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## Single-Phase Deadend Pole Top Assemblies for View Areas

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### 1. Scope

This standard covers the information necessary to construct pole top assemblies for single-phase deadend poles in view areas (view poles) supporting #4 AWG copper primary conductors on the 26 kV primary distribution system. Requirements for vertical spacing and hardware, and installation instructions to connect the primary conductor to the pole are included.

Criteria for pole top assemblies covered under this standard include the following:

|                              |               |
|------------------------------|---------------|
| <b>Grade of construction</b> | C only        |
| <b>Pole class</b>            | 1 or stronger |
| <b>Pole length</b>           | 50 ft         |
| <b>Soil condition</b>        | Average       |
| <b>Allowable line angle</b>  | 0°–150°       |

If a deadend is not required, refer to SCL 0101.01 and 0101.03.

For line angles greater than the allowable line angle described above, contact the SCL Engineer.

Composite, steel, laminated and other non-wood poles are outside the scope of this standard.

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### 2. Application

This standard provides direction to Seattle City Light (SCL) engineers, crews and contractors for the installation of single-phase deadend pole top assemblies in view areas on 26 kV distribution poles with #4 AWG copper primary conductors.

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### 3. General Requirements

View poles shall only be installed with the authorization of SCL Engineering management. The typical use for a view pole is for locations with a view obstruction problem.

Single-phase deadend poles shall be constructed as shown in Table 3.



**Table 3. Single-Phase Deadend Pole Top Assemblies**

| <b>Deadend Type</b> | <b>Allowable Line Angle</b> | <b>Figure</b> |
|---------------------|-----------------------------|---------------|
| Single              | N/A                         | 3a            |
| Double (1 Bolt)     | 0°-60°                      | 3b, 3c        |
| Double (2 Bolts)    | 0°-80°                      | 3d, 3e        |
| Double (2 Bolts)    | 80°-150°                    | 3f, 3g        |

When installing a single deadend, the through bolt shall be installed in line with the conductor.

When a headpin is required, the headpin shall be installed on the pole centered between the incoming and outgoing conductor to provide the jumper the shortest path as shown in Figures 3b and 3d. The LR bracket shall be in line with the headpin.

