

5.4.2 Property Poles

- (a) Precautions must be taken to prevent both internal and external corrosion in steel property poles. Due to the difficulties of assessing the extent of internal corrosion of steel in ground poles a rag bolt assembly is mandatory where a steel pole is used for the first property pole. Refer to Drawings ECMM 5.3-1, 5.4-1 and 5.4-2 for a 1.0kN SWL design or 5.3-2, 5.4-3 and 5.4-4 for a 3.5kN SWL design. Note that these drawings have prior *RPEQ* certification and if this design is used exactly as detailed in the drawings then additional *RPEQ* certification is not required. If ANY modification is made to this design (including simple welding of attachments) then *RPEQ* certification is required for that modification hence *electrical contractors* should not be making on-site modifications without obtaining *RPEQ* sign off. Similarly pole manufacturers should not change the design of the drawings without obtaining *RPEQ* sign off. These drawings are not mandatory but provided as an example of an approved design. *Electrical contractors* can use other designs but must have *RPEQ* certification and provide a copy of the *RPEQ* certificate with the pole for approval by the *distributor* connection officer prior to connecting supply.

For Builder's Temporary Supply (BTS), where a steel reusable pole is used, refer to Drawings ECMM 5.5, 5.6-1 and 5.6-2 for details of an approved design. The connection of the overhead *service line* can be facilitated with the use of a mains connection box suitable for copper conductors.

The *point of attachment* is to be mounted within 600mm from the top of the pole (however this distance can be increased to ensure the point of attachment is no higher than 8m from the ground) and the *connection point* is to be as per Clause 5.4.5 (a).

- (b) Timber property poles are to be suitably treated and have a minimum SWL rating of 5kN (as indicated on the pole disc). Other types of timber property poles are acceptable provided they meet the requirements of AS/NZS 3000 (Wiring Rules) Appendix D.

Within the *Ergon Energy* distribution area it is required that all customer property poles be a minimum of 5.0m out of the ground.

- (c) Other types of property poles are acceptable that have an *RPEQ* certificate and are rated fit for use i.e. (1kN, 3.5kN or 7kN) and must also comply with Clause 5.4.6.
- (d) Private equipment can be installed on a property pole. The private equipment must not be located above the *service line*, shall be at least 1.2m below the *point of attachment* (does not include *consumer's mains/sub mains*) and must be in a position that does not limit access to the *point of attachment*.

5.4.3 Overhead Service Line Attachments

- (a) Standard service cables used are XLPE insulated aluminium in sizes 25mm², 35mm² (*Energex* only), 50mm² (*Ergon Energy* only) and 95mm². Paralleling of 25mm², 35mm² (*Energex* only) and 50mm² (*Ergon Energy* Only) is not allowed for residential connections. Paralleling of 95mm² is allowed for a commercial/industrial connection but is not the preferred arrangement. The preferred arrangement is 240mm² Al 4 core underground cables with a Commercial & Industrial pillar as the connection point. A 6mm² copper *service line* may be used for small *unmetered supplies* such as telephone cabinets etc.

- (b) The following safe working loads (SWL) apply:
- (i) Attachments for 25mm² and 35mm² (*Energex* only) overhead *service lines* shall have a load rating of 1kN working load. (Refer to Drawing ECMM 5.7).
 - (ii) 50mm² (*Ergon Energy* only) and 95mm² services shall have a load rating of 3.5kN working load and parallel (twin) 95mm² overhead *service lines* (refer above condition) shall have a load rating of 7kN working load. Safe working loads shall be determined by applying a factor of 2 to failing loads.

For overhead *service lines* requiring a 3.5kN design for the eye bolt, raiser bracket or service pole, (other than hardwood timber which requires 5kN), the customer must provide certification from a suitably qualified person (i.e. an *RPEQ*) that the structure is suitable for the application. (Refer to Drawing ECMM 5.10).

