

WA Electrical Requirements

Amendment No. 1 to January 2014 Edition

Issued October 2015

- Section 1: Introduction

Add the following new paragraph:

“NOTE: Where Amendment No. 1 issued in September 2015 amends the original February 2014 edition, an “A1” notation is inserted in the left hand margin. Full details of each amendment are published separately – see www.energysafety.wa.gov.au”

- Section 2: Definitions

Replace the definition of Consumer pole with the following:

“**Consumer pole:** A private pole required to provide adequate ground clearance for the network operator’s overhead service cables.”

Insert the following new definition:

“**Private pole:** A pole supplied and installed by the property owner as required in Section 4.6.”

- Section 3.1: Supply Arrangements

Replace Figure 3.2 and title with the following new figure and title:

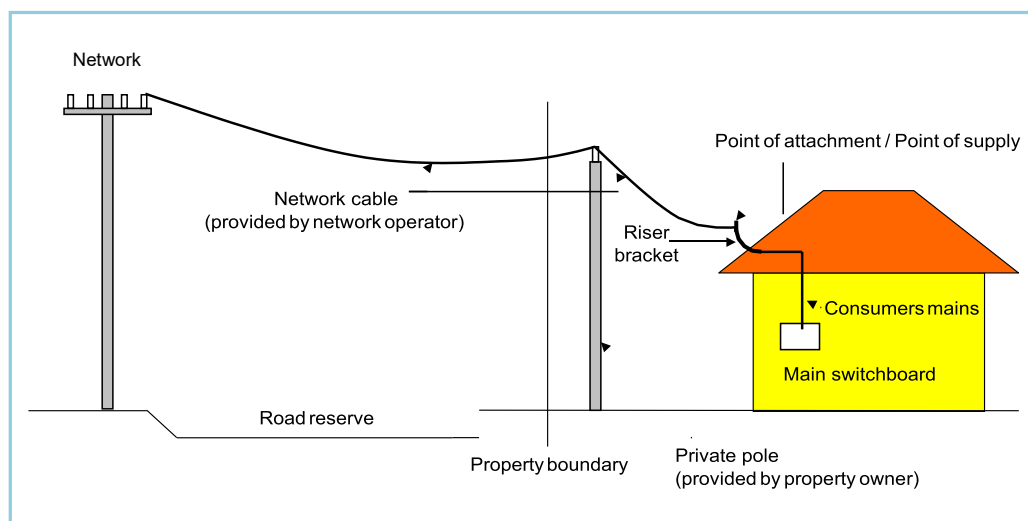


Figure 3.2 Overhead service with private pole

Replace Figure 3.3 and title with the following new figure and title:

