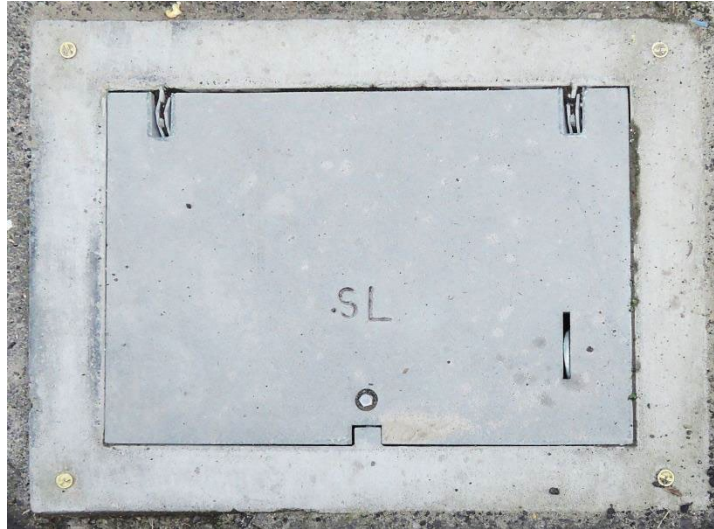


## Streetlight Handholes and Conduits



### 1. Scope

This standard provides the requirements for constructing streetlight handholes and conduits.

This standard also provides specific inspection points when installing streetlight handholes and conduits. See Section 4 for inspection points.

For handhole and conduit clearances and orientation, see SCL 0214.00.

### 2. Application

This standard provides direction to Seattle City Light (SCL) crews and contractors about properly installing streetlight handholes and conduits owned and maintained by SCL.

### 3. Requirements

Streetlight handholes and conduits shall conform to the requirements described in the following subsections.

#### 3.1 Grounding

Streetlight handhole and conduit grounding shall conform to requirements of SCL 1714.50.

The ground rod shall extend 6 inches above the bottom of the handhole.

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### 3.2 Handhole

Minimum handhole size shall be Type 2 per SCL 7203.10.

When conduits cross under a street, the minimum handhole size shall be Type 3.

Precast concrete Type 1 and 2 handholes shall conform to SCL 7203.10.

Precast concrete Type 3 (bottomless) and Type 5 (bottomed) handholes shall conform to SCL 7203.08.

Polymer concrete handholes shall conform to SCL 7203.20.

Streetlight handholes are H-20 or Tier 22 rated and shall only be installed in planting strips and pedestrian sidewalks where an occasional car or light truck may inadvertently traverse, or side streets that see only light truck traffic.

In backfill, aggregate, and planted areas, install handholes 1 in above grade. In paved areas, install 1/4 inches above grade.

### 3.3 Conduits

All conduits shall conform to SCL 7020.05.

All conduit runs shall be installed in pairs to allow for a spare conduit. Used conduits shall be sealed with duct seal or foam. Unused conduits shall be plugged and protected.

Marking/locate tapes shall be placed above conduit runs 6 inches below the finished grade in sidewalks and planting strips, and 18 in below finished grade in street and driveway crossings.

