NZ TRANSPORT AGENCY
WAKA KOTAHI

SPECIFICATION FOR THE MAINTENANCE OF HIGHWAY LIGHTING

1. SCOPE

This specification sets out the requirements for the maintenance of highway lighting, including Belisha beacons, floodlighting, and illuminated signs.

To achieve the long term maintenance objectives of the Road Controlling Authority, the following principles shall be followed:

(a) The Contractor shall inspect all lighting and beacons defined within the contract.

(b) The Contractor shall undertake planned maintenance, cleaning and emergency replacement as required within the times specified.

(c) The Contractor shall programme and carry out cyclic maintenance or replacement in accordance with this specification.

(d) The Contractor shall record and schedule all inspections and maintenance work undertaken.

2. WORK SCHEDULE

All work scheduled by the Contractor shall be in terms of route description. State Highway Route Position shall also be included where appropriate.

3. SCOPE OF WORK

For the equipment defined within the Contract area, the Contractor shall carry out:

(a) Regular inspection and preventative maintenance of carriageway and sign lighting installations.

(b) Replacement of faulty lamps.

(c) Inspection and replacement of faulty lantern/fitting control gear and lighting columns.

(d) Repair of all cable faults and associated protection.

(e) Maintenance of sign illuminating fittings and wiring.

(f) Repair and/or replacement of accident-damaged equipment.

(g) Routine replacement of lamps.

4. DEFINITIONS

The following abbreviations are used in this specification:

ESA	Electrical Supply Authority
FL	Fluorescent Lamps
SL	Sign Luminaire
SON	High Pressure Sodium Lamps
SOX	Low Pressure Sodium Lamps
MV	Mercury Vapour Lamps

5. REGULATIONS AND STANDARDS

The installation and all materials used therein shall comply with the relevant statutory regulations including the following:

(a) Appropriate New Zealand or British Standard Specifications current at the time of tendering.

(b) Relevant Statutes.

(c) Current New Zealand Electrical Wiring Regulations, including the latest amendments.

(d) Electrical Supply Authorities regulations.

(e) New Zealand Radio Interference Regulations and Interference Notices (Radio and Television).

(f) Limitation of Harmonic Levels Notice 1981.

(g) Standards Publication MP6105 “Electrical Wiring in Hazardous Conditions”.

6. MATERIALS

The Contractor shall be responsible for ensuring that sufficient stocks of regularly-used materials and parts are available to meet the response times required in this specification.

The Engineer may request an inventory of the Contractor’s stock of materials and parts from time to time.

Replacement lamps shall be compatible with the lantern or fitting and the control gear of the fitting, and shall have characteristics equivalent to the original lamp.

Replacement columns shall be frangible columns. The Engineer may accept rigid columns in locations protected by barriers or in low risk areas. Replacement columns and outreach arms shall be similar to the original, for uniformity reasons, providing the cost premium over any alternative materials or shape is small. Lantern height and position shall remain the same as the original.

Replacement parts shall be guaranteed by the Contractor to be of equal or better performance and quality to those replaced, and shall meet the ESA requirements. Where such parts do not meet these requirements for any reason, the Contractor shall obtain the approval of the Engineer prior to installing such parts.

The Contractor shall supply full details of proposed replacement parts with the tender, including manufacturer's specifications and catalogue numbers.

7. ROUTINE INSPECTION

7.1 Inspection

The Contractor shall establish a regular inspection patrol for all lighting included within this Contract.

The Contractor shall submit an inspection programme proposal to the Engineer for approval, within four weeks of being awarded the Contract. This programme shall include the following work:

(a) To ensure each lantern is working properly and the supporting column is erect and not in danger of collapse the Contractor shall carry out a patrol, at least once every month, to:

(i) Visually inspect for normal lantern operation at night.
(ii) Visually inspect each column.
(iii) Visually check to ensure that covers for the control gear and/or housings at column bases are in place.
(iv) Check that switch on/off times are correct.

Inspection from a vehicle will suffice providing it can be assured that each individual lantern or fitting (in the case of sign luminaries) operates in accordance with the lantern or fitting specification.

Lantern cut-offs are required to be maintained in accordance with the approved design.

Lantern mounting angles are required to be maintained in accordance with the approved design. Droop in fibreglass columns shall be taken into account when setting the mounting angles.

(b) To ensure safety to the public and continued security of the lantern/fitting and column the Contractor shall carry out a close personal inspection, at least once every six months, to:

(i) Visually inspect the rigidity of column/base and the bolting/securing system. If rusting or lack of effectiveness is observed, check for the current torque and adjust as necessary.
(ii) Visually check the ready readability of any column numbering.
(iii) Check for any suspected vandalism.
(iv) Note if replacement is required.

8. ROUTINE REPLACEMENT OF LAMPS AND CLEANING OF LANTERN

The Contractor shall programme routine replacement of all lamps in accordance with the schedule for replacement. Cleaning of the lantern shall be carried out during all routine replacement of lamps.

Cleaning shall include both the inside and outside of the lantern diffusing bowl, the lamp housing, and reflectors where fitted. Gaskets shall also be checked and replaced, if required, at the same time.

9. REMEDIAL WORK

9.1 Lantern or Lamp Failure

The Contractor shall undertaken and complete maintenance or replacement of lanterns and/or fittings not operating correctly, within the response times specified in the following clauses:

(a) Lantern damage or misalignment, lamp/tube failure in a single lantern/fitting when adjacent lanterns/tubes are still operating satisfactorily – within one month or within seven calendar days of completion of monthly inspection, whichever is sooner.

