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# Electricity Specification 400C11

Issue 7 July 2021

## Low Voltage Mains Cables

# Amendment Summary

| ISSUE NO. DATE | DESCRIPTION |
|---|---|
| **Issue 7**<br><br>**July 2021** | An additional requirement for the maximum insulation thickness has been added in Section 10.3.3 to ensure insulating piercing connectors work satisfactory with the waveform cables. Other minor changes as marked.<br><br>Prepared by: David M Talbot<br>Approved by: Policy Approval Panel and signed on its behalf by Steve Cox, Engineering and Technical Director |

# Contents

# 1 Scope

This Specification covers the technical requirements for Low Voltage (LV) mains cables for use on the Electricity North West Limited (hereinafter referred to as Electricity North West) Distribution System.

# 2 Definitions

| | |
|---|---|
| **Approval** | Sanction by the Electricity North West Underground Circuits 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 Underground Circuits 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. |

# 3 General Requirements for Approvals and Testing

## 3.1 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 Underground Circuits Manager, and receipt of a written agreement to the proposed change from the Electricity North West Underground Circuits Manager.

## 3.2 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 Underground Circuits 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 Underground Circuits Manager, compliance with this Specification. Acceptance of this evidence shall be at the discretion of the Electricity North West Underground Circuits 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 Underground Circuits Manager.

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

## 3.3 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 Underground Circuits 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 Underground Circuits 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 Underground Circuits Manager, be reasonably required for inspection and/or retention as quality control samples. The Electricity North West Underground Circuits 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 Underground Circuits 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: 2015 - Environmental Management Systems. 06/07/21

## 3.4 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 Underground Circuits Manager will, if requested, confirm agreement to this prior to receipt of the information.

## 3.5 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 Underground Circuits 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 Underground Circuits Manager.

## 3.6 Minimum Life Expectancy

The minimum life expectancy of all products covered by this Specification is 60 years.

## 3.7 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.

## 3.8 Confirmation of Conformance

The Tenderer shall complete the conformance declaration sheets in Appendix C. Failure to complete these declaration sheets may result in an unacceptable bid.

# 4 Conditions of Installation

Cables specified in this Specification will be pulled or laid into open trenches, pulled into ducts or installed in air. Cables may also be installed directly by trenchless installation techniques.

During storage and after installation cables can be expected to be subjected to the full range of climatic conditions encountered in the UK.

Cables may be surrounded by ground water for most of their operating life. Where cables are installed in ducts, flooding of ducts can occur resulting in permanently wet sections along the cable route.

Cables installed above ground will be supported by means of cleats either vertically or horizontally and these cables may be exposed to direct sunlight for significant periods.

Cables may be installed on wood poles in contact with the pole and, therefore, in contact with a pole preservation medium such as creosote.

Accessories may be cold applied or require application of heat.

# 5 Conditions of Operation for Power Cables

The following are the general conditions under which power cables purchased in accordance with this Specification are required to operate:

- Nominal system voltage 400/230.
- The working voltage of any part of the system does not normally exceed the normal system voltage by more than 10%.
- Nominal system frequency: 50Hz.
- The system operates with the neutral point earthed either directly or through a resistance or reactance at one or more points.

# 6 Cable Longevity

Cables offered shall be designed and manufactured to operate satisfactorily under the installation and operating conditions detailed in Sections 4 and 5.

# 7 Manufacturing

At the time of Tender, the Tenderer shall provide details of manufacturing location(s) for each cable offered.

Any Approval granted will be site specific and will not be transferable to any other site without the prior written agreement of the Electricity North West Underground Circuits Manager.

# 8 Technical Support

During the Contract period questions will arise regarding unusual or non-standard applications where advice will be required on matters such as cable ratings etc. The successful Tenderer(s) will be expected to support Electricity North West with technical advice on these matters.

# 9 Requirements for Testing and Sampling

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

## 9.1 Requirement for Type Tests at the Supplier's 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 Underground Circuits Manager.

These may or may not be destructive tests.

## 9.2 Type Test Approval

All cables offered shall be fully Type Tested and Qualified according to the requirements of the Technical Specification and Standards detailed for each cable type. The Tenderer shall provide Type Test certificates and Type Test reports, including details of independent witnesses, at the time of Tender.

Where a Tenderer wishes to offer a cable which has been Type Tested to an alternative Standard(s), full details of the alternative Standard(s) and how it differs from the Specified Standard(s) shall be provide at the time of Tender along with Type Test certificates.