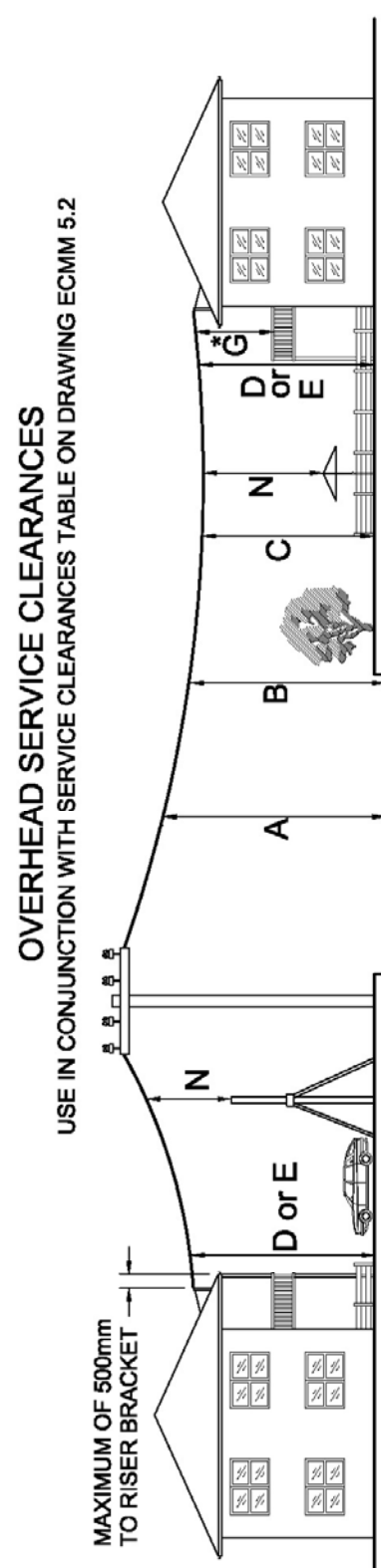
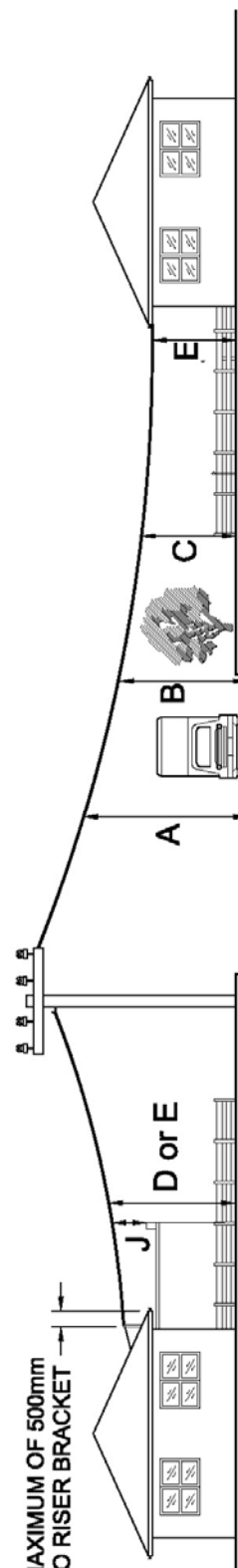
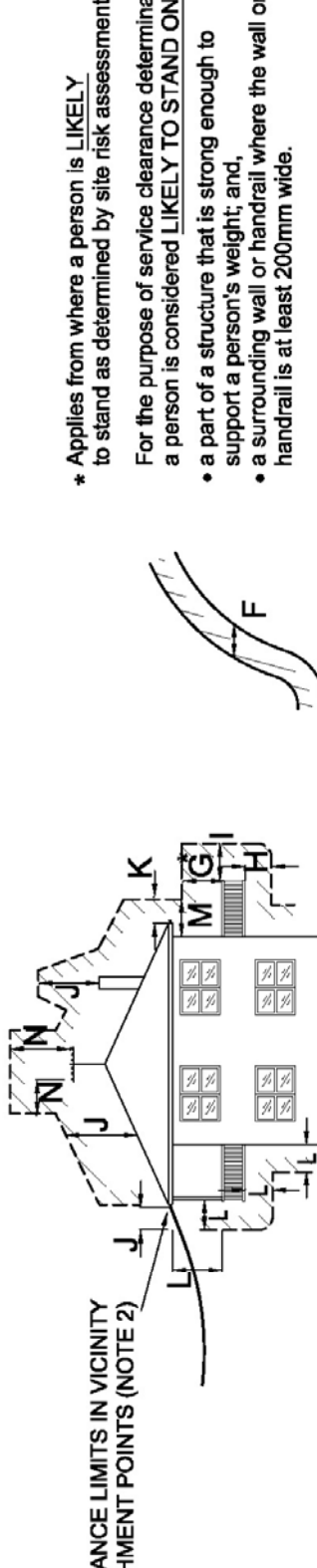
- (c) The method of attachment of an overhead *service line* to a structure shall be such that mechanical load is transmitted to the frame of the structure. Details of approved attachment details for 1kN and 3.5kN service attachments are contained in Drawings ECMM 5.7; 5.8; 5.9 and 5.10.
- (d) 'J' Hooks are not permitted on fascias or poles. For 1kN services a minimum M12 open eye screw or eye bolt is acceptable. For other services up to 3.5kN a minimum M16 eye bolt is required
- (c) Where any electric line or electrical article of a *customer's* electrical installation is to be supported by any structure, other than a wooden or steel pole conforming to the requirements of AS/NZS 3000 (Wiring Rules), the *customer* must provide certification from a suitably qualified person (i.e. an *RPEQ*) that the structure is suitable for the application.
- (d) The maximum height of the *point of attachment* of any overhead *service line* on a customer's *premises* shall not exceed 8m above ground or floor level and shall have ready and safe access by ladder. This maximum height may only be exceeded in special situations where the *distributor* has approved the arrangement, and given this approval in writing.
- (e) Where raiser brackets or eyebolts are used, the design and installation is to make provision for work to be carried out safely. (Refer to the Workplace Health and Safety Legislation).
- (f) The *point of attachment* must not be positioned such that the *distributor's* personnel need to climb on roofs or enter swimming pool areas. (Refer to Drawing ECMM-7.9).

