

Electricity Specification 400L6

Issue 7 December 2021

Pole-Mounted Fuse Cut-Outs, Distribution Boxes, Fuse Boxes and Connection Boxes for LV Overhead Lines and Mural Wiring



Amendment Summary

ISSUE NO. DATE	DESCRIPTION
Issue 7	New template applied.
December 2021	Prepared by: D M Talbot Approved by: Policy Approval Panel and signed on its behalf by Steve Cox, Engineering and Technical Director

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1 Introduction

This Specification comprises general and technical requirements for pole-mounted fuse cut-outs, distribution boxes, fuse boxes and connection boxes used on the LV overhead line and mural wiring network owned by Electricity North West Limited (Electricity North West), as Distribution Licensee. Current products with commodity code numbers are listed in [Appendix A](#).

2 Scope

This Specification covers the following products (refer to [Appendix C](#)):

- Pole-mounted and/or wall-mounted distribution boxes.
- Pole-mounted fuse cut-outs.
- Wall-mounted fuse boxes.
- LV connection boxes including undereaves gel-filled boxes.

NOTE: that this specification does not cover fuse links. These are referred out to ES334 from the appropriate section.

The following conductors and cables need to be accommodated:

- CNE and SCNE single phase to ES400C8: 4mm²; 25mm² and 35mm².
- CNE and SCNE three phase to ES400C8: 25mm².
- 95mm² waveform cable to ES400C11 (needs to be accommodated by wall-mounted fuse boxes only).
- ABC to ES400C3: 2, 3, 4 and 5-wire; 35mm² and 95mm².
- ABC to ES400C3: 4-wire; 35mm²; double insulated (needs to be accommodated by wall-mounted fuse boxes only).
- Green/yellow PVC covered earthwire: 70mm² HDCu to ES400C3.

Cu single core PVC covered: 35mm²; 70mm²; 120mm².

3 Definitions

Approval	Sanction by the Electricity North West Overhead Line Circuits Policy Manager that specified criteria have been satisfied
Contract	The agreement between Electricity North West and the Contractor for the execution of the Works including therein all documents to which reference may properly be made in order to ascertain the rights and obligations of the parties under the said agreement.
Contractor	The person or person's firm or company, including personal representatives, successors and permitted assigns, who's Tender has been accepted by Electricity North West.
Specification	The Specifications and schedules (if any) agreed by the parties for the purpose of the Contract.
Sub-Contractor	Any person (other than the Contractor) named in the Contract for any part of the Works or any person to whom any part of the Contract has been sub-let with the consent in writing of the Electricity North West Overhead Line Circuits Policy Manager, and the legal representatives, successors and assigns of such person.
Supplier	Any person or person's firm or company who supplies goods to Electricity North West or to its Contractor.
Tender	An offer in writing to execute work or supply goods at a fixed price.
Tenderer	The person or person's firm or company, including personal representatives, successors and permitted assigns, invited by Electricity North West to submit a Tender.

4 General Requirements for Approvals and Testing

4.1 Product not to be Changed

No change in the product, packaging or labelling shall be made after Approval has been granted without prior notice to the Electricity North West Overhead Line Circuits Policy Manager, and receipt of a written agreement to the proposed change from the Electricity North West Overhead Line Circuits Policy Manager.

4.2 Electricity North West Technical Approval

The Tenderer shall submit, with this Tender, proposals for testing which will demonstrate, to the satisfaction of the Electricity North West Overhead Line Circuits Policy Manager, compliance with this Specification. Such tests shall be carried out without expense to Electricity North West.

Alternatively, technical reports and other data may be submitted that the Tenderer considers will demonstrate, to the satisfaction of the Electricity North West Overhead Line Circuits Policy Manager, compliance with this Specification. Acceptance of this evidence shall be at the discretion of the Electricity North West Overhead Line Circuits Policy Manager but will not be unreasonably withheld.

Approval shall be 'factory specific' and is not transferable to another factory without the written Approval of the Electricity North West Overhead Line Circuits Policy Manager.

The Supplier and product shall comply with all the relevant requirements of Electricity North West document CP311.

