

THAMES COROMANDEL DISTRICT COUNCIL

STREET LIGHTING

POLICY & GUIDELINES

for

NEW STREET LIGHTING

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THAMES-COROMANDEL DISTRICT COUNCIL

**POLICY & GUIDELINES
For
NEW STREET LIGHTING**

1.0 PREAMBLE

The intent of this document is to improve the quality of the street lighting within the Thames-Coromandel District Council area by specifying the criteria to achieve an acceptable standard for equipment and installation.

It also lays out the necessary documentation requirements that Council requires so it can approve new streetlighting installations.

The Thames-Coromandel District Council is the owner of the street lights on all Council Roads. New Zealand Transport Agency is the owner of the street lights on all State Highways.

Powerco Ltd is the electricity Network Company in the district.

2.0 OBJECTIVES

The objectives of street lighting are:

To identify road and kerb features, boundaries, carriageways, and to show any obstructions (medians) or abrupt changes of footpaths, via the use of appropriate illumination and positions of luminaires.

To show the general run of the road, location and curves, intersections and junctions by an orderly layout of luminaires.

To provide an acceptable level of illumination over areas of road between property boundaries for safe and comfortable pedestrian movement, crime prevention, and property identification.

3.0 STANDARDS

The AS/NZS Standards detailed below shall apply for all street lighting installations in the Thames-Coromandel District Council area. A Developer proposing a lighting scheme to these guidelines will be required to prove a thorough understanding of and compliance with these standards and all current amendments:

- (a) AS/NZS 1158.0:2005 - Part 0: Introduction
- AS/NZS 1158.1.1:2005 - Part 1.1: Vehicular traffic (Category V) lighting, Performance and design requirements.
- AS/NZS 1158.1.3:1997 - Part 1.3: Vehicular traffic (Category V) lighting, Guide to design, installation, operation and maintenance.
- AS/NZS 1158.2:2005 Road Lighting – Computer procedures for the calculation of light technical parameters for Category P and Category V lighting
- AS/NZS 1158.3.1:2005 - Part 3.1: Pedestrian area (Category P) lighting, Performance and design requirements.
- AS/NZS 1158.6:2004 - Part 6: Luminaires
Lighting for roads and public spaces
- (b) NZS 6701:1983 - Code of practice for road lighting.
- (c) Electricity Regulations: 2003.
- (d) AS/NZS 3000:2003 - Where these supersede the Electricity Regulations and Codes of Practice.
- (f) NZS 4203:1992 – General structural design and design loadings for buildings
- (g) AS/NZS 1170.0:2002 - General Principles and relevant supplements

- (h) AS/NZS 1170.1:2002 - (Structural Design)
Permanent, imposed and other actions and relevant supplements (Structural Design)
- (i) AS/NZS 1170.2:2002 - Wind actions and relevant supplements
(Structural Design)

4.0 SERVICES

The Applicant shall provide the following full range of services to support their development of the project:

- (a) Design requirements and scheme proposal (allow to engage a competent designer of street lighting services) for Council's evaluation.
- (b) Supply of luminaires, poles/column supports, including foundations, cabling and connection to the Powerco Network.
- (c) Installation, inspection, testing and commissioning of (b) above.
- (d) Full design, material supply, documentation and drawings of the equipment used.
- (e) All regulatory, statute, application, inspection and connection costs.
- (f) Maintenance of the project for the specified period.
- (g) Compliance, confirmation and full supporting documentation for the development.

5.0 LUMINAIRES

5.1. General

Thames-Coromandel District Council wishes to maintain a level of flexibility to allow applicants to offer luminaires and poles of various designs and configuration to suit a particular theme for a subdivision. However, any such type and style offered must be approved by the Thames-Coromandel District Council before installation and shall meet Thames-Coromandel District Council's criteria as outlined below;

5.2. Specific Luminaire Design Criteria

The Applicant shall meet the following minimum requirements:

5.2.1. Standard

AS/NZS 1158.6:2004 – Part 6 Luminaires: Lighting for roads and public spaces.

5.2.2. Light Source

Luminaires shall be of the LED (Light Emitting Diode) type.

Incandescent, fluorescent, mercury vapour, high intensity discharge (HID) or tungsten Halogen type luminaires are not permitted.

5.2.3. Availability

All luminaires shall be of a type and brand currently readily available and accepted on the New Zealand market and be supported for ongoing availability, for a minimum of 25 years, for servicing and spares by a New Zealand manufacturer or reputable and recognised agent in New Zealand.

Luminaires shall have an IP66 rating.

5.2.4. Luminaire Material

All luminaires shall be die cast or spun aluminium with corrosion resistance to minimum LM6 standard and can be surface treated and/or painted to enhance corrosion protection and aesthetic purposes, in accordance with AS/NZS1158.6:2004.

5.3. LED Luminaire Characteristics

The Thames-Coromandel District Council requires LED chip products from one of the four recognised world leaders in LED technology and as such it is required that the LED chip for streetlight luminaires proposed shall be manufactured by either Cree, Philips, Osram or Nichia. Other LED manufacturers can be assessed provided all relevant documentation is provided with the submission.

