

## Pole Attachments, AMI Antennas



### 1. Scope

This standard covers the requirements for the installation of advanced metering infrastructure (AMI) antennas on Seattle City Light (SCL) wood utility poles.

Installation on transmission structures, as well as on composite, steel, or laminated wood utility poles are outside the scope of this standard.

### 2. Application

This standard provides requirements and directions to SCL crews, customers, and approved contractors for the installation of AMI antennas on wood utility poles in SCL service territory.

Refer to SCL 0093.02 for general requirements and definitions regarding utility pole attachments.

### 3. Requirements

#### 3.1 Codes, Permits, and Approvals

All necessary permits shall be obtained by the wireless unit owner.

All installations shall meet or exceed all applicable structural, clearance, and provision of the latest revision of the National Electrical Safety Code (NESC), as well as SCL construction standards. In case of conflict, the most stringent requirement will prevail.

All proposed installations, modifications, or relocations shall be reviewed and have prior approval by the SCL Joint Use engineering unit.

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### **3.2 Service Voltage and Connection**

Where single-phase service is required, the service voltage shall be 120/240 V.

All service connections shall be made using a parallel connector clamp.

All antennas requiring electric service shall have an external service disconnect installed. The service disconnect shall isolate all electric services including any battery backups. The service point will be decided by the design engineer.

SCL shall make every reasonable effort to notify equipment owners of outages 24 hours in advance when possible. However, SCL reserves the right to disconnect power to installations without prior notice when necessary.

### **3.3 Grounding and Bonding**

All conductive parts of the installation on the pole shall be bonded together and grounded to the SCL system neutral conductor.

A copper ground wire, #4 AWG minimum size, shall be installed from equipment to the pole ground using an irreversible connection. See figures 3.8a and 3.8b.

Where a pole ground does not exist, one shall be installed at the base of the pole. This installation shall meet or exceed the requirements of SCL 0451.01.

### **3.4 Conduit Risers**

All conduit risers larger than 2 inches in diameter shall be installed on standoff brackets. See SCL 0224.34 and SCL 0126.04.

The minimum space between the pole and the closest part of the conduit shall be 4-1/2 inches (for climbing). This includes where the conduit passes the crossarm.

Conduit running up the pole from the enclosure through the supply space shall be located on the face of the pole.

### **3.5 Equipment Mounting**

All AMI-related materials and equipment shall be provided by the antenna owner. This includes any specialized tools or training.

These materials shall meet or exceed SCL specifications where SCL specifications exist.

Only one antenna shall be allowed per pole.

All pole-mounted items shall comply with the size limits described in SCL 0094.01.

The equipment enclosure shall be mounted on the street side of the pole, at a sufficient height to avoid damage by passing traffic. See SCL 0094.01.

AMI antennas shall not be installed on corner poles or poles with transformers, capacitors, primary cable terminations, primary switches, or primary metering equipment.

### **3.6 Labeling**

The equipment enclosure shall be clearly marked and visible from the ground with a unique company equipment ID number.