If, during the period of the Contract, the Contractor wishes to make any changes to the Approved product, packaging or labelling, proposals for such changes shall be notified in writing to the Electricity North West Underground Circuits Manager. No such changes shall be implemented without the prior written Approval of the Electricity North West Underground Circuits Manager. If the Electricity North West Underground Circuits Manager deems that the changes require Type Approval testing to be repeated, in full or in part, the cost of such testing shall be borne by the Contractor.

## 9.3 Requirement for Routine Tests at the Supplier's Premises and Sampling

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 Underground Circuits 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 Underground Circuits Manager.

## 9.4 Routine and Sample Testing

The Contractor shall carry out all routine and sample tests specified for each cable. Tenderers shall state at the time of Tender their proposals for sample test frequencies where such frequencies are not detailed specifically by this Specification or the relevant referenced Standards or Specifications. The Electricity North West Underground Circuits Manager reserves the right to be present and witness routine and sample tests. Where the Electricity North West Underground Circuits Manager wishes to witness any such tests, the date and time of testing shall be mutually agreed.

## 9.5 Samples

During the Tender period the Tenderer shall submit samples for Approval as required by the Electricity North West Underground Circuits Manager. Such samples shall remain the property of Electricity North West.

# 10 Technical Particulars

## 10.1 Cable Design

This Specification covers the supply of the following types of LV distribution cables:

(a) Single phase; 400mm$^2$ XLPE insulated, unarmoured / PVC sheathed cable.

(b) Single phase; 400mm$^2$ XLPE insulated, aluminium armoured / PVC sheathed cable.

(c) Three core; 95, 185 and 300mm$^2$ polymeric insulated waveform cable.

(d) Four core; 95, 185, and 300mm$^2$ polymeric insulated waveform cable.

(e) Three core; 95, 185 and 300mm$^2$ polymeric insulated waveform cable with LS0H properties.

(f) Four core; 95, 185 and 300mm$^2$ polymeric insulated waveform cable with LS0H properties.

## 10.2 Technical Requirements

Where a requirement of this Specification differs from that of another quoted Specification or Standard, the requirements of this Specification shall apply.

If a Tenderer is unsure regarding any requirement of this Specification, clarification shall be sought in writing from Electricity North West.

Single phase cables referenced at 10.1 (a) shall conform to BS 7889.

Single phase cables referenced at 10.1 (b) shall conform to BS 5467.

Three core cables referenced at 10.1 (c) shall conform to BS 7870 Part 3 Section 3.40.

Four core cables referenced at 10.1 (d) shall conform to BS 7870 Part 3 Section 3.40.

Three core cables referenced at 10.1 (e) shall conform to BS 7870 Part 3 Section 3.50.

Four core cables referenced at 10.1 (f) shall conform to BS 7870 Part 3 Section 3.50.

## 10.3 Cable Data

The following additional cable data shall be provided with all cables supplied:

### 10.3.1 Impedance Data

- Maximum dc resistance of phase conductor at 20°C in ohms/km.
- Maximum ac resistance of phase conductor at maximum conductor temperature in ohms/km.
- Maximum dc resistance of CNE conductor or armour at 20°C in ohms/km.
- Equivalent star reactance at 50 Hz in ohms/km.

- Equivalent star capacitance in pF/km.
- Charge current per phase at normal voltage and frequency in mA/m.
- Zero sequence impedance $R_0 + jK_0$ in ohms/km.

### 10.3.2 Current Rating Data

The maximum continuous current carrying capacity per phase conductor for the following conditions:

- Laid direct with g = 1.2 °C/W and Tg = 15 °C (with the exception of cable in Schedule 5).
- Laid direct with g = 0.9 °C/W and Tg = 15 °C (with the exception of cable in Schedule 5).
- Drawn into a 150mm ID smooth wall plastic duct (one cable or triplex cable per duct) where g = 1.2 °C/W and Tg = 15 °C (with the exception of cable in Schedules 5 & 6).
- Drawn into a 150mm ID smooth wall plastic duct (one cable or triplex cable per duct) where g = 0.9 °C/W and Tg = 15 °C (with the exception of cable in Schedules 5 & 6).
- In Air where Tg = 25 °C.

Tenderers shall also provide data to show the variation in rating with Ground TR and depth of cover.

