

**Specification (Measurement)**

**Transport and Main Roads Specifications  
MRS242 Recreational Boating Infrastructure Lighting**

**July 2023**



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## 1 Introduction

This Specification applies to the supply and installation of Boat Infrastructure Lighting Equipment. This Specification does not apply to Road Lighting.

This Specification shall be read in conjunction with MRS01 *Introduction to Specifications*, MRS50 *Specific Quality System Requirements*, MRS94 *Road Lighting*, MRS263 *Standalone Solar (PV) Power Systems* and other Specifications as appropriate.

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

## 2 Measurement of works

### 2.1 Standard Work Items

In accordance with the provisions of Clause 2.1.3 of MRS01 *Introduction to Specifications*, the Standard Work Items covered by this Specification are listed in Table 2.1.

For Standard Work Items relating to Solar Power, refer to MRS263 *Standalone Solar (PV) Power Systems*.

**Table 2.1 – Standard Work Items**

| Standard Item No.                                   | Description  | Unit of Measurement |
|---|--|---------------------|
| <b>Recreational Boating Infrastructure Lighting</b> |  |                     |
| 65701   | Supply of [ <i>fixed base</i> ] lighting pole, [ <i>height</i> ] mm vertical height  | each                |
| 65702   | Supply of [ <i>single</i>   <i>double</i> ] lighting outreach arm, [ <i>length</i> ] mm long                                 | each                |
| 65703   | Supply of lighting outreach arm extension, [ <i>length</i> ] mm long   | each                |
| 65704   | Supply of lighting luminaire headframe, [ <i>number of spigots</i> ] way headframe   | each                |
| 65705   | Supply of floodlight bracket, [ <i>length</i> ] mm long  | each                |
| 65706   | Supply of luminaire, [ <i>name of manufacturer</i> ], [ <i>type of luminaire</i> ]   | each                |
| 65707   | Supply of floodlight, [ <i>with</i>   <i>without</i> ] louvre, [ <i>name of manufacturer</i> ], [ <i>type of luminaire</i> ] | each                |
| 65708   | Supply of LED bollard light [ <i>height</i> ] mm vertical height   | each                |
| 65709   | Installation of lighting pole  | each                |
| 65710   | Installation of lighting outreach arm  | each                |
| 65711   | Installation of lighting outreach arm extension  | each                |
| 65712   | Installation of road lighting luminaire headframe  | each                |
| 65713   | Installation of floodlight mounting bracket  | each                |
| 65714   | Installation of luminaire  | each                |
| 65715   | Installation of floodlight   | each                |
| 65716   | Installation of bollard light  | each                |

| Standard Item No.                    | Description  | Unit of Measurement |
|--------------------------------------|--|---------------------|
| 65717                                | Supply and installation of [ <i>base plate mounted</i> ] lighting pole, [ <i>height</i> ] mm vertical height, [ <i>length</i> ] mm long [ <i>single</i>   <i>double</i> ] outreach arm, [ <i>with</i>   <i>without</i> ] outreach arm extension [ <i>with underground cabling and fused junction box in pit</i>   <i>with loop in loop out cabling</i> ] | each                |
| 65718                                | Supply and installation of floodlight mounting bracket   | each                |
| 65719                                | Supply and installation of luminaire, [ <i>name of manufacturer</i> ], [ <i>type of luminaire</i> ]  | each                |
| 65720                                | Supply and installation of floodlight, [ <i>with</i>   <i>without</i> ] louvre, [ <i>name of manufacturer</i> ], [ <i>type of luminaire</i> ]  | each                |
| 65721                                | Supply and installation of bollard light, [ <i>name of manufacturer</i> ], [ <i>solar powered</i>   <i>mains powered</i> ], [ <i>height</i> ] mm vertical height   | each                |
| <b>Removal of existing equipment</b> |  |                     |
| 65786                                | Removal of lighting equipment for salvage, [ <i>description</i> ]  | each                |
| 65787                                | Removal of lighting equipment for disposal, [ <i>description</i> ]   | each                |
| 65788                                | Removal of lighting luminaire  | each                |
| 65789                                | Removal of floodlight  | each                |
| 65790                                | Removal of bollard light   | each                |
| <b>Lighting Design</b>               |  |                     |
| 65796                                | Preparation of RPEQ approved lighting design   | lump                |

## 2.2 Work Operations

### Item 65701 Supply of [*fixed base*] lighting pole, [*height*] mm vertical height

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply and fabrication of lighting pole, and
- c) supply of all fixing bolts, nuts and washers as appropriate.

