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## Three-Phase Deadend Wing Arm Pole Top Assemblies

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### 1. Scope

This standard covers the information necessary to construct pole top assemblies for three-phase deadend wing arm poles supporting #4 AWG copper, 397.5 kcmil ACSR, and 954 kcmil ACSR primary conductors on the 26 kV primary distribution system. Installation instructions for connecting the primary conductor to the pole are included, along with requirements for vertical spacing and hardware.

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

<b>Grade of construction</b>	B or C
<b>Pole class</b>	1 or stronger
<b>Pole length</b>	50 ft
<b>Soil condition</b>	Average
<b>Allowable line angle</b>	–

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 three-phase deadend wing arm pole top assemblies on 26 kV distribution poles with primary conductors.

Two configurations are detailed:

- Maximum spacing (the most common configuration)
- Maximum offset

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### 3. General Requirements

Wing arms are for temporary installation and maintenance only.

Wing arms are not part of regular construction and shall only be installed in locations where a standard crossarm cannot provide adequate clearance to meet code.

All wing arms are guyed and shall be guyed according to the requirements in SCL 0199.01.

A three-phase deadend wing arm pole configured for **maximum spacing** shall be constructed as shown in Figures 3a and 3b.

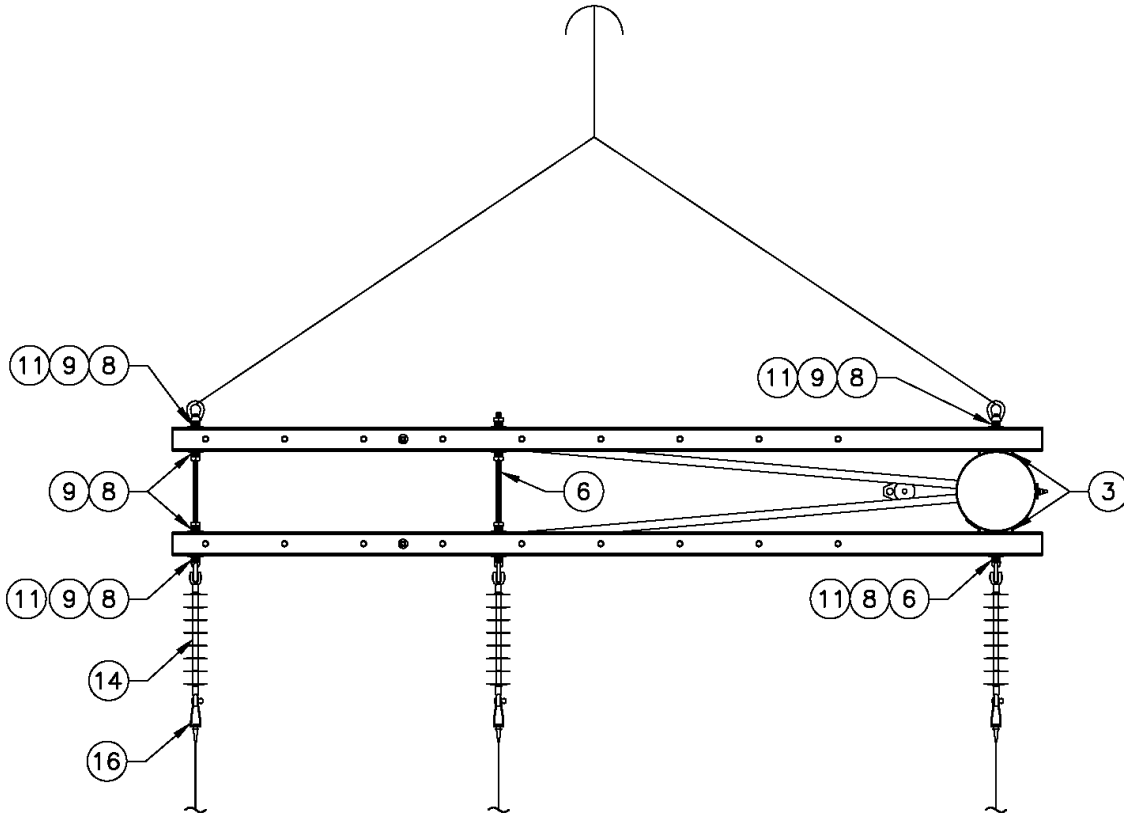
The holes for the two phases closest to the pole shall be field drilled and use double-arming bolts.

