Specification (Measurement)

Transport and Main Roads Specifications
MRS256 Provision of Power Cables

October 2014
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1 Introduction

This Specification applies to the supply and installation of power cables for the supply of electrical power to electrical installations including traffic signal installations and Rates 2 and 3 road lighting installations.

This Specification shall be read in conjunction with MRS01 Introduction to Specifications, MTRS256 Provision of Power Cables and other Specifications as appropriate.

This Specification forms part of the Transport and Main Roads Specifications Manual.

This is a new specification on Power Cables. The requirements on power cables for this specification had been extracted from the ex-MRS95 on “Switchboards and Cables”.

2 Measurement of works

2.1 Standard Work Items

In accordance with the provisions of Clause 2 of MRS01 Introduction to Specifications, the standard work items covered by this Specification are listed in Table 2.1.

Table 2.1 – Standard Work Items

<table>
<thead>
<tr>
<th>Standard Item No.</th>
<th>Description</th>
<th>Unit of Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>6811</td>
<td>Supply of underground road lighting cable, [conductor size], [number of cores] cores, [core insulation], [sheath insulation], [conductor material].</td>
<td>m</td>
</tr>
<tr>
<td>6812</td>
<td>Supply of aerial road lighting cable, [conductor size], [number of cores] cores, [core insulation], [sheath insulation], [conductor material].</td>
<td>m</td>
</tr>
<tr>
<td>6813</td>
<td>Supply of traffic signal cable, [conductor size], [number of cores] cores, [core insulation], [sheath insulation], [conductor material].</td>
<td>m</td>
</tr>
<tr>
<td>6814</td>
<td>Supply of loop detector cable, [conductor size], [number of cores] cores, [core insulation], [sheath insulation], [conductor material].</td>
<td>m</td>
</tr>
<tr>
<td>6815</td>
<td>Supply of cable, [usage], [conductor size], [number of cores] cores, [core insulation], [sheath insulation], [conductor material].</td>
<td>m</td>
</tr>
<tr>
<td>6816</td>
<td>Supply of cable joint, [fused</td>
<td>unfused].</td>
</tr>
<tr>
<td>6817</td>
<td>Supply of aerial cable strain clamp.</td>
<td>each</td>
</tr>
<tr>
<td>6818</td>
<td>Supply of aerial cable connector, [type].</td>
<td>each</td>
</tr>
<tr>
<td>6819</td>
<td>Supply of right angle strain relief bushing (to suit 26 mm diameter hole).</td>
<td>each</td>
</tr>
<tr>
<td>6821</td>
<td>Installation, jointing and termination of underground road lighting cable, [cores].</td>
<td>m</td>
</tr>
<tr>
<td>6822</td>
<td>Installation, jointing and termination of traffic signal cable, [cores].</td>
<td>m</td>
</tr>
<tr>
<td>6823</td>
<td>Installation, jointing and termination of loop detector cable, [cores].</td>
<td>m</td>
</tr>
<tr>
<td>6824</td>
<td>Installation, jointing and termination of cable, [usage], [cores].</td>
<td>m</td>
</tr>
<tr>
<td>6825</td>
<td>Installation, jointing and termination of aerial road lighting cable, [cores].</td>
<td>m</td>
</tr>
<tr>
<td>6826</td>
<td>Removal of underground cable.</td>
<td>m</td>
</tr>
</tbody>
</table>
### 2.2 Work Operations

**Item 6811**  
Supply of underground road lighting cable, \([\text{conductor size}], [\text{number of cores}]\) cores, \([\text{core insulation}], [\text{sheath insulation}], [\text{conductor material}]\)

**Item 6812**  
Supply of aerial road lighting cable, \([\text{conductor size}], [\text{number of cores}]\) cores, \([\text{core insulation}], [\text{sheath insulation}], [\text{conductor material}]\)

**Item 6813**  
Supply of traffic signal cable, \([\text{conductor size}], [\text{number of cores}]\) cores, \([\text{core insulation}], [\text{sheath insulation}], [\text{conductor material}]\)

**Item 6814**  
Supply of loop detector cable, \([\text{conductor size}], [\text{number of cores}]\) cores, \([\text{core insulation}], [\text{sheath insulation}], [\text{conductor material}]\)

**Item 6815**  
Supply of cable, \([\text{usage}], [\text{conductor size}], [\text{number of cores}]\) cores, \([\text{core insulation}], [\text{sheath insulation}], [\text{conductor material}]\)

**Item 6816**  
Supply of cable joint, \([\text{fused | unfused}]\)

**Item 6817**  
Supply of aerial cable strain clamp

**Item 6818**  
Supply of aerial cable connector, \([\text{type}]\)

**Item 6819**  
Supply of right angle strain relief bushing (to suit 26 mm diameter hole)

Work Operations incorporated in the above items include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) supply of all materials to the Site.

**Item 6821**  
Installation, jointing and termination of underground road lighting cable, \([\text{cores}]\)

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) installation of cables through ducting
- c) connection and termination of cables
- d) replacement of draw ropes in ducting, and
- e) testing of installation.

**Item 6822**  
Installation, jointing and termination of traffic signal cable, \([\text{cores}]\)

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) installation of cables through ducting, posts, mast arms and poles
- c) connection and termination of cables, including the connection and termination of cables at the appropriate terminal assembly within the traffic signal post, mast arm or joint use pole
- d) replacement of draw ropes in ducting, and
- e) testing of installation.
Item 6823 Installation, jointing and termination of loop detector cable, [cores]

Item 6824 Installation, jointing and termination of cable, [usage], [cores]

Work Operations incorporated in the above items include:

a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
b) installation of cables
c) connection and termination of cables, and
d) testing of installation.

Item 6825 Installation, jointing and termination of aerial road lighting cable, [cores]

Work Operations incorporated in the above item include:

a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
b) installation of cable
c) connection and termination of cables, and
d) testing of installation.

Item 6826 Removal of underground cable

Item 6827 Removal of aerial cable

Work Operations incorporated in the above items include:

a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
b) de-energisation of circuit
c) removal of cable, and
d) Transport to Main Roads’ storage site.

2.3 Calculation of quantities

Quantities for the supply and installation of underground cable for traffic signals (other than multicore) and road lighting cable shall be the sum of the measured duct length plus four metres for each pit through which the cable passes.

Quantities for the supply and installation of traffic signal multicore cable shall be the sum of the measured duct length plus 12 metres for each pit at controller, posts, joint-use poles and mast arm columns and two metres at each intermediate pit through which cable passes plus five metres from pit to terminal connection.

Quantities for the supply and installation of aerial cable shall be the sum of measured span lengths plus two metres for each span, for each type of cable specified.