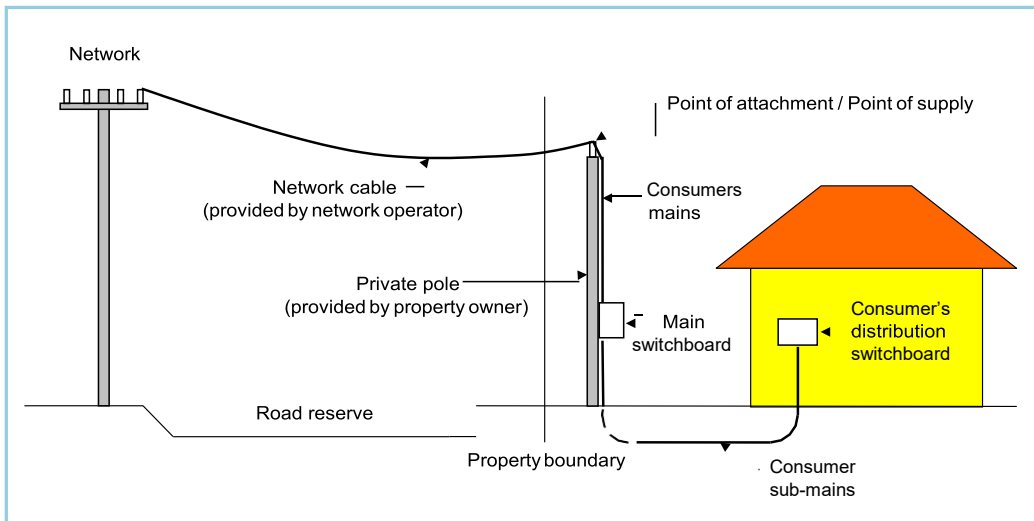
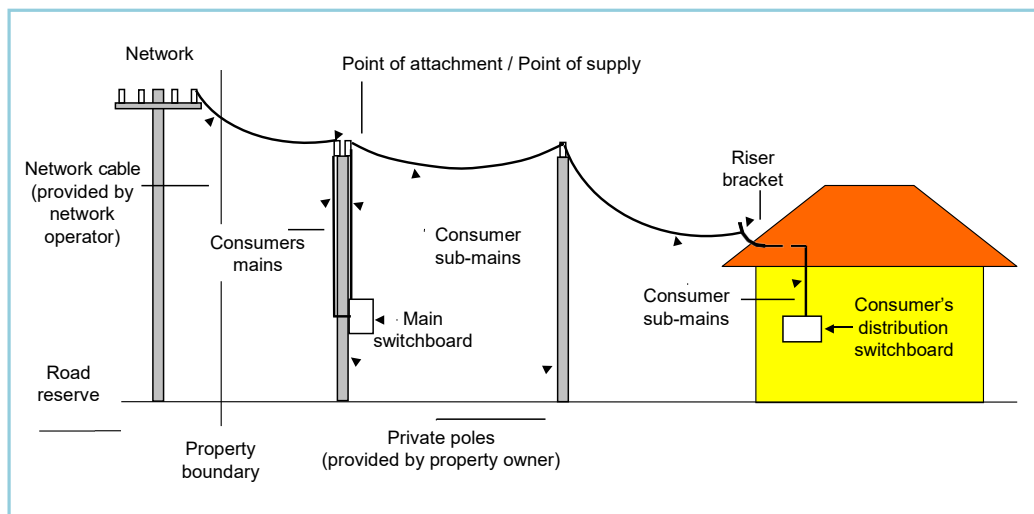


Figure 3.3 Overhead supply to private pole/main switchboard

Replace Figure 3.4 with the following new figure:



- Delete Section 3.5.7 (entitled “Notification”) in its entirety
- Section 3.6.5: Survey Strata Lots – Domestic
In the first dot point, replace the word “lot” with the word “zone”

- Insert new section 3.7:

“3.7 Privately Owned Low Voltage Power Lines

All new and replacement low voltage power lines within a consumer installation⁶ should be installed underground to maximise the safety of the premises and its occupants.

However, in situations where it is not practical or cost-effective to use an underground system, an overhead (aerial) system may be used, provided that it:

- uses galvanised steel poles or treated timber poles as detailed in Section 4.6; and
- utilises insulated conductors; and
- complies with the requirements of Section 3.12 of the Wiring Rules.

EnergySafety’s publication *Guidelines for the safe management of private power poles and lines* provides guidance⁷ on good industry practice for the design, construction and maintenance of privately owned low voltage power lines.

⁶ For the avoidance of doubt, this includes electrical infrastructure in regional communities where the infrastructure is owned and operated by the community (i.e. electrical assets that are not owned/operated by a network operator).

⁷ For guidance only; requirements are recommended but are not mandatory.”

- Section 4: LV Overhead Network

Amend title to read:

“4 Low Voltage Overhead Connections”

- Section 4.4: Spans and Clearances

Delete the second paragraph (commencing “Subject to the requirements ...”) in its entirety

- Section 4.5: Consumer Poles

Add a footnote at the end of the title as follows:

4.5 Consumer Poles⁸

⁸ See definition of consumer pole in Section 2.”

- Insert new section 4.6:

“4.6 Private Poles⁹

Property owners may be required to supply and install pole(s) on their property for the purposes of:

- (a) supporting the network operator’s low voltage network cable to provide adequate ground clearance (see definition of “consumer pole” in Section 2); or
- (b) providing a point of attachment for the network operator’s low voltage network cable; or
- (c) supporting privately-owned low voltage power lines.

