



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

## **BUSINESS LICENSE APPLICATION - Small Wireless Facility**

File #: 21-001928

License #: BL21-000020

Address: 15 IVALOO ST

Licensee: Derek Maheux Centerline Communications

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?:** Don't Know

**Describe the reason for the work, and the intended beneficiaries:** The proposed small cell installation will enhance network capacity and coverage and bring improved wireless service to Somerville and the immediately surrounding area.

**Provide the detailed description of the work that should appear on the License:** Proposed installation of a small cell wireless facility on an existing Eversource utility pole

**# 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:**

**Hans Jensen, Approved**

**Karla Cuarezma, Approved**

**Malik Drayton, Approved with Conditions**

APPROVAL CONDITION: MD20210225: Contractor shall take all necessary precautions to avoid damaging any tree or tree part with equipment.

APPROVAL CONDITION: MD20210225: 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: MD20210225: 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.

**John Power, Approved with Conditions**

Electrical Review approved, conditional upon electrical permit application/approval for scope of work.

**Mark Lawhorne, Approved**

**John J. Long, Approved**

118 Flanders Road  
Third Floor  
Westborough, MA 01851

Sean Conway  
Principal Engineer

February 10, 2021

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 existing wooden utility poles within Somerville's public right of way at the following locations:

Site Name	Address	Pole #
BOS_SOM_032_MA	299 Medford Street	unmarked
BOS_SOM_034_MA	434 McGrath Highway	unmarked
BOS_SOM_060_MA	53 Concord Avenue	112/3
BOS_SOM_061_MA	40 Marion Street	221/5
BOS_SOM_072_MA	15 Ivaloo Street	BECO1179/ VZ179/1
BOS_SOM_076_MA	2 Belmont Street	unmarked
BOS_SOM_086_MA	40 Bow Street	unmarked

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 per installation upon approval of each location included in the application. 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 each proposed location along with a structural analysis for each existing utility pole as well as a license granted from the pole owner (Eversource) to Verizon to install the SWF at each proposed location. Additionally, we have included a compliance letter along with a diagram which shows that each proposed antenna array is more than fifteen (15) feet from a residence's window, door opening, porch or balcony as required by the City's Design Standards for Small Wireless Facilities Placement in the Public Right-of-Way ("Design Standards"). Further, as described in detail below, Verizon respectfully requests a waiver of two (2) dimensional requirements in the Ordinance that materially inhibit Verizon's ability to provide 5G services in Somerville.

#### 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, including the equipment used for



5G, 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.

- Waiver Request #1: Verizon requests that the City waive the requirement in Section 12-148(e) of the Ordinance that requires that “antennas shall be limited to snug-mount, canister-mount, and concealed . . . with a diameter of no more than six inches greater than the diameter of the [top of the] pole.” It is not technically feasible to comply with the canister requirement because use of such a canister would make the antenna ineffective. Simply put, while Verizon’s 5G antennas meet the “snug-mount” requirement, the antennas are not able to be located within canisters. Unlike 4G antennas, which are often referred to as “cantennas” due to their shape, Verizon’s panel 5G antennas are not contained within canisters. Each individual antenna in the array has a height of 19.3”, width of 11” and depth of 7.9”. It is important to note that even if Verizon were able to deploy such a canister around the antenna array, the size of the resulting structure would exceed the 3 cubic foot requirement called for in the Ordinance. Additionally, a canister surrounding the antenna array could potentially interfere with transmission of Ultra-Wide-Band (UWB) 5G signals which can be blocked by nearby surfaces.

Similarly, the 5G equipment being proposed by Verizon slightly exceeds the requirement that a pole-top antenna diameter be no more than 6” greater the diameter of the top of the pole. The Verizon 5G equipment exceeds the pole top diameter by approximately 8” rather 6”. This minor exception is warranted because the overall design proposed by Verizon (that does not include a canister) also eliminates the need to install fan that is required for cooling the equipment that is in a canister. The use of fans, and the resulting noise from the fans, is discouraged by the Ordinance in residential areas. In fact, the use of fans and their noise was a big part of the discussion when the City Council was developing the Ordinance. Finally, the small increase of diameter in array allows for the proper promulgation of the UWB 5G signal unique to the Verizon UWB 5G service. Attached to this letter is a diagram showing the proposed 5G SWF antenna array in detail. This design is used by Verizon in all Massachusetts 5G communities, including Boston, Arlington, Malden and Cambridge.

- Waiver Request #2: Verizon requests that the City waive 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.” 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 10 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 attachments 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 is in agreement with this waiver request.

Taken as a whole, Verizon’s waiver requests allow for the use of smaller equipment that will emit less noise because it eliminates the need for fans and uses existing utility poles for the placement of 5G equipment. All of these benefits are part of the language and intent of the Ordinance and Design Standards. Without granting of these waiver requests, Verizon’s ability to provide 5G in Somerville would be materially inhibited and would constitute an effective prohibition. For all these reasons, Verizon respectfully requests that the City grant its waver requests and approve the SWF applications contained herein.