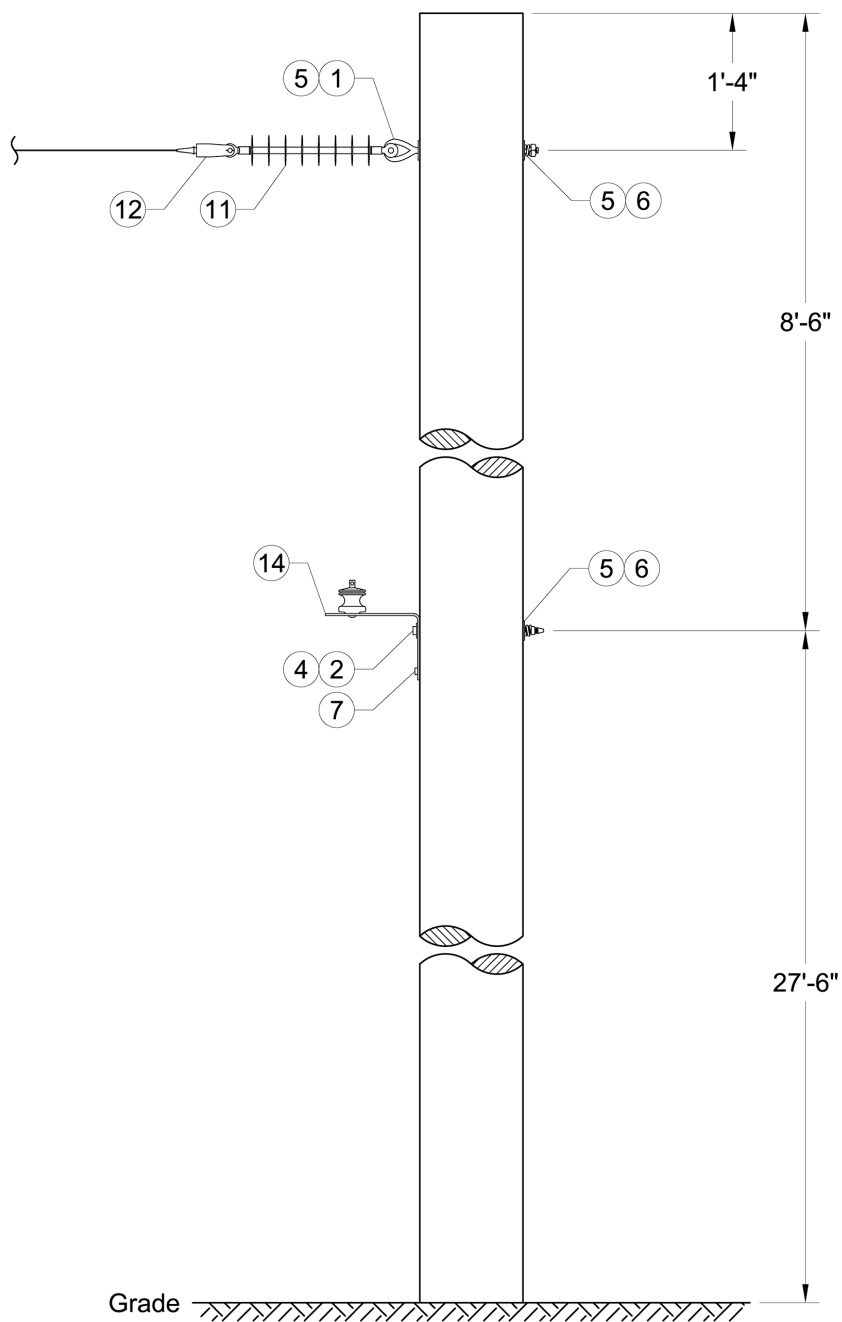
In average soils, install a 50-ft pole embedded 7 ft in the ground. Once set, cut 7 ft off the top of the pole.

The deadend pole shall be guyed according to the requirements of SCL 0199.01.

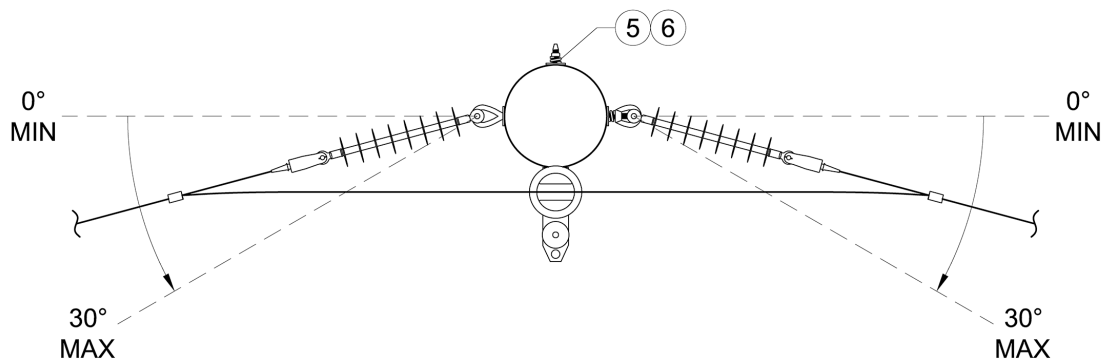
The highest communication attachment shall be located at a minimum of 40 in below the secondary and neutral and a minimum of 10 ft below the top of the transformer.

Only two communication attachments, at 21 ft and 22 ft, are allowed on a view pole.