5.4.4 Raiser Brackets

Proprietary raiser brackets (not exceeding 1.2m in height), certified by an *RPEQ*, tested to a suitable SWL (e.g. 1kN or 3.5kN minimum rating for raiser brackets), and approved by *Energex* or *Ergon Energy* are deemed suitable.

Notes:

1. Within the *Ergon Energy* distribution area, the maximum size overhead *service line* that will be erected to 1kN rated brackets is 3 phase 25mm². (Refer to Clause 5.4.3(a) for 3.5kN bracket requirements).
2. Refer to Drawings ECMM 5.7 and 5.8 for examples of acceptable service raiser bracket designs i.e. brackets that display an SWL and are fitted with a means of attachment that will retain the service in high wind conditions (e.g. a pigtail or closed loop).

OVERHEAD SERVICE CLEARANCES	
<p>USE IN CONJUNCTION WITH SERVICE CLEARANCES TABLE ON DRAWING ECMM 5.2</p> 	
<p>NO CLEARANCE LIMITS IN VICINITY OF ATTACHMENT POINTS (NOTE 2)</p> 	<p>* Applies from where a person is LIKELY to stand as determined by site risk assessment.</p> <p>For the purpose of service clearance determination, a person is considered LIKELY TO STAND ON:</p> <ul style="list-style-type: none"> • a part of a structure that is strong enough to support a person's weight; and, • a surrounding wall or handrail where the wall or handrail is at least 200mm wide.
Revision: A	OVERHEAD SERVICE CLEARANCES
ECMM - 5.1	

SERVICE CLEARANCE TABLE

Neutral Screened and Insulated Cables

CODE	LOCATION	DIRECTION	INSULATED SERVICE CABLE
MINIMUM CLEARANCE FROM GROUND ROADS			
A	At centre-line of the carriageway	VERTICALLY	5.5m
B	At kerb line (bottom of kerb)	VERTICALLY	4.9m
C	At fence alignment	VERTICALLY	3.7m
OTHER THAN ROADS			
D	Private driveways and areas including elevated areas used by vehicles	VERTICALLY	4.5m
E	Areas not normally used by vehicles	VERTICALLY	2.7m
F	Road cuttings, embankments and other similar places.	HORIZONTALLY	1.5m
MINIMUM CLEARANCE FROM STRUCTURES AND BUILDINGS			
G	Unroofed terraces, balconies, sun-decks, paved areas, and similar areas that are subject to pedestrian traffic only, that have a hand rail or wall surrounding the area and on which a person is likely to stand (Note 2) must be-	VERTICALLY ABOVE	2.4m
H		VERTICALLY BELOW	1.2m
I		HORIZONTALLY (Note 1)	0.9m
J	Roofs or similar structures not used for traffic or resort but on which a person is likely to stand, and for parapets surrounding roofs or similar structures not used for traffic or resort but on which a person is likely to stand (Note 2) must be-	VERTICALLY	0.5m
K		HORIZONTALLY (Note 1)	0.2m
L	Covered places of traffic or resort, including for example windows which are capable of being opened, roofed open verandahs and covered balconies must be (Note 6)	IN ANY DIRECTION	1.2m
M	Blank walls, windows which cannot be opened (Note 2) must be-	HORIZONTALLY	0.2m
N	Other structures not normally accessible to persons (Note 2) must be-	IN ANY DIRECTION	1.2m

