

# Maintenance

## Master Specification

### M17 Road Lighting

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DEPARTMENT FOR  
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## Document Management

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## Contents

Contents	3
M17 Road Lighting	4
1 General	4
2 Quality Requirements	4
3 Response Times	4
4 Records and Reporting	5
5 Standards	5
6 Additional Requirements	5
7 Appendix 1 – Maintenance Activity Standard	7

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## M17 Road Lighting

### 1 General

- 1.1 This Part specifies the requirements for maintenance activities for road lighting.
- 1.2 This Part does not include In-Pavement lighting, Decorative lighting, or lighting within the O-Bahn and Heysen Tunnels.

### TMC Contact Details

- 1.3 The contact telephone number for the Traffic Management Centre (TMC) is [1800 018 313](tel:1800018313).

### Warranties

- 1.4 All new and or replacement LED Luminaires and associated PE / Smart cells shall have a minimum 10 year on-pole warranty from the date of installation. All other new and / or replacement electrical equipment (excluding consumables) shall have a minimum five-year warranty from the date of installation.
- 1.5 It is the Contractor's responsibility to manage and provide warranty data and ensure that Assets are repaired or replaced under the warranty.

### Consumables

- 1.6 Cyclical Routine Maintenance activities are to be inclusive of required consumables. No additional payment will be made for consumables such as control-gear, circuit breakers, contactors, fuses, minor wiring, minor electrical components, asset labels, corrosion & anti-seize treatment, paint, 'denso' tape, pole support bolts, pole door / covers, hold down bolts / screws etc.

## 2 Quality Requirements

- 2.1 The Contractor shall prepare and implement a Quality Management Plan that includes detailed procedures, documentation, and Work Instructions for all maintenance activities including those below:
  - a) Work Instructions for meeting the requirements at or near rail crossings and near overhead powerlines;
  - b) procedures for working on bridges or over water;
  - c) procedures for repair and replacements of electrical equipment including lamps, luminaires, poles, and switchboards;
  - d) procedures for the management of Asbestos; and
  - e) Inspection & Test Plans.
- 2.2 This documentation shall be submitted during the Mobilisation Period and at least 28 days prior to the commencement of the Maintenance Period.

## 3 Response Times

- 3.1 All maintenance activities shall be undertaken in accordance with the timeframes provided within the Maintenance Activity Standards.
- 3.2 Any SMS activities shall be undertaken within the timeframes agreed to between the Superintendent and the Contractor.

## 4 Records and Reporting

- 4.1 The Contractor shall maintain records and report information for all assets in accordance with the **Contract Documents** and M6 "Data, Reporting, and Governance".
- 4.2 The Contractor must identify in their monthly report all lighting poles, posts, and bases which are rated 5, highlighting any poles that the Contractor believes are at risk of falling in the short term (1 – 3 years).
- 4.3 Any pole that the Contractor identifies as being at risk of imminent failure (less than 1 year) must be brought to the attention of the Superintendent immediately.
- 4.4 The Contractor must provide an electronic copy of all Electrical Certificates of Compliance issued for each separate activity carried out to the Superintendent on a monthly basis in accordance with requirements of Technical Regulator. The Certificate must include details of the site location, asset number, type of activity carried out, and related drawing number (if applicable).

## 5 Standards

- 5.1 Maintenance activities must be undertaken by appropriately licensed, trained, and qualified personnel in accordance with relevant standards including the following documents in order of precedence:
  - a) Statutory and Regulatory requirements;
  - b) Essential Service Commission requirements and Guidelines;
  - c) Office of Technical Regulator requirements and Guidelines;
  - d) AS/NZS 3000 Electrical Installations (Wiring Rules);
  - e) AS/NZS 1158 Lighting for roads and public spaces;
  - f) SA Power Networks: Service & Installation Rules, Standards and Guidelines;
  - g) DIT Master Specifications; and
  - h) Relevant Australian Standards including AS/NZS 3017 Electrical Installations – Testing and Inspection Guidelines, and AS/NZS 60598 – Degrees of protection provided by enclosures.

## 6 Additional Requirements

### Spares

- 6.1 The Contractor must maintain appropriate storage and inventory of spares to ensure that all repairs and works associated with CRMS, SMS, and urgent repairs can be undertaken promptly. The spares are to include sufficient quantities of different types of switchboards, road lighting poles, luminaires, lamps, pits, covers, cables and accessories etc. to be able to respond to the asset base. The Contractor is advised that unserviceable non-LED luminaires will be replaced with a DIT approved LED equivalent.

### Electrical and Wiring (LEW / LAB)

- 6.2 For the purposes of this Specification, Electrical and Wiring includes the cable pits, above and below ground conduits / ducts, electrical accessories, cabling and wiring, pole and wall mounting brackets, and the cabling system from the SAPN service points to switchboards and luminaires.