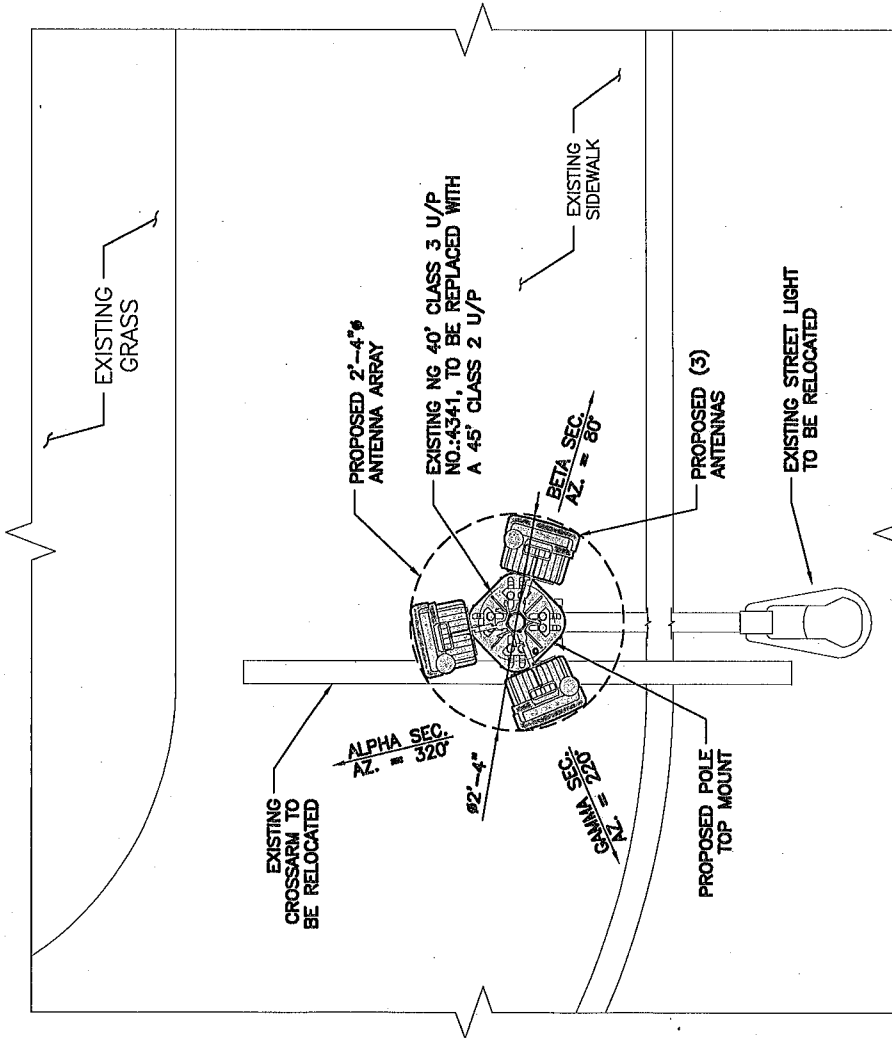
Respectfully Submitted,

*Sean Conway*

Sean Conway  
Principal Engineer  
(508) 320-2017

Attachment

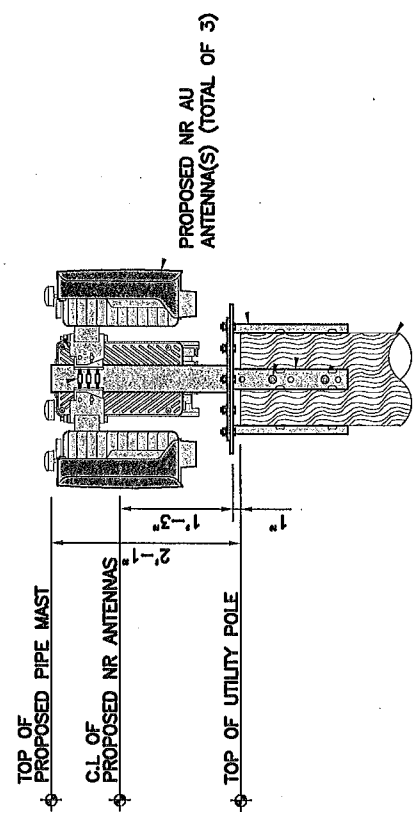
ATTACHMENT



1 ANTENNA PLAN  
SCALE: N.T.S.



APPROX. NORTH



2 ANTENNA MOUNTING DETAIL  
N.T.S.

PRESIDING POWER COMPANY  
**EVERSOURCE**

# BOS SOM 072 MA

BECO 1179, VERIZON 179/1  
15 IVALOO STREET  
SOMERVILLE, MA 02143

**HDS**  
**HUDSON**  
Design Group LLC  
44 BEDFORD DRIVE  
LANDOVER, MA 01902  
TEL: 978.534.5333  
FAX: 978.334.5884

CHECKED BY: JX  
APPROVED BY: DPH