NOTES :

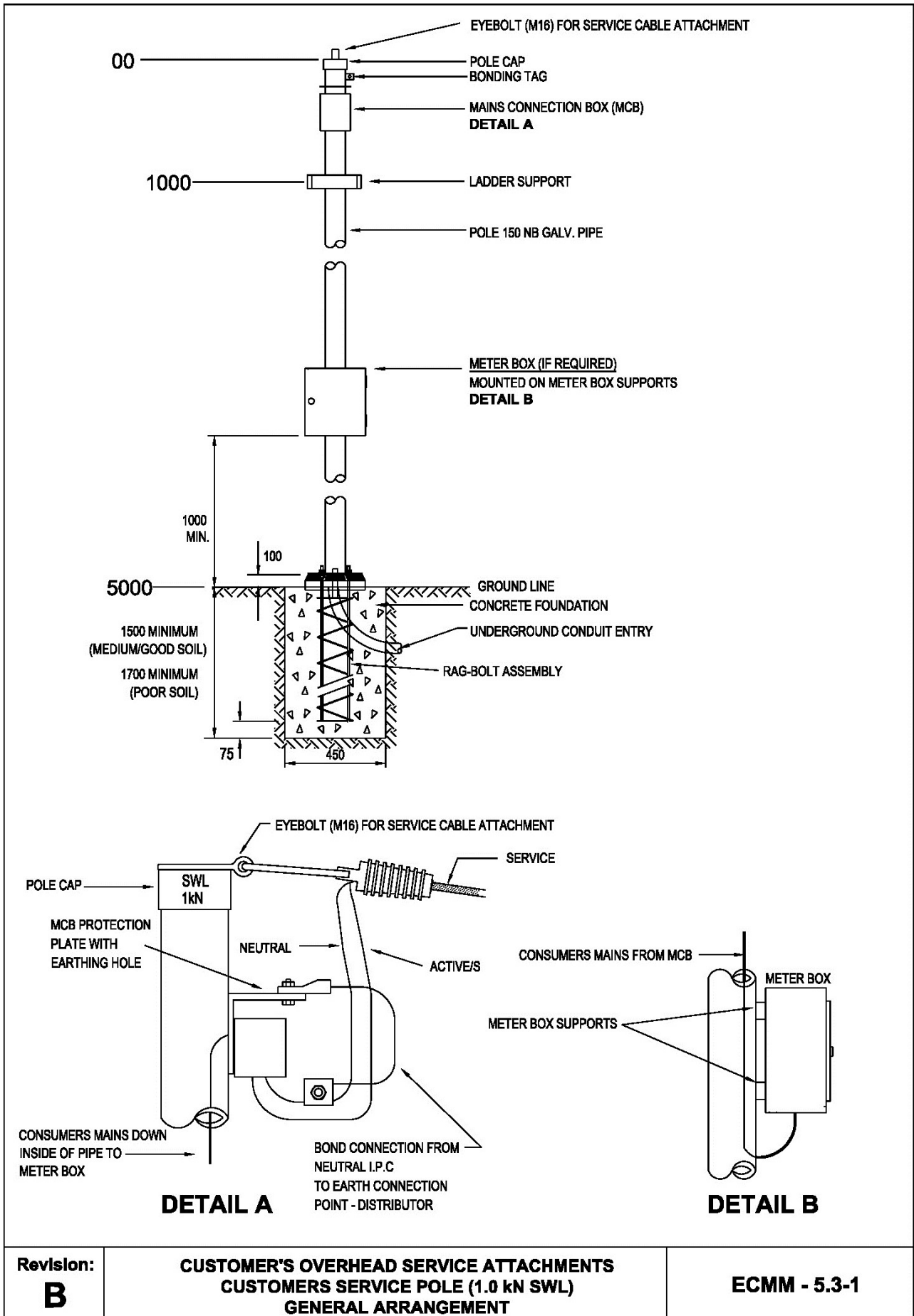
- Either the vertical clearance or the horizontal clearance stated must be maintained. Also, in the zone outside the vertical alignment of the building or structure, either the horizontal clearance from the vertical alignment, or vertical clearance above the horizontal level on which a person is likely to stand must be maintained.
- Stated clearances apply to a service line not attached to the part of the building described.
- The clearance stated does not apply to the part of the low voltage overhead service line not under tension. Drip loops are excluded however, consideration should be given to drip loop positioning. (Note: Point of supply is to be not more than 600mm from the point of attachment - POA).
- Where there is no formed footpath, the kerb line means:
 - the kerb line of a proposed footpath, or
 - where no footpath is proposed, the edge of the existing carriageway or of any proposed widening thereof.
- Where there is a formed footpath with kerb & channel, the kerb line means to the bottom of the channel.
- In situations where the eye screw of a consumer's installation is not provided with an earth tag and is in close proximity to metalwork, (eg the metalwork of a fascia) the eye screw shall be bonded to the earth tail of the house service neutral connector.
- Where a window sill is determined as not being a place a person is likely to stand (eg. hopper windows, security screened windows and sliding windows), a clearance of 2.4m vertically from floor or 1.2m horizontally shall apply
- For this table a conductor is taken to be insulated if it is insulated in accordance with AS/NZS 5000.1 (Electric cables - Polymeric insulated - For working voltage up to and including 0.6 / 1kV) or AS/NZS 3560.1 (Electric cables - Cross-linked polyethylene insulated - Aerial bundled - For working voltages up to and including 0.6 / 1 (1.2) kV). Otherwise, it is taken to be uninsulated.