### 10.3.3 Installation Parameters

For each power cable offered the Tenderer shall provide the following parameters:

- Minimum dynamic bending radius in mm.
- Minimum static bending radius in mm.
- Recommended pulling method and maximum pulling tension in kgF.
- Phase Core Insulation
- Phase core insulation shall be XLPE type DIX 3 complying with the requirements of BS 7870-1 Annex B for all Low Voltage Mains Cables.
- Phase core insulation for waveform cable types referenced as Items 10.1 (c) to (f) , shall have a minimum average insulation thickness as defined in BS 7870-3.40 or 3.50 and in addition , the maximum insulation thickness at any point around the conductor shall be no more than the following values : 06/07/21

06/07/21

| CABLE CONDUCTOR CROSS SECTION | MAXIMUM INSULATION THICKNESS AT ANY POINT |
|---|---|
| 95 $mm^2$ | 1.5mm |
| 185 $mm^2$ | 2.0mm |
| 300 $mm^2$ | 2.2mm |

- Three phase Low Voltage Mains Cables shall have the cores laid up with a right hand direction of lay in the sequence Brown, Black, Grey (and Blue neutral for four core cable).
- The oversheath of the cables referred to in sections 10.1 to 10.4 shall be black PVC DMV 23 complying to the requirements of BS 7870-1 Annex B.
- The oversheath of the cables referred to in sections 10.1.5 to 10.1.6 shall be orange compound DMZ 4 complying to the requirements of BS 7870-1 Annex B.10.5 Cable Identification
- Each delivery length of cable shall be allocated a unique reference number. This unique reference number shall be marked on the cable near to the metre mark. This unique reference number will be used to identify all materials used within the manufacturing process. This number shall appear on the factory test sheet covering the cable length and shall be clearly marked on the drum on which the length is delivered and shall be referred to on all invoices and advice notes.

## 10.4 Phase Core Insulation

Phase core insulation shall be XLPE type DIX 3 complying with the requirements of BS 7870-1 Annex B for all Low Voltage Mains Cables.

Three phase Low Voltage Mains Cables shall have the cores laid up with a right hand direction of lay in the sequence Brown, Black, Grey (and Blue neutral for four core cable).

## 10.5 Oversheath

The oversheath of the cables referred to in sections 10.1 (a) to 10.1 (d) shall be black PVC DMV 23 complying to the requirements of BS 7870-1 Annex B.

The oversheath of the cables referred to in sections 10.1 (e) to 10.1 (f) shall be orange compound DMZ 4 complying to the requirements of BS 7870-1 Annex B.

## 10.6 Cable Identification

Each delivery length of cable shall be allocated a unique reference number. This unique reference number shall be embossed on the cable near to the metre mark. This unique reference number will be used to identify all materials used within the manufacturing process. This number shall appear on the factory test sheet

covering the cable length and shall be clearly marked on the drum on which the length is delivered and shall be referred to on all invoices and advice notes.

Additional costs should be included if applicable for the option of providing a unique identifier / batch number or having Electricity North West printed on to the conductor to enable positive identification of ownership in event of theft.

### 10.6.1 Oversheath Marking

In addition to the requirements detailed in the relevant specification for each cable supplied, the unique reference number shall be embossed in the cable oversheath.

### 10.7 Logistical Requirements

Each cable supplied shall meet the requirements of Appendix B.

## 11 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: 2015** | Environmental management systems. Requirements with guidance for use |
| **BS 5467: 1997:** | Specification for 600/1000 V and 1900/3300 V Armoured Electric Cables having Thermosetting Insulation. |
| **BS EN 60228: 2005:** | Conductors of insulated cables. |
| **BS 7655:** | Insulation and sheathing materials for cables. |
| **BS 7870 Part 1:** | LV and MV polymeric insulated cables for use by distribution and generation utilities. |

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|---|---|
| **BS 7870 Part 3:** | XLPE Insulated, Copper Wire Waveform Concentric Cables with Solid Aluminium Conductors. |
| **BS 7889: 1997:** | Specification for 600/1000 V Single-Core Unarmoured Electric Cables having Thermosetting Insulation. |
| **CP311:** | Equipment Approval Policy and Processes. |
| **ES400C7:** | Returnable Cable Drums for Mains Cables Conforming to ECP 410 Chapter 1. |