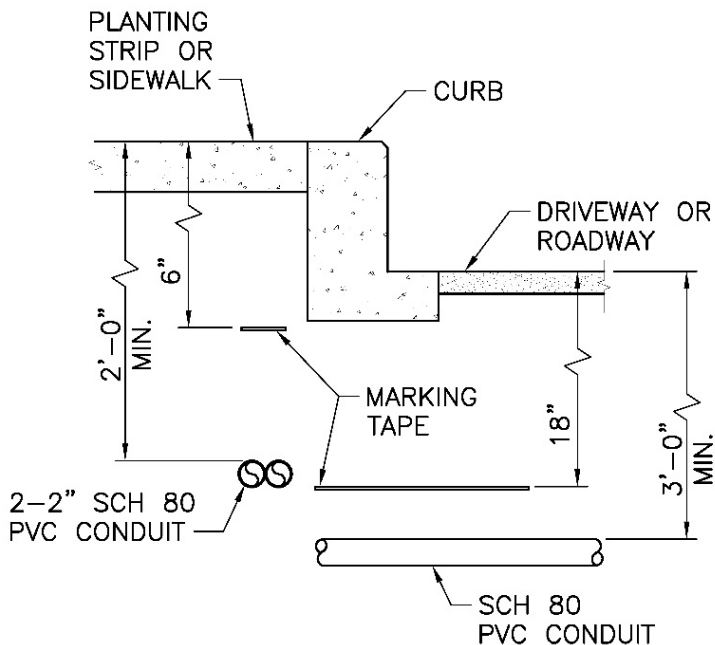
Underground conduits for customer power from streetlight handholes to a collocated streetlight shall be 1-1/4-in Schedule 80 PVC.

When streetlight conduits are installed in planter strip or sidewalk areas, backfill shall be clean native soil.

When streetlight conduits are installed in the street, backfill shall be CDF or Type 17 with compaction testing.

Minimum depths for streetlight conduits shall conform to Figure 3.3a.

**Figure 3.3a. Minimum Streetlight Conduit Depths**



Underground conduits between the streetlight distribution handhole and the service point shall be 3-in SCH 80 PVC.

Underground conduits between streetlight handholes and from streetlight handholes to streetlight shall be 2-in SCH 80 PVC.

4-in conduit shall only be used in Type 5 handholes or larger.

Maximum handhole capacity for conduits are listed in Table 3.3a. Capacity is calculated by multiplying the number of conduits by their respective diameters.

Conduits that cross a street shall be 3-in minimum SCH 80 PVC.

Minimum conduit bend radius shall conform to Table 3.3b.

**Table 3.3a. Maximum Handhole Capacity for Streetlight Conduits**

Handhole Type	Handhole Capacity, Maximum (in)
1	6
2	12
3	24
5	48
6	48

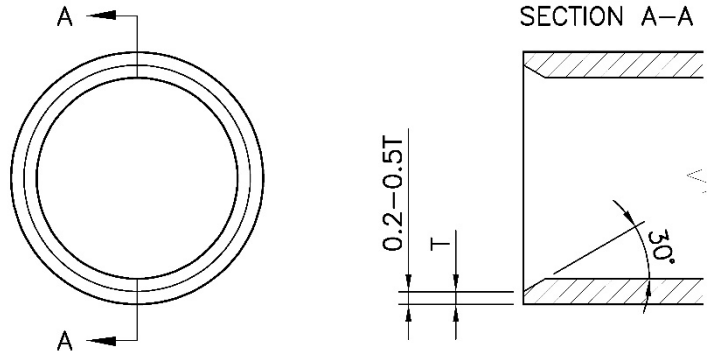
**Table 3.3b. Minimum Bend Radius for Streetlight Conduits**

Conduit Trade Size IPS (in)	Minimum Bend Radius (in)
1-1/4	18
2	18
3	24

Conduit ends shall be protected with end bells.

Conduit and elbow ends shall be chamfered on the inside. See Figure 3.3b.

**Figure 3.3b. Chamfer Detail**



**3.4 Open Bottom Handhole**

Conduit ends shall be:

- Between three to six inches from the base of the handhole.
- Between three to six inches from the wall of the handhole.