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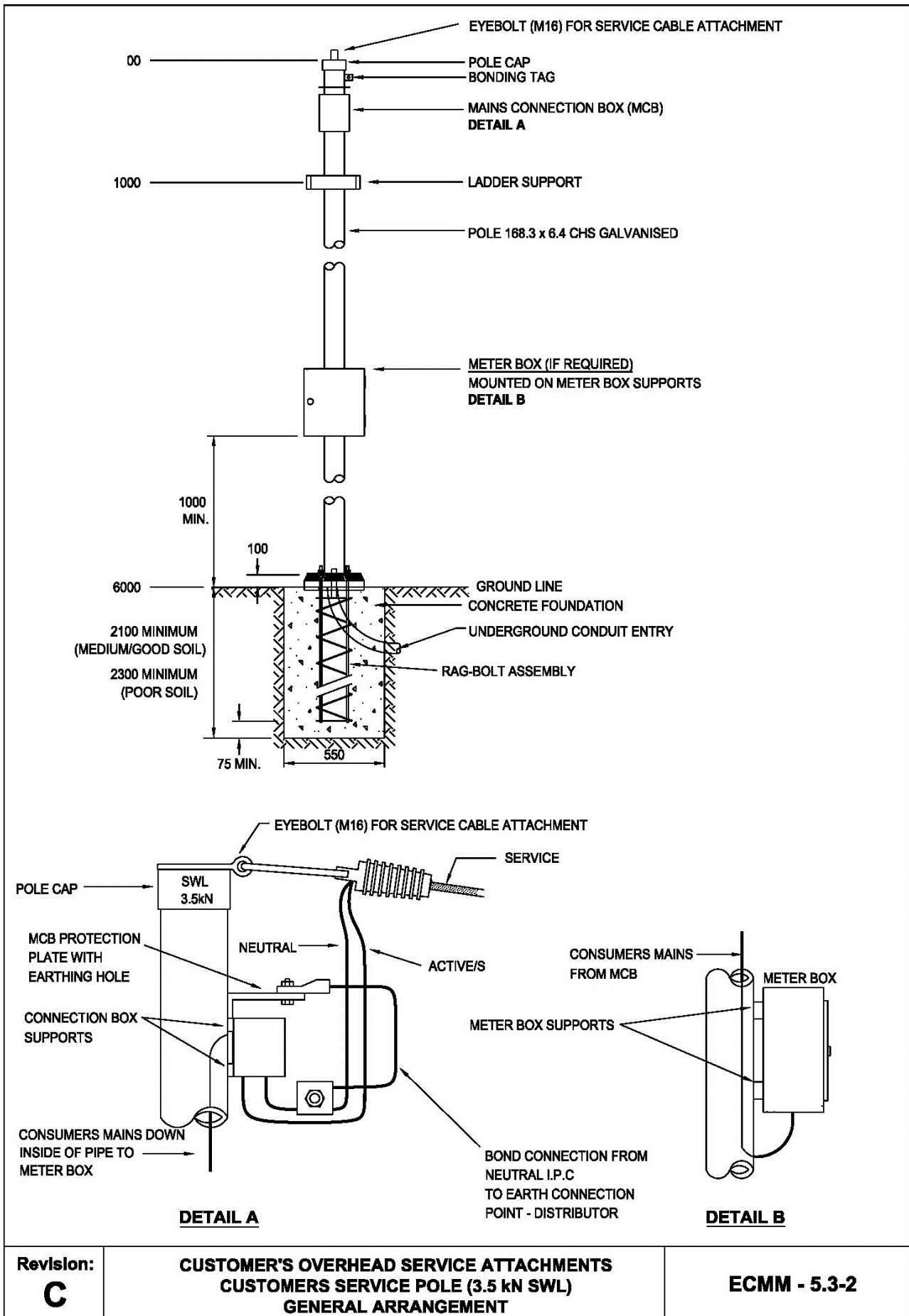
SERVICE CABLE CLEARANCES
FROM GROUND & STRUCTURES