5.4. Luminaire Compliance and Design Features

The current version AS/NZS 1158 Part 6 outlines the requirements for design, construction, performance and testing of road lighting luminaires. Streetlight luminaires to be used in the Thames-Coromandel District Council region must comply completely with this standard and have an expected design life time of a minimum 20 years.

Furthermore the luminaire shall also comply with the following additional requirements.

5.4.1. Material

The material of the luminaire housing shall be in accordance with the current version of AS/NZS 1158 Part 6. It is preferred that luminaires utilize an aluminium alloy and suppliers shall specify in their submission the copper content of the aluminium alloy used in their luminaire housing.

Testing in accordance with ISO9227 where additional surface treatments have been applied, shall be provided to demonstrate compliance with that standard.

Saline mist testing shall be for a minimum of 1000 hours.

5.4.2. Integral Tilt Mechanism

The luminaire shall have an integrated tilt mechanism so that the luminaire can be installed of 0°, 5°, 10° and 15° above horizontal and be able to be mounted pole top. This allows the luminaire to be installed on existing street lighting poles that have an existing luminaire tilted at the mounting point.

5.4.3. Ingress Protection (IP)

The luminaire LED and driver housing shall have an IP66 rating.

5.4.4. Upgradable Technology

The luminaire shall be designed to enable the light engine to be replaced and/or upgraded. The IP66 rating of the complete luminaire shall not be compromised as a result of either replacement or upgrade of the luminaire components.

5.4.5. Housing Warranty

The Thames-Coromandel District Council requires a 20 year warranty on the luminaire housing. The Thames-Coromandel District Council also requires a written guarantee from suppliers that they are committed to supporting their product by providing spares for a minimum 25 years.

5.4.6. Lumen Depreciation

Lumen depreciation rate shall be provided for 25,000 hours, 50,000 hours & 100,000. The method of measuring lumen depreciation shall be in accordance with IESNA's -LM-80 standard.

LED lumen depreciation is dependent on ambient operating temperature and driver current. Suppliers shall provide the following information with LED lumen depreciation:

- Driver Current
- Ambient operating temperature (25°C) as per LM80
- Initial lumen output

Data for the LED fixture should be configured at 25°C ambient operating temperature alternative ambient operating temperatures will not be considered.

5.4.7. Driver Current

Suppliers shall specify the driver current used in the design submission together their submitted luminaire.

5.4.8. Colour Temperature and Rendering

The Principal requires the colour temperature to be in the range of 4000 ± 300K with a colour rendering index (CRI) ≥ 70; the LM-79-08 report will detail the luminaires colour temperature.

5.4.9. Photo Biological Safety

LED chips are capable of emitting highly concentrated light waves that have the potential to be harmful to the human eye. The standard for measuring the risk from LED light sources is IEC/EN62471; all suppliers must comply with this standard. LED light sources are split into four risk groups; Exempt Group (no risk), Group 1 (low risk), Group 2 (moderate risk) & Group 3 (high risk). Suppliers shall specify which Group their products complies with.

5.4.10. LED Chip Warranty

The Thames-Coromandel District Council requires a minimum of 5 year warranty on the LED Chip used within the luminaire.

5.4.11. Luminaire Optics and Luminous Flux

The optical performance of the luminaire is determined by a combination of both the LEDs and the optic distribution. An LM-79-08 report must be verified from an independent test laboratory.

Total luminous Flux

The total luminous flux is the total lumen output of the luminaire taking into account losses from the optical lens or diffuser. The total lumen output of the luminaire must be measured in accordance with LM79-08.

5.4.12. Photometric Distribution and Data

Streetlight luminaires are installed onto a wide variety of geometric street configurations and as such it is a requirement to have different optical distributions so that a streetlight designer can choose the one that best suits the road geometry.

5.4.13. LED Configuration

The proposed luminaires LEDs should not be mounted in clusters. All LEDs shall be mounted at 0° to the horizontal and use optical reflectors or lenses to distribute the light from each LED over the target area.

5.4.14. LED Module Array Configuration

In accordance with existing HID lamp technology a luminaire's output can be controlled by the selection of appropriate lamp wattages. It is therefore important for the proposed LED luminaire output to be adaptable to different roading applications; achieved by having different LED Modular Array Configurations. LED Module Array Configuration incremental steps shall be specified.

5.4.15. Electronic Photometry File

The test laboratory which produces the LM-79-08 report shall supply results in electronic format in both IES and CIE file formatting.

Suppliers shall provide photometric data in accordance with LM-79 'Absolute Photometry'. Files with scaled data references will not be considered as acceptable for final evaluation.

5.4.16. Driver and Electrical Properties and driver current

The driver supplies the constant current source to the LED chips to run and as such it must operate effectively and efficiently. Please provide detailed technical sheets for LED driver specified.

The driver shall have a service life of 20 years, please provide a statement from LED driver manufacturer to demonstrate.

