CD22/2023

SUPPLY AND DELIVERY OF STREETLIGHT LUMINAIRES, LAMPS, ACCESSORIES AND GENERAL AREA LIGHTING

1. INTRODUCTION

CENTLEC (SOC) Ltd a Municipal Entity distributing electricity in Mangaung, and other Municipalities invites service providers for the manufacture, supply and delivery of streetlight luminaires, lamps, accessories, and general area lighting as per specifications detailed below for a period of thirty-six (36) months.

2. MINIMUM REQUIREMENTS

Any omission of the below listed items would render an automatic disqualification.

2.1 Supply unique security personal identification number (PIN) from SARS for TAX compliant status and a valid original tax clearance certificate.

2.2 Supply municipal services (water, sanitation, rates, and electricity) clearance certificate or Lease Agreement with a current Bill and rates clearances, or hardware Current Bill of Account not owing more than 90 days. In a case where the services are paid by the Landlord, the signed lease agreement and statement of account must be submitted by the bidder.

2.2.1 In an event that the Bidder utilizes prepaid services (e.g. Water or electricity) a valid municipal clearance certificate(s) must still be provided.

2.3 Submit proof of registration on the National Treasury Centralized Supplier's Database.

3. SCOPE OF WORK

This bid calls for the supply and delivery of the following equipment:

Enclosed type, semi-cutoff, bottom, and side spigot entry streetlight luminaires complete with control gear, pole covers and lamps for High Pressure Sodium, Light Emitting Diode, and Lantern type decorative post-top luminaires.

High intensity floodlights for sports field lighting suitable for metal halide lamps and complete with control gear. A range of the following lamps: Fluorescent, tungsten filament incandescent, airport runway, traffic light lamps and LED's luminaires. All equipment shall be suitable for use on the distribution systems within CENTLEC area of supply.

4. TECHNICAL SPECIFICATION

4.1 General remarks

The electrical equipment covered by this enquiry must be suitable for a single phase, 50 Hz AC network which operates at the voltages specified for the various items.

The neutral point of the 400/231 V network is solidly earthed. The star point on the 11 KV system is earthed through a 600 A (10,58 ohm) resistor. The meteorological conditions for Bloemfontein are:

Height above sea level	:	1 400 meters
Normal Barometer pressure	:	0, 85 bar
Shade Temperature	:	-10° minimum and 38°C maximum
Lightning storms	:	Severe

4.2 Specifications for streetlight luminaires

4.2.1 **The luminaires** shall bear the SANS marks of approval and comply with SANS 60598-2-3:2003/IEC 60598-2-3:2002 Safety mark and the SANS 475 Performance mark (old SABS 1277 of 1980 and SABS 1464 Part 1 of 1988). Luminaire spigot entries shall comply with SANS 1088- Table 2.

Alternatively, bidders must state to which recognized international specification their luminaires comply with.

The luminaire shall have a minimum degree of ingress protection that complies with the SANS 1222 and SANS 10098.1 (old SABS 098: Part 1-1999 Code of Practice Table B-1). The luminaire shall consist of a lamp compartment separated for thermal reasons from the control gear compartment and shall have a degree of protection for:

(i) Lamp compartment: IP 65
(ii) Control gear compartment: IP 43

All **IP ratings** claimed shall be certified by a SANS IEC 60529:2001 test report.

4.2.2 **The luminaire housing** shall be robustly constructed, to be weatherproof, hail proof and corrosion proof. It shall be manufactured from suitable cast aluminium alloy (LM6) or from ultra-violet stabilized engineering polymer which will not deteriorate under normal working conditions.

4.2.3 **The reflectors** shall be manufactured from super pure deep anodized aluminium and shall not be subject to accidental misalignment.
The polymer luminaires shall be grey in colour.

4.2.4 **Luminaires housing** shall be corrosive resistant and all screws, bolts, clips, etc. shall be stainless steel or be corrosive resistant and UV stabilized. The luminaires shall be able to withstand ambient temperatures ranging between -15°C and 45°C, without resulting in any electrical or mechanical component exceeding its maximum allowed operating temperature. The Ta rating should in no case be less than 35°C.