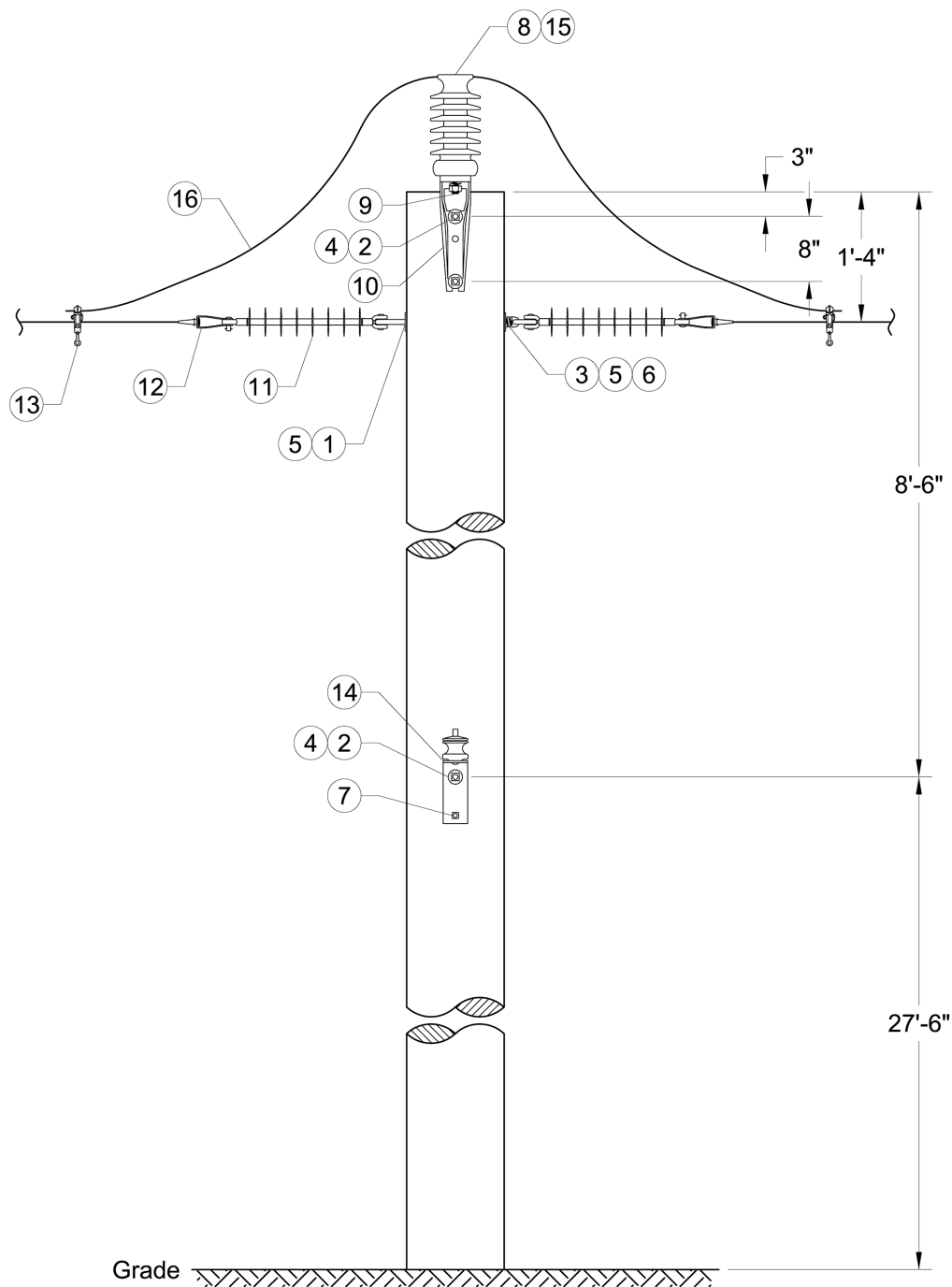
**Figure 3a. Single-Phase Deadend Pole Top Assembly for View Areas**