Private poles shall comply with the following technical requirements:

- 1) For the purpose of 4.6(a) – the network operator’s technical requirements;
- 2) For the purpose of 4.6(b) – Section 4 of this document, Section 3.12.6 of the Wiring Rules and any additional technical requirements of the network operator;
- 3) For the purpose of 4.6(c):
 - (i) Are either galvanised steel or Copper Chrome Arsenic (CCA) treated timber; and
 - (ii) Section 3.12.6 of the Wiring Rules - this section of the Wiring Rules also provides a reference to AS/NZS 7000: Overhead line design – Detailed procedures for further detailed technical requirements which may apply in different environments e.g. cyclonic winds and other climatic factors;
- 4) Sawn timber poles and untreated round timber poles shall not be used; and
- 5) Steel poles shall be installed in a concrete footing as shown in the following diagram:

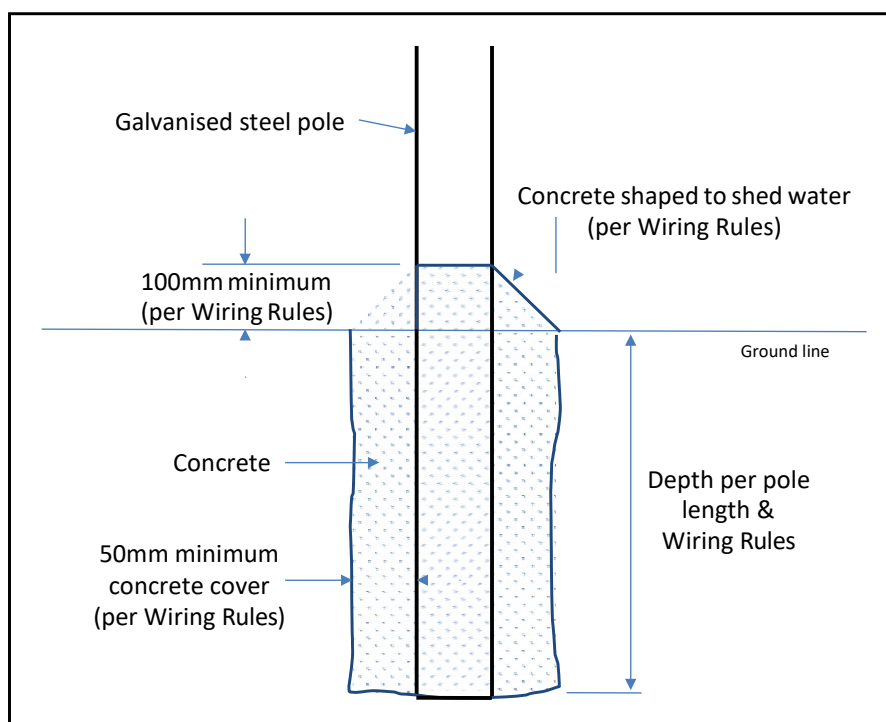


Figure 4.6 Steel pole footing details

EnergySafety’s publication *Guidelines for the safe management of private power poles and lines* provides guidance¹⁰ on good industry practice for the design,

construction and maintenance of privately owned power poles. In particular, different pole options are recommended in different geographical areas according to predominant soil characteristics and being prone to bushfire.

⁹ See definition of private pole in Section 2.

¹⁰ For guidance only; requirements are recommended but are not mandatory.

- Section 5: LV Underground Network

Amend title to read:

“5 Low Voltage Underground Connections”

- Section 5.2: Cables and Enclosures

In the third paragraph, replace “sections 9.5 and 9.6” with “section 9.4”

- Section 6.2.1: General Requirements

At the start of the second paragraph, insert the word “Both”

Replace the third paragraph with the following:

“For CT connected metering installations, the SPD does not replace the main switch except for sole-use substations, where the transformer circuit breaker need not be duplicated.”