### Item 65702 Supply of [*single* | *double*] lighting outreach arm, [*length*] mm long

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) supply and fabrication of road lighting outreach arm, including stainless steel clamping setscrews.

### Item 65703 Supply of lighting outreach arm extension, [*length*] mm long

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) supply and fabrication of road lighting outreach arm extension, including galvanised fixing bolts, nuts and washers.

**Item 65704 Supply of lighting luminaire headframe, [*number of spigots*] way headframe**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) supply and fabrication of road lighting luminaire headframe, including cap, terminal block and stainless steel clamping setscrews.

**Item 65705 Supply of floodlight bracket, [*length*] mm long**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) supply and fabrication of floodlight mounting bracket, clamps and bolts, nuts and washers.

**Item 65706 Supply of luminaire, [*name of manufacturer*], [*type of luminaire*]**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of luminaire, and
- c) 7 pin NEMA plug interface of shorting plug as specified.

**Item 65707 Supply of floodlight, [*with | without*] louvre, [*name of manufacturer*], [*type of luminaire*]**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of floodlight
- c) supply of floodlight louvre, if applicable, and
- d) 7 pin NEMA plug interface of shorting plug as specified.

**Item 65708 Supply of LED bollard light, [*height*] mm vertical height, [*name of manufacturer*]**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply of bollard light including, luminaire, pole, integrated solar panels, batteries and hold down bolts, and
- c) 7 pin NEMA plug interface, or shorting plug as specified.

**Item 65709 Installation of lighting pole**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply and installation of luminaire terminal panels
- c) supply, installation and termination of all internal cabling from terminal panel, connectors as appropriate, cabling to luminaires including, as appropriate, flexible conduit and all connectors, bushings, lugs, bolts, nuts and washers

- d) installation of pole, as appropriate
- e) supply, installation and termination of cabling from terminal panel or slip base connectors to pit, including supply and installation of fused junction box in pit, if applicable, and
- f) testing of installation.

**Item 65710 Installation of lighting outreach arm**

**Item 65711 Installation of lighting outreach arm extension**

**Item 65712 Installation of lighting luminaire headframe**

Work Operations incorporated in the above items include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply and installation of internal cabling in outreach arm, outreach arm extension, or luminaire headframe, as appropriate, and
- c) attachment of outreach arm, outreach arm extension, or luminaire headframe to pole or outreach arm, as appropriate.

**Item 65713 Installation of floodlight mounting bracket**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) installation of pedestrian crossing floodlight mounting bracket on outreach arm.

**Item 65714 Installation of luminaire**

Work Operations incorporated in the above items include:

Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*

- a) installation of luminaire
- b) connection of luminaire control gear to lighting circuit, and
- c) testing of installation.

**Item 65715 Installation of floodlight**

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 luminaire or floodlight
- c) connection of luminaire or floodlight control gear to lighting circuit, and
- d) testing of installation.

**Item 65716 Installation of bollard light**

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 bollard light including bolting down
- c) connection of luminaire to lighting circuit or solar powered system, and

- d) testing of installation.

**Item 65717 Supply and installation of [base plate mounted] lighting pole, [height] mm vertical height, [length] mm long [single | double] outreach arm, [with | without] outreach arm extension [with underground cabling and fused junction box in pit | with loop in loop out cabling]**

Work Operations incorporated in the above items include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply, fabrication and assembly of lighting pole, outreach arm, outreach arm extension including all clamping setscrews, eyebolt and eye nut, if applicable and fixing bolts, nuts and washers
- c) supply and installation of luminaire terminal panels
- d) supply, installation and termination of all internal cabling from terminal panel, as appropriate, flexible conduit and all connectors, bushings, lugs, bolts, nuts and washers
- e) installation of pole, as appropriate
- f) supply, installation and termination of cabling from terminal panel or slip base connectors to pit including supply and installation of fused junction box in pit, if applicable, and
- g) testing of installation.