4.2.5 **The hinges and refractor bowl locking clips or catches** must be made from stainless steel or other suitable metallic corrosive resistant material. The refractor bowl shall be held into position by at least three locking clips or catches. Preference will be given to stainless steel clips and latches.

4.2.6 **The control gear** shall be mounted on a hinged tray or fitted on a removable gear tray and shall be suitable for operation with the specified rating of the lamp on a 230V+3%/-10% 50Hz single phase system. All control gear components shall be removable and shall bear the relevant SANS mark. The control gear compartment must form an integral part of the luminaire housing and shall be protected by a hinged non-corrosive cover and shall be accessible from underneath. Control gear shall not be mounted on the control gear cover. Preference shall be given to luminaires with a separate gear compartment and lamp compartment manufactured from cast aluminium or other suitable non-metallic UV Resistant materials. In addition to the above, preference will be given to luminaires where the connections are made in a separate compartment.

4.2.7 **The gasket** between the luminaire housing and the refractor bowl must be fitted with a silicon sponge rubber seal in a tongue and groove arrangement to protect against dust and insects entering the bowl. The material used shall be heat, pressure and radiation resistant. The glue used must also be chemically compatible with the sealing material.

4.2.8 **The refractor bowl** must be manufactured from high-impact acrylic or heat resistant glass. The material used shall be UV Resistant and heat from sunlight or the lamp must not cause discoloring or any deforming of the refractor bowl. The prisms of the refractor bowl (if applicable) must be on the inside.

4.2.9 **The side entry** of the luminaire must accommodate a 35 - 50 mm diameter x 125 mm spigot with a spigot-stop to prevent damage to control gear.

4.2.10 **The bottom entry** of the luminaire must accommodate a 76mm diameter x 75mm long pole top spigot and must have at least 3 x M8 stainless steel grub screws.

4.2.11 **The luminaire** shall be of the semi cut-off type to SANS 10098.1 (SABS 098) - Part 1: 1990. The luminaire must be supplied complete with lamp and control gear suitable for use with colour-corrected High Pressure Sodium lamps as specified in the schedules and be suitable for operation on a 230V ±10 % single phase system. The luminaire shall be power corrected to a minimum of 0.9.

4.2.12 The lamps must be of the High Pressure Sodium lamps suitable for use on the above control gear and at 230 V AC (+3% /- 10%) at 50 Hz.

4.2.13 The lamp holder shall comply with VC 8011, be rated to withstand 240° C and protected against loosening of the lamp caused by vibration of the luminaire. Porcelain would be preferred.

4.2.14 The choke (ballast) must be suitable for use on a **230 Volt** ±10 % supply and shall comply with the latest SANS 1266 - 1995 and further amendments. Connections must be brought out onto a suitable **screw terminal block** mounted onto the choke back plate or housing.

The following information of the choke must be clearly marked on the face of the choke:

(i) Name of Manufacturer
(ii) Type number
(iii) The wattage, voltage and frequency
(iv) Wiring diagram with connection markings

4.2.15 The capacitor must comply to the latest SANS 1250-1979 and further amendments, fitted with a bleeding resistor, and clearly marked with the following information:

(iii) Name of Manufacturer
(iv) Type number
(v) Capacity and percentage tolerance
(vi) AC voltage and frequency
(vii) Operating temperature range

4.2.16 The superposed pulse type external igniter where applicable, shall be of the superposed pulse type and must be fitted with suitable terminal block, clearly marked with the following information:

(i) Name of Manufacturer.
(ii) Type number.
(iii) Current rating.
(iv) Voltage and frequency.
(v) Wiring diagram with connection markings.

4.2.17 The pole mounting bracket must be manufactured from mild steel and galvanized to SANS 763/1988 according to the attached drawing number TS - 7 - 1 for mounting of 70W high pressure sodium luminaires.

4.2.18 **All internal wiring** must have heat resistant Silicone or Teflon coated insulation with protective sleeve to prevent damage by possible abrasion and consist of a multi stranded copper conductor of not less than 0.75 mm².

4.2.19 **The main connector terminal block** shall be a two-way screw type terminal block to fit 4 mm² stranded conductors with a wire clamping contact. A separate earth terminal must be provided.