## 12 Keywords

Cable; Waveform; XLPE; PVC; Polymeric

# Appendix A – Schedule of Cables

| ITEM NO. | ORDERING SPECIFICATION | SIZE ($MM^2$) | CC NO. | |
|---|---|---|---|---|
| 1 | Cable, LV, single core, XLPE insulated, unarmoured (for use in indoor substations) | 400 | 995246 | 06/07/21 |
| **2** | Cable, LV, single core; XLPE insulated, armoured (for use in outdoor substations) | 400 | 995247 | |
| **3** | Cable, LV, 3 core, waveform | 95<br>185<br>300 | 003697<br>003700<br>003727 | |
| **4** | Cable, LV, 4 core, waveform | 95<br>185<br>300 | 003735<br>000701<br>003759 | |
| **5** | Cable, LV, 3 core, waveform (LS0H) | 95<br>185<br>300 | 329253<br>995255<br>995256 | 06/07/21 |
| **6** | Cable, LV, 4 core, waveform (LS0H) | 95<br>185<br>300 | 003760<br>003761<br>003762 | |

# A1 Schedule One - Single Core: 400mm$^2$ XLPE Insulated Unarmoured Cable (For use in Indoor Substations)

## A1.1 Specification

Circular stranded copper conductor, XLPE insulation, unarmoured with Black PVC oversheath, 0.6/1.0kV cable and be in accordance with BS 7889: 1997, Table 3.

The phase colour shall be Black. 06/07/21

# A2. Schedule Two – Single Core: 400mm$^2$ XLPE Insulated Armoured Cable (For Use In Outdoor Substations)

## A2.1 Specification

Circular copper conductor, XLPE insulation, 147 mm$^2$ of aluminium wire armour, Black PVC oversheath, 0.6/1.0kV cable and be in accordance with BS 5467: 1997, Table 4.

The phase colour shall be Black. 06/07/21

# A3 Schedule Three – 3 Core: 95, 185 And 300mm$^2$ Polymeric Insulated Waveform Cable

## A3.1 Specification

Three core, three phase sectoral solid aluminium conductor, XLPE insulation, CNE of **copper wires** applied in waveform embedded on synthetic rubber, Black PVC oversheath, 0.6/1.0kV cable.

Phase conductors shall be sectoral shaped solid aluminium and shall comply to the requirements for solid conductors (class 1) as specified in BS EN 60228. The conductors shall also conform to the dimensional requirements specified in BS EN 60228 or BS 3988. The Supplier shall confirm which shape of conductor is being offered and to what specification.

Phase core insulation shall be XLPE type DIX3 complying with the requirements of BS 7870-1 Annex B, however the maximum permissible shrinkage shall be 2%. The test shall be carried out at both 65°C for 24 hours and 130°C for 1hour. The phase core insulation shall comply with maximum insulation thickness clause detailed in 10.3.3 06/07/21

Cores shall be laid up with a right hand direction of lay in the sequence Brown, Black and Grey.

The CNE of copper wires shall not stick to the synthetic bedding layer.

The oversheath shall be black PVC type DMV 23 complying with the requirements of BS 7870-1 Annex B and applied so that there is no internal protrusion of the oversheath material around the CNE copper wires.

Cable to be in accordance with BS 7870 Part 3 Section 3.40.

# A4 Schedule Four – 4 Core: 95, 185 and 300 mm² Polymeric Insulated Waveform Cable

## A4.1 Specification

Four core, three phase and separate neutral sectoral solid aluminium conductor, XLPE insulation, SCNE of **copper wires** applied in waveform embedded on synthetic rubber, Black PVC oversheath, 0.6/1.0kV.

Phase conductors shall be sectoral shaped solid aluminium and shall comply to the requirements for solid conductors (class 1) as specified in BS EN 60228. The conductors shall also conform to the dimensional requirements specified in BS EN 60228 or BS 3988. The Supplier shall confirm which shape of conductor is being offered and to what specification.

Phase core insulation shall be XLPE type DIX3 complying with the requirements of BS 7870-1 Annex B, however the maximum permissible shrinkage shall be 2%. The test shall be carried out at both 65°C for 24 hours and 130°C for 1 hour. The neutral core shall be coloured blue and the cores shall be laid up with a right hand direction of lay in the sequence; Brown, Black, Grey and Blue. The phase core insulation shall comply with maximum insulation thickness clause detailed in 10.3.3 06/07/21

The copper earth wires shall not stick to the synthetic bedding layer.

The oversheath shall be black PVC type DMV 23 complying with the requirements of BS 7870-1 Annex B and applied so that there is no internal protrusion of the oversheath material around the CNE copper wires.

Cable to be in accordance with BS 7870 Part 3 Section 3.40.