SUBMITTALS

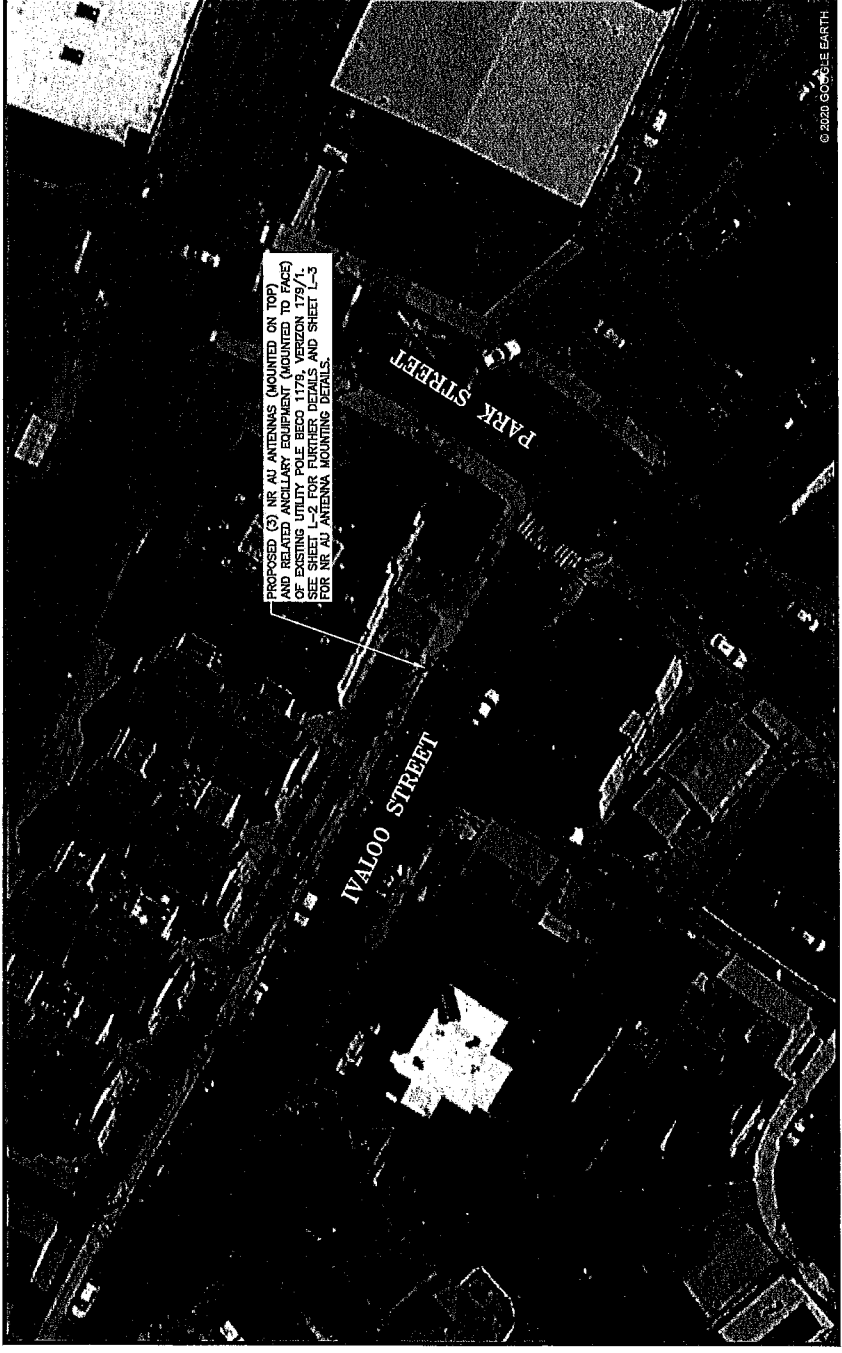
REV	DATE	DESCRIPTION	BY
1	07/29/19	ISSUE PERMIT	DPH
2	08/02/19	REVISED PER NEW STANDARDS	DPH
3	08/27/19	REVISED PER NEW STANDARDS	DPH

SITE NAME:  
**BOS SOM 072 MA**

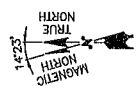
SITE ADDRESS:  
BECO 1179, VERIZON 179/1,  
15 IVALOO STREET,  
SOMERVILLE, MA 02143

SHEET TITLE  
**LOCATION PLAN/AERIAL IMAGE**

SHEET NUMBER  
**L-1**



© 2020 GOOGLE EARTH



1  
L-1

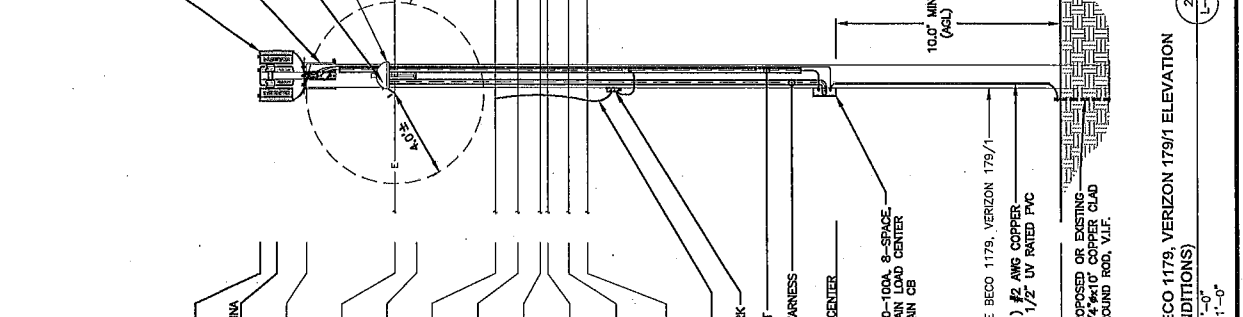
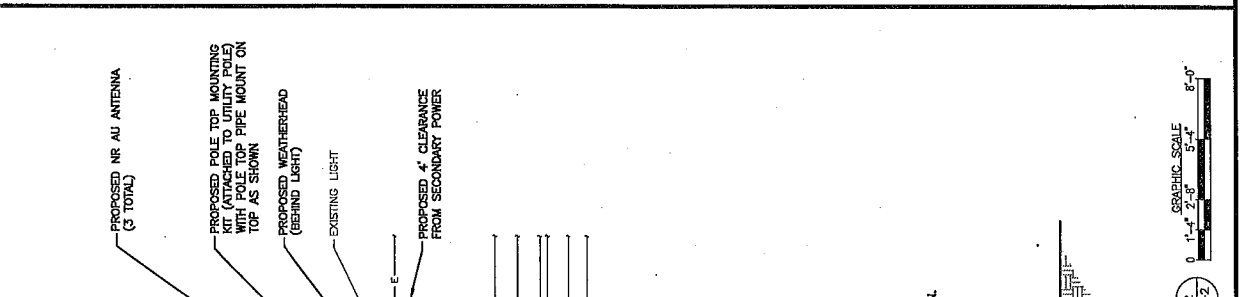
LOCATION PLAN/ AERIAL IMAGE  
SCALE: N.T.S.