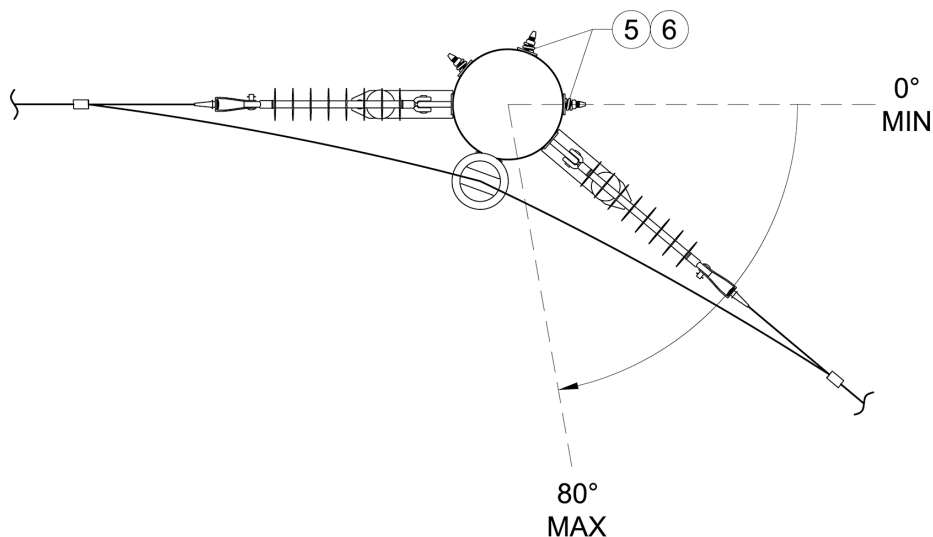
**Figure 3b. Allowable Line Angle Range for 0°–60° Double Deadend (1 Bolt) View Pole**



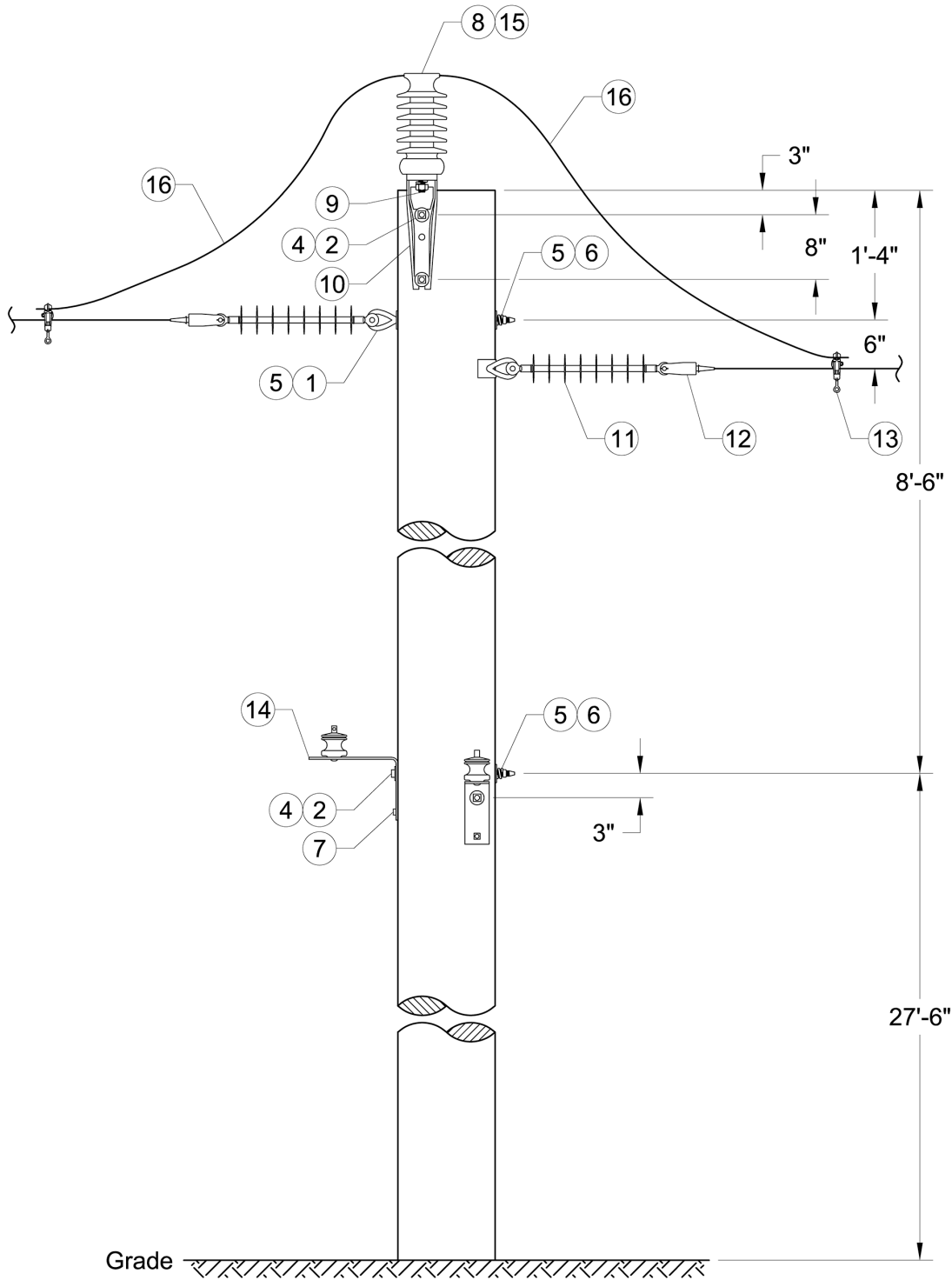
**Figure 3c. Single-Phase Double Deadend Pole Top Assembly for View Areas (0°–60°, 1 Bolt)**