- Section 6.2.3.1: Maximum Demand Not Exceeding 100A

In the second paragraph, delete the word “portable”

- Insert new section 6.4:

“6.4 Earthing of Remote Metering Enclosures

Where a remote metering enclosure (separate from the main switchboard) is required for network operator access to metering equipment, the enclosure shall be effectively earthed by either of the two methods described in Section 5.5.3.5 of the Wiring Rules, namely:

Method 1

The enclosure is connected to the consumers mains neutral by a conductor of cross sectional area not less than the neutral conductor, as shown in Figure 6.1.

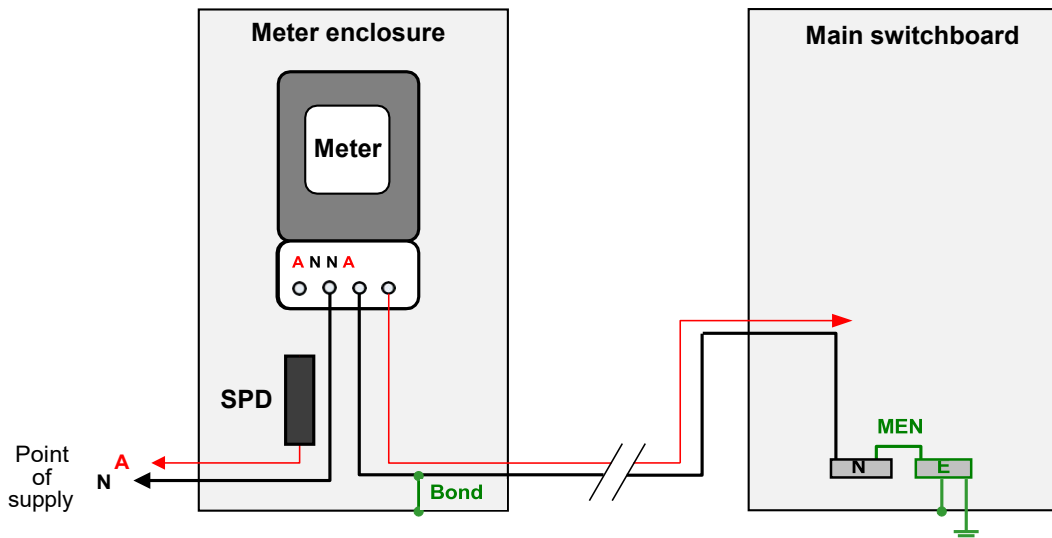


Figure 6.1 Neutral bonding of remote metering enclosure

The main neutral conductor must be continuous (i.e. unbroken) and connection may be made by:

- Splicing, soldering and taping; or
- Using a two screw connector and then taping.

This does not preclude other methods of jointing provided they comply with the Wiring Rules.

This method must not be used where the metering enclosure and switchboard are mounted on the same metal-framed building structure.

Method 2

The enclosure is connected to the earth bar in the main switchboard via an earthing conductor of the same size as the consumers mains neutral, as shown in Figure 6.2.