SHEET INDEX

SHEET NO.	DESCRIPTION
L-1	LOCATION PLAN/AERIAL IMAGE
L-2	UTILITY POLE PHOTOGRAPH AND ELEVATION
L-3	ANTENNA & ANCILLARY EQUIPMENT DETAILS AND ONE LINE-DIAGRAM

FIELD INSPECTION DATE: 01-11-2020

SITE COORDINATES:  
LAT: N42.351400°±  
LONG: W71.107593°±  
LAT: N42° 22' 53.05"±  
LONG: W71° 06' 27.32"±  
APPROXIMATE GROUND ELEVATION: 15.0'± AMSL



**GENERAL NOTE:**  
 1. THESE DRAWINGS ARE DIAGRAMMATIC IN NATURE, AND ARE INTENDED TO PROVIDE GENERAL INFORMATION ON THE UTILITY POLE AND ARE NOT SPECIFICALLY INTENDED FOR CONSTRUCTION.  
 2. VERIZON WIRELESS SHALL PLACE WEATHER RESISTANT PLACARDS ON UTILITY POLE AND ANCILLARY EQUIPMENT TO IDENTIFY EQUIPMENT OWNERSHIP & CONTACT INFORMATION TO BE UTILIZED IN THE CASE OF EMERGENCIES.  
 3. THE CAPACITY OF THE EXISTING UTILITY POLE TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY HUDSON DESIGN GROUP, LLC. REFER TO LATEST 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.

**ANTENNA AND MOUNT NOTE:**  
 CONTRACTOR SHALL POSITION/ROTATE PROPOSED ANTENNA AS TO NOT INTERFERE WITH EXISTING STREET LIGHT, PRIMARY POWER CROSSINGS (IF PRESENT), OR OTHER SUPPORTS OR ANY OTHER MISCELLANEOUS APPURTENANCES AND RELATED EQUIPMENT LOCATED ON THE EXISTING UTILITY POLE.

**EQUIPMENT AND MOUNT NOTE:**  
 CONTRACTOR SHALL POSITION/ROTATE PROPOSED EQUIPMENT AND ASSOCIATED MOUNTS/BACKETS IN SUCH A MANNER AS TO NOT INTERFERE WITH EXISTING WIRES/PANELS ETC. OR ANY OTHER MISCELLANEOUS APPURTENANCES AND RELATED EQUIPMENT LOCATED ON THE FACE OF THE EXISTING UTILITY POLE.

**NOTE:**  
 UTILITY POLE, EXISTING APPURTENANCES AND DETAILS IDENTIFICATION SHOWN SCHEMATICALLY.

NO.	DATE	DESCRIPTION	BY
3	09/27/20	ISSUED LNO CHANGE LOGBOOK	CS
2	04/02/20	ISSUED PER NEW OWNERSHIP	ME
1	03/03/20	ISSUED ADDRESS	SF
0	01/29/19	ISSUED ORDER	SF

**SUBTOTALS**

**CHECKED BY:** JK

**APPROVED BY:** DPH

**SITE NAME:** BOS SOM 072 MA

**SITE ADDRESS:** BECO 1179, VERIZON 179/1, 15 VALDO STREET, SOMERVILLE, MA 02143

**SHEET TITLE:** UTILITY POLE PHOTOGRAPH AND ELEVATION

**SHEET NUMBER:** L-2



CHECKED BY: JK  
 APPROVED BY: DPH

**SUBMITTALS**

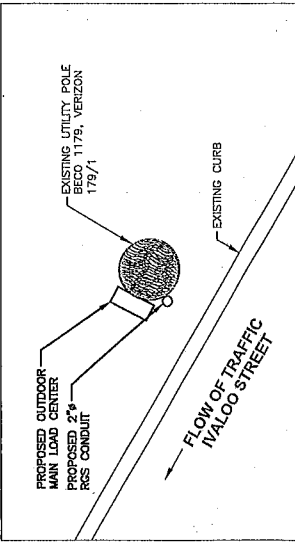
REL. DATE	DESCRIPTION	BY
3/15/22	ISSUED FOR SCHEDULE	JK
2/15/22	ISSUED PER REV. COMMENTS	JK
1/15/22	ISSUED PER REV. COMMENTS	JK
0/15/21	LOOSE EXHIBIT	JK

SITE NAME:  
**BOS SOM 072 MA**

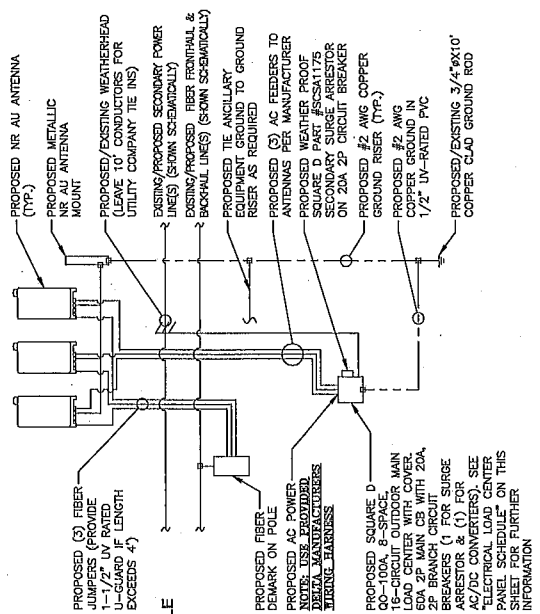
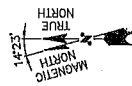
SITE ADDRESS:  
 BECO 1179, VERIZON  
 15 WALCOO STREET  
 SOMERVILLE, MA 02143

SHEET TITLE:  
**ANTENNA & ANCILLARY EQUIPMENT DETAILS AND ONE-LINE DIAGRAM**

SHEET NUMBER:  
**L-3**



**ANCILLARY EQUIPMENT ORIENTATION PLAN**  
 22x34 SCALE: 3/4"=1'-0"  
 11x17 SCALE: 3/8"=1'-0"



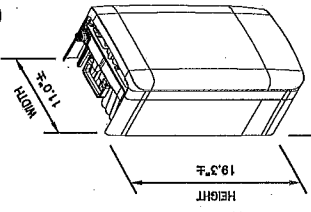
- ONE-LINE DIAGRAM NOTES**
1. PROVIDE WEATHER TIGHT SEAL CONNECTORS ON EACH SIDE OF ENCLOSED HOUSING.
  2. COORDINATE ANY FURTHER MISCELLANEOUS WIRING AND CONDUIT REQUIREMENTS WITH VERIZON WIRELESS AND ELECTRIC COMPANY.