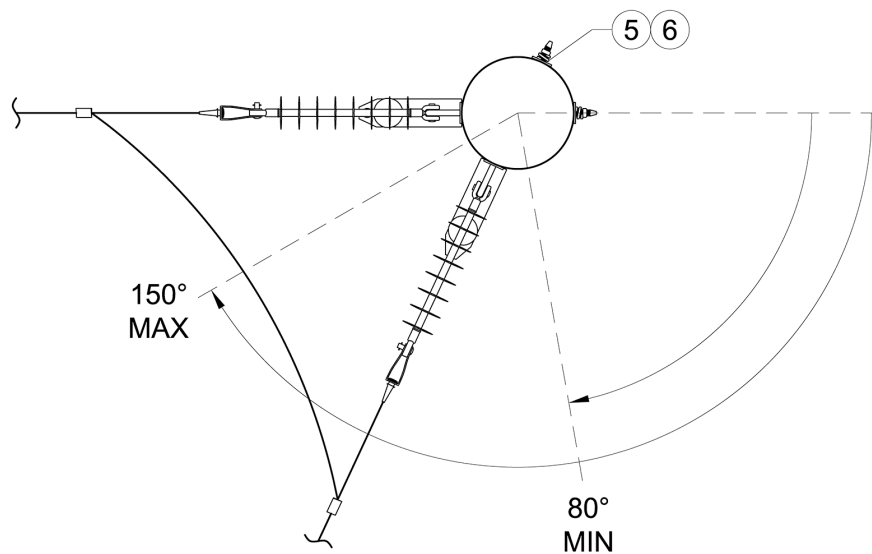
**Figure 3d. Allowable Line Angle Range for 0°–80° Double Deadend (2 Bolts) View Pole**



