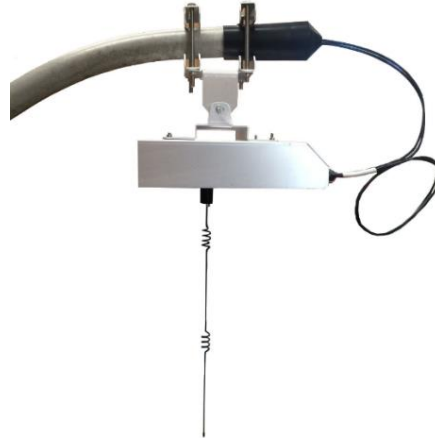

Pole Attachments, AMI and AMR Wireless Units



1. Scope

This standard covers the information necessary to install Seattle City Light (SCL) Advanced Metering Infrastructure (AMI) and Puget Sound Energy (PSE) Automated Meter Reading (AMR) wireless units on SCL wood utility poles and metal streetlight poles.

2. Application

This standard provides direction to SCL crews, engineers, customers, and approved contractors for the installation of AMI and AMR wireless units in SCL service territory.

AMR wireless units within the SCL service territory are owned by PSE and are used for the remote monitoring of gas meters. These are identified with a unique 5-digit ID number.

For requirements for spacing and locations of communications attachments on poles, as well as terms and definitions and other supplemental information, see SCL 0093.02.

Refer to SCL 0095.10 for installation of AMI antennas.

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 (NEESC), 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.

3.2 Service Voltage and Connection

Service voltage to AMI and AMR units shall be 120 V service provided with a 3/C #12 AWG wire. Refer to SCL D13-1 for secondary service details.

If service is from an adjacent span, a triplex service wire shall be used, with one wire serving as the messenger/system ground.

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

When unit is to be mounted on a metal streetlight pole, the manufacturer will provide a power tap adapter at the photoelectric control base for 120 V service.

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.

Where a SCL system neutral conductor does not exist, one wire of the feeding triplex service wire shall be used to serve as the messenger/system ground.

3.4 Equipment Mounting

3.4.1. General

All work shall be performed by SCL crews or its approved contractors.

Only one AMI or AMR unit shall be installed per location.

The maximum weight of the AMI or AMR unit shall not exceed 50 lb.

AMI and AMR units shall be installed only on poles where adequate clearance and climbing space is available. Instances where adequate clearance may not be available may include corner poles or poles with existing equipment in the supply space.

3.4.2. Mounting on Wood Poles

AMI and AMR wireless units shall be installed in the supply space between the neutral and primary conductor, as shown in Figure 3.4.2.

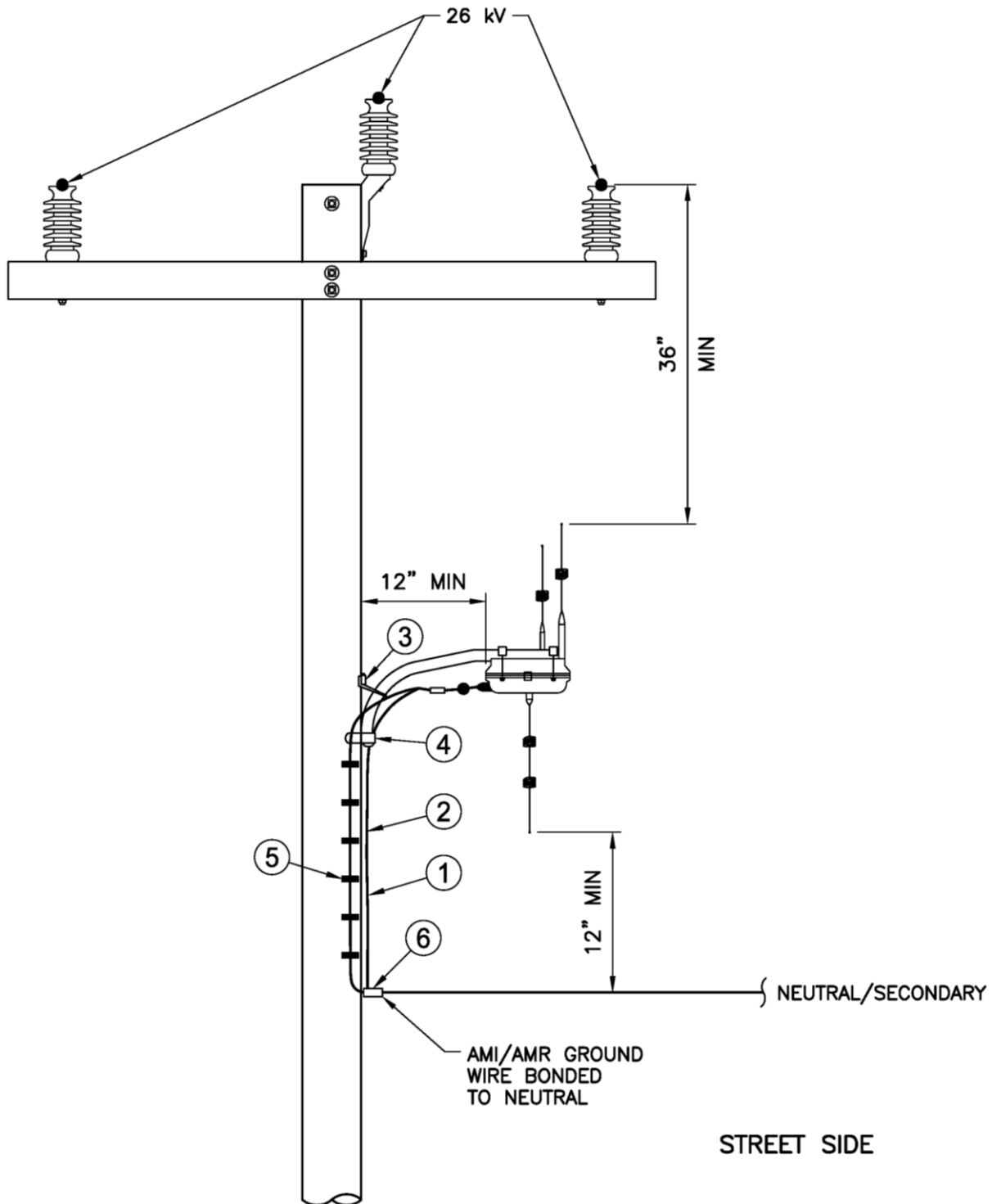
A 3-ft long bracket arm, with a 1-ft rise, shall be installed such that a minimum of 43 inches exists between the through-bolt of the bracket arm and the system neutral attachment, or the fiber optic cable, whichever is closest.