A three-phase deadend wing arm pole configured for **maximum offset** shall be constructed as shown in Figures 3c and 3d.

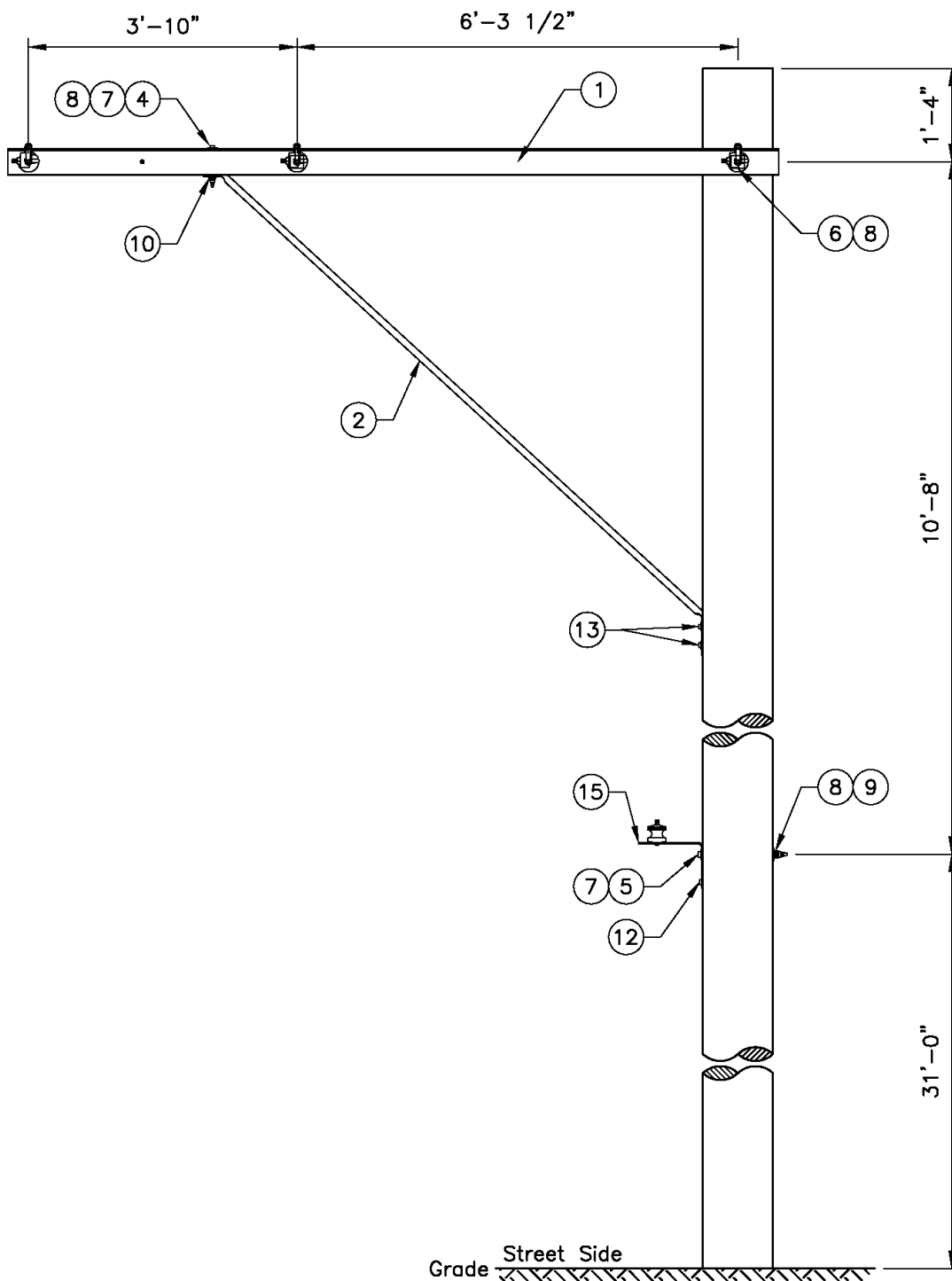