4.3 Quality Assurance

The Tenderer shall confirm whether or not Approval is held in accordance with a quality assurance scheme accredited under ISO 9000. If not, the Tenderer shall submit a statement of the quality assurance procedures employed to control the quality of the product, including the performance of Suppliers and Sub-Contractors.

The right is reserved for the repeat of such tests, from time to time, that the Electricity North West Overhead Line Circuits Policy Manager may deem to be reasonably necessary to demonstrate continued compliance with the Specification.

The Tenderer shall submit, with the Tender, a list of tests and inspections which are carried out on the product prior to despatch which shall demonstrate, to the satisfaction of the Electricity North West Overhead Line Circuits Policy Manager, fitness for installation and service.

The Tenderer shall provide free of charge to Electricity North West such samples as may, in the opinion of the Electricity North West Overhead Line Circuits Policy Manager, be reasonably required for inspection and/or retention as quality control samples. The Electricity North West Overhead Line Circuits Policy Manager will confirm the requirement for samples at the time of Tendering.

The right is reserved for inspections to be made of Tenderer's facilities, from time to time, as deemed reasonably necessary by the Electricity North West Overhead Line Circuits Policy Manager to ensure compliance with this Specification and any Contract of which it forms a part.

The Tenderer shall submit, with the Tender, such details of product packaging disposal, as will enable Electricity North West to comply with the requirements of BS EN ISO 14001 - Environmental Management Systems.

4.4 Formulation

The Tenderer shall submit, with the Tender, such details of the formulation and use of the product and associated substances as will enable Electricity North West to comply with the obligations of the Health and Safety at Work Act 1974 and the Control of Substances Hazardous to Health Regulations 2002, in the use, storage and disposal of the product. The Tenderer may stipulate, prior to submission of such information, that it is to remain confidential, and the Electricity North West Overhead Line Circuits Policy Manager will, if requested, confirm agreement to this prior to receipt of the information.

4.5 Identification Markings

The Tenderer shall submit, with the Tender, details of markings which it is proposed to apply to the product or packaging to identify manufacturing batches or items. The forms and content of such markings shall be subject to the Approval of the Electricity North West Overhead Line Circuits Policy Manager and shall in all cases include the Electricity North West approved description and commodity code number.

The Tenderer shall submit, with the Tender, such details of marking gross weight on components, assemblies and packages, as will enable Electricity North West to comply with the Health and Safety Manual Handling

Operation Regulations 1992, for components, assemblies and packages supplied with a gross weight over 1kg. The forms and content of such markings shall be subject to the Approval of the Electricity North West Overhead Line Circuits Policy Manager.

4.6 Minimum Life Expectancy

The minimum life expectancy of all products covered by this Specification is 40 years.

4.7 Product Conformity

Preference will be given to those Suppliers who can provide suitable product conformity certification to a recognised or specified standard, or an equivalent certification.

4.8 Confirmation of Conformance

The Tenderer shall complete the conformance declaration sheets in [Appendix B](#). Failure to complete these declaration sheets may result in an unacceptable bid.

5 Requirements for Type and Routine Testing

The Electricity North West Overhead Line Circuits Policy Manager shall set out the requirement of the following tests to be carried out by the Supplier at the Supplier's cost.

5.1 Requirement for Type Tests at Suppliers Premises

These are a series of one-off type tests, which are carried out to ensure the satisfactory performance of the product design, under extremes of operating stresses, and of endurance, as may be appropriate, to be determined by the Electricity North West Overhead Line Circuits Policy Manager.

These may or may not be destructive tests.

5.2 Requirement for Routine Tests at the Supplier's Premises

These tests may be required to be carried out on every individual unit or component, as specified, or at some regular frequency to be determined by the Electricity North West Overhead Line Circuits Policy Manager.

The results of these tests may be required to be supplied to Electricity North West with each unit purchased or retained for inspection, at a period to be determined by the Electricity North West Overhead Line Circuits Policy Manager.

6 Technical Requirements

6.1 General

Existing commodities are listed in the schedule in [Appendix A](#). However, cable/conductor/size ranges of new designs do not need to be constrained by the ranges of existing products.