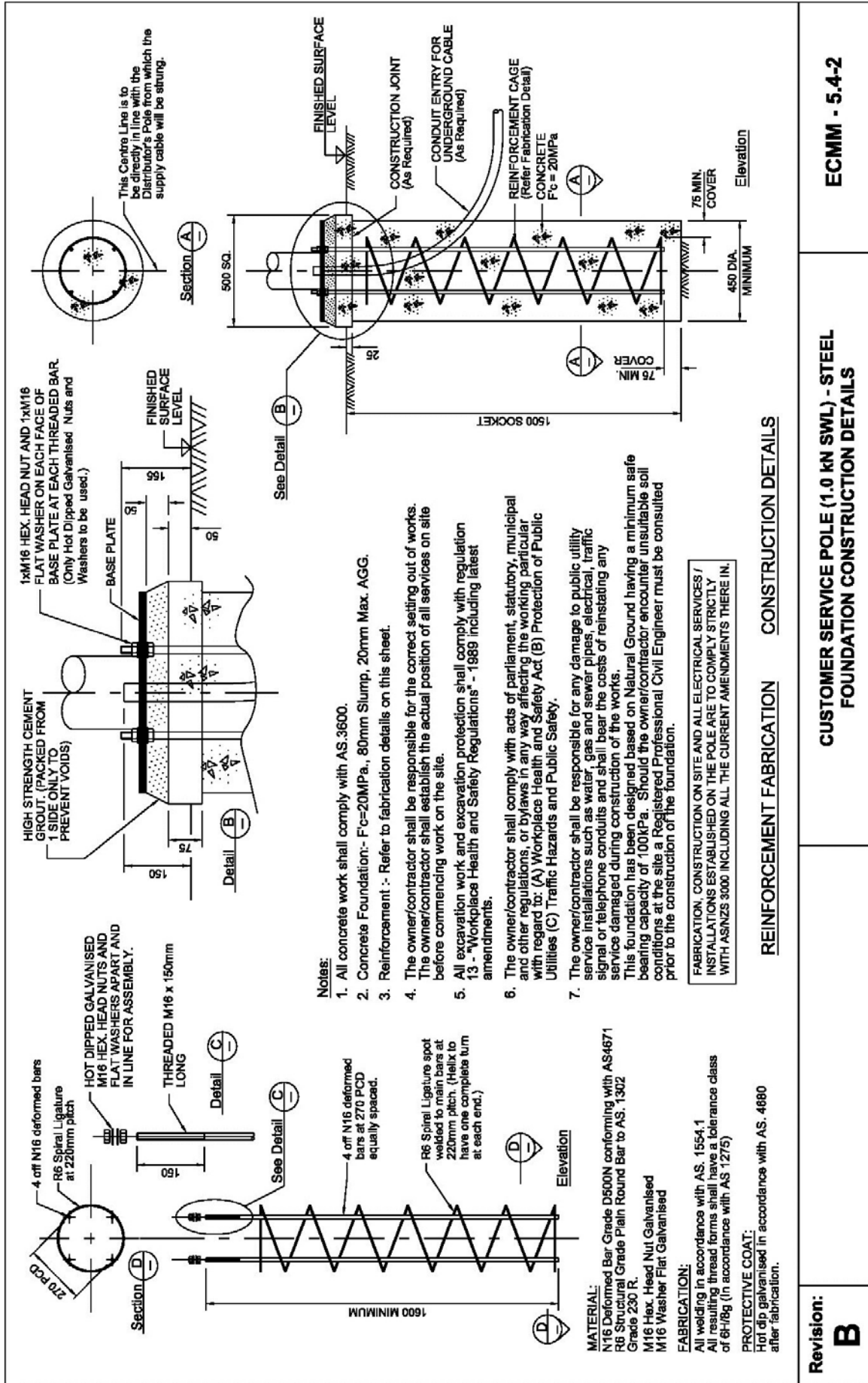
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QLD Electricity Connection and Metering Manual