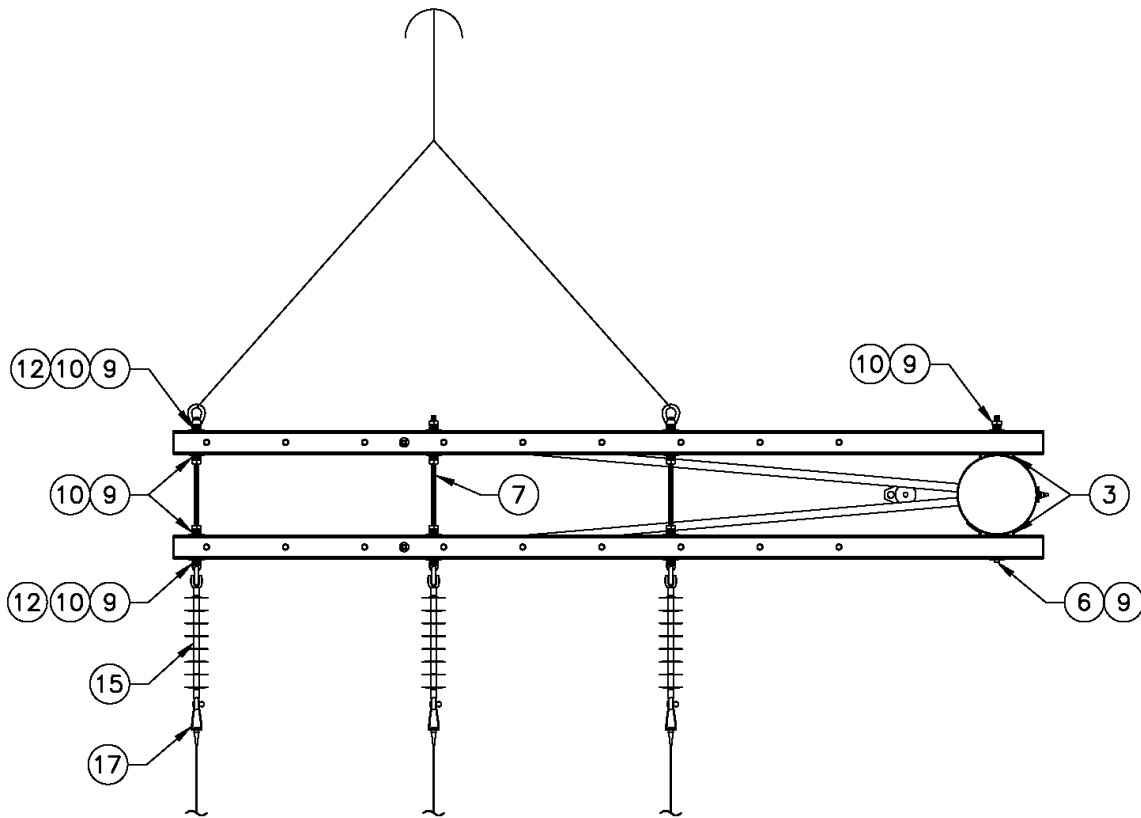
**Figure 3a. Maximum Spacing Three-Phase #4 AWG Copper, 397.5 and 954 kcmil ACSR Deadend Wing Arm, Top View**