Conductors and cables are listed in the Scope of this Specification. Numbers, types and sizes shall be quoted for each product.

Fuses shall meet the requirements of CP331 and ES334.

6.2 Pole-Mounted Fuse Cut-Outs

Pole-mounted fuse cut-outs shall comply with BS 7656:1993+A1:2013.

6.3 Distribution Boxes and Fuse Boxes

6.3.1 General

Distribution boxes and fuse boxes shall comply with ENA TS 43-14 and shall preferably be suitable for either mounting on the wall of a building or on a pole.

6.3.2 Fuses

In addition to the above requirements:

- Carriers shall be 82mm.
- Normal current rating shall be 200A.
- Overload current rating shall be 300A.
- Fault current rating shall be 11.27kA.

6.4 Undereaves Connection Boxes for Mural Wiring

6.4.1 General

Undereaves connection boxes shall provide effective insulation for the phase connections. They shall comply with the applicable requirements of ENA TS 43-14 and the relevant cable/conductor specification (ES400C3 or ES400C8).

6.4.2 Type

They may be of the gel-filled box type housed within an outer wall-mounted enclosure, or they may be of a different design that meets the requirements of [6.4.1](#) above.

6.4.3 Mechanical Connectors

They may be supplied with or without mechanical connectors. If they are not supplied with mechanical connectors, they shall be able to accommodate appropriate connectors from ES400C21. The tests in ENA TS 43-14 shall be passed with the appropriate connectors fitted.

7 Documents Referenced

DOCUMENTS REFERENCED	
Health and Safety at Work Act 1974	
Control of Substances Hazardous to Health Regulations 2002	
Manual Handling Operations Regulations 1992	
BS EN ISO 9000:	Quality management systems.
BS EN ISO 14001:	Environmental management systems. Requirements with guidance for use.
BS 7656:1993+A1:2013:	Specification for low-voltage pole-mounting fuses (cut-outs). 400 A rating.
ENA TS 43-14:	Insulated Aerial Bundled Conductors for Low Voltage Overhead Distribution Systems – Conductor Fittings and Associated Apparatus.
ES334:	HV and LV Fuse-Links.
ES400C3:	Wood Pole Overhead Line Conductors (up to and including 132kV).
ES400C8:	LV Service Cables.
ES400C11:	Low Voltage Mains Cables.
ES400C21:	Mechanical Connectors and Lugs for Cables (operating in the range LV to 33kV).
CP311:	Equipment Approval Policy and Process

CP331:

Protection of LV Underground and Overhead Distributors and HV
Protection of Distribution Transformers.

8 Keywords

Connection; distribution; fuse; mural; overhead

Appendix A – Schedule of Current Commodities

APPROVED DESCRIPTION (FOR PURCHASING AND PRODUCT LABELLING)	CC NO
Distribution box, fused, 3-phase, overhead fed	TBA
Distribution box, fused, 3-phase, underground fed	111414
Distribution box, non-fused, 1-phase, ABC configured for SNE	261462
Distribution box, non-fused, 1-phase, ABC configured for SNE, cw backplate	261463
Distribution box, non-fused, 1-phase, ABC, CNE/SNE, c/w removable backplate	261472
Distribution box, non-fused, 3-phase, ABC configured for CNE	261460
Distribution box, non-fused, 3-phase, ABC configured for SNE	261461
Distribution box, non-fused, 3-phase, ABC, CNE/SNE, c/w removable backplate	261473
Distribution box, support bracket	111422
Fuse cut-out, single phase, street lighting distribution box, c/w extended lid and removable backplate	261464
Fuse carrier, pole mounted	122433
Fuse carrier, with test points, pole mounted	064771
Fuse carrier (white), insulated link, pole mounted	064770
Jointing kit, wall-mounted, 16-35mm ² CNE service or ABC, 16 & 25mm ² SNE service or ABC	111474
Jointing kit, wall-mounted, 16-35mm ² CNE service or ABC, 16-35mm ² SNE service or ABC	111480
Jointing kit, wall-mounted, 35mm ² CNE/SNE	111472

Appendix B – Conformance Declaration

SECTION-BY-SECTION CONFORMANCE WITH SPECIFICATION

The Tenderer shall declare conformance or otherwise for each product/service or range of products/services, section-by-section, using the following Conformance Declaration Codes.