5.4.17. Total Luminous Flux

The total luminous flux is the total lumen output of the luminaire taking into account losses from the optical lens or diffuser. The total lumen output of the luminaire must be measured in accordance with LM79-08.

5.4.18. Luminaire Efficiency

The luminaire efficiency shall be a minimum of 70 lm/w. The efficiency of a luminaire is a component of the LM-79-08 report.

5.4.19. Electromagnetic Compatibility (EMC) and Harmonic Distortion

The Thames-Coromandel District Council requires the luminaire to have Electromagnetic Compatibility (EMC) and suppliers shall provide a copy of the certificate to demonstrate compliance.

The maximum allowable Total Harmonic Distortion (THD) is 20%

5.4.20. Surge protection

The luminaire shall have built in protection from rated surge voltage and current. Suppliers shall specify the capability of their luminaire.

5.4.21. Driver Warranty

The Thames-Coromandel District Council requires a 5 year warranty on the LED Driver used in the luminaire and suppliers shall provide manufacturers verification of this warranty.

5.4.22. Sustainability

Restriction of Hazardous Substances (RoHS)

The luminaire shall comply with the RoHS Directive which sets restrictions on the use of six hazardous substances in electric and electronic equipment.

5.4.23. Provision for Streetlight Controls

All new street lights installed as part of a new subdivision or development shall be installed with a suitable controller to enable the street lights to be dimmed and controlled remotely. The make, model and specifications of the street light control must be provided to the Thames-Coromandel District Council for approval before installation.

6.0 Poles/Supports

6.1. General

All poles/supports shall be free standing. There shall be one luminaire to each pole unless prior approval has been given by Thames-Coromandel District Council.

The poles shall be of such configuration as to allow easy and ready fixing or replacement of luminaires without the need to lower the poles.

All luminaires and poles within any one area/subdivision shall be of the same type.

6.2. Fabrication

All poles shall be of octagonal, galvanised steel construction. The use of any other type of pole, for example decorative, must have pre-approval from Thames-Coromandel District Council.

6.3. Uniformity

All poles within any one area/subdivision shall be of the same type. Thames-Coromandel District Council reserves the right to direct the Developer to match the luminaires and/or poles to any others used in an adjacent or similar subdivision for the sake of uniformity.

6.4. Outreaches

Thames-Coromandel District Council's policy for standard streetlighting installation is curved and elliptical outreach arms. Mitred outreach arms may only be used with specific approval from Thames-Coromandel District Council.

6.5. Poles/Outreach Arm Coatings

All poles shall be of a non-corrosive material; either, primary material such as aluminium, or corrosive treatment of metal such as hot dip galvanising over ferrous metal. All poles shall be coated in accordance with AS/NZS 2312:2002 'Guide to protection of structural steel against atmosphere corrosion by the use of protective coatings'. Where poles are to be painted the Applicant shall also comply with the 'Protective Coating Specification' contained in Appendix 3 of this guide. The Applicant shall provide Council with a certificate to prove that the pole(s) coating(s) have been certified as compliant with either or both of the aforementioned Standards and specification.

6.6. Erection of Poles

The Applicant shall prove full compliance with seismic, civil and wind loading requirements as set out in the NZ loading standard; (NZS 4203:1992).

Thames-Coromandel District Council's preferred standard pole for streetlighting installations is octagonal section galvanised poles. No wooden, concrete or other metal type poles will be accepted without specific approval from Thames-Coromandel District Council. All streetlighting poles shall be erected within a tolerance of $\pm 2^\circ$ of the vertical plain.

6.7. Service/Cable Access

Each pole shall be equipped with an access hatch of not less than 130mm wide x 250mm high opening for electrical cable entry and termination.

Each service access/connection point shall:

- (a) Be equipped with a street lighting cut out of the Cutler Hammer type (As detailed in appendix 1) or other similar device. The cut out shall be complete with a loop in loop out extension box for connecting the neutral conductor and have a suitably rated HRC fuse or an appropriately sized MCB mounted within it.
- (b) Be equipped with a designated earth stud with a crimp lugged link between the stud and the Cutler Hammer street light cut out device.
- (c) An earthing bond between the above earth stud and the metal casing/frame of the pole/support.
- (d) Internal cabling, phase neutral and earth from the above cable connection point up inside the pole to the luminaire.

- (e) The access cover shall be screwed in place with recessed or counter sunk stainless steel Allen screws, fixed in at least two places - top and bottom.
- (f) The cover shall be labelled with either cast in, engraved wording or separately externally stainless steel (316) screw fixed label "Danger live wires".
- (g) The access point shall be at the base of the pole but not more than 600mm above ground level.

6.8. In-ground Fixing

Poles/supports may be fixed in place by either direct burial at their footing (for that particular type of design) or via a holding down bolt reinforced cage set in concrete.

7.0 CABLING INSTALLATION/UNDERGROUND SERVICE

7.1. General

The Applicant shall allow designing the underground cabling from the notified point of supply to all street lights. The Applicant must ensure that any underground installation work is completed by approved Powerco contractors who are holders of current up to date Powerco warrants for the type of work prescribed.