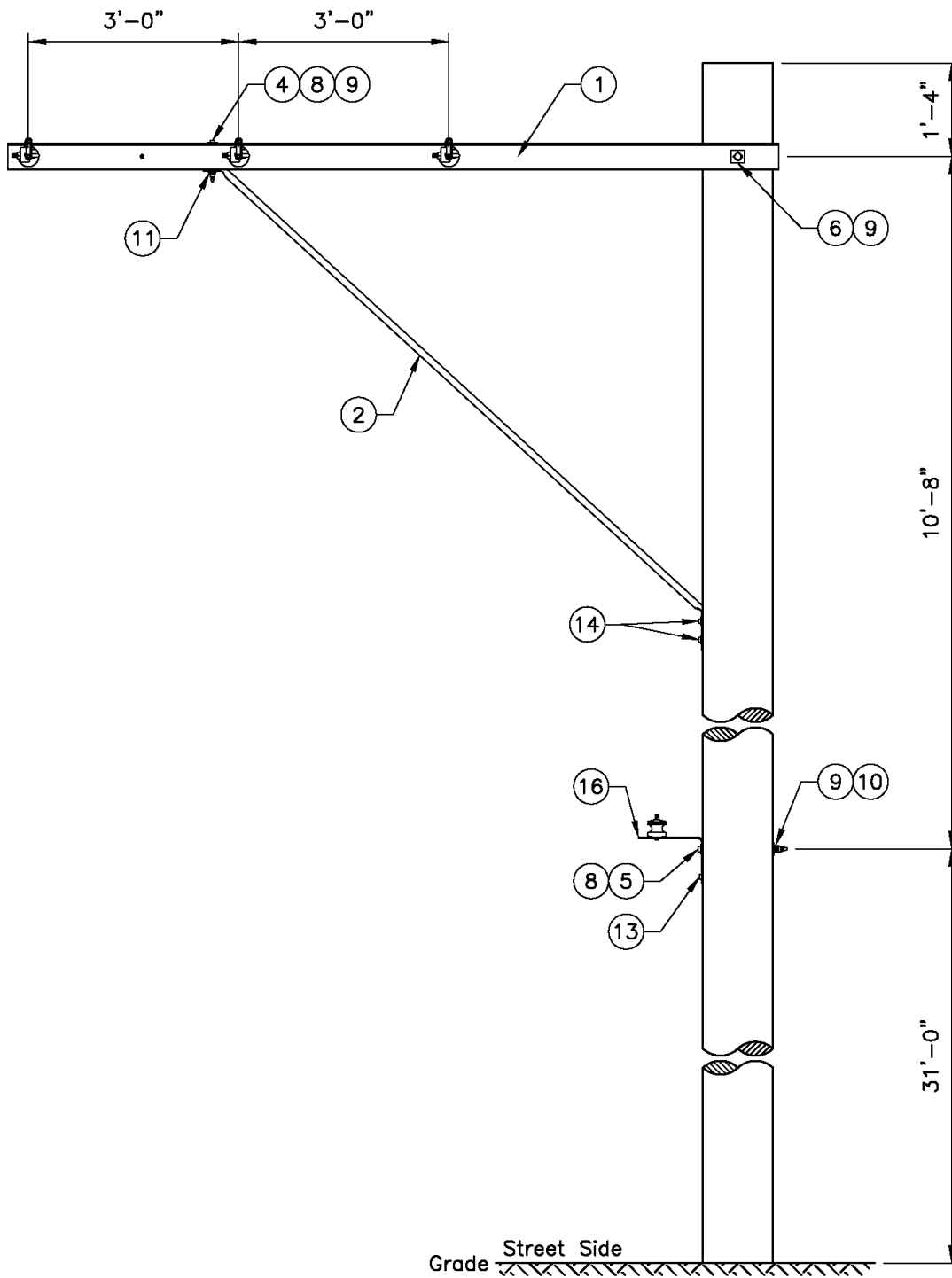
**Figure 3b. Maximum Spacing Three-Phase #4 AWG Copper, 397.5 and 954 kcmil ACSR Deadend Wing Arm Pole Top Assembly, Side View**



**Figure 3c. Maximum Offset Three-Phase #4 AWG Copper, 397.5 and 954 kcmil ACSR Deadend Wing Arm, Top View**



**Figure 3d. Maximum Offset Three-Phase #4 AWG Copper, 397.5 and 954 kcmil ACSR Deadend Wing Arm Pole Top Assembly, Side View**



**4. Construction Notes**

- The LR bracket is installed on the street side of the pole.
- If two neutrals are required, mount the second neutral on the street side 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 5a. Materials for Maximum Spacing Three-Phase Deadend Wing Arm Pole Top Assembly**