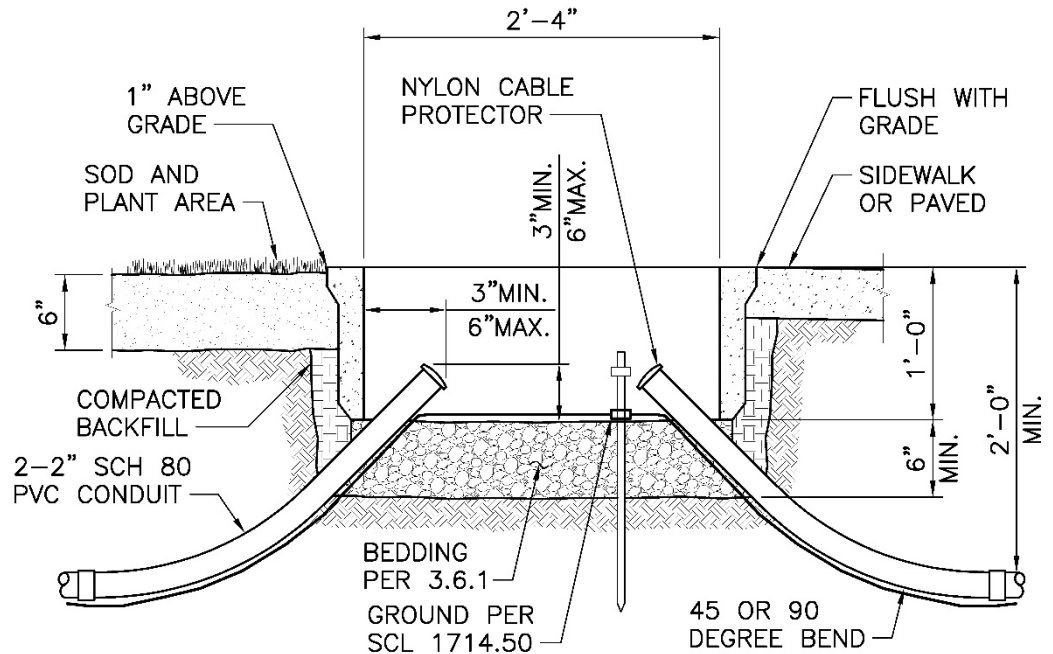
Handhole lids shall be labeled "SL" per SCL 7203.10.

A maximum of one stacking riser is allowed.

Typical open bottom handholes are Type 2 with inside dimensions of 17 in x 28 in x 12 in or Type 3 with inside dimensions of 24 in x 36 in x 18 in (with cover).

Typical streetlight handholes shall conform to Figure 3.4.

**Figure 3.4. Open Bottom Handhole**



### 3.5 Closed Bottom Handhole (Type 5 or 233)

All penetrations shall be by core drill.

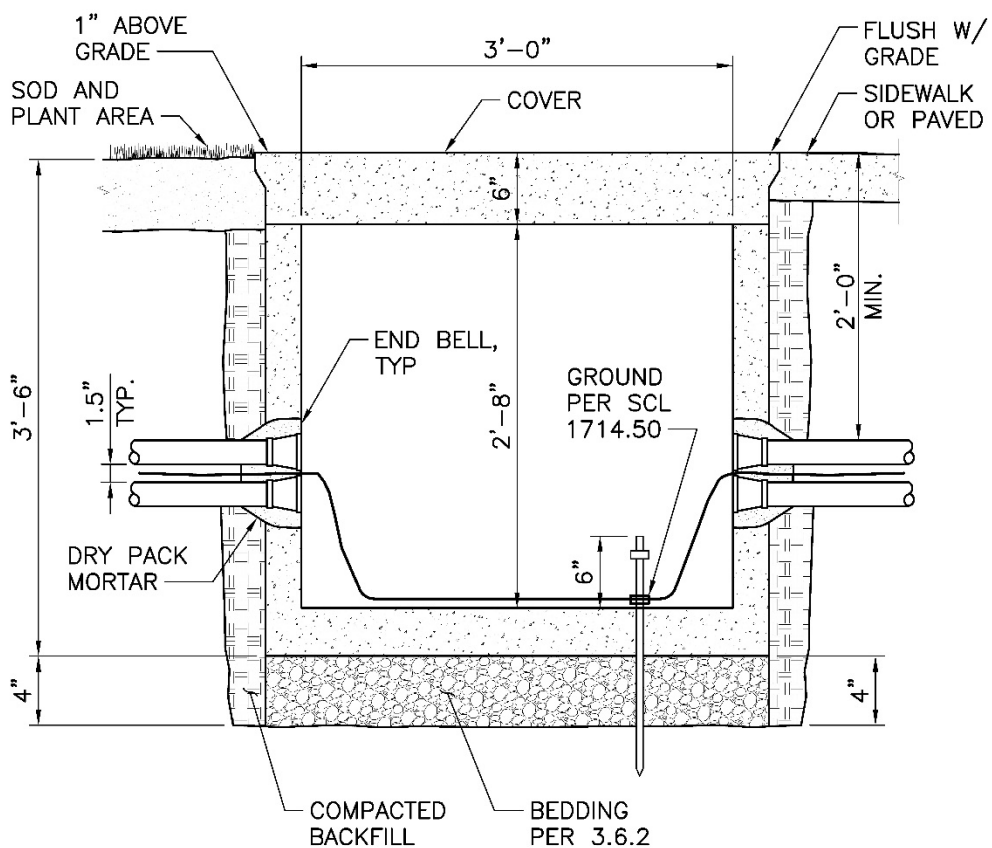
Handhole lids shall be labeled "SL" or "SL/SDOT" per SCL 7203.08.