The cabling type, system and installation shall be in full compliance with the Electricity Regulations, relevant Codes of Practice, AS/NZS 3000:2000 and associated Standards and be of a type that meets with the minimum standard requirements of Powerco. Coordination with Powerco and evidence of any agreements shall be provided to Thames-Coromandel District Council.

Full allowance shall be made for load capacity, volt drop and environmental requirements for the particular site. All underground cabling shall be supplied and installed prior to completion of the subdivision.

7.2. Earthing

The Applicant shall ensure each pole/support has an effective earth as required under the Electricity Regulations. This may be either via its own metal work if an Oclyte type galvanised pole with the footing buried direct in the ground; or via a hold down bolt cage and concrete footing the metalwork of which shall be earthed

The preferred method for establishing an MEN point at the base of each lighting column is by use of a street lighting cut out of the Cutler Hammer type. The cut out shall be complete with a loop in loop out extension box for connecting the neutral conductor.

Proof of testing of effective earthing to AS/NZS 3000:2000 shall be provided via written records of all results at each pole/support location.

7.3. Direct Buried Cables

All cable shall be direct buried at not less than 600mm below ground level and be mechanically protected with at least 100mm wide "Magslab". Alternatively, a screen/armour protected cable may be used.

7.4. Cable Type/Terminations

The cable type and terminations must comply with the Powerco approved standard for each installation. Where possible, tee joints in the cables must be avoided. If in-ground joints are used then the Applicant must record the exact location of the joint on the 'As Built' dimensioned plans submitted at the end of the project.

7.5. Point of Supply

The cable for the installation shall be provided from the point of supply as defined/agreed with Powerco.

This point of supply shall be either at the transformer or at the boundary point, preferably at a ground-mounted pillar.

The Applicant shall be responsible for all Powerco related costs.

7.6. Other Underground Services

The Applicant shall ensure all other underground services are identified and the lighting cable is routed and run to ensure at least 500mm lateral separation from any other service.

Mark all new lighting cables clearly on all 'As Built' drawings with the exact route, depth of burial and dimension from readily identified surface features and/or equipment.

8.0 ELECTRICAL

8.1. General

The Contractor/Developer shall allow engaging a specialist lighting installation designer and Applicant, who has proven competence in this field and has appropriate Powerco Warrants to undertake the construction/installation work.

8.2. Installation

All work shall be installed, inspected and certified according to the Electricity Regulations, its Codes of Practice, AS/NZS 3000:2000 and its associated Standards.

A streetlight has been defined by the Energy Safety Service (ESS) as an 'Electrical Installation' and as such requires the installation to be certified with a Certificate of Compliance issued before connection to the Powerco point of supply. The Applicant shall submit a copy of the Certificate of Compliance to the Thames-Coromandel District Council as part of the 'As Built' documentation for the project as well as retaining a copy for their records.

The Applicant can submit one Certificates of Compliance (COC) for each Point of Connection (Circuit) rather than one per streetlight.

8.3. Records

The Applicant shall record all test results which shall be carried out to AS/NZS 3000:2000 and append those results to the Certificate of Compliance.

9.0 DOCUMENTATION

9.1. Design Information:

The Applicant shall provide the following documentation to Thames-Coromandel District Council for approval, as part of the “Engineering Design Plans”; this information shall be submitted prior to the supply and installation of any lighting. All information defined below (a) to (l) is Mandatory for design approval.

- (a) Isolux Plot.
- (b) Calculation Sheet defining the Lux levels achieved.
- (c) The software used to perform the calculations
- (d) The fitting type and manufacturer’s details
- (e) The fittings IP Rating
- (f) The height the fitting will be installed at and manufacturer’s details of the pole/column and outreach
- (g) The setback position for pole installation
- (h) The lamp type and lumen output
- (i) Assumptions made in the design production i.e. maintenance factors, NZ road surface type, arrangement, etc.
- (j) Producer statement stating the design’s compliance with AS/NZS1158
- (k) Rooding Category i.e. P3, P4, etc
- (l) Electronic copies of the I.E.S and/or C.I.E photometric files used in the proposed lighting design.

9.2. “As Built” Documentation:

Once the streetlights have been installed, the Applicant shall provide Thames-Coromandel District Council with the following documentation:

- (a) A copy of the Certificate of Compliance.
- (b) Completed SLIM data sheet for each pole (Refer Appendix 2 of this guide).
- (c) “As Built” drawings of the project.
- (d) Details and specification of the street lighting cut out utilised.
- (e) Digital photos (Jpeg. format) of the pole and luminaire.
- (f) Written confirmation that Powerco’s requirements have been fulfilled.
- (g) Ownership/demarcation boundaries as agreed with or defined by Powerco.
- (h) Agreement for change of ownership of the streetlighting installation. This shall be typically in the form of a letter written by the Applicant stating that they gift the street lights to the Thames-Coromandel District Council and signed by both parties.