**FIBER/ELECTRICAL ONE-LINE DIAGRAM**  
 SCALE: N.T.S.

SQUARE D 00-100A, 8-SPACE, 18-CIRCUIT OUTDOOR MAIN LOAD CENTER, SINGLE PHASE IN 3R ENCLOSURE

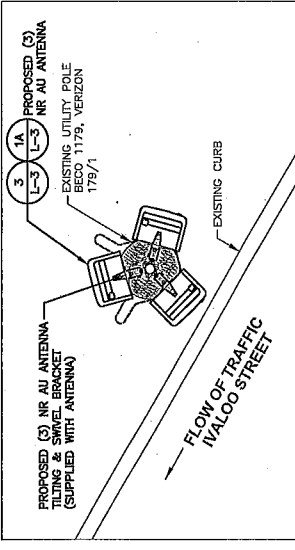
CIR	DESCRIPTION	AMP
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2	BLANK	-
3	BLANK	-
4	BLANK	-
5	BLANK	-
6	BLANK	-
7	BLANK	-
8	SURGE ARRESTOR	20

**ELECTRICAL LOAD CENTER PANEL SCHEDULE**  
 SCALE: N.T.S.

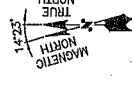


**TYPICAL ANTENNA**  
 DIMENSIONS: 7.9"x11.0"x19.3"  
 WEIGHT: 38.04 LBS

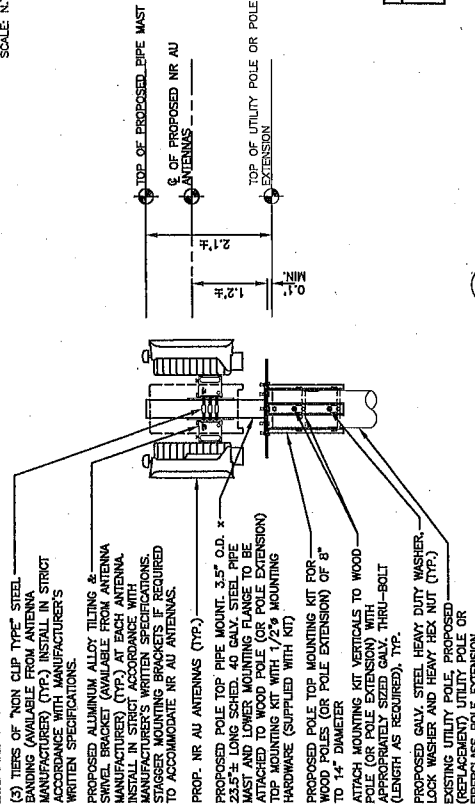
**TYPICAL ANTENNA**  
 SCALE: N.T.S.



**ANTENNA ORIENTATION PLAN**  
 22x34 SCALE: 3/4"=1'-0"  
 11x17 SCALE: 3/8"=1'-0"



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



**NR AU ANTENNA MOUNT DETAIL**  
 22x34 SCALE: 1/2"=1'-0"

**ANTENNA MOUNT DETAIL**  
 SCALE: N.T.S.

# STRUCTURAL ANALYSIS REPORT

For

## BOS\_SOM\_072\_MA

15 Ivaloo Street  
Somerville, MA 02143

### Equipment Mounted on Utility Pole



Prepared for:

**verizon**<sup>v</sup>

118 Flanders Road  
Westborough, MA 01581

Dated: June 3, 2020



**HGD** | **HUDSON**  
Design Group LLC

45 Beechwood Drive  
North Andover, MA 01845  
Phone: (978) 557-5553

[www.hudsondesigngroupllc.com](http://www.hudsondesigngroupllc.com)



**SCOPE OF WORK:**

Hudson Design Group LLC (HDG) has been authorized by Verizon to conduct a structural evaluation of the existing utility pole supporting the proposed Verizon equipment.

This report represents this office's findings, conclusions and recommendations pertaining to the support of the proposed Verizon equipment listed below.

This office conducted an on-site visual survey of the above areas on May 18, 2020. Attendees included Patrick Barrett (HDG – Field Technician).

**CONCLUSION SUMMARY:**

Based on our evaluation, we have determined that the existing pole **is in conformance** with the National Electric Safety Code 2017 (NESC). The utility pole structure is rated at 84.5%.

**APPURTENANCES CONFIGURATION:**

Appurtenances	Elev.	Mount
(3) Lessee Antennas	34'-4"	Top of Wood Pole
(1) Demarc Box	19'-0"	Side of Wood Pole
(1) Disconnect Switch	8'-5"	Side of Wood Pole

**ANALYSIS RESULTS SUMMARY:**

Component	Max. Stress Ratio	Elev. of Component (ft.)	Pass/Fail
SYP 3 (Existing)	84.5%	0 – 33.0	PASS



**HUDSON**  
Design Group LLC

**DESIGN CRITERIA:**

National Electric Safety Code 2017 (NESC) and the Massachusetts State Building Code 9th Edition		
<b>Wind</b>		
City/Town:	Somerville	
County:	Middlesex	
NESC Rule	Rule 250B	NESC Section 25
Construction Grade	C	NESC Section 25
Wind Load:	39.53 mph	NESC Table 230-2
<b>Ice</b>		
Loading District	Heavy	NESC Figure 250-1
Radial Ice Thickness:	0.50 in	NESC Table 230-1

1. Approximate height above grade to center of the proposed Antenna: 33'-0" +/-

**\*Calculations and referenced documents are attached.**



**HUDSON**  
Design Group LLC

#### **EXISTING STRUCTURE:**

The existing 33'-0" +/- wood pole is assumed to be Southern Yellow Pine Class 3 (Fb=8000 psi) with a 12.0" diameter base. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.

#### **ANTENNA SUPPORT RECOMMENDATIONS:**

The new antennas are proposed to be installed on a top mounting kit secured to the wood pole using thru bolts.