(b) Ineffective operation of two adjacent lanterns/tubes – within seven calendar days of observed failure or notification by others.

NOTE: Where one twin tube fluorescent illuminates a single sign, this requirement applies to failure at both tubes. A single tube failure shall be actioned as per (a) above.

(c) Ineffective operation of three or more adjacent lanterns, or other failure which may cause a traffic hazard (at intersections, for example, or as advised by the Engineer) – within eight hours of observed failure or notification by others.

9.2 Emergency Callouts

Where a column is damaged by accident the Contractor shall attend the accident site within one hour of notification to ensure that live wiring is not exposed and to undertake temporary repairs if possible. The Contractor shall clear away damaged columns, lanterns and transport debris to approved tips.

The Contractor shall provide and keep up-to-date telephone numbers on which the Engineer or Traffic Safety Service and Ministry of Transport may contact the Contractor at any time, day or night.

Reinstatement of accident damage shall be completed where practicable within the response times stated in Clause 9.1.

9.3 Underground Cable Failure

Should underground cable failure be evident the Contractor shall notify the Engineer prior to undertaking any investigative or remedial work. Refer also to Section 10 below.

10. POWER SUPPLY AND CONTROL

Where the power supply cables are not scheduled as the property of the Road Controlling Authority, the ESA is responsible for the maintenance of the cables and no work shall be undertaken by the Contractor under this contract on such cables.

Where the power supply cables are scheduled as the property of the Road Controlling Authority, the maintenance of the cables to the ESA isolation point shall be the responsibility of the Contractor and the following clauses shall apply.

10.1 Cables

The Engineer shall identify the boundary and isolation points with respect to the Local ESA supply.

The Contractor shall maintain all inground cables, joints, terminations, control gear, up pole cable, and associated equipment on the Road Controlling Authorities' side of the identified boundary point.

The Contractor shall be responsible for locating and repairing any cable faults, and full details of any such repair shall be documented in a report submitted to the Engineer.

The Contractor shall notify the Engineer of repeated cable, joint, termination faults in any section of cable, for discussion and agreement, before any cable replacement is carried out.

10.2 Isolation

Sectionalising and isolation facilities will have been provided by the Local ESA and these are to be retained. The Contractor shall have access to a suitable pillar for isolation and testing of particular sections of highway lighting.

10.3 Control

Existing ESA control facilities shall be retained.

Where shown, the Contractor shall be responsible and pay for all costs by the ESA to use the control facility for testing purposes.

10.4 Protection

The fusing protection system previously adopted by the ESA shall be retained and the Contractor shall ensure the correct fuse link rating is fitted whenever replacement is called for.

Changes to fusing link ratings and location of protection devices shall not be carried out without discussion and agreement, in writing, from the Engineer.

10.5 Live Servicing

Servicing may be required on fusing, terminations, lanterns and fittings while the appropriate circuit is "live".

All street lighting circuits should be treated as "live" circuits at all times.

The Contractor shall provide trained personnel suitably experienced in servicing "live" equipment.

10.6 Supply Authority

The Contractor shall allow for all costs of liaison co-operation and carrying out work to the Local ESA requirements.

When any such action, meeting, discussion may necessitate a change to the supply, control or physical arrangement, notification shall be given and agreement reached with the Road Controlling Authority before execution.

11. RECORDS AND REPORTS

11.1 The Contractor shall accurately record the following information as a performance inventory. This shall be submitted as and when required by the Engineer.

(a) Lamp and location – classified by make, type and rating.

(b) Lamp life – when installed, when replaced, reason for replacement.

(c) Fitting type and location, replacement, repairs required.

(d) Column/support type and location and condition, if owned by the Road Controlling Authority.

To assist in recording the locations of the above, a column/lantern numbering system shall be instituted if the columns are not already numbered. The identification shall be located at the base of each column, with stencilled black/white painted 50mm high numbers, with each column numbered consecutively.

11.2 At the completion of each month's work, the Contractor shall submit an inspection report in support of the monthly claim detailing all inspections and remedial work carried out.

11.3 For major accident damage, the Contractor shall be responsible for maintaining close contact with the Traffic Safety Service of the Ministry of Transport in order to supply the Engineer details, where possible, of:

(a) The vehicle causing the accident.

(b) The name of the driver at time of accident.

This information shall be incorporated in the monthly report.

12. PERFORMANCE CRITERIA

The performance of the Contractor shall be measured by the following criteria:

(a) That all lights are cleaned and maintained in accordance with this specification.

(b) That remedial work is undertaken within the response times specified and with the minimum inconvenience to the travelling public.

(c) That prompt and appropriate action is taken for all emergency callouts.

13. BASIS OF PAYMENT

The tendered rates shall include allowances for all costs associated with the work.

13.1 Routine inspection, recording and reporting

Payment shall be made on the basis of an all-inclusive lump sum per year and paid as monthly progress payments. It shall include for numbering and marking replacement columns when required.

13.2 Routine replacement of lamps

Payment shall be made on the basis of a lump sum per replacement cycle for the lamp types scheduled, including all materials, labour and plant. Payment for this work shall be made in the monthly progress payment immediately following the completion of the work.

13.3 Remedial Work

Payment shall be based on the scheduled hourly rates submitted in the tender for plant and labour, and for the material costs listed in the tender. Payment for this work shall be made in the monthly progress payment immediately following completion of the work.

13.4 Materials

Payment shall be made for materials not listed in the schedule on the basis of the supplier's invoiced cost plus the percentage on-cost scheduled in the tender. Payment for this work shall be made in the monthly progress payment immediately following the supply of the materials.