4.3 Specifications for post -top lantern type decorative luminaires

4.3.1 **The luminaires** shall bear the SANS 475 Performance mark and the SANS 60598.2.3 Safety mark. Luminaire spigot entries shall comply with SANS 1088-Table 1 for type 2.
Alternatively, bidders must state to which recognized international specification their luminaires comply with.

The luminaire shall have a minimum degree of ingress protection that complies with the SANS 1222 and SANS 098: Part 1-1999 Code of Practice Table B-1.
All IP ratings claimed shall be certified by a SANS IEC 60529:2001 test report and must not be less than IP 65

4.3.2 **The luminaire housing** shall be robustly constructed, to be weatherproof, hail proof and corrosion proof. It shall be manufactured from suitable aluminium alloy or ultra-violet stabilized glass-filled nylon which will not deteriorate under normal working conditions.
Aluminium alloy luminaires must be coated with one layer of aluminium oven enamel and the nylon or reinforced polyester luminaires shall be the colour as specified when ordered. Luminaire housing shall be corrosive resistant and all screws, bolts, etc. shall be stainless steel or be corrosive resistant and UV stabilized.

The luminaires shall be able to withstand ambient temperatures ranging between -15°C and 45°C, without resulting in any electrical or mechanical component exceeding its maximum allowed operating temperature.

4.3.3 **The top cover and refractor bowl** must be firmly secured with a single dome-nut or decorative nut arrangement, made from stainless steel, die cast aluminium or other suitable non-metallic UV Resistant material. The refractor bowl shall be held into position by the top cover with sufficient overhang to prevent direct rainwater contact with the gasket.

4.3.4 **The control gear** shall be incorporated inside the luminaire and be mounted on a removable gear tray. All control gear components shall be removable and bear the SANS mark. No control gear shall be mounted outside the lamp compartment and wire entry into the luminaire shall be via a rubber grommet.

4.3.5 **The gaskets** between the luminaire top-cover, spigot base and refractor bowl must be fitted with a silicon sponge rubber seal to protect against dust and insects entering the bowl. The material used shall be heat and pressure resistant. The glue used must also be chemically compatible with the sealing material.

4.3.6 **The refractor bowl** must be manufactured from high-impact acrylic. The material used shall be UV Resistant and heat from sunlight or the lamp must not cause discoloring or deformation of the refractor bowl. It shall be smooth on the outside with prisms on the inside of the refractor bowl to reduce glare.

4.3.7 **The spigot base** shall be manufactured from cast aluminium and be powder coated in the colour specified. The spigot base bottom entry of the luminaire shall accommodate a 76 mm diameter pole x 75 mm deep entry and be secured to the pole by at least three M8 stainless steel grub screws.

4.3.8 **The luminaire** shall be supplied complete with lamp and control gear suitable for use with colour-corrected High Pressure Sodium lamps as specified in the schedules and be suitable for operation on a 230V ±10 % single phase system. The luminaire shall be power corrected to a minimum of 0.9.

4.3.9 **The lamps** High Pressure Sodium lamps suitable for use on the above control gear and at 230 V AC +3% / -10% at 50 Hz (OSRAM or similar).

4.3.10 **The lamp holder** shall comply with VC 8011, be rated to withstand 240° C and protected against loosening of the lamp caused by vibration of the luminaire.

4.3.11 **The choke (ballast)** must be suitable for use on a **230 Volt** ±10 % supply and shall comply with the latest SABS 1266 - 1997 and further amendments. Connections must be brought out onto a suitable screw terminal block mounted onto the choke back plate or housing.

The following information of the choke must be clearly marked on the face of the choke:

(i) Name of Manufacturer.
(ii) Type number.
(iii) The wattage, voltage, and frequency.
(iv) Wiring diagram with connection markings.

4.3.12 **The capacitor** must comply to the latest SANS 1250-1979 and further amendments, fitted with a bleeding resistor, and clearly marked with the following information:

(i) Name of Manufacturer.
(ii) Type number.
(iii) Capacity and percentage tolerance.
(iv) AC voltage and frequency.
(v) Operating temperature range.

4.3.13 All internal wiring must have heat resistant Silicone or Teflon coated insulation with protective sleeve to prevent damage by possible abrasion and consist of a multi stranded copper conductor of not less than 0.75 mm².

4.3.14 The main connector terminal block shall be a two-way screw type terminal block to fit 4 mm² stranded conductors with a wire clamping contact. A separate earth terminal must be provided.