# A5 Schedule Five - 3 CORE: 95, 185 and 300mm² POLYMERIC INSULATED WAVEFORM CABLE (LS0H)

## A5.1 Specification

Three core, three phase sectoral solid aluminium conductor, XLPE insulation, CNE of **copper wires** applied in waveform embedded on a LS0H bedding, LS0H oversheath, 0.6/1.0kV cable.

Phase conductors shall be sectoral shaped solid aluminium and shall comply to the requirements for solid conductors (class 1) as specified in BS EN 60228. The conductors shall also conform to the dimensional requirements specified in BS EN 60228 or BS 3988. The Supplier shall confirm which shape of conductor is being offered and to what specification.

Phase core insulation shall be XLPE type DIX3 complying with the requirements of BS 7870-1 Annex B, however the maximum permissible shrinkage shall be 2%. The test shall be carried out at both 65°C for 24 hours and 130°C for 1 hour. The phase core insulation shall comply with maximum insulation thickness clause detailed in 10.3.3 06/07/21

The CNE of copper wires shall not stick to the synthetic bedding layer.

The oversheath shall be orange compound DMZ 23 complying with the requirements of BS 7870-1 Annex B and applied so that there is no internal protrusion of the oversheath material around the CNE copper wires.

Cable to be in accordance with BS 7870 Part 3 Section 3.50.

# A6 Schedule Six -4 CORE: 95, 185 and 300mm$^2$ POLYMERIC INSULATED WAVEFORM CABLE (LS0H)

## A6.1 Specification

Four core, three phase and a separate neutral sectoral solid aluminium conductor, XLPE insulation and copper earth wires applied in waveform embedded on a LS0H bedding, LS0H oversheath, 0.6/1.0kV cable. 06/07/21

Phase conductors shall be sectoral shaped solid aluminium and shall comply to the requirements for solid conductors (class 1) as specified in BS EN 60228. The conductors shall also conform to the dimensional requirements specified in BS EN 60228 or BS 3988. The Supplier shall confirm which shape of conductor is being offered and to what specification.

Phase core insulation shall be XLPE type DIX3 complying with the requirements of BS 7870-1 Annex B, however the maximum permissible shrinkage shall be 2%. The test shall be carried out at both 65°C for 24 hours and 130°C for 1 hour. The oversheath shall be orange compound DMZ 23 complying with the requirements of BS 7870-1 Annex B and applied so that there is no internal protrusion of the oversheath material around the Earth copper wires. The phase core insulation shall comply with maximum insulation thickness clause detailed in 10.3.3 06/07/21

Cable to be in accordance with BS 7870 Part 3 Section 3.50.

# Appendix B – Logistical Requirements

## B1 Cable Drums and Labelling

Drums used for LV mains cables shall have a maximum width of 1200mm and a maximum weight of 2500kg.

Cable drums shall meet the requirements of ES400C7.

All cable drums shall be marked in accordance with the relevant cable specification or standard. The drum label shall also contain:

- Electricity North West commodity code
- Name of manufacturer
- Supplied length
- Rated voltage
- Number of cores
- Size of conductor
- Type of conductor material ("Cu" or "Al")
- Abbreviated description of cable construction
- Gross and nett weights
- Direction of rolling drum
- The metre marking start and end values
- The unique reference number

## B2 General Logistical Requirements

Cable drums may be stored for long periods outdoors. All drum labels shall remain legible and durable under these conditions.

All cable drums shall be returnable, and the Tenderer shall arrange to collect empty drums from the company's normal delivery locations. Tenderers shall state at the time of Tender their proposed cable drum sizes and weights for each cable type offered.

The ends of all cables shall be effectively sealed against the ingress of moisture by a method appropriate to the cable type. Tenderers shall detail at the time of Tender their proposed sealing arrangement for each cable type offered.

The cable end projecting from the drum shall be protected from damage during transit, storage and handling on site.

The cable on the drum shall not be susceptible to damage during transit, storage and handling on site.

Tenderers shall state at the time of Tender their proposed method of protection for each cable.

# Appendix C – 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)** |
| **3.1** | **Product not to be Changed** | | |
| **3.2** | **Electricity North West Technical Approval** | | |
| **3.3** | **Quality Assurance** | | |
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| **3.5** | **Identification Markings** | | |
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| **3.7** | **Product Conformity** | | |
| **3.8** | **Confirmation of Conformance** | | |
| **4** | **Conditions of Installation** | | |
| **5** | **Conditions of Operation for Power Cables** | | |
| **6** | **Cable Longevity** | | |
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**Additional Notes:**