#### **EQUIPMENT SUPPORT RECOMMENDATIONS:**

The new equipment is proposed to be installed on the wood pole using the approved manufacturer's mounts.

#### Limitations and assumptions:

1. Reference the latest HDG construction drawings for all the equipment locations details.
2. Mount all equipment per manufacturer's specifications.
3. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities. Contractor to perform pre-inspection prior to construction.
4. All antennas and waveguide cables are assumed to be properly installed and supported as per the manufacturer requirements.
5. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
6. If field conditions differ from what is assumed in this report, then the engineer of record is to be notified as soon as possible.
7. HDG did not perform any geotechnical analysis / or / investigation. Soil Information is unknown.



**HUDSON**  
Design Group LLC

**FIELD PHOTOS:**



**Photo 1:** Sample photo illustrating the existing wood pole.



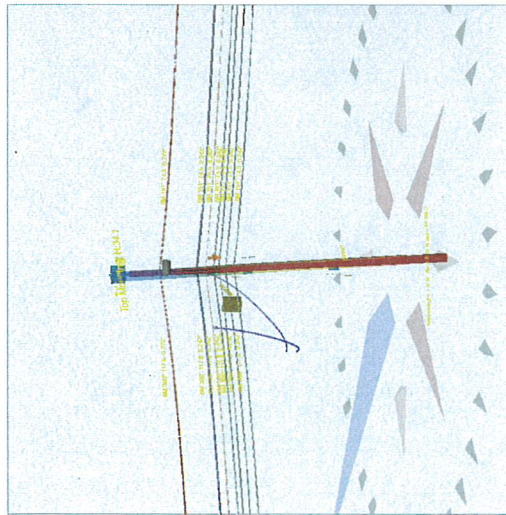
**HUDSON**  
Design Group LLC

## Calculations

Pole Num:	PSNH #179/1	Pole Length / Class:	38.3 / 3	Code:		Structure Type:	Unguyed Tangent
Pole Number:	PSNH #179/1	Species:	SOUTHERN PINE	Construction Grade:	5.33	Rule 250B Status:	C Pole Strength Factor: 0.85
Site Name:	BOS_SOM_072_MA	Setting Depth (ft):	37.70	Loading District:	8,000	Heavy Transverse Wind LF:	1.75
Address:	15 Ivaloo Street	G/L Circumference (in):	6,800	Ice Thickness (in):	0.50	Wire Tension LF:	1.00
Town, State:	Somerville, MA	G/L Fiber Stress (psi):	No	Wind Speed (mph):	39.53	Vertical LF:	1.90
Zip Code:	02143	Allowable Stress (psi):	CL	Wind Pressure (psf):	4.00		
Designed By:		Fiber Stress Ht. Reduc:					
Latitude:		42.381403° N	Longitude:			71.107586° W	Elevation: 106' 0"

Pole Capacity Utilization (%)	Height (ft)	Wind Angle (deg)
Maximum	84.5	223.4
Groundline	84.5	223.4
Vertical	10.1	223.4

Pole Moments (ft-lb)	Load Angle (deg)	Wind Angle (deg)
Max Cap Util	80,527	223.4
Groundline	80,527	223.4
GL Allowable	96,140	





Groundline Load Summary - Reporting Angle Mode: Load - Reporting Angle: 359.5°										
	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	-249	12.3	12,049	15.0	12.5	-528	256	2	-526	-7.7
Comms	-1,647	81.4	62,777	78.0	65.3	-2,753	2,352	21	-2,732	-40.2
GenericEquipments	-28	1.4	1,417	1.8	1.5	-62	283	3	-60	-0.9
Pole	-55	2.7	1,630	2.0	1.7	-72	2,135	19	-53	-0.8
SpanAdditions	-2	0.1	69	0.1	0.1	-3	37	0	-3	0.0
Streetlights	-27	1.3	2,211	2.8	2.3	-97	142	1	-96	-1.4
Risers	-18	0.9	492	0.6	0.5	-19	46	0	-19	-0.3
Insulators	3	-0.2	-118	-0.2	-0.1	5	76	1	6	0.1
Pole Load	-2,023	100.0	80,527	100.0	83.8	-3,529	5,327	47	-3,482	-51.2
Pole Reserve Capacity			15,613		16.2	10,329			10,282	151.2

Load Summary by Owner - Reporting Angle Mode: Load - Reporting Angle: 359.5°										
	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>	-1,922	95.0	76,988	95.6	80.1	-3,376	2,862	25	-3,350	-49.3
Proposed	-47	2.3	1,909	2.4	2.0	-82	329	3	-79	-1.2
Pole	-55	2.7	1,630	2.0	1.7	-72	2,135	19	-53	-0.8
Totals:	-2,023	100.0	80,527	100.0	83.8	-3,529	5,327	47	-3,482	-51.2

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	DUPLEX 6 AWG	29.47	6.85	0.5370		0.071	74.5	150.5	74.5	74.5	-16	-130	-130	-108
Secondary	DUPLEX 6 AWG	29.53	6.85	0.5370		0.071	74.5	150.5	74.5	74.5	-16	-130	-130	-108
Secondary	DUPLEX 6 AWG	29.47	6.85	0.5370		0.071	117.6	300.0	117.8	117.8	-25	-371	-371	-336
Secondary	DUPLEX 6 AWG	29.53	6.85	0.5370		0.071	117.6	300.0	117.8	117.8	-25	-372	-372	-337
Overlashed Bundle	8M	29.50	6.85	0.2720	2.16	0.131	74.5	150.5	74.5	475	-12,270	-18	-426	-12,671
Overlashed Bundle	8M	29.50	6.85	0.2720	5.01	0.131	117.6	300.0	117.8	485	7,269	-28	-1,219	6,090
<b>Totals:</b>											<b>-5,001</b>	<b>-126</b>	<b>-2,649</b>	<b>-7,470</b>