### Road Lighting Switchboards (LSB / LSC)

- 6.3 Road Lighting Switchboards includes all switchboards / power distribution boards which are primarily used for road lighting.
- 6.4 Switchboards, power distribution boards, or controllers for ITS or traffic signals are not included.

## Lighting Management Systems

- 6.5 Several lighting management systems are being trialled to allow remote control and monitoring of road lighting luminaires for fault monitoring and control purposes. The Contractor may be required to undertake maintenance of these systems.

## Additional Requirements for Working on Road Lighting assets at Rail and Tram Crossings

- 6.6 The Contractor shall ensure that all Staff working on road lighting assets at or near rail and tram crossings meet the requirements of M1 Clause 19.

## Asbestos

- 6.7 The Contractor is advised that the DIT Road Lighting Network may contain legacy infrastructure including pits or switchboards that contain Asbestos.
- 6.8 The Contractor may be required to repair or remove asbestos materials. This is an SMS activity.
- 6.9 The Contractor must provide all required information to aid in the maintenance of the Principal's Asbestos Register.
- 6.10 The Contractor's Safety Management System must include the management of these assets in accordance with relevant Regulations and industry standards, and to the approval of the Superintendent.

## Waste Disposal

- 6.11 The Contractor shall dispose of waste materials in accordance with M8 Clause 10 "Waste Management".

# 7 Appendix 1 – Maintenance Activity Standard

LRL	Lighting – Road Lighting Luminaires
LLP / LLQ / LEL / LBG	Lighting – Road Lighting Poles
LSB / LSC	Lighting – Road Lighting Switchboards
LEW / LAB	Lighting – Electrical and Wiring

## ROAD LIGHTING LUMINAIRES (LRL)

**Application:** This standard applies to all in scope road lighting luminaires and associated photoelectric (PE) or smart cells.

Activity Type	Performance Requirements
<b>Cyclical Routine Maintenance:</b> Nil.  <b>Specific Maintenance:</b> Fault finding, and the repair or replacement of parts required to fix faulty or non-operational road lighting luminaires.	Lighting  Lights are operating as intended.  Luminaires are aligned correctly.  No safety hazards exist.
<b>MDR Recording:</b> Specific Maintenance shall be recorded on the MDR as LRL.	



## ROAD LIGHTING POLES (LLP / LLQ / LEL / LBG)

**Application:** This standard applies to all forms of poles, posts, bases, and footings associated with in-scope Road Lighting assets.

Activity Type	Performance Requirements																																	
<p><b>Cyclical Routine Maintenance:</b></p> <ul style="list-style-type: none"> <li>a) Planned preventative maintenance (PPM) and visual Asset Inspection of poles, posts, and bases, including support bolts and access covers;</li> <li>b) Clearing of footings and bases of all debris within 500 mm; and</li> <li>c) Inspection and removal and treatment of any corrosion on any bases.</li> </ul> <p>Frequency of CRMS activities is as follows:</p> <ul style="list-style-type: none"> <li>• All poles, posts, bases, and footings associated with in-scope Road Lighting assets are to be inspected, photographed, and maintained within the first three years of the Contract; and</li> <li>• The Principal will issue further PPM and inspection programs for the remainder of the Contract term notionally in accordance with the following table:</li> </ul> <table border="1" data-bbox="197 667 1391 836"> <thead> <tr> <th>Location</th> <th colspan="6">Condition Rating</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Hard Surface *</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>LEL</td> </tr> <tr> <td>N/A</td> <td>N/A</td> <td>N/A</td> <td>5 yrs</td> <td>2 yrs</td> <td>Annually until replaced</td> </tr> <tr> <td rowspan="2">Soft / Vegetated surface **</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>LEL</td> </tr> <tr> <td>N/A</td> <td>N/A</td> <td>10 yrs</td> <td>5 yrs</td> <td>2 yrs</td> <td>Annually until replaced</td> </tr> </tbody> </table> <p>* Hard Surface is typically a surrounding surface (e.g. concrete, paved, asphalt or other) where the pole base will not be susceptible to the build-up of vegetation, dirt, and debris.</p> <p>** Soft / Vegetated surface is typically a surrounding dirt or grassed type surface or downhill from dirt or vegetation and as such prone to the build-up of vegetation, dirt, and debris.</p> <p><b>Specific Maintenance:</b></p> <ul style="list-style-type: none"> <li>• Road lighting pole has been hit by a vehicle, resulting in irreparable damage;</li> <li>• Pole is on a lean (&gt; 5 degrees), pole / pole base is damaged or has deteriorated beyond repair; and</li> <li>• End of life replacement.</li> </ul>	Location	Condition Rating						Hard Surface *	1	2	3	4	5	LEL	N/A	N/A	N/A	5 yrs	2 yrs	Annually until replaced	Soft / Vegetated surface **	1	2	3	4	5	LEL	N/A	N/A	10 yrs	5 yrs	2 yrs	Annually until replaced	<p>All works meet specified standards as per Clause 5.</p> <p><b>Pole</b></p> <ul style="list-style-type: none"> <li>• Outreach arm is aligned correctly;</li> <li>• Pole, all mounting assemblies, and access cover are properly fitted and secure;</li> <li>• Access cover holding bolts are corrosion free; and</li> <li>• No significant corrosion evident on pole.</li> </ul> <p><b>Bases</b></p> <ul style="list-style-type: none"> <li>• Footings are clear of any debris;</li> <li>• Vent holes are clear and free from all debris. Where applicable, Denso tape is in good condition;</li> <li>• No corrosion evident on bases;</li> <li>• All mounting bolts are in place, secure, and corrosion free;</li> <li>• Site geometry is free draining or Superintendent has been advised of any site where the base location is buried or located below adjacent ground level; and</li> <li>• No safety hazards exist.</li> </ul>
Location	Condition Rating																																	
Hard Surface *	1	2	3	4	5	LEL																												
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<p><b>MDR Recording:</b></p> <p>Cyclical Routine Maintenance activity shall be recorded on the MDR as LLP.                  Specific Maintenance Activities shall be recorded on the MDR as LLQ.</p> <p><b>OTHER:</b></p> <p>Poles found to be at risk of falling shall be recorded on the MDR as LEL                  Pole bases flanges found to be purposely buried by permanent surfacing (e.g. paving, asphalt, turf, concrete etc.) or located below adjacent ground level (i.e. susceptible to accumulation of debris and or water) shall be recorded on the MDR as LBG.</p>																																		