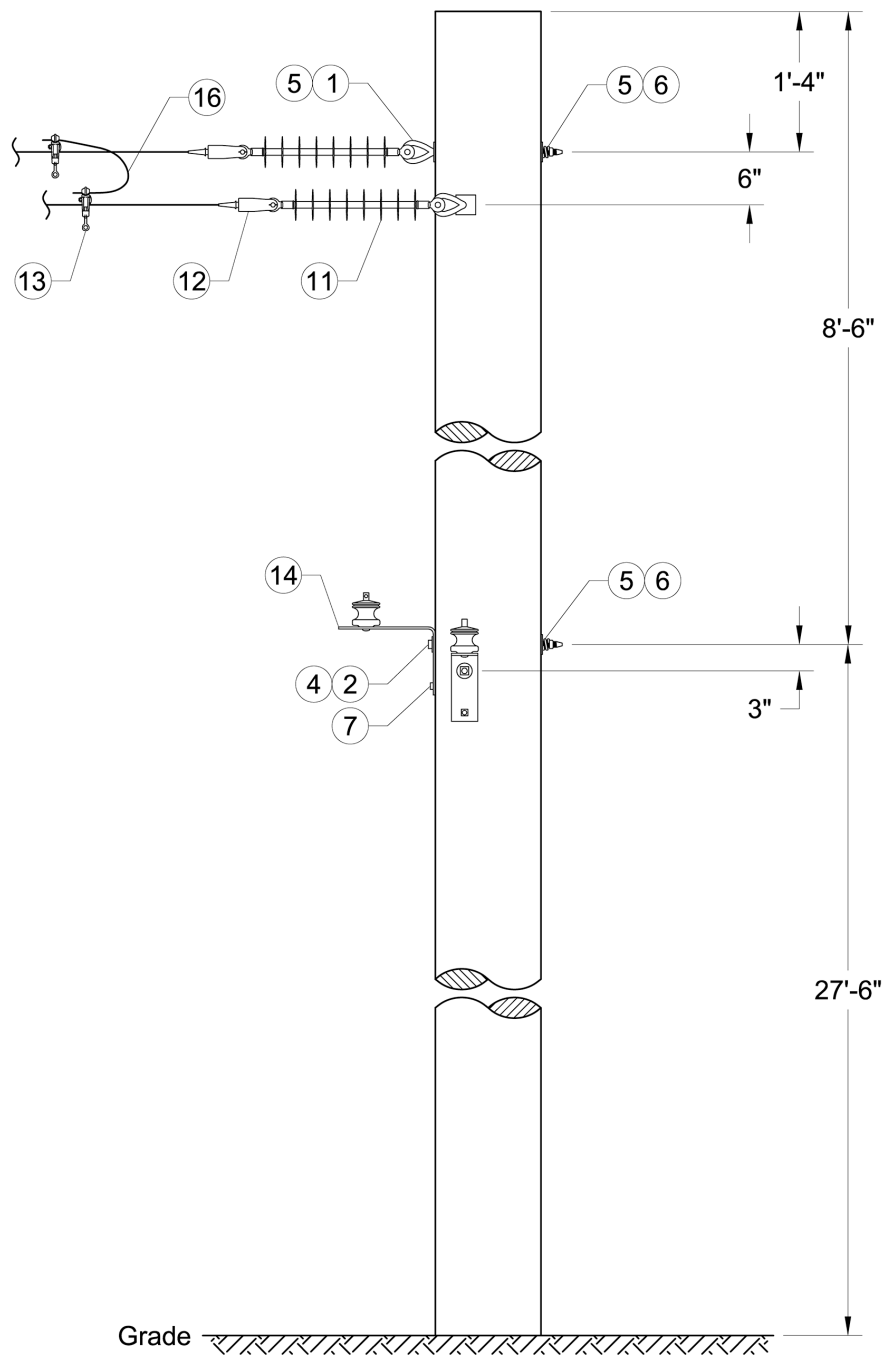
**Figure 3e. Single-Phase Deadend Pole Top Assembly for View Areas (0°–80°, 2 Bolts)**



**Figure 3f. Allowable Line Angle Range for 80°–150° Double Deadend (2 Bolts) View Pole**



**Figure 3g. Single-Phase Double Deadend Pole Top Assembly for View Areas (80°–150°, 2 Bolts)**



#### 4. Construction Notes

If two neutrals are required, mount the second neutral 1 ft below the top bolt hole of the original neutral.