### O-Calc® Pro Analysis Report

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	25.20	7.09	0.2420	29.92	0.104	117.6	300.0	117.7	186	2,375	-36	-1,225	1,186
Telco	TELE 1.5	25.14	7.73	1.5000		0.900	117.6	300.0	117.7			-89	-501	-427
CATV	CATV .50	25.18	6.79	0.5700		0.600	117.6	300.0	117.7			-62	-501	-434
Overlashed Bundle	6M	25.20	7.09	0.2420	11.52	0.104	74.5	150.5	74.5	185	-4,082	-23	-429	-4,488
Telco	TELE 1.5	25.14	7.65	1.5000		0.900	74.5	150.5	74.5			-54	-175	-126
CATV	CATV .50	25.18	6.83	0.5700		0.600	74.5	150.5	74.5			-40	-175	-134
Overlashed Bundle	6M	24.20	7.15	0.2420	12.43	0.104	117.6	300.0	117.7	204	2,506	-29	-972	1,561
Fiber	CATV .50	24.17	7.15	0.5700		0.600	117.6	300.0	117.7			-57	-277	-225
CATV	CATV .75	23.59	84.30	1.0700	2.56	0.900	44.6	225.5	45.1	168	-2,581	13	-16	-2,509
Overlashed Bundle	6M	24.20	7.15	0.2420	5.00	0.104	74.5	150.5	74.5	204	-4,326	-18	-340	-4,649
Fiber	CATV .50	24.17	7.15	0.5700		0.600	74.5	150.5	74.5			-36	-97	-64
Overlashed Bundle	6M	23.20	7.20	0.2420	8.91	0.104	117.6	300.0	117.7	295	3,471	-37	-1,070	2,430
Telco	TELE 1.0	23.15	7.20	1.0000		0.400	117.6	300.0	117.7			-54	-404	-360
Overlashed Bundle	6M	23.20	7.20	0.2420	3.64	0.104	74.5	150.5	74.5	294	-5,970	-23	-374	-6,326
Telco	TELE 1.0	23.15	7.20	1.0000		0.400	74.5	150.5	74.5			-34	-141	-113
Overlashed Bundle	6M	22.60	7.23	0.2420	8.91	0.104	117.6	300.0	117.7	295	3,381	-37	-1,043	2,366
Telco	TELE 1.0	22.55	7.23	1.0000		0.400	117.6	300.0	117.7			-54	-393	-352
Overlashed Bundle	6M	22.60	7.23	0.2420	3.64	0.104	74.5	150.5	74.5	294	-5,816	-23	-365	-6,163
Telco	TELE 1.0	22.55	7.23	1.0000		0.400	74.5	150.5	74.5			-34	-138	-112
Overlashed Bundle	6M	21.80	7.28	0.2420	8.91	0.104	117.6	300.0	117.7	295	3,261	-37	-1,006	2,281
Telco	TELE 1.0	21.75	7.28	1.0000		0.400	117.6	300.0	117.7			-54	-379	-342
Overlashed Bundle	6M	21.80	7.28	0.2420	3.64	0.104	74.5	150.5	74.5	294	-5,610	-24	-352	-5,946
Telco	TELE 1.0	21.75	7.28	1.0000		0.400	74.5	150.5	74.5			-34	-133	-109
Overlashed Bundle	6M	20.80	7.34	0.2420	8.91	0.104	117.6	300.0	117.7	295	3,112	-37	-960	2,174
Telco	TELE 1.0	20.75	7.34	1.0000		0.400	117.6	300.0	117.7			-55	-362	-329
Overlashed Bundle	6M	20.80	7.34	0.2420	3.64	0.104	74.5	150.5	74.5	294	-5,353	-24	-336	-5,674
Telco	TELE 1.0	20.75	7.34	1.0000		0.400	74.5	150.5	74.5			-35	-127	-106
CATV	CATV .50	23.47	7.19	0.5700	1.76	0.600	44.6	233.8	44.8	175	-2,398	32	-70	-2,385
CATV	CATV .50	23.47	7.19	0.5700	1.76	0.600	44.6	233.8	44.8	175	-2,398	32	-70	-2,385
CATV	CATV .50	23.47	7.19	0.5700	1.76	0.600	44.6	233.8	44.8	175	-2,398	32	-70	-2,385
CATV	CATV .50	23.47	7.19	0.5700	1.76	0.600	44.6	233.8	44.8	175	-2,398	32	-70	-2,385
CATV	CATV .50	23.47	7.19	0.5700	1.76	0.600	44.6	233.8	44.8	175	-2,398	32	-70	-2,385
<b>Totals:</b>											<b>-27,625</b>	<b>-869</b>	<b>-12,640</b>	<b>-38,917</b>

Generic Equipment	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	Proposed	34.10	0.16	0.0	0.0	15.15	30.00	--	3.50	--	0	-125	-86
Top Mount Kit													

Box	Antenna	Proposed	34.31	7.54	0.0	38.00	19.30	7.90	--	11.00	45	-407	-262
Box	Antenna	Proposed	34.31	7.78	121.0	38.00	19.30	7.90	--	11.00	-24	-274	-199
Box	Antenna	Proposed	34.31	7.78	239.0	38.00	19.30	7.90	--	11.00	-24	-369	-293
Box	Verizon Fiber Demarc	Proposed	19.00	6.64	315.0	3.00	12.30	3.40	--	3.00	2	-44	-38
Box	Disconnect Switch	Proposed	8.60	7.62	315.0	17.00	12.60	4.20	--	8.80	15	-26	0
<b>Totals:</b>											<b>14</b>	<b>-1,246</b>	<b>-878</b>

Span Addition	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)
Other	Telco Box	22.17	48.00	300.0	300.0	20.00	20.00	20.00	20.00	20.00	0	-76	-43
<b>Totals:</b>											<b>0</b>	<b>-76</b>	<b>-43</b>