## ROAD LIGHTING SWITCHBOARD (LSB / LCS)

**Application:** This standard applies to all road lighting switchboards including all above ground, turret, pole, or wall mounted enclosures.

Activity Type	Performance Requirements
<p><b>Cyclical Routine Maintenance:</b> Five-yearly planned preventative maintenance and Asset Inspection of road lighting switchboard cabinets / enclosures (excluding Stobie pole mounted and pillar switchboards) and all associated electrical switchgear and controlgear.</p> <p><b>Specific Maintenance:</b> Fault finding, and the repair or replacement of parts required to fix faulty switchboards to enable road lighting to function properly.</p> <p>Switchboard has been hit by a vehicle, vandalised or damaged beyond repair.</p> <p>End of life replacement.</p>	<p><b>General</b> Cabinet / enclosure Asset ID label present, correctly positioned, and clearly visible.</p> <p>Cabinet / enclosure is firmly secured and undamaged.</p> <p>Lock working freely and doors are secure.</p> <p>Gaskets and holes / penetrations sealed.</p> <p>Cabinet interior clean and free from dust, water, debris, and contaminants.</p> <p>Corrosion treated.</p> <p><b>Switchgear / Controlgear</b> Working as intended.</p> <p><b>Communications Systems</b> Communications systems if present are working as intended.</p> <p>No safety hazards exist.</p>
<p><b>MDR Recording:</b> Cyclical Routine Maintenance Activities shall be recorded on the MDR as LSB. Specific Maintenance Defects shall be recorded on the MDR as LSC.</p>	

## ELECTRICAL AND WIRING (LEW / LAB)

**Application:** This standard applies to all cables, junction boxes, underground cabling, pits, ducts, conduits, and all other civil and electrical assets supporting the in-scope road lighting not covered elsewhere.

Activity Type	Performance Requirements
<p><b>Cyclical Routine Maintenance:</b> Nil.</p> <p><b>Specific Maintenance:</b></p> <p>Fault finding, and the repair or replacement of parts required to fix faulty:</p> <ul style="list-style-type: none"> <li>a) pits, ducts and conduits;</li> <li>b) electrical accessories;</li> <li>c) cabling and wiring;</li> <li>d) termination systems and junction boxes; and</li> <li>e) pole and wall mounted brackets.</li> </ul> <p>Testing of earthing systems.</p> <p>Removal and replacement of asbestos pits.</p> <p>End of life components.</p>	<p>Mounting assemblies are secured.</p> <p>Pit lids have no significant cracks, are properly fitted, and secure.</p> <p>Metal pit lids and hold down bolts are corrosion free.</p> <p>Ducts and conduits are free and clear of all debris.</p> <p>Electrical accessories are operating as intended, free from damage and correctly sealed.</p> <p>All corrosion treated.</p> <p>No safety hazards exist.</p>
<p><b>MDR Recording:</b> Specific Maintenance Defects shall be recorded on the MDR as LEW. Asbestos Pits identified shall be recorded on the MDR as LAB.</p>	