Failure to supply all or part of the above listed ‘As Built’ items will impact on the Council’s ability to issue the subdivision/development with a final completion certificate.

10.0 PEER REVIEW

Thames-Coromandel District Council reserve the right to undertake a peer review of any street lighting design proposed with an application by submitting the design to their streetlighting professional services consultant at the design stage of the project and before any construction work is undertaken. This is to ensure that the lighting scheme proposed is thorough, complete and compliant with this document.

Failure to supply all or part of the information listed in 8.1 (Above) for the peer review will result in Thames-Coromandel District Council reviewing the Applicants right to continue with the subdivision/development. If required, the Council reserves the right to engage his specialist streetlighting consultant to provide any necessary missing information. All associated costs for this engagement will be passed on to the Applicant.

11.0 OWNERSHIP BOUNDARIES/DEMARCATON POINTS

The Applicant shall clearly establish the ownership boundaries and demarcation points between Powerco and the new streetlighting installation.

Once the work is completed an Agreement of Change of Ownership for the in ground cabling shall be reached with Powerco for handover of the cabling network to them and to whatever commercial/financial arrangement is made between the two parties at that time. There shall be no ongoing cost to the Thames-Coromandel District Council.

The demarcation point then between the Powerco and actual street lights shall be at the lighting pole/support fuse.

It is important for all supporting documentation, as mentioned above, also to be handed over to Thames-Coromandel District Council and such handover/change of ownership shall not be considered complete until such documentation transfer is finalised.

12.0 COMMERCIAL

12.1. Suppliers/Contractors

The Applicant shall engage only equipment suppliers acceptable to Thames-Coromandel District Council and Contractors acceptable to Powerco. Only Approved Powerco network contractors are to install underground cables and to make the final connections.

The details of the proposed Approved Powerco network contractor are to be submitted to Thames-Coromandel District Council before any cable installation is carried out.

12.2. Defects Liability

The Applicant shall maintain the streetlights after completion and handover to Thames-Coromandel District Council for a twelve (12) month period from the handover date. During this period the Applicant's Contractor shall carry out routine maintenance work necessitated by the statutory requirements and as required by normal maintenance practise. Any defects which occur shall be promptly repaired, within one week of the fault being identified. The Applicant's Contractor shall keep records of each inspection, the defects found and remedial actions taken and submit this to Thames-Coromandel District Council at the end of the twelve (12) month

period as a historical record for the installation. This submission will be the formal notification to Thames-Coromandel District Council of their responsibility for the ongoing maintenance of the assets. Thereafter Council will maintain them under the Thames-Coromandel District Council's street lighting maintenance contract.

APPENDIX 1

DRAWINGS

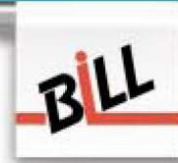
Street Lighting Cut-Out Details

Street Lighting Single Luminaire Wiring Diagram



SL3

Street Lighting Cut-Outs 25A, 240V AC



THE RANGE

LIVE, NEUTRAL & SEPARATE EARTH VERSIONS:

Single pole with 1 fuseway (Classification, type 1).
 Double pole with 1 fuseway (Classification, type 4).
 Double pole with 2 fuseways (Classification, type 6).
 The above are fitted with PVC grommets and are available with SWA gland/furrule plates

LIVE & COMBINED NEUTRAL / EARTH VERSIONS:

Single pole with 1 fuseway (Classification, type 2).
 Single pole with 2 fuseways (Classification, type 3).

FEATURES

- Designed to meet BS 7654 and includes requirements for use by Lighting and Highway Authorities.
- Robust construction manufactured from quality thermo-plastic injection moulded material.
- Single & double pole versions accept tag type fuselinks from 2A to 25A.
- Compact dimensions – a narrow width of 74mm makes units suitable for smaller columns.
- Screw down carrier offering enhanced security.
- Integral terminal shield shrouding both the live and neutral incoming terminals of double pole cutouts when carrier is removed.
- Padlocking facility to obstruct the insertion of the carrier during maintenance work.
- Integral wiring channel allows a fused spur up to 6mm² to be taken from the bottom of the units.

CABLE ENTRY OPTIONS



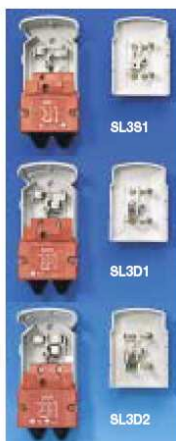
PVC Grommets



SWA Gland/Ferrule Plate



Tapped Gland Plate – see accessories (Compression Glands not supplied)



CUT-OUTS AND CABLE EXTENSION BOXES

LIVE, NEUTRAL & SEPARATE EARTH CUT-OUT DESCRIPTION	BS 7654 CLASSIFICATION	CUT-OUT CONFIGURATION	CUT-OUT CAT. NO.
Single pole one fuseway with PVC grommets	TYPE 1		SL3S1
Single pole one fuseway steel wire armour version	-		SL3S1A
Double pole one fuseway with PVC grommets	TYPE 4		SL3D1
Double pole one fuseway steel wire armour version	-		SL3D1A
Double pole two fuseways with PVC grommets	TYPE 6		SL3D2
Double pole two fuseways steel wire armour version	-		SL3D2A