4.4 Specifications for high wattage floodlight luminaires

4.4.1 The luminaires shall bear the SANS 475 Performance mark and the SANS 60598.2.5 Safety mark. Alternatively, bidders must state to which recognized international specification their luminaires comply with.
The luminaire shall have a minimum degree of ingress protection that complies with the SANS 1222:1997. All IP ratings claimed shall be certified by a SANS IEC 60529:2001 test report. And should in no case be less than IP 65 rated.

4.4.2 The lamp housing shall be robustly constructed, to be weatherproof, hail proof and corrosion proof. It shall be manufactured from suitable die-cast aluminium alloy or from a combination of cast aluminium and pre-formed back reflectors, which will not deteriorate under normal working conditions.

4.4.3 The reflectors shall be manufactured from super pure deep anodized aluminium and consist of a back reflector and two side reflectors to ensure maximum control, intensity, and uniformity. The Luminaire shall be available in a symmetrical narrow, medium, wide, and extra wide beam distribution.

4.4.4 The front glass shall be heat and impact resistant and be held to the lamp housing by at least four stainless steel clamps and sealed by a gasket.

4.4.5 The control gear compartment shall be manufactured from cast aluminium with good heat dissipation. All control gear components shall be mounted on a gear tray, be removable and bear the SANS mark. The control gear compartment can form an integral part of the Luminaire housing or be supplied as a loose unit. A gasket between the lid and body of the control gear compartment shall seal against ingress as specified by SANS. Control gear shall not be mounted on the control gear cover.

4.4.6 The gasket between the luminaire housing and the front glass shall be a silicon sponge rubber seal to protect against dust and insects entering. The material used shall be heat and pressure resistant. The glue used must also be chemically compatible with the sealing material.

4.4.7 The lamp holder shall comply with VC 8011, be rated to withstand 240° C and protected against loosening of the lamp caused by vibration of the luminaire. Porcelain would be preferred.

4.4.8 **The Luminaire** shall be supplied complete with lamp and control gear suitable for use as specified in the schedules and be suitable for operation on a 230V ±10 % single phase system. The luminaire shall be power corrected to a minimum of 0.9.

4.4.9 **A mounting stirrup** manufactured from hot dipped galvanized steel, with pre-drilled holes shall form part of the luminaire for mounting purposes.

4.4.10 **The choke (ballast)** must be suitable for use on a **230 Volt** ±10 % supply and shall comply with the latest SANS 1266 - 1995 and further amendments. Connections must be brought out onto a suitable screw terminal block mounted onto the choke back plate or housing.

The following information of the choke must be clearly marked on the face of the choke:

(i) Name of Manufacturer.
(ii) Type number.
(iii) The wattage, voltage, and frequency.
(iv) Wiring diagram with connection markings.

4.4.11 **The capacitor** must comply to the latest SANS 1250-1979 and further amendments, fitted with a bleeding resistor, and clearly marked with the following information:

(i) Name of Manufacturer.
(ii) Type number.
(iii) Capacity and percentage tolerance.
(iv) AC voltage and frequency.
(v) Operating temperature range.

4.4.12 **The superposed pulse type igniter** shall be of the superposed pulse type and must be fitted with suitable terminal block, clearly marked with the following information:

(i) Name of Manufacturer.
(ii) Type number.
(iii) Current rating.
(iv) Voltage and frequency.
(v) Wiring diagram with connection markings.

4.4.13 **All internal wiring** must have heat resistant Silicone or Teflon coated insulation with protective sleeve to prevent damage by possible abrasion and consist of a multi stranded copper conductor of not less than 0.75 mm^2.

4.4.14 **The main connector terminal block** shall be a two-way screw type terminal block to fit 4 mm^2 stranded conductors with a wire clamping contact. A separate earth terminal must be provided.

5. DRAWINGS AND DIAGRAMS

Each bid must be accompanied by the following:

(i) Detail drawings with full dimensions of the luminaires offered showing the mounting method to the pole.
(ii) Photometric Intensity distribution diagram.
(iii) Photometric Horizontal Illuminance diagram
(iv) Utilization curve

The omission of the abovementioned drawings and diagrams may lead to the rejection of the bid based on incompleteness.