Bracket arms shall be installed perpendicular to the road, towards the street or right-of-way centerline.

Where AMI or AMR units are installed on secondary service poles or guy stub poles, the top bolt of the bracket arm shall be mounted a minimum of 12 inches below the top of the pole.

Bracket arms may be offset as needed to meet clearance requirements from any equipment (guys, secondary services, streetlights, floodlights, etc.). See Section 3.6.

Figure 3.4.2. AMI or AMR Wireless Unit Mounted on a 3-ft Bracket Arm on a Wood Pole



3.4.3. Mounting on Streetlight Poles

AMI wireless units shall be installed on a mast arm as shown in Figure 3.4.3a.

AMR wireless units shall be installed on the property side of the pole underneath the mast arm as shown in Figure 3.4.3b.

Figure 3.4.3a. AMI Wireless Unit Mounted on a Streetlight Mast

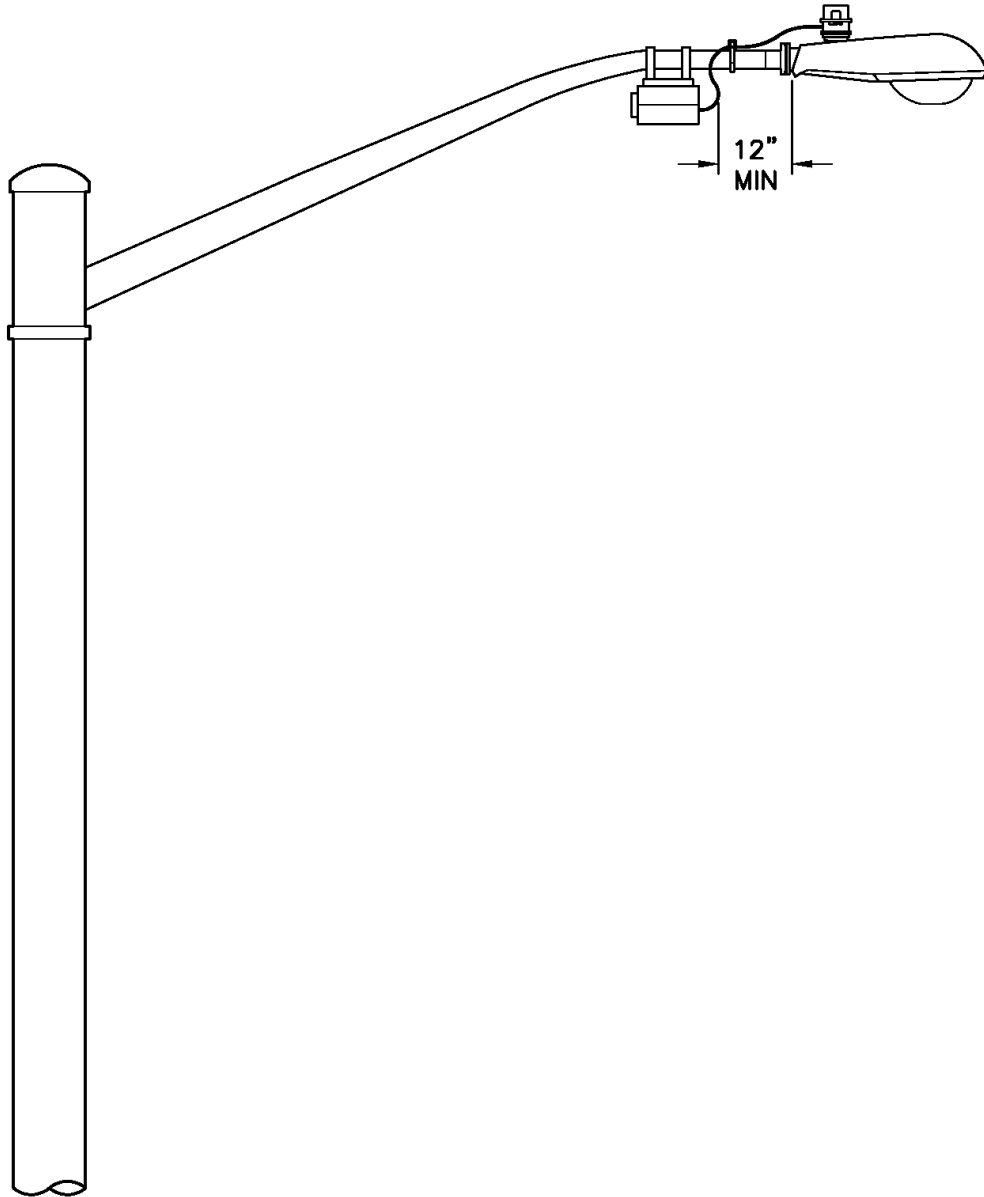
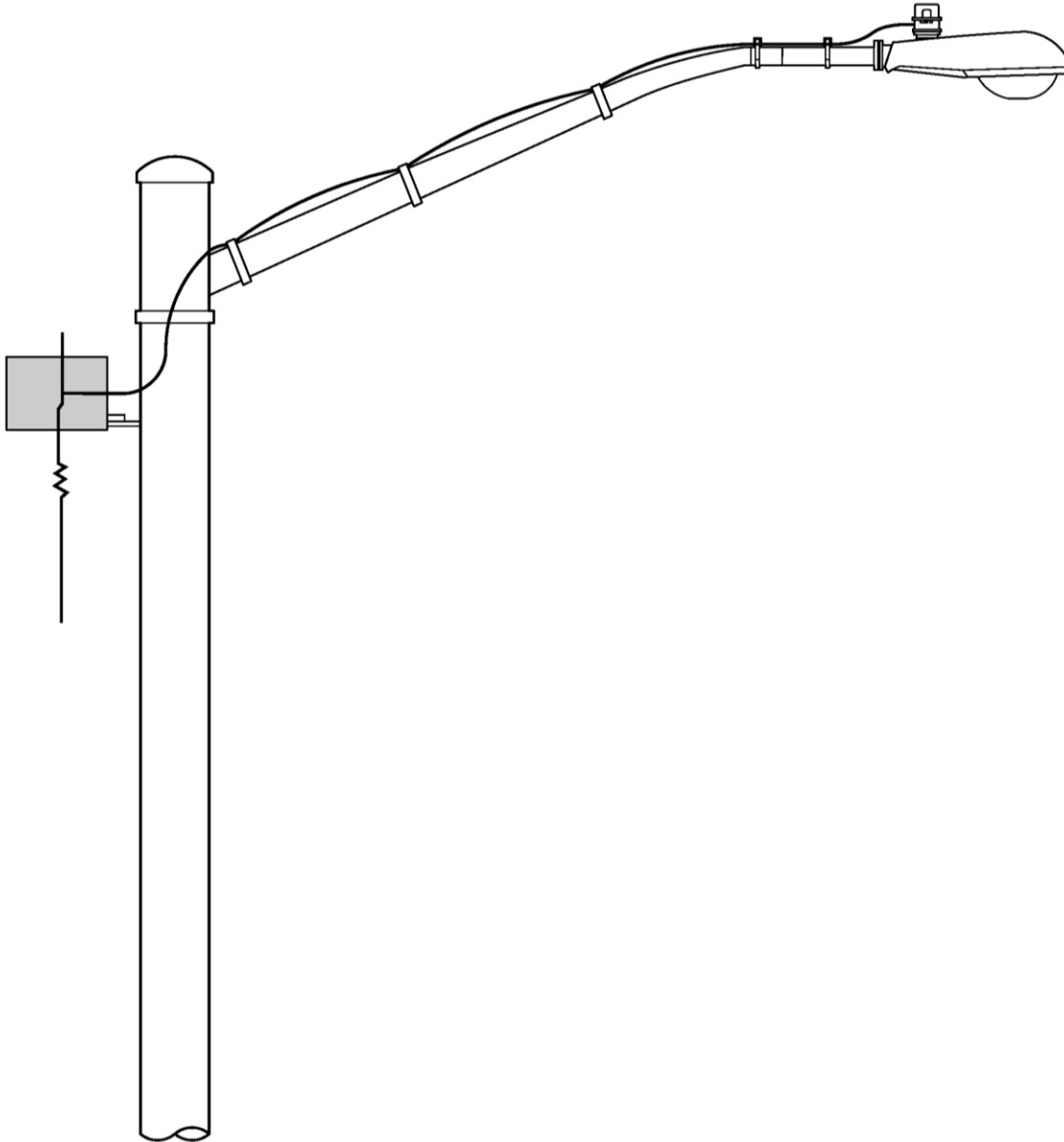