Steel wire armour versions incorporate a gland/ferrule plate Cat.No. SL3A

SL3

Street Lighting Cut-Outs 25A, 240V AC



LIVE & COMBINED NEUTRAL/EARTH CUT-OUT DESCRIPTION	BS 7654 CLASSIFICATION	CUT-OUT CONFIGURATION	CUT-OUT CAT. NO.
Single pole one fuseway with PVC grommets	TYPE 2		SL3S1NE
Single pole two fuseways with PVC grommets	TYPE 3		SL3S2NE

CABLE EXTENSION BOXES

Cable extension boxes are available in four basic configurations. Other configurations can be supplied to special order.



All extension boxes have a brass gland plate with:
 1 x 20mm dia. hole
 2 x 25mm dia. holes
 2 x M6 earth screws & 3 blank plugs.

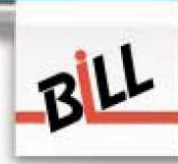
Note: An alternative gland plate with 3 x 25mm dia. holes is available, Cat. No. **SL3BG**.

EXTENSION BOX DESCRIPTION	EXTENSION BOX CONFIGURATION	EXTENSION BOX CAT. NO.
Extension box without terminals for increased cabling space		SL3B
Extension box with two main incoming (looping) terminals at opposite sides of the box, leaving the throat clear		SL3B2*
Extension box with four terminals: two twin incoming (looping) terminals, two twin incoming, single ongoing terminals		SL3B4*
Extension box with four lug type M6 terminals the two central terminals incorporate a single ongoing tunnel terminal		SL3B4L*

*With the addition of auxiliary terminal **SL3BAT** an ongoing terminal can be added to either or both the terminals positioned at the side of the extension box.

CUT-OUT AND EXTENSION BOX TERMINAL CAPACITIES

TERMINALS	MIN. TO MAX. CIRCULAR STRANDED COPPER CONDUCTORS
SL3 cut-out single outgoing terminals	1.5mm ² up to 16mm ²
SL3 cut-out twin incoing terminals	1.5mm ² up to 25mm ²
Extension box standard terminals	1.5mm ² up to 25mm ² (25mm ² shaped stranded)
Extension box lug type terminals	M6
Auxiliary terminals	1.5mm ² up to 10mm ²



GLAND PLATE ACCESSORIES FOR CUT-OUTS

DESCRIPTION	CAT. NO
Steel wire armour gland/ferrule plate to convert standard cut-outs to an SWA incomer arrangement cables must be less than 18mm dia. under the armour	SL3A
Tapped plate suitable for two 20mm dia. compression glands (not supplied)	SL3G
PVC cap for an unused way in an SL3A gland plate	SL3AC
M20 plug for an unused way in SL3G gland plate	SL3GP



ACCESSORIES FOR EXTENSION BOXES

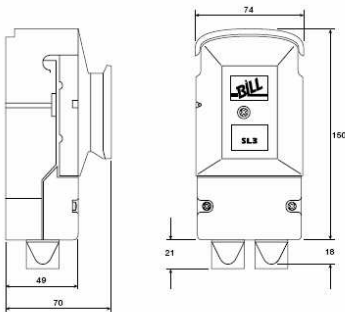
DESCRIPTION	CAT. NO
Auxiliary terminal 10mm ²	SL3BAT
Alternative gland plate 3 x 25mm holes	SL3BG
20mm dia. blanking plug for gland plate	SL3P20
25mm dia blanking plug for gland plate	SL3P25

HRC FUSELINKS

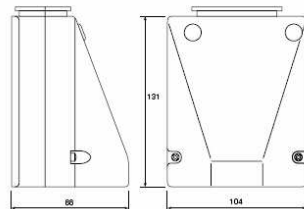
RATING	BILL HRC FUSELINK CAT. NO.
2A	BLST2
4A	BLST4
6A	BLST6
10A	BLST10
15A	BLST16
20A	BLST20
25A	BLST25
32A	BLST32

SPARE FUSE CARRIERS

CARRIER DESCRIPTION	SUITABLE FOR CUT-OUTS	CAT. NO
Single pole one fuse	SL3S1, SL3S1A, SL3S1NE	SL3S1C
Single pole two fuses	SL3S2NE	SL3S2C
Double pole one fuse	SL3D1, SL3D1A	SL3D1C
Double pole two fuses	SL3D2, SL3D2A	SL3D2C



SL3 Streeighting Cut-Outs
Dimensions in millimetres, all versions.



SL3 Cable Extension Boxes

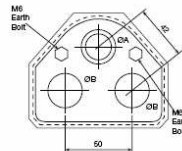
Dimensions in millimetres, all versions.