Conformance Declaration Codes:

N/A =	Clause is not applicable/appropriate to the product/service.
C1 =	The product/service conforms fully with the requirements of this clause.
C2 =	The product/service conforms partially with the requirements of this clause.
C3 =	The product/service does not conform to the requirements of this clause.
C4 =	The product/service does not currently conform to the requirements of this clause, but the manufacturer proposes to modify and test the product in order to conform.

Manufacturer:

Product/Service Description:

Product/Service Reference:

Name:

Company:

Signature:

SECTION-BY-SECTION CONFORMANCE

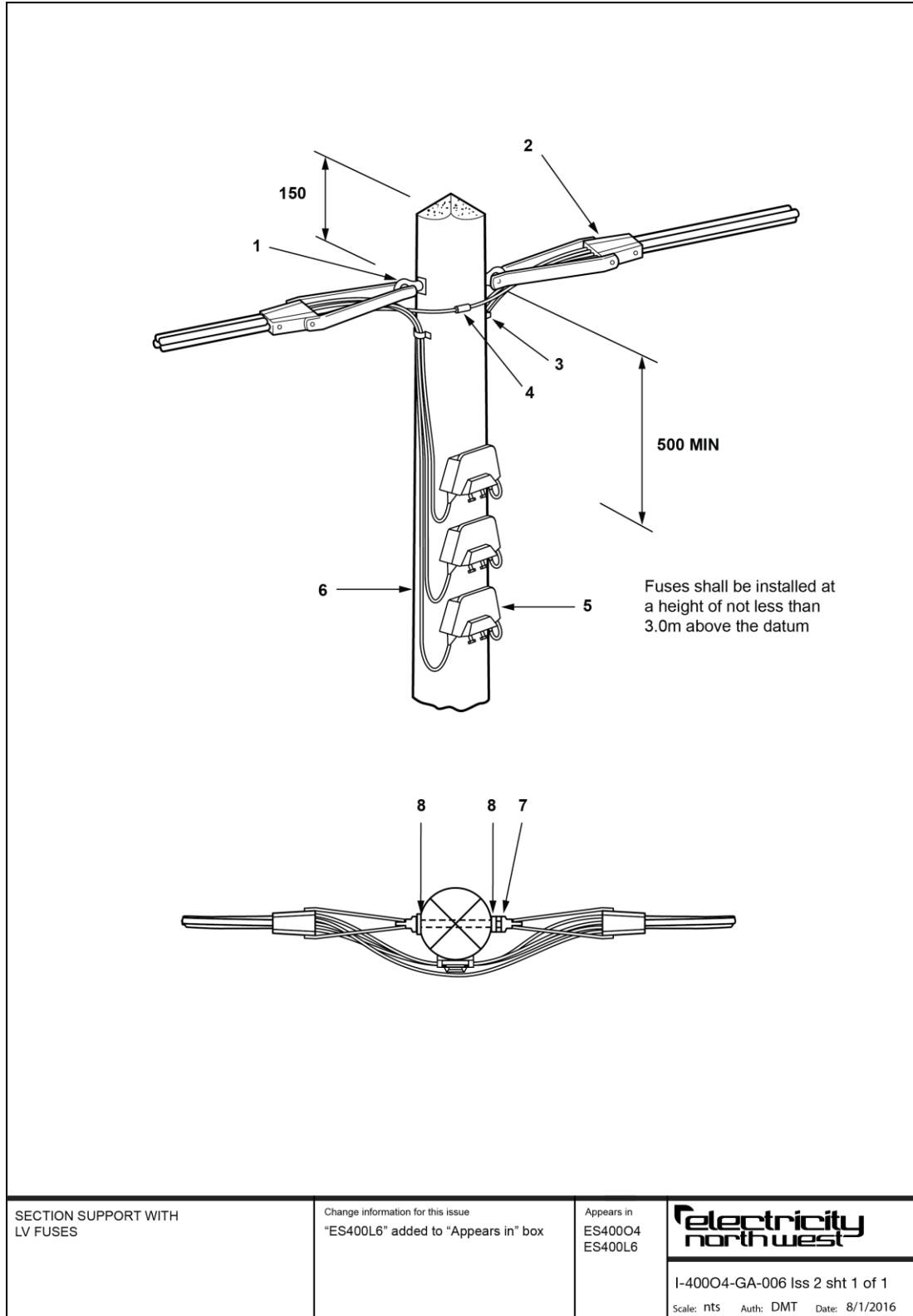
Section	Section Topic	Conformance Declaration Code	Remarks * (must be completed if code is not C1)
4.1	Product not to be Changed		
4.2	Electricity North West Technical Approval		
4.3	Quality Assurance		
4.4	Formulation		
4.5	Identification Markings		
4.6	Minimum Life Expectancy		
4.7	Product Conformity		
4.8	Confirmation of Conformance		
5.1	Requirements for Type Tests at the Supplier's Premises		
5.2	Requirement for Routine Tests at the Supplier's Premises		
6.1	General		
6.2	Pole-Mounted Fuse Cut-Outs		
6.3.1	General		
6.3.2	Fuses		
6.4.1	General		