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)
Flood Light	Streetlight - 8 ft. Arm	28.20	4.42	220.0	220.0	75.00	16.00	20.00	3.00	96.00	-603	-930	-1,371
<b>Totals:</b>											<b>-603</b>	<b>-930</b>	<b>-1,371</b>

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)
2" U-Guard 160.0° H:24.2	Proposed	24.20	6.07	160.0	160.0	24.20	290.40	2.00	2.00	290.40	-11	-293	-305
<b>Totals:</b>											<b>-11</b>	<b>-293</b>	<b>-305</b>

Insulator	Owner	Height (ft)	Horiz. Offset (in)	Offset Angle (deg)	Rotate Angle (deg)	Unit Weight (lbs)	Unit Diameter (in)	Unit Depth (in)	Unit Length (in)	Offset Moment* (ft-lb)	Wind Moment* (ft-lb)	Moment at GL* (ft-lb)	
Bolt	Single Bolt	29.50	0.00	210.0	210.0	5.00	3.00	5.00	0.00	0	0	11	
Bolt	Three Bolt	25.20	0.00	210.0	120.0	5.00	3.00	5.00	0.00	0	0	10	
Bolt	Three Bolt	24.20	0.00	210.0	120.0	5.00	3.00	5.00	0.00	0	0	9	
Bolt	Three Bolt	23.20	0.00	210.0	120.0	5.00	3.00	5.00	0.00	0	0	9	
Bolt	Three Bolt	22.60	0.00	210.0	120.0	5.00	3.00	5.00	0.00	0	0	9	
Bolt	Three Bolt	21.80	0.00	210.0	120.0	5.00	3.00	5.00	0.00	0	0	8	
Bolt	Three Bolt	20.80	0.00	210.0	120.0	5.00	3.00	5.00	0.00	0	0	8	
J-Hook	J-Hook	23.47	0.00	0.0	0.0	5.00	3.00	5.00	0.00	0	0	9	
<b>Totals:</b>											<b>0</b>	<b>0</b>	<b>73</b>

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	21.36	32.99	11.21	6.77	8.31	12.01	2.13e+6	60.00	57.00	33.00	52,729	527.39	9.90



**HUDSON**  
Design Group LLC

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June 2, 2020

Nicole O'Brien  
Verizon Wireless  
118 Flanders Rd, 3<sup>Rd</sup> Fl.  
Westborough, MA 01581

RE: BOS SOM 072 MA  
BECO #1179, VERIZON #179/1  
15 Ivaloo Street  
Somerville, MA 02143  
Lat: N42.381403  
Long: W71.107589

The following letter has been prepared to illustrate that the pole top at this site is more than 15 feet from the nearest window. HDG has visited the site on May 20, 2020 to confirm the measurement.

Sincerely,  
Jose Xavier  
Project Executive  
Hudson Design Group LLC



45 FREEMOOD DRIVE  
N. ANDOVER, MA 01845  
TEL: (978) 537-5353  
FAX: (978) 534-6282

CHECKED BY: LK

APPROVED BY: DPH

SUBMITTALS	
NO.	DESCRIPTION
0	06/02/20 TOP OF POLE ABUTTERS

SITE NAME:  
BOS SOM 072 MA

SITE ADDRESS:  
BECO 1179, VERIZON 179/1,  
15 MILL STREET,  
SOMERVILLE, MA 02143

SHEET TITLE  
TOP OF POLE  
ABUTTERS

SHEET NUMBER  
SK-1



TOP OF POLE ABUTTERS  
SCALE: N.T.S.



2349185

Form 1

APPLICATION AND POLE ATTACHMENT LICENSE

ANTENNA / NODE LICENSE

Licensee VERIZON WIRELESS  
Street Address ONE VERIZON WAY, MAIL STOP 4AW100  
City, State and Zip BASKING, RIDGE NEW JERSEY 07920  
Date 6/25/19

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 Power Supply and 2 other attachments located in the municipality of Somerville in the State of Massachusetts.

This request will be designated **Pole Attachment License Application Number** BosSom072MA-525013  
Attached are my power supply specifications if applicable. The cable's strand size is 0.5 and weight per foot of cable is 0.2.

Licensee's Name (Print) Barbara Kassabian

Signature Barbara Kassabian

NSTAR d/b/a EVERSOURCE  
Power Company

Title \_\_\_\_\_  
Tel. No. \_\_\_\_\_  
Fax No. \_\_\_\_\_  
E-mail \_\_\_\_\_

\*\*\*\*\*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 \_\_\_\_\_ attachments to JO<sup>1</sup> pole \_\_\_\_\_ attachment to FO<sup>2</sup> pole, \_\_\_\_\_ attachment to JU<sup>3</sup> 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 Comrau  
Signature Richard Comrau

(AGREEMENT ID #)

Title Supervisor  
Date 3/18/2020  
Tel. No. \_\_\_\_\_

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

FIELD SURVEY / MAKE READY WORK FORM												
SURVEYORS:			DATE OF SURVEY:			CWO #:			Munic Code:			
Verizon			MUNIC:			STATE:			Munic Code:			
Licensee Barbara Kassabian			LICENSEE NAME: Verizon Wireless			LICENSEE APPLICATION #:			BosSom072MA-525013			
EVERSOURCE			ELCO NAME: EVERSOURCE			NSTAR APPLICATION #			WORK DESCRIPTION			
TEL RTE / STREET NAME <i>List one pole per line</i>	LOCATION		POLE #		ATT P.S. Rise	OWNERSHIP		CHARGE		TASK #S / REMARKS	* Height of Att.	
	Tel	EI	J.O. Tel	EI		J.U. Tel	EI	F.O. Tel	EI			YES
1 Ivaloss St (cross street Park St) 42.381403/-71.107589	179/1	1/179									*	
<b>TOTALS:</b>												

\* Height of Attachment = Height of Licensee Attachment shall be 40' below ELCO MGN unless otherwise noted here by Verizon and EVERSOURCE surveyor.  
 Revised 03/06/2015