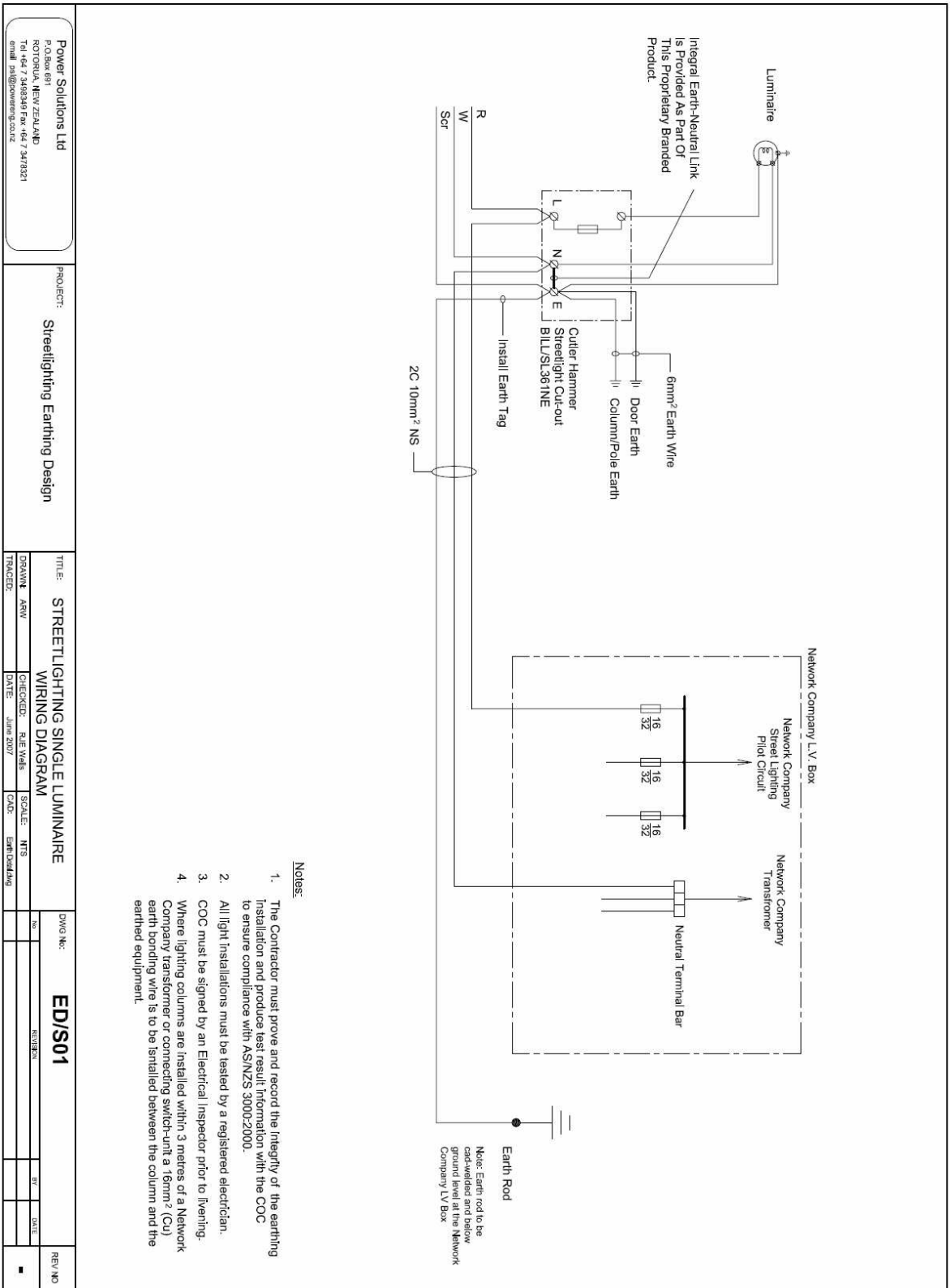
Standard Gland Plate

Diameter ØA = 20mm
Diameter ØB = 25mm

Alternative SL3BG Gland Plate

Diameter ØA = 25mm
Diameter ØB = 25mm





Notes:

1. The Contractor must prove and record the integrity of the earthing installation and produce test result information with the COC to ensure compliance with AS/NZS 3000:2000.
2. All light installations must be tested by a registered electrician.
3. COC must be signed by an Electrical Inspector prior to livening.
4. Where lighting columns are installed within 3 metres of a Network Company transformer or connecting switch-unit a 16mm² (Cu) earth bonding wire is to be installed between the column and the earthed equipment.