Fig	Compatible Unit	ID	Quantity			
3b	Three-phase #4 AWG copper deadend wing arm pole top assembly	PLT#4-3MSWINGDE				
3b	Three-phase 397.5 kcmil ACSR deadend wing arm pole top assembly	PLT397-MSWINGDE				
3b	Three-phase 954 kcmil ACSR deadend wing arm pole top assembly	PLT954-MSWINGDE				
3b	Two-phase #4 AWG copper deadend wing arm pole top assembly	PLT#4-2MSWINGDE				
#	Material Description	ID	↓	↓	↓	↓
1	Arm, wing, 11'	540209	2	2	2	2
2	Brace, galvanized steel pipe, 1-1/4" x 9'-1"	563015	2	2	2	2
3	Gain plate	565313	2	2	2	2
4	Bolt, machine, galvanized, 5/8" x 7"	780838	2	2	2	2
5	Bolt, machine, galvanized, 5/8" x 14"	780846	1	1	1	1
6	Bolt, double arming, galvanized, 5/8" x 22"	560522	3	3	3	3
7	Washer, round, flat, 5/8"	585030	3	3	3	3
8	Washer, square, flat, 2-1/2" x 2-1/2"	585135	13	13	13	13
9	Washer, spring lock, 5/8"	584261	11	11	11	11
10	Washer, galvanized cut, 5/8"	585030	2	2	2	2
11	Nut, oval eye, 5/8"	565252	5	5	5	5
12	Screw, lag, 1/2" x 4"	785261	1	1	1	1
13	Screw, lag, 1/2" x 6"	785265	4	4	4	4
14	Insulator, deadend, polymer, 20"	690233	3	3	3	3
15	Bracket, LR	690404	1	1	1	1
16	Deadend, automatic, feedthrough, #4 AWG Cu	581332	3	–	–	3
16	Clamp, deadend, straight-line, #3/0–397	694292	–	–	3	–
16	Clamp, deadend, straight-line, 795–954	694294	–	3	–	–

**Table 5b. Materials for Maximum Offset Three-Phase Deadend Wing Arm Pole Top Assembly**

Fig	Compatible Unit	ID	Quantity			
3d	Three-phase #4 AWG copper deadend wing arm pole top assembly	PLT#4-3MOWINGDE				
3d	Three-phase 397.5 kcmil ACSR deadend wing arm pole top assembly	PLT397-MOWINGDE				
3d	Three-phase 954 kcmil ACSR deadend wing arm pole top assembly	PLT954-MOWINGDE				
3d	Two-phase #4 AWG copper deadend wing arm pole top assembly	PLT#4-2MOWINGDE				
#	Material Description	ID				
1	Arm, wing, 11'	540209	2	2	2	2
2	Brace, galvanized steel pipe, 1-1/4" x 9'-1"	563015	2	2	2	2
3	Gain plate	565313	2	2	2	2
4	Bolt, machine, galvanized, 5/8" x 7"	780838	2	2	2	2
5	Bolt, machine, galvanized, 5/8" x 14"	780846	1	1	1	1
6	Bolt, machine, galvanized, 5/8" x 18"	780848	1	1	1	1
7	Bolt, double arming, galvanized, 5/8" x 22"	560522	3	3	3	3
8	Washer, round, flat, 5/8"	585030	3	3	3	3
9	Washer, square, flat, 2-1/2" x 2-1/2"	585135	13	13	13	13
10	Washer, spring lock, 5/8"	584261	11	11	11	11
11	Washer, galvanized cut, 5/8"	585030	2	2	2	2
12	Nut, oval eye, 5/8"	565252	5	5	5	5
13	Screw, lag, 1/2" x 4"	785261	1	1	1	1
14	Screw, lag, 1/2" x 6"	785265	4	4	4	4
15	Insulator, deadend, polymer, 20"	690233	3	3	3	3
16	Bracket, LR	690404	1	1	1	1
17	Deadend, automatic, feedthrough #4 AWG Cu	581332	3	-	-	3
17	Clamp, deadend, straight-line, #3/0-397	694292	-	-	3	-
17	Clamp, deadend, straight-line, 795-954	694294	-	3	-	-

**6. References**

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

**7. Sources**

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

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