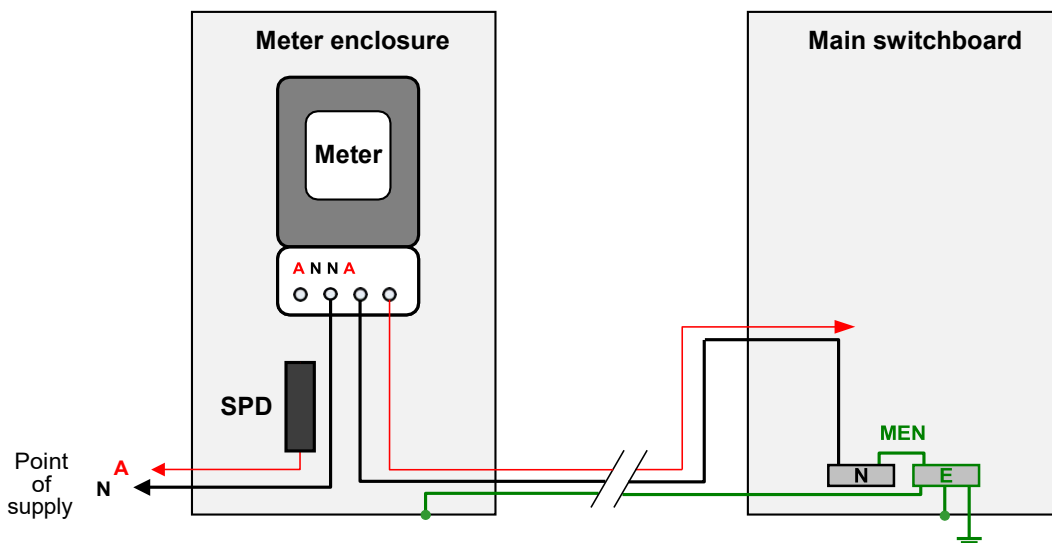


Figure 6.2 Connection of remote metering enclosure to main earth

Method 2 must be used where the metering enclosure and switchboard are mounted on the same metal-framed building structure.”

- Section 9: Special Requirements for Installations in WA

In section 9.1 second paragraph, replace the number “9.14” with “9.12”

Replace the text in section 9.5 with the following paragraph:

“Insulated and sheathed d.c. cables may be installed in the cavity of double-brick walls without enclosure in heavy duty conduit (reference Clause 4.3.6.3.2 of AS/NZS 5033:2014) but shall otherwise comply with the requirements of AS/NZS 5033:2014.”

- Section 10.5.13: General Information

Replace the contact phone number with “(08) 9026 5673”

Replace the contact facsimile number with “(08) 9026 5395”

Add a contact email address:

“**Email** NiWNLNMaintenanceEngineering@bhpbilliton.com”

- Appendix 1: Part 1 Design and Verification Certificate

Replace the three references to “Section 12.1” with “Section 9.1”

- Add new Appendix 2 as follows:

“Appendix 2

WAER document history

Date	Description	Document reference
2000	Original document issued	
2005	Reprint of 2000 version and subsequent amendments	A1227851
July 2008	Various amendments, new format	A1227841
December 2008	Several editorial changes, new Section 13.5 added	A9652185
January 2014	Extensive review and rewritten	A7933059
October 2015	Various editorial changes, new sections added for: <ul style="list-style-type: none"> • Private power lines and poles • Earthing of remote metering cubicles 	A12807313

WA Electrical Requirements

Amendment No. 2 to January 2014 Edition

Issued December 2015

- Section 1: Introduction

Replace the last paragraph with the following:

“NOTE: Where Amendment No. 1 issued in September 2015 amends the original February 2014 edition, an “A1” notation is inserted in the left hand margin. Where Amendment No. 2 issued in December 2015 amends the February 2014 edition, an “A2” notation is inserted in the left hand margin. Full details of each amendment are published separately – see www.energysafety.wa.gov.au”

- Section 6.3: Energisation

Delete the fifth paragraph (commencing “In addition to issuing ...”) in entirety.

- Appendix 2: WAER document history

Add a new line to the table as follows:

December 2015	Requirements for an installation test certificate deleted from Section 6.3	A13248289
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WA Electrical Requirements

Amendment No. 3 to January 2014 Edition

Issued August 2019

- Section 3.7: Privately owned low voltage power lines

Insert 'fibre reinforced cement poles'

"However, in those situations where it is not practical or cost-effective to use an underground system, an overhead (aerial) system may be used, provided that it:

- uses galvanised steel poles, fibre reinforced cement poles or treated timber poles as detailed in Section 4.6;"

- Section 4.6: Private poles

Insert 'fibre reinforced cement' in point 3(i).

"3) for the purpose of 4.6(c):

- (i) are either galvanised steel, fibre reinforced cement or Copper Chrome Arsenic (CCA) treated timber;"

- Appendix 2: WAER document history

Add a new line to the table as follows:

August 2019	Editorial change to include fibre reinforced cement poles in sections 3.7 and 4.6	A28831681
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