### **3.7 Installation and Maintenance**

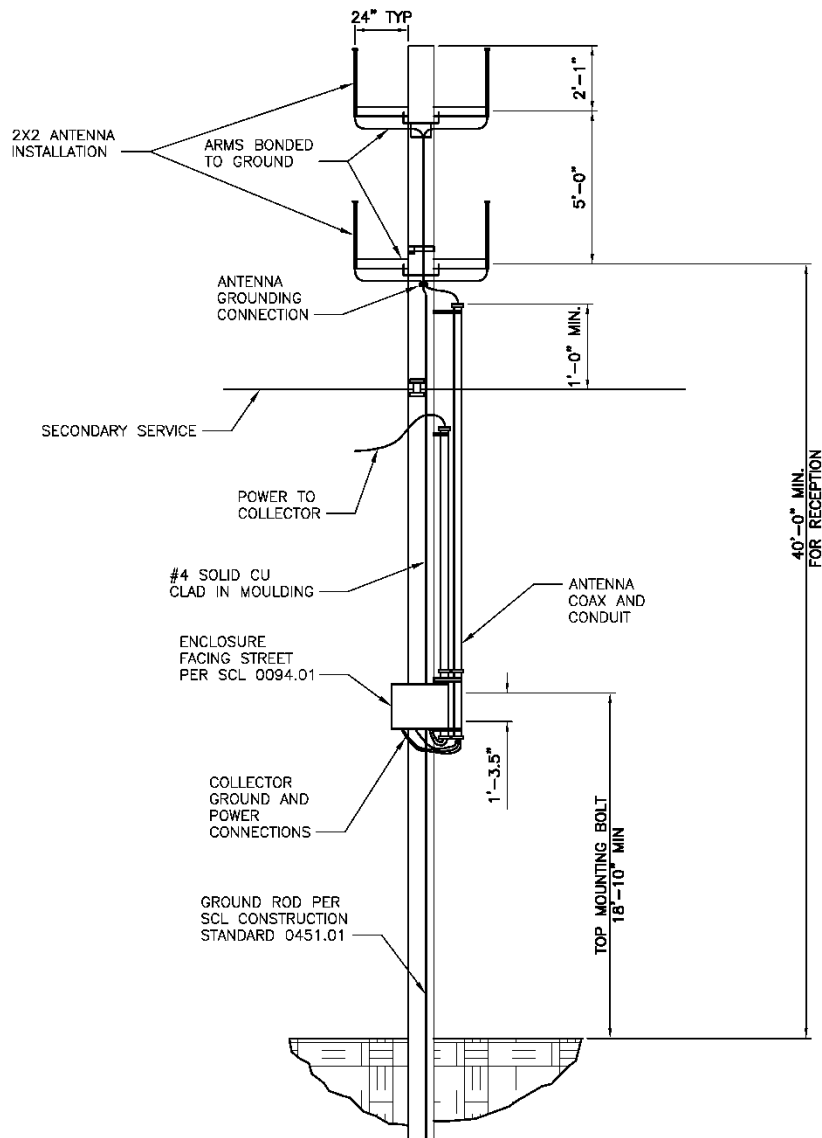
SCL or its authorized agent shall assist with installation and maintenance of all equipment, antennas and feed lines located in and above the supply space per pole agreement contract or at the applicant's expense.

