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Transport Infrastructure Ireland

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Requirements for Measuring and Pricing of Motorway Communications

CC-RMP-01500

October 2016

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1. Motorway Communications

Locating Buried Communications Cable

Units	1	The unit of measurement shall be: (i) locating buried communications cable linear metre
Measurement	2	The measurement shall be the length of the buried communication cable located (as this document paragraph 7 for the measurement of cable).
Itemisation	3	Separate items shall be provided for locating buried communications cable in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following: Group Feature I 1 Locating buried communications cable II 1 In carriageways, footways, bridge decks, and paved areas 2 In verges, embankments and cuttings 3 In central reserves
Locating Buried Communications Cable	4	The items for locating buried communications cable shall in accordance with the Preambles to Bill of Quantities General Directions include for: Item Coverage (a) marking the cable runs on the ground; (b) location system and removal; (c) maintaining location system; (d) proving insulation integrity and supplying results to the Employer's Representative; (e) trial pits (CC-RMP-00600 paragraph 166).

Communications Cabling and Trench for Communications Cable

Units	5	The unit of measurement shall be: (i) trench for communications cable linear metre. (ii) communications cable linear metre
Measurement	6	The measurement of trench for communications cable shall be the summation of the distance along the centre line of the route between the following points: (a) face of foundation to cabinet, post, road lighting column, Lit Sign Unit, feeder pillar, electricity supply point and the like; (b) the intersection of the centre line of trenches at trench junctions; (c) the position of trench terminations shown in the Contract; (d) the internal faces of chambers; (e) the point of change of stage depth. The measurement of trench for communications 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, of if no bedding is specified the underside of the cable, and the Earthworks Outline.

- 7** The measurement of communications cables 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 and the like.

Itemisation

- 8** Separate items shall be provided for communications cabling in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:

Group Feature

- I
 - 1 Trench for communications cable, depth not exceeding 1.5 metres
 - 2 Trench for communications cable, depth exceeding 1.5 metres but not exceeding 2.0 metres and so in steps of 0.5 metres
 - 3 Communications cable
- II
 - 1 Different widths of trench
 - 2 Different types and sizes of cable
- III
 - 1 In duct
 - 2 Fixed above ground
- IV
 - 1 In side slopes of cutting or side slopes of embankments
 - 2 In carriageways, footways and paved areas
 - 3 In verges and central reserves

Trench for Communications Cable

- 9** The items for trench for communications 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 ends of ducts and 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 (CC-RMP-00600 paragraph 39);
- (l) marking tape or cable covers;

		(m) reinstatement of surfaces;
		(n) protection at drain crossings
		(o) formwork (CC-RMP-01700 paragraph 14)
		(p) movement joint to beds, surrounds and the like:
		(q) site records.
Communications Cable	10	The items for communications 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, cable lubrication, duct belmouths, cable chutes, 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) provision of buried loops;
		(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, labels and the like;
		(i) twisting and snaking;
		(j) service connections;
		(k) additional protection and support;
		(l) notification of lengths and provision of schedule of lengths and locations;
		(m) in the case of gantries – conduits, trunking and cable trays;
		(n) colour coding;
		(o) supports to vertical and horizontal communication cables;
		(p) cable management in chamber;
		(q) electricity supply until handover.
	11	Not Used

Communications Cable Joints and Terminations

Units	12	The unit of measurement shall be: (i) communications cable joints, communications cable terminations ... number.
Measurement	13	Communications cable joints and communications cable terminations shall be measured only where they are required specifically by the Contract. Unscheduled communications cable joints in running lengths shall not be measured.
Itemisation	14	Separate items shall be provided for communications cable joints and communications cable terminations in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:

		Group Feature
		I 1 Communications cable joint
		2 Communications cable termination
		II 1 Different types
		III 1 Different sizes
Communications Cable Joints and Communications Cable Terminations	15	The items for communications cable joints and terminations shall in accordance with the Preambles to Bill of Quantities General Directions include for:
Item Coverage		<ul style="list-style-type: none"> (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) disposal of material (CC-RMP-00600 paragraph 39).
Communications Equipment		
Units	16	The unit of measurement shall be:
		(i) communications equipmentnumber.
Itemisation	17	Separate items shall be provided for communications equipment in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
		Group Features
		I 1 Communications equipment
		II 1 Different types
		III 1 Different sizes
		IV 1 Different locations
Communications Equipment	18	The items for communications equipment shall in accordance with the Preambles to Bill of Quantities General Directions include for:
Item Coverage		<ul style="list-style-type: none"> (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) formwork (CC-RMP-01700 paragraph 14);
- (i) reinforcement (CC-RMP-01700 paragraph 25);
- (j) concrete (CC-RMP-01700 paragraphs 4 and 9);
- (k) removing knock-outs, drilling or forming holes and pockets and casting in bars, sockets, base plates, plinths, anchorage assemblies, posts and the like including grouting;
- (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, bushes, mounting plates and neoprene 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 conditions;
- (r) threading cable through ducts, sleeves, conduits and the like;
- (s) doors, locks and keys;
- (t) protective system (CC-RMP-01900 paragraph 4);
- (u) notices, labelling, numbering and lettering;
- (v) filling, bedding and sealing;
- (w) alignment and sighting;
- (x) cleaners, solvents and desiccants;
- (y) preparation and supply of record drawings;
- (z) additional protection and support;
- (aa) service connections and commissioning.
- (bb) guardrails;
- (cc) electricity supply until handover.

19 Not Used

Remove from Store and Re-install Communications Cabling and Equipment

Units	20	The units of measurement shall be: <ul style="list-style-type: none"> (i) cable linear metre. (ii) cabinets, posts, brackets, signal indicators and the like..... number. (iii) shelves, racking, frames and the like number. (iv) electronic units and the like number.
Measurement	21	Re-installed cables shall be measured in accordance with this document paragraph 7.

Itemisation	22	<p>Separate items shall be provided for remove from store and re-install communications cabling and equipment in accordance with Section 3 of CC-RMP-00010 paragraph 3 and 4 and the following:</p> <table border="0"> <thead> <tr> <th style="text-align: left;">Group</th> <th style="text-align: left;">Feature</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>1 Remove from store and re-install cable</td> </tr> <tr> <td></td> <td>2 Remove from store and re-install cabinets, posts, brackets, signal indicators and the like.</td> </tr> <tr> <td></td> <td>3 Remove from store and re-install shelves, racking, frames and the like</td> </tr> <tr> <td></td> <td>4 Remove from store and re-install electronic units and the like</td> </tr> <tr> <td>II</td> <td>1 Different types</td> </tr> <tr> <td>III</td> <td>1 Different sizes</td> </tr> </tbody> </table>	Group	Feature	I	1 Remove from store and re-install cable		2 Remove from store and re-install cabinets, posts, brackets, signal indicators and the like.		3 Remove from store and re-install shelves, racking, frames and the like		4 Remove from store and re-install electronic units and the like	II	1 Different types	III	1 Different sizes
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	4 Remove from store and re-install electronic units and the like															
II	1 Different types															
III	1 Different sizes															
Remove from Store and Re-Install Communications Cabling and Equipment	23	<p>The items for remove from store and re-install communications cabling and equipment shall in accordance with the Preambles to Bill of Quantities General Directions include for:</p>														
Item Coverage		<p>(a) loading, transporting from store, unloading and positioning for re-installation;</p> <p>(b) replacing items damaged during the foregoing operations;</p> <p>(c) modification and new materials;</p> <p>(d) communications cables (as this document paragraph 10);</p> <p>(e) service ducts (CC-RMP-00500 paragraph 12);</p> <p>(f) communications cable joints and communications cable terminations (as this document paragraph 15);</p> <p>(g) communications equipment (as this document paragraph 18).</p>														
Loop Detector Installations																
Units	24	<p>The unit of measurement shall be:</p> <p>(i) loop detector installations..... number.</p>														
Measurement	25	<p>The measurement of loop detector installations shall be the complete installation from the joint with the feeder cable including the chamber box or pit within which the joint is located.</p> <p>The joint of the feeder cable to the loop cable shall be measured in accordance with paragraph 15.</p>														
Itemisation	26	<p>Separate items shall be provided for loop detector installations in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:</p> <table border="0"> <thead> <tr> <th style="text-align: left;">Group</th> <th style="text-align: left;">Feature</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>1 Loop detector installations</td> </tr> <tr> <td>II</td> <td>1 Different types</td> </tr> <tr> <td>III</td> <td>1 Different sizes</td> </tr> <tr> <td>IV</td> <td>1 Different locations</td> </tr> </tbody> </table>	Group	Feature	I	1 Loop detector installations	II	1 Different types	III	1 Different sizes	IV	1 Different locations				
Group	Feature															
I	1 Loop detector installations															
II	1 Different types															
III	1 Different sizes															
IV	1 Different locations															
Loop Detector Installations	27	<p>The items for loop detector installations shall in accordance with the Preambles to Bill of Quantities General Directions include for:</p> <p>(a) excavation of acceptable material (CC-RMP-00600 paragraphs 17 and 18);</p>														