Power Solutions Ltd P.O. Box 691 Kaitiaki New Zealand Tel: +64 7 3483483 Fax: +64 7 3478321 Email: info@power.com.au		PROJECT: Streetlighting Earthing Design		TITLE: STREETLIGHTING SINGLE LUMINAIRE WIRING DIAGRAM		DIVISION: ED/S01	
DRAWN: ARV TRACKED:		CHECKED: PLE WAB DATE: June 2017		SCALE: NTS DATE: 01/06/2017		REV NO:	

APPENDIX 2

SLIM DATA CAPTURE FORM

CONTRACTOR'S FORM FOR ADDING STREET LIGHTING TO SLIM

Please fill in the details below – 1 form per light installed and return by fax to TCDC on 07 868 0234

Location Details

Installing Company Name				Date Of Installation				
Road Name				Township				
Light Route Position (Metres)			House No Same Side	Left	Right	House No. Opposite Side	Left	Right
Feature Same Side				Feature Opposite Side				

Pole Details

Pole Primary Use <i>(Lighting unit, Electrical dist)</i>		Owner		
Pole Construction <i>(Steel, Concrete etc)</i>		Shape <i>(Round, Square etc)</i>		
Manufacturer/Make		Model		
Mounting		Control <i>(relay, PEC, other state)</i>		
Network Company ID No.		Council ID No.		
Base Dimensions	mm mm	x	Level <i>(Height of base of pole from road surface)</i>	(metres)
Pole Height	(metres)		Height of Bracket <i>(Where the bracket is fixed to pole)</i>	
Pole Off Set <i>(From Kerb edge to centre of pole)</i>	(metres)		Light Height <i>(From centre of light to road surface)</i>	(metres)
Pole Coating <i>(Painted, Powder Coated, Galvanised)</i>		Colour		

Bracket Details

Manufacturer		Type	
Bracket Angle In Degrees (From Pole)		Light Tilt In Degrees	

Luminaire Details

Manufacturer		Model	
Pole Coating <i>(Painted, Powder Coated, Galvanised)</i>		Colour	
Lamp Manufacturer		Lamp Wattage & Type	

APPENDIX 3

PROTECTIVE COATINGS SPECIFICATION

Protective Coatings Specification

TG-2008-100760

Spec Type : New

Job Name : 10480 - Thames-Coromandel Street Light Poles

Description : Exterior Galvanised Surfaces

Location : Rotorua, New Zealand

Environment : Exterior moderate AS2312 Cat B: Low - Cat D: High

Substrate : Galvanised Steel

Company : Power Solutions Limited **Contact :** Mr Jon Stevens

Address : PO Box 691 **Title :**

City : Rotorua **Postcode :**

Region : **Phone :** 07 349 8351

Country :



Surface Preparation

Degrease galvanising with Devprep 88 diluted 1:3 with water as per data sheet instruction. High volume low pressure wash to remove all Devprep, oil residue & soluble contamination. DO NOT allow Devprep to dry onto surface. Sand or sweep abrasive blast galvanising with non-metallic media to a uniform matt finish. Ensure all galvanised surfaces are free from dichromate passivation treatment, oil and grease. Spot abrasive blast or power tool clean all weld damaged areas. Repair all galvanised damaged areas with Catha-Coat 315 applied at 50 µm DFT. Allow to cure for 12 hours minimum. Apply coat 1 within 8 hours of preparing the galvanised substrate. Apply full coats of coats 2 and 3. All surfaces must be clean and dry before painting

Coating System

Product	Coating	Colour	TC	WFT	DFT	MR	MinRC	MaxRC	Thin	Note
1 - Ultra-Prime 504	- full prime		11.0	91	50	4:1	2 hrs	1 mth	1/2	
2 - Ultra-Shield 2000	- full coat		6.0	167	125	4:1	4 hrs	5 days	1/2	
3 - E-Line 379	- full coat		12.0	83	50	4:1			No 5	

TC = Theoretical coverage m²/litre
WFT = Wet Film Thickness µm
DFT = Dry Film Thickness µm
MR = Mix ratio by volume

MinRC = Recoat Min @ 20°C / 50% RH
MaxRC = Recoat Max @ 20°C / 50% RH
Thin = Thinner(Spray)

Notes

Complies with AS/NZS 2312:2002 system HDG600P7, 25 + years for an exterior environment category C: medium (35 µm rust/ year, ISO 9223 category 3). Adequate inspection records including surface preparation, batch numbers, DFT's must be recorded by the contractor. The coating system is deemed adequate to warrant a manufacturer's certification for a period of 10 years based on an adhesion assessment criterion of >98 % of area of coating to the galvanised substrate for an exterior coastal environment category C: medium (NB: DO NOT exceed maximum recoat times

Issue Date Monday, 22 September 2008 Authorised by Neil Adamson Issued by Neil Adamson

* For specific details referred to in the above specification, please refer to the relevant product or material safety data sheets.
* Spray application is normally recommended. Suitable equipment may include airless / air assisted airless / HVLP or conventional pressure pot equipment.
* If the specified thickness is not achieved in one coat, additional coats must be applied to meet the specified D.F.T. Stripe coats should be brush applied.
* Any contamination or moisture which occurs between coats must be removed by suitable means before applying successive coats in the system.
* Care must be taken handling and applying all paint coatings. All stated minimum and maximum recoat times are based on 20°C/50% RH.
** This specification has been issued in good faith based on information given by the Client at the time of issue. Altex Coatings Ltd. has taken all reasonable steps to ensure the specification meets the needs of the client but reserves the right to amend or withdraw the specification if (a change in) conditions so dictate.