If poor soil is found in the field, contact the SCL Design Engineer.

If there are avian and wildlife concerns, contact the SCL Design Engineer.

If there are salt spray concerns, contact the SCL Design Engineer.

#### 5. Material List

**Table 5. Materials for Single-Phase Deadend Pole Top Assemblies for View Areas**

| Fig | Compatible Unit                                             | ID              | Quantity |    |    |   |
|-----|-------------------------------------------------------------|-----------------|----------|----|----|---|
| 3a  | Single-phase #4 AWG deadend, view                           | PLT#4-1DEVW     |          |    |    |   |
| 3c  | Single-phase #4 AWG, double deadend, 0°–60°, 1 bolt, view   | PLT#4-1DDE60VW  |          |    |    |   |
| 3e  | Single-phase #4 AWG double deadend, 0°–80°, 2 bolts, view   | PLT#4-1DDE80VW  |          |    |    |   |
| 3g  | Single-phase #4 AWG double deadend, 80°–150°, 2 bolts, view | PLT#4-1DDE150VW |          |    |    |   |
| #   | Material Description                                        | ID              |          |    |    |   |
| 1   | Bolt, oval eye, galvanized, 5/8" x 14"                      | 561114          | 2        | 2  | 1  | 1 |
| 2   | Bolt, machine, galvanized, 5/8" x 14"                       | 780846          | 2        | 4  | 3  | 1 |
| 3   | Nut, eye, 5/8"                                              | 565252          | –        | –  | 1  | – |
| 4   | Washer, round, flat, 5/8"                                   | 585030          | 2        | 4  | 3  | 1 |
| 5   | Washer, square, flat, 2-1/4" x 2-1/4"                       | 585135          | 6        | 8  | 5  | 3 |
| 6   | Washer, coil, spring, 5/8"                                  | 584261          | 4        | 6  | 4  | 2 |
| 7   | Screw, lag, 1/2" x 4"                                       | 785261          | 2        | 2  | 1  | 1 |
| 8   | Insulator, post top, 34.5 kV                                | 014304          | –        | 1  | 1  | – |
| 9   | Stud, short, 3/4" x 1-3/4"                                  | 696826          | –        | 1  | 1  | – |
| 10  | Bracket, pole top                                           | 563253          | –        | 1  | 1  | – |
| 11  | Insulator, deadend, polymer, 20"                            | 690233          | 2        | 2  | 2  | 1 |
| 12  | Deadend, automatic, Cu #4 AWG                               | 581332          | 2        | 2  | 2  | 1 |
| 13  | Clamp, hot line tap, 2/0–#8 AWG                             | 580725          | 2        | 2  | 2  | – |
| 14  | LR bracket                                                  | 690404          | 2        | 2  | 1  | 1 |
| 15  | Wire, tie, insulator, #6 AWG SD solid Cu (ft)               | 610210          | –        | 3  | 3  | – |
| 16  | Wire, jumper, #4 AWG solid bare Cu SD (ft)                  | 610208          | 10       | 14 | 12 | – |

#### 6. References

**SCL Construction Standard 0199.01**; "Requirements for Guying and Anchoring"

**SCL Construction Standard 0101.01**; "Single-Phase Tangent Pole Top Assembly for View Areas"

**SCL Construction Standard 0101.03**; "Single-Phase Angle Pole Top Assembly For View Areas"

## 7. Sources

**Hall, Alan**; SCL Engineer and subject matter expert for 0101.05 (alan.hall@seattle.gov)

**Lu, Curtis**; SCL Standards Engineer and originator of 0101.05 (curtis.lu@seattle.gov)

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