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## TII Publications

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# Requirements for Measuring and Pricing of Electrical Work for Road Lighting Traffic Signs

**CC-RMP-01400**

October 2016

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This document has been authorised by the Director of Professional Services, Transport Infrastructure Ireland. For any further guidance on the TII Publications system, please contact the following:

Contact: Standards and Research Section, Transport Infrastructure Ireland  
 Postal Address: Parkgate Business Centre, Parkgate Street, Dublin 8, D08 DK10  
 Telephone: +353 1 646 3600  
 Email: [infoPUBS@tii.ie](mailto:infoPUBS@tii.ie)

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## TII Publications



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# 1. Electrical Work for Road Lighting and Traffic Signs

## Locating Buried Road Lighting and Traffic Signs Cable

<b>Units</b>	<b>1</b>	The unit of measurement shall be:  (i) locating buried road lighting and traffic signs cable..... linear metre.												
<b>Measurement</b>	<b>2</b>	The measurement shall be the length of the buried road lighting or traffic signs cable located (as this document paragraph 7 for the measurement of cable).												
<b>Itemisation</b>	<b>3</b>	<p>Separate items shall be provided for locating buried road lighting and traffic signs cable in accordance with Section 3 of CC-RMP-00010 - Introduction to the Requirements for Measuring and Pricing paragraphs 3 and 4 and the following:</p> <p><b>Group Feature</b></p> <table border="0" style="margin-left: 20px;"> <tr> <td style="width: 20px;">I</td> <td style="width: 20px;">1</td> <td>Locating buried road lighting and traffic signs cable</td> </tr> <tr> <td>II</td> <td>1</td> <td>In carriageways, footways and bridge decks and paved areas</td> </tr> <tr> <td></td> <td>2</td> <td>In verges, embankments and cuttings</td> </tr> <tr> <td></td> <td>3</td> <td>In central reserves</td> </tr> </table>	I	1	Locating buried road lighting and traffic signs cable	II	1	In carriageways, footways and bridge decks and paved areas		2	In verges, embankments and cuttings		3	In central reserves
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II	1	In carriageways, footways and bridge decks and paved areas												
	2	In verges, embankments and cuttings												
	3	In central reserves												
<b>Locating Buried Road Lighting and Traffic Signs Cable</b>	<b>4</b>	The items for locating buried road lighting and traffic signs cable shall in accordance with the Preambles to Bill of Quantities General Directions include for:												
<b>Item Coverage</b>		<p>(a) marking the cable runs on the ground;</p> <p>(b) pegging and removal;</p> <p>(c) maintaining location system;</p> <p>(d) proving insulation integrity and supplying results to the Employer's Representative;</p> <p>(e) site records.</p>												

## Cabling

<b>Units</b>	<b>5</b>	The units of measurement shall be:  (i) trench for cable ..... linear metre (ii) cable ..... linear metre.
<b>Measurement</b>	<b>6</b>	<p>The measurement of trench for cable shall be the summation of the distance along the centre line of the route between the following points:</p> <p>(a) face of foundation to post, road lighting column, Lit Sign Unit, feeder pillar, electricity supply point and the like;</p> <p>(b) the intersection of the centre line of trenches at trench junctions;</p> <p>(c) the position of trench terminations shown in the Contract.</p> <p>The measurement of trench for cable shall be measured once only irrespective of the number of cables in the trench. The depth of cable trenches shall be the vertical measurement between the underside of the bedding, or if no bedding is specified the underside of the cable, and the Earthworks Outline.</p>

- 7** The measurement of cable shall be the summation of the individual lengths along the centre line of the route between the points of cable termination at each item of equipment.
- Points of cable termination shall be:
- (a) in the case of loop detector feeders – the point at which the cable enters the terminal block;
  - (b) in all other cases – the point at which the cables enter the boxes, distributors, lighting columns, cut-outs and the like.
- Itemisation**                      **8** Separate items shall be provided for cabling in accordance with Chapter II paragraphs 3 and 4 and the following:
- Group   Abbreviation**
- I            1 Trench for cable, depth not exceeding 1.5 metres
  - 2 Trench for cable, depth exceeding 1.5 metres but not exceeding 2.0 metres and so on in steps of 0.5 metres
  - 3 Cable
  - II            1 Different widths of trench
  - 2 Different types and sizes of cable
  - III           1 In carriageways, footways and bridge decks and paved areas
  - 2 In verges, embankments and cuttings
  - 3 In central reserves
  - IV           1 Supplied by Transport Infrastructure Ireland
- Trench for Cable**                      **9** The items for trench for cable shall in accordance with the Preambles to Bill of Quantities General Directions include for:
- Item Coverage**
- (a) excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18);
  - (b) excavation of unacceptable material (CC-RMP-00600 paragraph 19);
  - (c) excavation in Hard Material (CC-RMP-00600 paragraph 23);
  - (d) additional depth of excavation to maintain specified cover at obstructions;
  - (e) additional excavation to accommodate extra lengths of cable;
  - (f) locating, working around and supporting pipes, cables, services, apparatus and the like;
  - (g) trimming, levelling and compacting;
  - (h) cable bedding and covering;
  - (i) backfilling and compaction;
  - (j) troughing, lids, access points and bedding;
  - (k) disposal of material (as CC-RMP-00600 paragraph 39);
  - (l) marking tape or cable covers;
  - (m) reinstatement of surfaces;
  - (n) site records.
- Cable**                                      **10** The items for cable shall in accordance with the Preambles to Bill of Quantities General Directions include for:

**Item Coverage**

- (a) extra length of cable required for connection into a unit, future retermination and tying in;
- (b) unsealing, clearing and swabbing out ducts, drawing cables through, replacing draw ropes, plugging and sealing duct ends and marking;
- (c) intermediate supports and fixing devices where cables leave trench and prior to entry into equipment;
- (d) supports to vertical and horizontal cables;
- (e) sealing to cable ends;
- (f) cutting, tying together, sealing, coiling and strapping of unused cores;
- (g) unscheduled joints;
- (h) marker blocks, marker tape, identification tags, sleeves and the like;
- (i) twisting and snaking;
- (j) preparation and supply of record drawings;
- (k) service connections and commissioning;
- (l) additional protection and support;
- (m) site records and colour coding.

**Cable Supplied by Transport Infrastructure Ireland 11**

The items for cable supplied by Transport Infrastructure Ireland shall in accordance with the Preambles to Bill of Quantities General Directions include for:

**Item Coverage**

- (a) loading, transporting from store, unloading and positioning for installation or re-installation;
- (b) replacing items damaged in the foregoing operations;
- (c) cable (as this document paragraph 10);
- (d) modification and new materials.

**Cable Joints and Terminations**

**Units 12**

The unit of measurement shall be:  
 (i) cable joints, cable terminations ..... number.

**Measurement 13**

Cable joints shall be measured only where they are required specifically by the Contract. Unscheduled cable joints in running lengths shall not be measured.

**Itemisation 14**

Separate items shall be provided for cable joints and cable terminations in accordance with Section 3 of CC-RMP-00010 - Introduction to the Requirements for Measuring and Pricing paragraphs 3 and 4 and the following:

Group	Feature
I	1 Cable joint
	2 Cable termination
II	1 Different types
III	1 Different sizes

<b>Cable Joints and Cable Terminations</b>	<b>15</b>	The items for cable joints and cable terminations shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) preparing, stripping and cleaning ends; (b) connectors, glands, clamps, sleeves, cleats, tags and terminal blocks; (c) connecting conductors to terminals; (d) removing “knock outs” and drilling backboard; (e) insulating ends of unused conductors; (f) bonding; (g) jointing kits; (h) numbering and lettering; (i) complying with wiring regulations and earthing (other than earth electrodes); (j) protection, curing and support of cable joints and keeping the cable joint free of moisture; (k) markers; (l) additional excavation in any material (CC-RMP-00600 paragraphs 17, 18, 19 and 23); (m) links and jumper leads; (n) building out; (o) site records.
<b>Feeder Pillars</b>		
<b>Units</b>	<b>16</b>	The unit of measurement shall be: (i) feeder pillar ..... number.
<b>Itemisation</b>	<b>17</b>	Separate items shall be provided for feeder pillars in accordance with Section 3 of CC-RMP-00010 - Introduction to the Requirements for Measuring and Pricing paragraphs 3 and 4 and the following: <b>Group Feature</b> I 1 Each type of feeder pillar II 1 Supplied by Transport Infrastructure Ireland
<b>Feeder Pillars</b>	<b>18</b>	The items for feeder pillars shall in accordance with the Preambles to Bill of Quantities General Directions include for:
<b>Item Coverage</b>		(a) excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18); (b) excavation of unacceptable material (CC-RMP-00600 paragraph 19); (c) excavation in Hard Material (CC-RMP-00600 paragraph 23); (d) brickwork, blockwork and stonework (CC-RMP-02400 paragraphs 4 and 8); (e) backfilling and compaction; (f) disposal of material (CC-RMP-00600 paragraph 39); (g) building in or forming cable ducts in bases;

- (h) concrete (CC-RMP-01700 paragraphs 4 and 9);
- (i) formwork (CC-RMP-01700 paragraph 14);
- (j) reinforcement (CC-RMP-01700 paragraph 25);
- (k) removing knock-outs, drilling or forming holes and pockets and casting in bars, sockets, base plates, plinths and anchorage assemblies;
- (l) footways and paved areas (CC-RMP-01100 paragraph 21);
- (m) adhesives and epoxy or polyester mortar, bedding mortar or grout;
- (n) backboards, fixings, protective caps, sealing, grommets, spacers, mounting plates and strips;
- (o) complying with wiring regulations and earthing (other than earth electrodes);
- (p) conduit including screwed and threaded connections, bends, tees and the like and draw wires
- (q) electrical equipment, batteries, colour coding, wiring and making connections, excluding electricity supplier's connection;
- (r) threading cable through ducts, sleeves, conduit and the like;
- (s) doors, locks and keys;
- (t) protective system (CC-RMP-01900 paragraph 4);
- (u) notices, labelling, recording numbering and lettering;
- (v) in the case of equipment supplied by the Transport Infrastructure Ireland, loading, transporting from store, unloading and positioning for installation or re-installation and replacing items damaged in the foregoing operations;
- (w) filling, bedding and sealing;
- (x) cleaners, solvents and desiccants;
- (y) preparation and supply of record drawings;
- (z) service connections and commissioning.