Figure 3.4.3b. AMR Wireless Unit Mounted on a Streetlight Pole



3.5 Labeling

All AMI and AMR wireless units shall be clearly marked and visible from the ground with a unique company equipment ID number and 24-hour contact phone number, as approved by SCL Engineering.

Each AMI wireless unit shall be labeled with orange reflective tape.

Each AMR wireless unit shall be labeled with green reflective tape.

AMR wireless units shall be labeled with the 3-digit renter code assigned by SCL Joint Use per SCL 0093.02 (renter code for PSE is 137).

3.6 Clearances

A minimum vertical clearance of 12 inches above the neutral and 36 inches below primary voltage conductors shall be maintained for all parts of the AMI or AMR unit mounted between the neutral and primary. Clearances includes the tips of the antennas. See Figure 3.4.2.

The minimum horizontal and/or slant clearance of 36 inches shall be maintained between all conductors energized at primary voltage and all parts of the pole-mounted unit, antennas, and cables.

The minimum horizontal clearance between the AMI unit and the base of the streetlight head shall be a minimum of 12 inches. See Figure 3.4.3b.


4. Construction Notes

Secure (with a nylon zip tie or similar appropriate device) all loose wires and jumpers to minimize flapping and entanglement.

AMI and AMR wireless units are provided by Landis+Gyr. See the manufacturer's installation and user's guide for each type for more information

5. Material List

Table 5. Materials for AMI or AMR Wireless Router

Fig	Compatible Unit	ID	Qty	
3.4a	AMI or AMR Wireless Unit	AMILG6500ARM		
#	Material Description	ID		
1	Wire, THWN, 600 V, copper, #8 AWG	612277		10
2	Conduit, flexible, non-metallic, 1/2"	013544		10
3	Bolt, galvanized, machine, 5/8" x 14"	780846		1
4	Screw, galvanized, lag, 1/2" x 4"	785261		2
5	Staple, galvanized, 2" x 5/8"	013517		6
6	Clamp, parallel groove, bolted	652020	2	

6. References

C6500-Series (GAP) Collector Installation and User's Guide; Landis + Gyr; 98-1210 Rev AD

SCL Construction Standard D13-1; "Secondary Service Details"

SCL Construction Standard 0093.02; "Utility Pole Attachments"

SCL Construction Standard 0095.10; "AMI Antenna Installation"

7. Sources

Gianni, Babino; Joint Use Engineering and subject matter expert for 0095.17
(gianni.babino@seattle.gov)

National Electrical Safety Code (NESC), C2-2012 Edition; Institute of Electrical and Electronics Engineers (IEEE) Inc., New York, NY, 2011

Neuansourinh, Ponet; SCL Standards Engineer, originator, and subject matter expert for 0095.17 (ponet.neuansourinh@seattle.gov)

Ryon, Sean; SCL Streetlight Crew Chief and subject matter expert for 0095.17
(sean.ryon@seattle.gov)

SCL Construction Standard 0095.01 (canceled); "AMI Wireless Repeater and Collector Installation"

Series V Router Installation and User's Guide; Landis+Gyr, 98-1203, Rev. AE

Taggart, Ryan; Engineering Specialist and subject matter expert for 0095.17
(ryan.taggart@seattle.gov)