Typical closed bottom handholes are Type 5 with dimensions of 24 in x 36 in x 38 in with cover.

End bells shall be flush with the inside wall of the handhole.

Streetlight distribution handholes shall conform to Figure 3.5.

**Figure 3.5. Closed Bottom Handhole (AKA Type 5 or 233)**



### 3.6 Bedding

#### 3.6.1. Open Bottom Handholes

Handholes shall be bedded on a minimum of 6 inches of 3/8-in washed gravel, mineral aggregate Type 9.

#### 3.6.2. Closed Bottom Handholes

The bedding material shall consist of 4 inches to 12 inches of stable base material.

If the excavation bottom is saturated prior to placing bedding material, then over excavate area as directed by SCL engineer and place cobbles (3 inches to 8 inches stone – no broken concrete).

If excavation is not saturated prior to placing bedding material, compact bottom of excavation with two full compacting operations at right angles to each other with a mechanical compactor.

Place a layer of crushed rock (aggregate grade of 1-1/4 inches minus), screed and compact to a minimum thickness of 4 inches.

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## 4. Inspection Points

Inspection points shall be adhered to for all installation projects. Inspections points are put in place to ensure conformity to SCL requirements. Failure of inspection request may result in additional requirements. Contact Streetlight Engineering for further details.

An inspection by an SCL Electrical Reviewer is required for the following:

1. Conduits and #4 AWG ground wire, before cover
2. Handholes, before cover
3. Conduit mandrel, before wire install
4. Grounding and bonding inspection and test

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## 5. References

**SCL Construction Standard 0214.00**; “Clearances Between SCL Underground Structures and Other Structures”

**SCL Construction Standard 1714.50**; “Underground Streetlight Systems”

**SCL Construction Standard 1810.05**; “Shared Streetlight and Traffic Control Handholes”

**SCL Material Standard 7020.05**; “Schedule 80 PVC Conduit and Elbows”

**SCL Material Standard 7203.08**; “231 and 233 Handholes, Precast, Secondary and Streetlight”

**SCL Material Standard 7203.10**; “Type 1 and Type 2 Handhole, Precast, Secondary and Streetlight”

**SCL Material Standard 7203.20**; “Polymer Concrete Handhole, Secondary and Streetlight”

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## 6. Sources

**Chao, Yaochiem**; SCL Standards Engineer and originator of 1716.07

**Youngs, Rob**; SCL Electrical Reviewer and subject matter expert for 1716.07