR 2 AWG 7/1 SPARATE)
Primary 135° 125.0 0.325" (ACSR 2 AWG 7/1 SPARATE)

3 - 34.25

Primary 315° 120.0 0.325" (ACSR 2 AWG 7/1 SPARATE)
Primary 135° 125.0 0.325" (ACSR 2 AWG 7/1 SPARATE)

4 - 29.3

Riser- 2" 300.0° H:29.3

5 - 29.2

Secondary 315° 120.0 0.537" (DUPLEX 6 AWG)
Secondary 135° 125.0 0.537" (DUPLEX 6 AWG)

6 - 26.0 Streetlight - 15 ft. Arm 15.0 ft arm H:26.0
7 - 25.3 CANTENNA H:25.3
8 - 22.6 Equipment H:22.6
9 - 22.0 Riser- 2" 322.5° H:22.0
10 - 20.9 6M 315° 120.0 D:0.27" 6M 135° 125.0 D:0.27"
11 - 19.9 CATV 315° 120.0 0.570" (CATV .50) CATV 135° 125.0 0.570" (CATV .50)
12 - 18.9 Telco 315° 120.0 1.000" (TELE 1.0) Telco 135° 125.0 1.000" (TELE 1.0)
13 - 18.5 8M 315° 120.0 D:1.51" 8M 135° 125.0 D:1.51"
14 - 17.4 FIBER DEMARC H:17.4
15 - 13.65 EQUIPMENT BRACKET H:13.65
16 - 12.0 Riser- 2" 311.3° H:12.0
17 - 8.4 LOAD CENTER H:8.4

6561913

Form 1

APPLICATION AND POLE ATTACHMENT LICENSE

ANTENNA / NODE LICENSE

Licensee Cellco Partnership d/b/a Verizon Wireless
Street Address 118 Flanders Road
City, State and Zip Westborough, Ma, 01581
Date 10/26/20

In accordance with the terms and conditions of the **CONSTRUCTION REQUIREMENTS FOR DISTRIBUTED ANTENNA SYSTEMS (DAS) ON DISTRIBUTION POLES AGREEMENT,** application is hereby made for a license to make 1 Antenna (Node) Attachment to pole and 1 (one) Power Supply and 2 (two) other attachments located in the municipality of Chelsea in the State of Massachusetts.

This request will be designated **Pole Attachment License Application Number AssemblySQSC01MA - 412227. Attached are my power supply specifications if applicable. The cable's strand size is .5 and weight per foot of cable is .2 .**

Licensee's Name (Print): Verizon Wireless
By: Sean Conway
Signature: Sean Conway

NSTAR d/b/a EVERSOURCE
Power Company

Title: Real Estate Manager

Tel. No. 508-330-3392

Fax No.

E-mail: Sean.conway@verizonwireless.com

********** **For licensor use, do not write below this line**********

Pole Attachment License Application Number _____ is hereby granted to make 1 Antenna / Node attachment described in this application to 1 attachments to JO[1] pole _____ attachment to FO[2] pole, _____ attachment to JU[3] pole, _____ Power Supplies and _____ other attachments located in the municipality of _____, in the State of Massachusetts as indicated on the attached Form 3.

Licensor's Name (Print) Richard A. Comeau
Signature Richard A. Comeau

_____
(AGREEMENT ID #)

Title Lead Engineer

Date 10/25/2021

Tel. No.

The Licensee shall submit an original copy of this application to NSTAR Electric Company d/b/a EVERSOURCE ENERGY.

Form 2

AUTHORIZATION FOR FIELD SURVEY WORK

Licensee: Cellco Partnership d/b/a Verizon Wireless

In accordance with Article III & Appendix I of the Pole Attachment Agreement, following is a summary of the charges which will apply to complete a field survey covering Pole Attachment License Application Number **AssemblySQSC01MA – 412227** in the municipality of Somerville in the State of Massachusetts.

FIELD SURVEY CHARGES

Field Survey	#Poles	Unit Rate	Total
Field Survey Application Fee (includes 1st pole)	1 pole	$139.00	$_____
Field Survey 2 -200 Poles	_____	$ 13.45 per Pole	$_____
Additional Travel Time*	_____	$200.00 per Day	$_____
TOTAL Charges			$139.00

* Based on average of 75 poles surveyed per day, add $200.00 travel time for each additional day required to complete survey.