QLD Electricity Connection and Metering Manual





SECTION A

ELEVATION

DETAIL B

DETAIL C

Section D

Notes:

- All concrete work shall comply with AS.3600.
- Concrete Foundation:- Fc=20MPa., 80mm Slump, 20mm Max. AGG.
- Reinforcement :- Refer to fabrication details on this sheet.
- The owner/contractor shall be responsible for the correct setting out of works. The owner/contractor shall establish the actual position of all services on site before commencing work on the site.
- All excavation work and excavation protection shall comply with regulation 13 - "Workplace Health and Safety Regulations" - 1989 including latest amendments.
- The owner/contractor shall comply with acts of parliament, statutory, municipal and other regulations, or bylaws in any way affecting the working particular with regard to: (A) Workplace Health and Safety Act (B) Protection of Public Utilities (C) Traffic Hazards and Public Safety.
- The owner/contractor shall be responsible for any damage to public utility service installations such as water, gas and sewer pipes, electrical, traffic signal or telephone conduits and shall bear the costs of reinstating any service damaged during construction of the works.

This foundation has been designed based on Natural Ground having a minimum safe bearing capacity of 100kPa. Should the owner/contractor encounter unsuitable soil conditions at the site, a Registered Professional Civil Engineer must be consulted prior to the construction of the foundation.

MATERIAL:

- N24 Deformed Bar Grade D500N conforming with AS4671
- R8 Structural Grade Plain Round Bar to AS. 1302 Grade 230 R.
- M20 Hex. Head Nut Galvanised
- M20 Washer Flat Galvanised

FABRICATION:

- All welding in accordance with AS. 1554.1
- All resulting thread forms shall have a tolerance class of 6h/8g (in accordance with AS 1276)

PROTECTIVE COAT:

- Hot dip galvanised in accordance with AS. 4680 after fabrication.