**Item 65718 Supply and installation of floodlight mounting bracket**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*, and
- b) supply, fabrication and installation of floodlight mounting bracket, clamps and bolts, nuts and washers.

**Item 65719 Supply and installation of luminaire, [name of manufacturer], [type of luminaire]**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply and installation of luminaire, LED lamp if required
- c) 7 pin NEMA plug interface, or shorting plug as specified, and
- d) testing of installation.

**Item 65720 Supply and installation of floodlight, [with | without] louvre, [name of manufacturer], [type of luminaire]**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply and installation of floodlight and LED lamp if required
- c) supply and installation of floodlight louvre, if applicable
- d) 7 pin NEMA plug interface or shorting plug as specified, and
- e) testing of installation.

**Item 65721     Supply and installation of bollard light, [name of manufacturer], [solar powered | mains powered], [height] mm vertical height**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) supply and installation of bollard light, including luminaire, pole, integrated solar panels, batteries and hold down bolts
- c) supply and installation of louvre, if applicable
- d) 7 pin NEMA plug interface or shorting plug as specified, and
- e) testing of installation.

**Item 65786     Removal of lighting equipment for salvage, [description]**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) de-energisation of circuits
- c) disconnection of electricity supply to pole
- d) removal of pole / outreach arm / outreach arm extension / luminaire headframe, as appropriate
- e) removal of internal cabling and internal electrical components
- f) dismantling of pole and components, where appropriate
- g) transport of all components to Principal's storage facility or designated Site storage area for reuse, and
- h) make Site safe.

**Item 65787     Removal of lighting equipment for disposal, [description]**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) de-energisation of circuits
- c) disconnection of electricity supply to pole
- d) demolition of existing installation, as appropriate
- e) disposal of demolished materials, and
- f) make Site safe.

**Item 65788     Removal of lighting luminaire**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) de-energisation of luminaire
- c) disconnection of luminaire control gear from lighting circuit
- d) removal of luminaire, and

- e) make Site safe.

**Item 65789 Removal of floodlight**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) de-energisation of floodlight
- c) disconnection of floodlight control gear from lighting circuit
- d) removal of floodlight
- e) transport of all components to Principal's storage facility or designated site storage area for reuse, and
- f) make Site safe.

**Item 65790 Removal of bollard light**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) de-energisation of bollard light
- c) disconnection of bollard light control gear from lighting circuit
- d) removal of bollard light
- e) transport of all components to Principal's storage facility or designated site storage area for reuse, and
- f) make Site safe.

**Item 65796 Preparation of RPEQ approved lighting design**

Work Operations incorporated in the above item include:

- a) Work Operations listed in Clause 2.1.5 of MRS01 *Introduction to Specifications*
- b) complete a lighting design to meet Specification requirements.
- c) undertake the tasks required under the *National Light Pollution Guidelines for Wildlife*, including marine turtles, seabirds and migratory shorebirds, including (but not limited to):
  - i. description of the project lighting
  - ii. description of wildlife
  - iii. risk assessment
  - iv. artificial light management plan, and
  - v. biological and light monitoring and auditing.
- d) prepare RPEQ certified drawings of the light poles, footing and connections
- e) prepare design submission package for review by the Administrator
- f) undertake amendments to the design submission as directed by the Administrator

- g) RPEQ certified design of electrical connections and associated hardware for any mains powered luminaires, and
- h) supply RPEQ certified As-Constructed drawings.

### **2.3 Method of measurement road lighting components**

This Specification provides Standard Work Items for:

- a) supply only
- b) installation only, and
- c) supply and installation

of road lighting components.

Any combination of Standard Work Items relating to these methods of measurement, may be used in the Schedule of Rates. However, where a Standard Work Item for supply and installation of a particular component or group of components is included in the Schedule of Rates, no supply only nor installation only Standard Work Item shall also apply to that component or group of components, as applicable.

### **2.4 Supply of materials**

Any materials to be supplied by the Principal will be as stated in the Principal Supplied Material List, Form C7827. All other material shall be supplied by the Contractor.

The responsibility for transport to the Site of materials supplied by the Principal, shall be as stated in the Principal Supplied Material List, Form C7827. Transport to the Site of all other materials shall be the responsibility of the Contractor.