Please note, if you calculated the cost incorrectly, your check will be returned and a new check for the correct amount must be received by this office in order to schedule the survey. If you need assistance, please call the **HOTLINE on** 800-340-9822. The required field survey covering Pole Attachment License Application # **AssemblySQSC01MA – 412227** is authorized. I am enclosing an advance payment in the amount of $139.00_.

Licensee's Name (Print) Sean Conway

Signature Sean Conway_____

Title Real Estate Manager

Address 400 Friberg Pkwy, Westborough, MA 01581

Tel. No. 508-330-3392

Date October 26, 2020

FORM 3 – EVERSOURCE ITEMIZED Pole Make-Ready Work Charges *PAGE___ OF___*

RCE to Complete: Total Poles Surveyed _____ Total Poles Requiring NSTAR Make-Ready _____

Appendix IV Form 3

FIELD SURVEY / MAKE READY WORK FORM															
SURVEYORS:				***DATE OF SURVEY:***								CWO #:			
Verizon				***MUNIC: Somerville*** ***STATE: MA***								Exch Code: Munic Code:			
Licensee				***LICENSEE NAME: Cellco Partnership d/b/a Verizon Wireless***								***LICENSEE APPLICATION #:*** **AssemblySQSC01MA – 412227**			
EVERSOURCE				***ELCO NAME:*** EVERSOURCE								**NSTAR APPLICATION #**			
LOCATION	***POLE #***		***ATT***	***OWNERSHIP***						CHARGE		WORK DESCRIPTION			
TEL RTE / STREET NAME ***List one pole per line***	***Tel***	***El***	***F/C P.S. Riser***	***J.O.***		***J.U.***		***F.O.***		YES	NO	TASK #S / REMARKS	* Height of Att.		
				Tel	***El***	***Tel***	***El***	***Tel***	***El***						
Mystic Ave 42.389566, - 71.080850		249-16			X							Attachments: (1) Power source, (1) cable, (1) radio equipment, (1) antenna	*see attached		
													*		
													*		
													*		
													*		
TOTALS:					→										

- **Height of Attachment = Height of Licensee Attachment shall be 40" below ELCO MGN unless otherwise noted here by Verizon and EVERSOURCE surveyor.**
- ***Licensee to complete bold italicized areas only. (Provide ownership information if known)***

EVERSOURCE - Work Order Application

FOR KEN KENDRICK:

Customer Request In-Service Date: *4/2/2016* ***WO Received Date:*** _____

Service Address: Street: Mystic Ave: _____ Town: Somerville, MA Zip: 02145

Customer Of Record:

Customer Responsible for Payment of Monthly Electric Bills

Name to appear on Monthly Bill: Cellco Partnership d/b/a Verizon Wireless
DBA – C/O Name: Verizon Wireless
Billing Address: One Verizon Way, Mail Stop 4AQ100, Basking Ridge, NJ 07920
Telephone: _____ Tax ID Number: _____
Existing Account or Meter Number (if applicable): _____

Property Owner Name (if different from above): _____
Owner Address: _____
Owner Phone Number: _____

Party Responsible for Construction costs associated with work order (if different from above)

Name: Verizon Wireless
Address: 400 Friberg Parkway, Westborough, MA 01581
Phone Number: 508-320-2017

Please Note that Articles of Incorporation are required for new commercial EVERSOURCE Customers

Type of Service Requested: (Circle Appropriate)

New Service | Service Upgrade | Service Relocation | Temporary Service
Pole Relocation | Disconnect/Reconnect | Service Removal | Metering Only
OH Service from Pole, Pole# : _____ UG Service from; Riser-Pole # :_____ Padmount # :_____

Customer Loading

Type of Load	New Connected Load in KVA	
	Single Phase	*Three Phase*
Lighting		
Electric heat		
Air Conditioning		
Refrigeration		
Cooking		
Electric Dryer		
Water Heater		
Computer		
Process Equip.	14.4	
Motors/Elevators		
Miscellaneous		
Totals	***14.4***	

Brief Description of Work

Verizon Wireless Small Cell Installation. Attach (1) antenna, (1) RRH/Cabinet, (1)Cable and (1) Meter to the referenced pole. Requires single phase 60Amp Service.

Number of Meters Required:

Residential: _____ Commercial:_____ Public: _____
Main Switch Voltage: _____ Amperage:_____ Phase: _____
Service Voltage: _____ Amperage:_____ Phase: _____
Facility Type (ie: school, hospital): _____ New Building Square Feet: _____

ALL 480V SERVICES REQUIRE COLD SEQUENCE METERING (DISCONNECT SWITCH ON THE LINE SIDE OF THE METER

If more than 1 meter is required, how will meters be labeled? (ie: Unit 1, 2, etc, Unit A, B, etc.)