6.4.2	Type		
6.4.3	Mechanical Connectors		

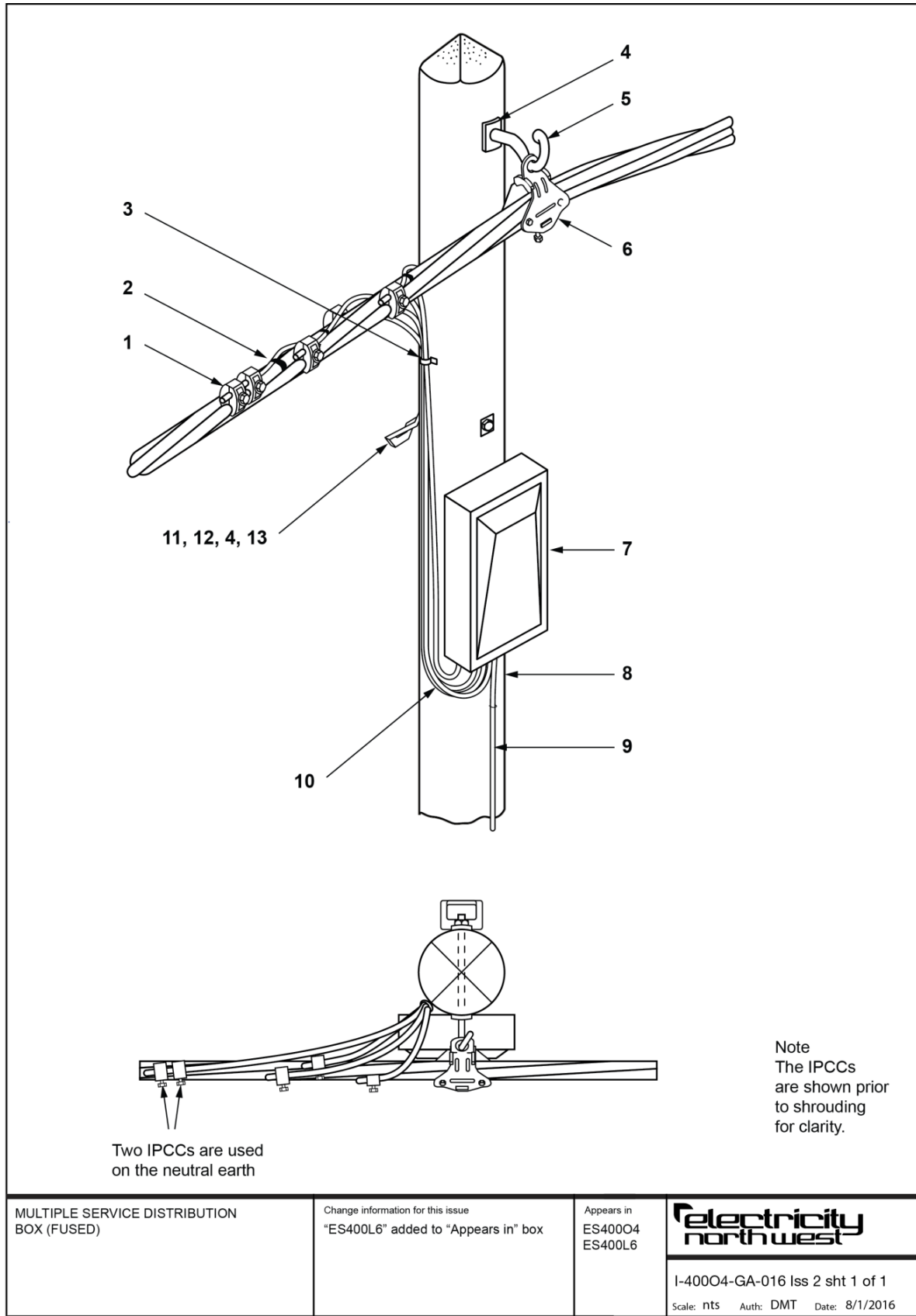
Additional Notes:

Appendix C – Additional Information

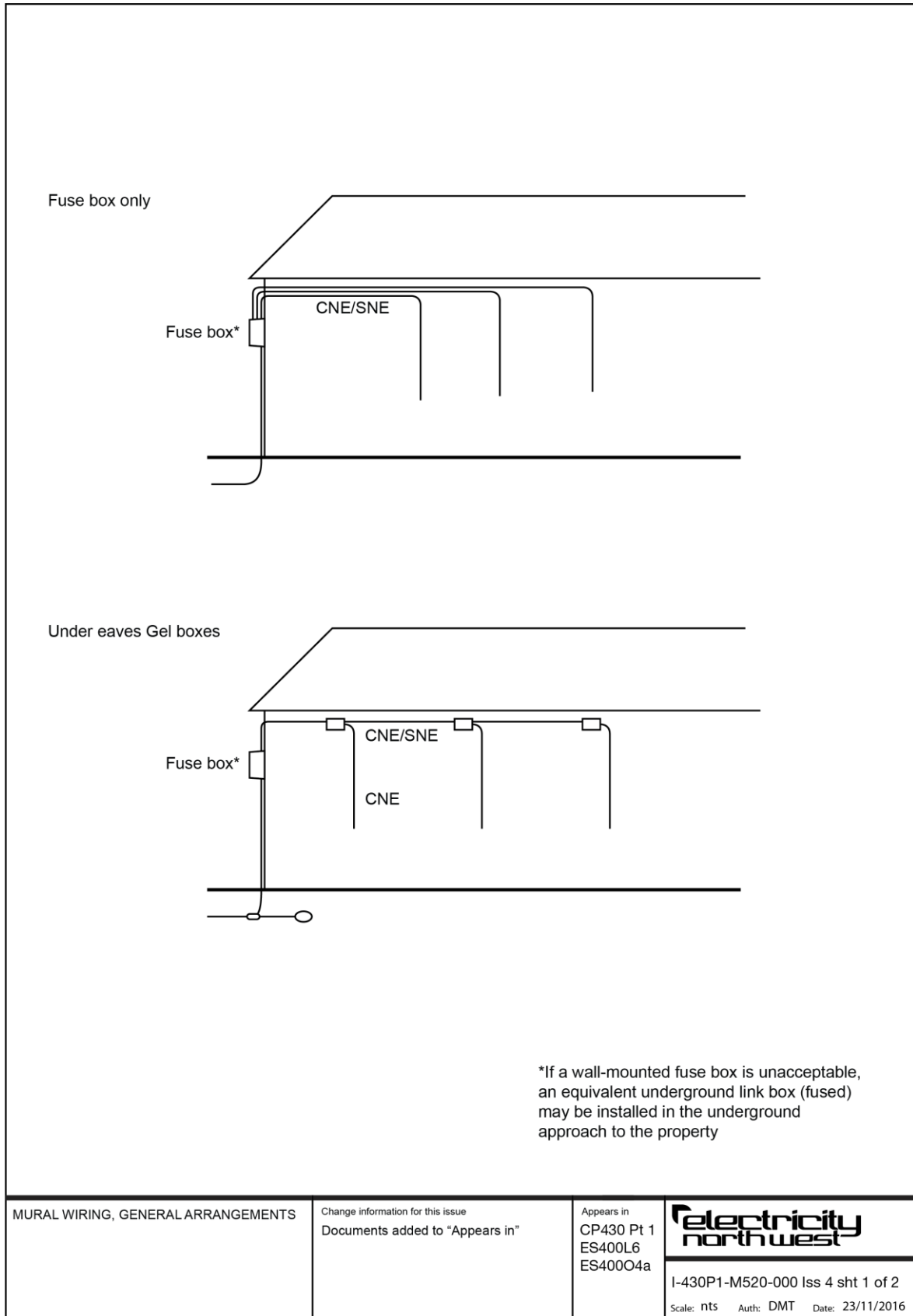
C1 Drawing Showing Typical Pole-Mounted Fuses (Item 5)