### 3.8 Clearances

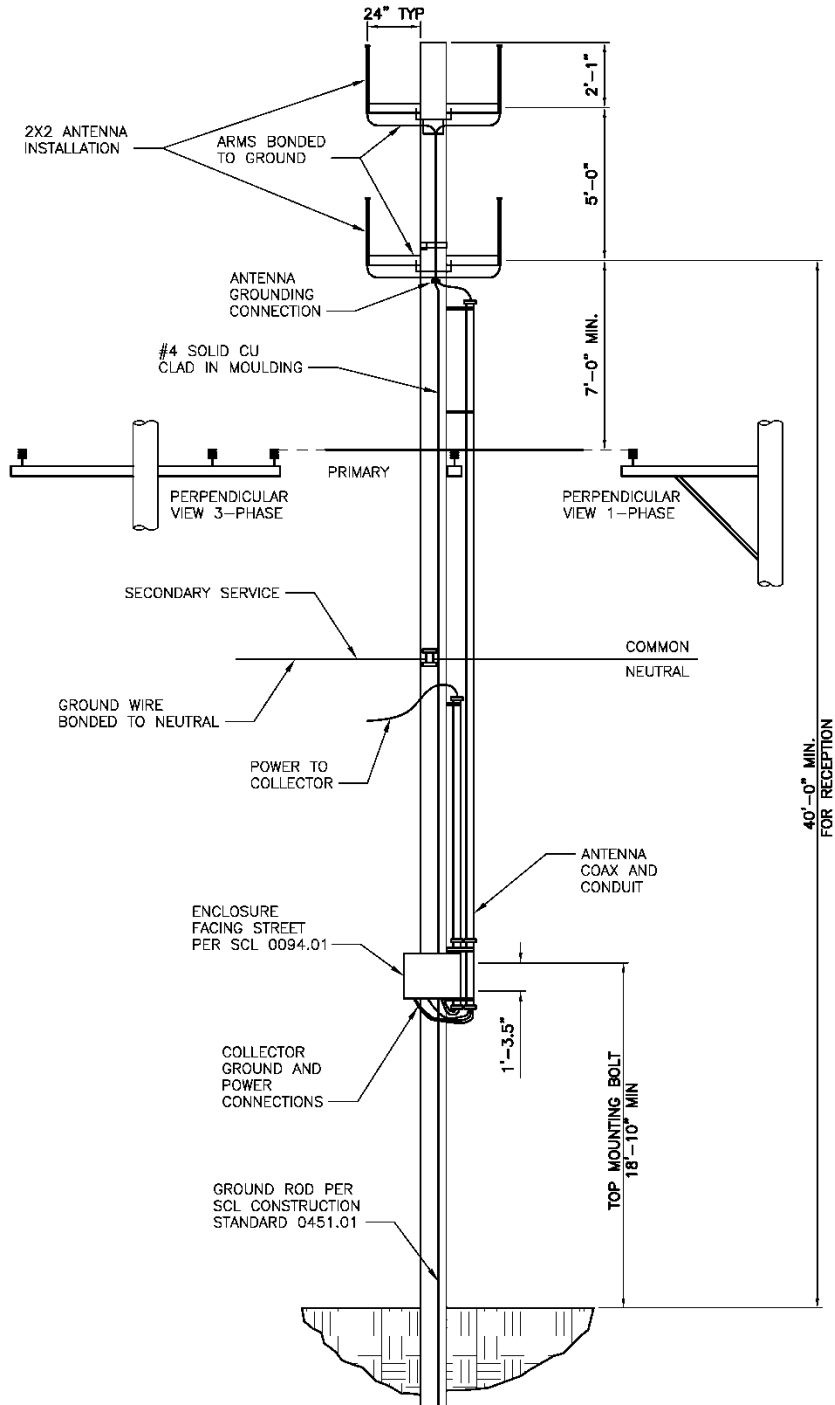
The lowest point of the equipment enclosure on the street side of the pole shall be 15 ft-6 in above final grade. All antennas mounted on utility poles above the primary conductor shall have a minimum clearance of 7 ft between the bottom of the lowest antenna crossarm to the top of the primary conductor. See Figure 3.8b.

All antennas mounted on utility poles above the secondary conductor shall have a minimum clearance of 1 ft between the secondary conductor and the top of the feedline conduit or drip loop.

**Figure 3.8a AMI Antenna Attachment Above Secondary Conductor**



**Figure 3.8b AMI Antenna Attachment Above Primary Conductor**



#### 4. Construction Notes

Refer to the manufacturer's installation guide and data sheet listed in the Sources section for additional information.

Contact the SCL Design Engineer for concerns regarding the following:

- Avian and wildlife protection
- Clearances
- Site-specific conflicts

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#### 5. References

**SCL Construction Standard 0093.02**; Utility Pole Attachments”

**SCL Construction Standard 0094.01**; “Communication Enclosures on SCL Wood Poles”

**SCL Construction Standard 0126.04**; “Riser Extensions”

**SCL Construction Standard 0224.34**; “Steel Conduit Risers”

**SCL Construction Standard 0451.01**; “Grounding Electrodes for Distribution Poles”

**SCL Construction Guideline D9-52**; “15/26 kV Distribution Crossarm Details”

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#### 6. Sources

**Becker, Mike**; SCL Joint Use Wireless Engineer and subject matter expert for 0095.10 (michael.becker@seattle.gov)

**C7500-Series Gridstream RF Collector Data Sheet**; Landis+Gyr, 98-1393, Rev. AB.

**C7500-Series Gridstream RF Collector Installation and User's Guide**; Landis+Gyr, 98-1392, Rev. AB.

**National Electrical Safety Code (NESC), C2-2017** Edition; Institute of Electrical and Electronics Engineers (IEEE), Inc., New York, NY, 2016

**Neuansourinh, Ponet**; SCL Standard Engineer, originator, and subject matter expert for 0095.10 (ponet.neuansourinh@seattle.gov)

**NFPA 70**; National Electric Code (NEC); 2014 Edition, National Fire Protection Association, Quincy, MA, 2008

**Taggart, Ryan**; SCL Engineering Specialist and subject matter expert for 0095.10 (ryan.taggart@seattle.gov)