- (b) excavation of unacceptable material (CC-RMP-00600 paragraph 19);
- (c) excavation in Hard Material (CC-RMP-00600 paragraph 23);
- (d) disposal of material (CC-RMP-00600 paragraph 39);
- (e) marking out, cutting or forming slots, drying, damming, backfilling, cleaning and sealing;
- (f) chambers, boxes and pits (CC-RMP-00500 paragraph 32);
- (g) ducts (CC-RMP-00500 paragraph 12);
- (h) building in ends of ducts;
- (i) forming drainage holes;
- (j) supports and foundations to cables;
- (k) communications cable (as this document paragraph 10);
- (l) in situ concrete (CC-RMP-01700 paragraph 4);
- (m) formwork (CC-RMP-01700 paragraph 14);
- (n) complying with wiring regulations and earthing (other than earth electrodes);
- (o) reinstatement of surfaces;
- (p) dowels and wedges;
- (q) anchor plates.

Site Records

- Units** **28** The unit of measurement shall be:
- (i) site records item.
- Itemisation** **29** Separate items shall be provided for site records in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
- | Group | Feature |
|--------------|---------------------|
| I | 1 Site Records |
- Site Records** **30** The items for site records shall in accordance with the Preambles to Bill of Quantities General Directions include for:
- Item Coverage** (a) preparing site records and submitting to the Employer's Representative;
- (b) site measurements and surveying.

Stage 2 Commissioning of Cable

- Units** **31** The units of measurement shall be:
- (i) Stage 2 commissioning of communications cable item.
 - (ii) Stage 2 commissioning of power cable item.
- Measurement** **32** The measurement shall be the number of Stage 2 commissionings accepted by the Employer's Representative.
- Itemisation** **33** Separate items shall be provided for Stage 2 commissioning of communications cable and Stage 2 commissioning of power cable in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:
- | Group | Feature |
|--------------|------------------------------|
| I | 1 Stage 2 commissioning |
| II | 1 Communications cable |
| | 2 Power cable |


		III	1	Each section
Stage 2 Commissioning of Cable	34	The items for Stage 2 commissioning of communications cable and Stage 2 commissioning of power cable shall in accordance with the Preambles of Bill of Quantities General Directive include for:		
Item Coverage		(a) setting up equipment;		
		(b) taking readings, measurement and observations of the performance of the cabling, recording and supplying 3 copies of the commissioning record to the Employer's Representative.		
Modification of Existing Communications Equipment				
Units	35	The units of measurement shall be:		
		(i) modification to existing communications equipment item.		
Itemisation	36	Separate items shall be provided for modification to existing communications equipment in accordance with Section 3 of CC-RMP-00010 paragraphs 3 and 4 and the following:		
		Group	Feature	
		I	1	Modification to existing communications equipment
		II	1	Different types
		III	1	Different sizes
Modification to Existing Communications Equipment	37	The items for modification to existing communications equipment shall in accordance with the Preambles of Bill of Quantities General Directive include for:		
Item Coverage		(a) new materials;		
		(b) communication equipment (as this document paragraph 19);		
		(c) communications cables (as this document paragraph 10);		
		(d) service ducts (CC-RMP-00500 paragraph 12)		
		(e) communications cable joints and communications cable terminations (as this document paragraph 16).		

2. References

2.1 TII Publications (Standards) Reference

CC-RMP-00010	Introduction to the Requirements for Measuring and Pricing
CC-RMP-00500	Requirements for Measuring and Pricing of Drainage and Service Ducts
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





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