_____

Additional Equipment:

Generator: KW: _____ Phase:_____ Purpose: _____

Motor(S) : Total # : _____Largest HP: _____ Phase: _____ Locked Rotor AMP: _____

Type of Starting Compensation (choose one): Hard Soft Capacitor VFD

*See Article 802 of EVERSOURCE Information and Requirements Book for Maximum LR current and Three Phase Protection *

Contact Name (circle appropriate):

Customer/Contractor/Consultant: Sean Conway
Street Address: 400 Friberg Parkway
City, State, Zip: Westborough, MA 01581
Telephone: 508-320-2017 Best Time to Call: _____
Pager: _____ Fax: _____
Cell: _____

Electrician: TBD License Number: _____
Business Name: Verizon Wireless
Street Address: 400 Friberg Pkwy
City, State, Zip: Westborough, MA 01581
Telephone: 508-320-2017 Best Time to Call: _____
Pager:_____ Fax: _____
Cell: _____

Please note that by Interconnecting with the EVERSOURCE Distribution System the Customer of Record acknowledges that they have reviewed and are in compliance with the EVERSOURCE Information & Requirements for Electric Service (Blue Book).

For **New Commercial Services, New Residential Developments, New 13.8 kv Two Line Station Electric Service,** please provide (2) copies of City/Town approved site plans that illustrates the new facility location and the proposed location of the new utilities (electric, gas, water, sewer, telecommunications) and a One-Line Diagram.

For **Service Increases** at existing facilities, please submit a One-Line Diagram if available.

For **New Residential Services where a pole must be set,** please provide (2) copies of a site plan that illustrates the proposed location of the new facilities.

For **Temporary Service Requests,** please provide (2) copies of a site plan illustrating service location.

You may **Fax** this Form or mail any additional correspondence to:

EVERSOURCE ENERGY Electric and Gas
One NSTAR Way
Westwood, MA, 02090
PH: 508-441-5881
FAX: 508-441-5842
S. Owens NWBED180

FOR NSTAR USE ONLY

EVERSOURCE Revenue Allowance: _____ EVERSOURCE Rate: _____

KVA or KW rating of Existing Loads (if applicable):

Existing Winter Peak Demand: _____ Month/Date/Year: _____
Existing Summer Peak Demand:_____ Month/Date/Year: _____

FORM 3 Definitions

SURVEYORS: Name of Representative attending Survey from VERIZON, EVERSOURCE, and Licensee

Date of Survey : Date Survey is performed

CWO#: EVERSOURCE Custom Work Order Number

Munic: Municipality where pole is located **State:** State in which pole is located

Licensee Name: Name of Company or Entity applying for Pole Attachments

Exch Code: Verizon's Exchange Code = the Exchange in which the Municipality is located.

Munic Code: EVERSOURCE Municipality Code = the code for the Municipality in which the pole is located (tax purposes).

Application #: The number of the Licensee's Application = sequentially numbered by municipality.

ELCO NAME: The name of the Electric (power) Company in whose service area the pole is located.

Location: List each individual pole (ONE POLE PER LINE) you wish to attach to (multiple sheets may be used) and provide the following:

Street, Route, Circuit # and other information which indicates location of poles.
Indicate location by providing name of street, highway, route, etc., e.g., South Street, north of (N/O) Jones Road. Private Property Poles should be identified as such e.g., P.P. (Lead off pole 1234 South).

Pole #:
Tel = Telephone Company pole # El= Electric Company pole #

ATT: **Type of Attachment:** F = Fiber C= Copper or Coaxial P.S. = Power Supply Riser = Riser Pole

Ownership: **JO** = Joint Owned 50%-50% Tel-Elco, **JU** = Joint Use - 100% Tel *or* 100% Elco, **FO** = 100% Fully owned by Tel or Elco (Other company not on pole)

Charge: **Y or N = Y** = Yes, there are make ready charges, N = No, there are no make ready charges to the Applicant.

Work Description: Short description of work operations required.

Task # should also be included and is defined as the number of the task or tasks required for make ready work. The Task # is associated with a Unit Price from the "Make Ready Unit Price Schedule" located in Appendix 1 of the new Pole Attachment Agreement.

Revised 03/06/2015