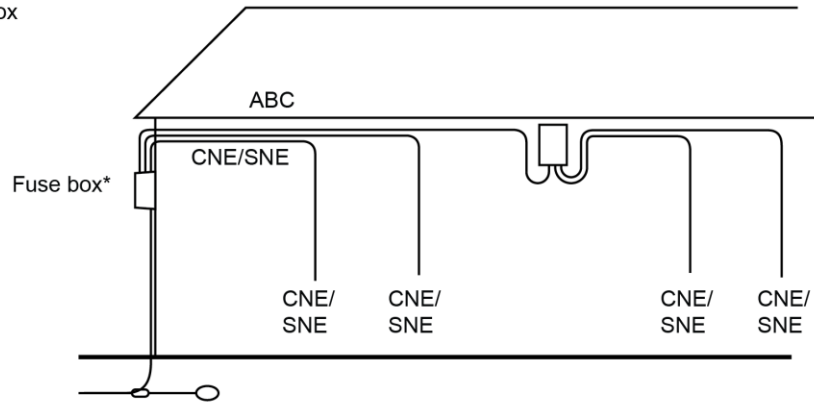
C2 Drawing Showing Typical Pole-Mounted Distribution Box (Item 7)



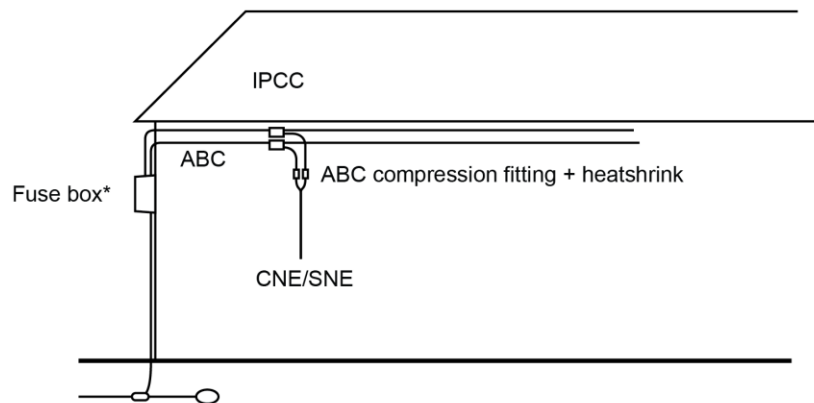
C3 Drawing Showing Connection Boxes Required for Mural Arrangements



Distribution box



ABC main



*If a wall-mounted fuse box is unacceptable, an equivalent underground link box (fused) may be installed in the underground approach to the property

MURAL WIRING, GENERAL ARRANGEMENTS

Change information for this issue
Documents added to "Appears in"

Appears in
CP430 Pt 1
ES400L6
ES40004a



I-430P1-M520-000 Iss 4 sht 2 of 2
Scale: nts Auth: DMT Date: 23/11/2016