REINFORCEMENT FABRICATION

CONSTRUCTION DETAILS

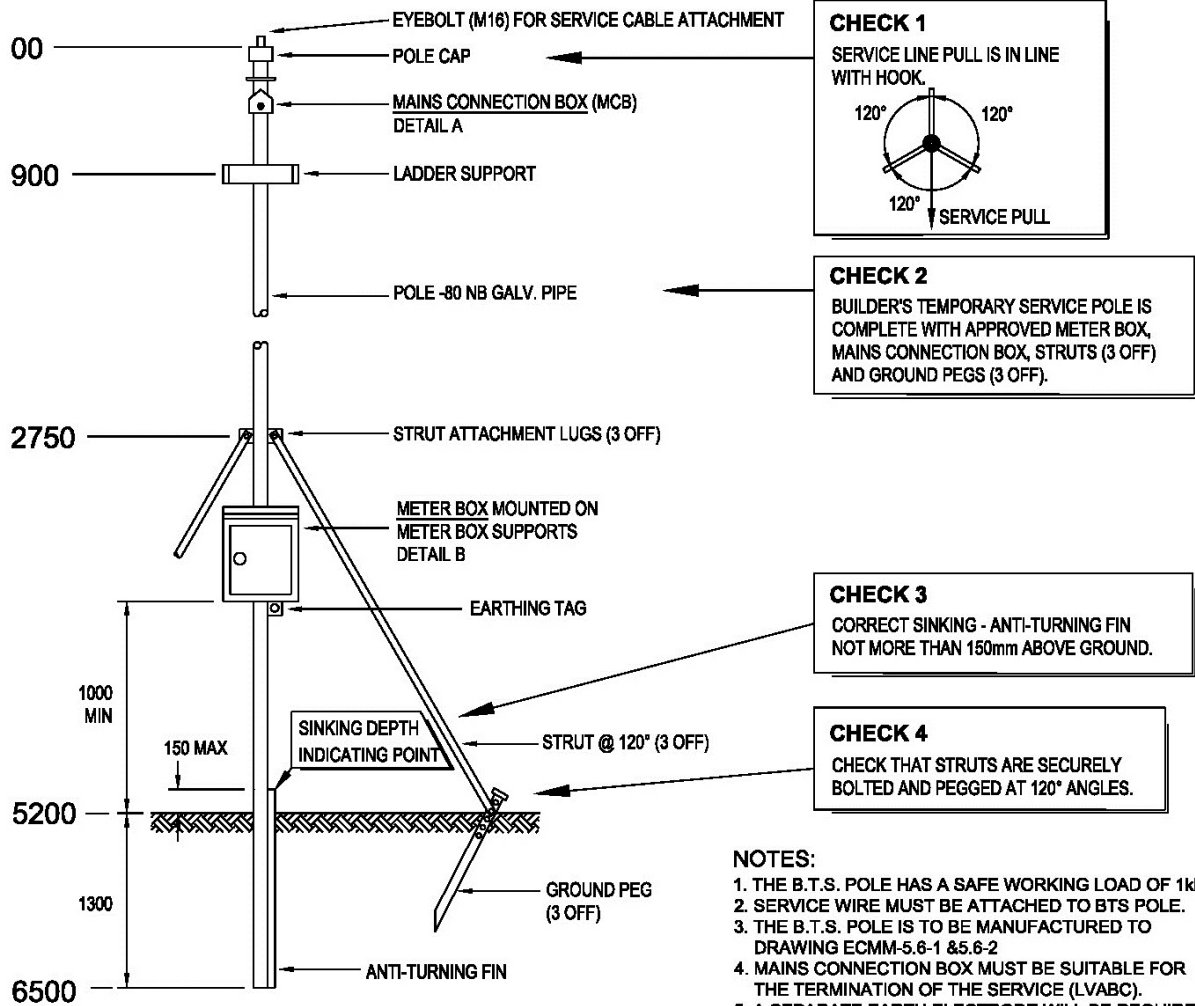
CUSTOMER SERVICE POLE - (3.5kN SWL) STEEL FOUNDATION CONSTRUCTION DETAILS

ECMM - 5.4-4

Revision: A

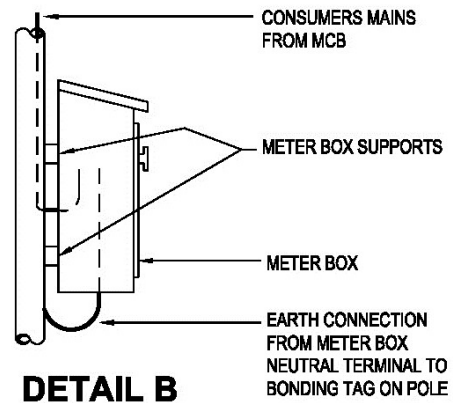
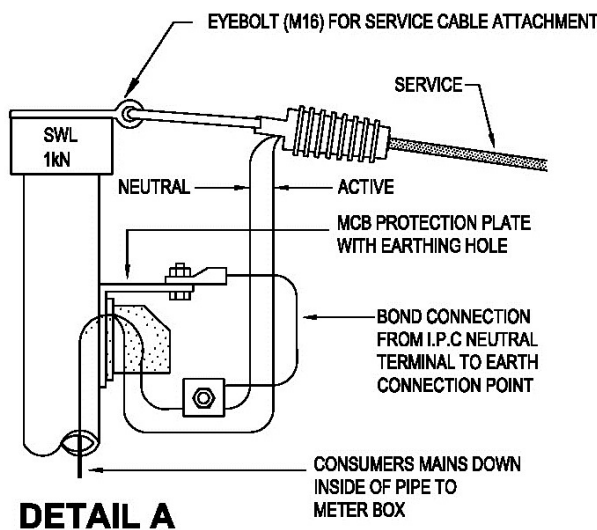
FABRICATION, CONSTRUCTION ON SITE AND ALL ELECTRICAL SERVICES / INSTALLATIONS ESTABLISHED ON THE POLE ARE TO COMPLY STRICTLY WITH AS/IS/ES 3000 INCLUDING ALL THE CURRENT AMENDMENTS THERE IN.

QLD Electricity Connection and Metering Manual



NOTES:

1. THE B.T.S. POLE HAS A SAFE WORKING LOAD OF 1kN.
2. SERVICE WIRE MUST BE ATTACHED TO BTS POLE.
3. THE B.T.S. POLE IS TO BE MANUFACTURED TO DRAWING ECMM-5.6-1 & 5.6-2
4. MAINS CONNECTION BOX MUST BE SUITABLE FOR THE TERMINATION OF THE SERVICE (LVABC).
5. A SEPARATE EARTH ELECTRODE WILL BE REQUIRED IF THE STEEL POLE IS PAINTED OR COATED WITH ANY SUBSTANCE THAT WILL AFFECT ITS ABILITY TO MAKE GOOD CONTACT WITH THE SOIL.



Revision:
C

**CUSTOMER'S OVERHEAD SERVICE ATTACHMENTS
BUILDERS TEMPORARY SERVICE POLE (1.0 kN SWL)
GENERAL ARRANGEMENT**

ECMM - 5.5