**Feeder Pillars supplied by Transport Infrastructure Ireland**      **19**      The items for feeder pillars supplied by the Transport Infrastructure Ireland shall in accordance with the Preambles to Bill of Quantities General Directions include for:

- Item Coverage**
- (a) loading, transporting from store, unloading and positioning for installation or re-installation;
  - (b) replacing items damaged in the foregoing operations;
  - (c) modification and new materials;
  - (d) feeder pillars (as this document paragraph 18).

**Earth Electrodes**

**Units**      **20**      The unit of measurement shall be:

- (i) earth electrodes ..... number.

**Measurement**      **21**      The measurement of earth electrodes shall be the complete installation including conduit and cable between the structure, nearest Lit Sign Unit or lighting unit and the earth electrode.



<b>Itemisation</b>	<b>22</b>	<p>Separate items shall be provided for earth electrodes in accordance with Section 3 of CC-RMP-00010 - Introduction to the Requirements for Measuring and Pricing paragraphs 3 and 4 and the following:</p> <p><b>Group Feature</b></p> <p>I            1    Different types and sizes of earth electrodes</p>
<b>Earth Electrodes</b>	<b>23</b>	<p>The items for earth electrodes shall in accordance with the Preambles to Bill of Quantities General Directions include for:</p>
<b>Item Coverage</b>		<p>(a) excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18);</p> <p>(b) excavation of unacceptable material (CC-RMP-00600 paragraph 19);</p> <p>(c) excavation in Hard Material (CC-RMP-00600 paragraph 23);</p> <p>(d) backfilling and compaction;</p> <p>(e) disposal of material (as CC-RMP-00600 paragraph 39);</p> <p>(f) in-situ concrete (CC-RMP-01700 paragraph 4);</p> <p>(g) formwork (CC-RMP-01700 paragraph 14);</p> <p>(h) driving;</p> <p>(i) clamps, cables and making connections;</p> <p>(j) reinforcement (CC-RMP-01700 paragraph 25);</p> <p>(k) covers, frames, seating and bedding;</p> <p>(l) earthing rods including pressure plates, glands and clamps;</p> <p>(m) conductor cable including preparing, stripping and cleaning ends and connections;</p> <p>(n) conduit including all purpose-made screwed and threaded connections, bends, tees and the like and draw wires;</p> <p>(o) threading cable through ducts, sleeves, conduit and the like;</p> <p>(p) complying with wiring regulations;</p> <p>(q) markers, notices and recording;</p> <p>(r) preparation and supply of record drawings.</p>
<b>Remove from Store and Re-erect Feeder Pillars</b>		
<b>Units</b>	<b>24</b>	<p>The unit of measurement shall be:</p> <p>(i)            remove from store and re-erect feeder pillar ..... number</p>
<b>Itemisation</b>	<b>25</b>	<p>Separate items shall be provided for chambers in accordance with Section 3 of CC-RMP-00010 - Introduction to the Requirements for Measuring and Pricing paragraphs 3 and 4 and the following:</p> <p><b>Group Feature</b></p> <p>I            1    Remove from store and re-erect feeder pillars</p> <p>II          1    Different types</p>
<b>Remove from Store and Re-erect Feeder Pillars</b>	<b>26</b>	<p>The items for feeder pillars shall in accordance with the Preambles to Bill of Quantities General Directions include for:</p>
<b>Item Coverage</b>		<p>(a) loading, transporting from store unloading and positioning for re erecting;.</p>

- (b) replacing items damaged during the foregoing operations;
- (c) modification and new materials;
- (d) feeder pillars (as this document paragraph 23).

## **2. References**

### **2.1 TII Publications (Standards) References**

CC-RMP-00010 Introduction to the Requirements for Measuring and Pricing

CC-RMP-00600 Requirements for Measuring and Pricing of Earthworks


CC-RMP-01100 Requirements for Measuring and Pricing of Kerbs, Footways and Paved Areas

CC-RMP-01700 Requirements for Measuring and Pricing of Structural Concrete

CC-RMP-01900 Requirements for Measuring and Pricing of Protection of Steelwork against Corrosion

CC-RMP-02400 Requirements for Measuring and Pricing of Brickwork, Blockwork and Stonework





 Ionad Ghnó Gheata na Páirce,  
Stráid Gheata na Páirce,  
Baile Átha Cliath 8, D08 DK10, Éire

 Parkgate Business Centre,  
Parkgate Street,  
Dublin 8, D08 DK10, Ireland

 [www.tii.ie](http://www.tii.ie)

 [info@tii.ie](mailto:info@tii.ie)

 +353 (01) 646 3600

 +353 (01) 646 3601