6. SAMPLES

A sample of the complete luminaire offered may be requested.

7. SPARES

Bidders must submit prices for the following spares:
(i) Lamp
(ii) Capacitor
(iii) Choke
(iv) Refractor bowl
(v) Luminaire casting
(vi) Pole covers.

8. TECHNICAL SPECIFICATION SCHEDULES

All technical specification schedules must be completed by the bidder.

Failure to complete these schedules may lead to the rejection of the bid based on incompleteness.

8.1 ITEM 1: 70 WATT HIGH PRESSURE SODIUM (SON) STREETLIGHT LUMINAIRES TECHNICAL SPECIFICATION SCHEDULE

The 70W HPS luminaire will be mounted on a 9m steel pole with an inclination of 15 and 0.5m overhang. The poles will be spaced 40m apart with a setback of 1 meter. The application will be for Residential type B2 roads consisting of 2 lanes.

NB: To comply with the requirements of SANS 10098 Part 1, Bidders must submit Road Lighting Calculations (according to CIE 140) based on above with their bids. Illuminance results must include Minimum and Average Lux.

Table 1: High Pressure Sodium (SON)

	ITEM 1A
HIGH PRESSURE SODIUM (SON) LUMINAIRES	**70 W**
Luminaires	
Manufacturer	
Country of origin	
% Local content	
Model/Type Number	
SANS Mark (Yes / No)	
Material for luminaire casting	
Finish of luminaire casting	
Material for reflector (if fitted)	
Material of refractor bowl	
Material of locking catches or clips	
Material of gasket	
Size and depth of spigot entry	
Type of insulation and size of internal wiring	
Manufacturer and type of lamp holder	
Weight of luminaire	
Maximum projected area	
Total current consumed by luminaire	
Wind resistance area	

8.1.1. ITEM 1: (CONTINUE)

	ITEM 1A
HIGH PRESSURE SODIUM (SON) LUMINAIRES	**70 W**
Choke	
Manufacturer	
Country of origin	
% Local content	
Model/Type Number	
Outer dimensions L x W x H	
Weight	
Open or sealed type	
Insulation type and impregnating material	
Total designed current losses	
Temperature rise at designed current	
Capacitor	
Manufacturer	
Country of origin	
% Local content	
Model/Type Number	
Capacity and tolerance	
Working voltage	
Maximum temperature allowed	

8.1.2. ITEM 1: (CONTINUE)

	ITEM 1A	
HIGH PRESSURE SODIUM (SON) LUMINAIRES	**70 W**	
General		
Current consumed with capacitor connected during:		
(a) Starting		Amps
(b) Running		Amps
Full load current consumed by the lamp during:		Amps
(a) Starting		Amps
(b) Running		Amps
Current variation of lamp with 10 % Supply voltage variation.		Amps
Lowest average power factor of luminaries		
LAMP offered with luminaries. Manufacturer and stock code		
Normal lifespan		Burning hours
Initial light output ability		Lumen
Efficiency		Lumen/Watt

8.2 ITEM 2: 250 WATT HIGH PRESSURE SODIUM (SON) STREETLIGHT LUMINAIRES TECHNICAL SPECIFICATION SCHEDULE

The 250W HPS luminaire will be mounted on a 13.5m steel pole with an inclination of 15 and 0.5m overhang. The poles will be spaced 40m apart with a setback of 1 meter. Application will be for Residential type B2 roads consisting of 2 lanes.

NB: To comply with the requirements of SANS 10098 Part 1, Bidders must submit Road Lighting Calculations (according to CIE 140) based on above with their bids. Illuminance results must include Minimum and Average Lux.

Table 2: High Pressure Sodium (SON)

	ITEM 2A
HIGH PRESSURE SODIUM (SON) LUMINAIRES	**250 W**
Luminaires	
Manufacturer	
Country of origin	
% Local content	
Model/Type Number	
SANS Mark (Yes / No)	
Material for luminaire casting	
Finish of luminaire casting	
Material for reflector (if fitted)	
Material of refractor bowl	
Material of locking catches or clips	
Material of gasket	
Size and depth of spigot entry	
Type of insulation and size of internal wiring	
Manufacturer and type of lamp holder	
Weight of luminaire	
Maximum projected area	
Total current consumed by luminaire	
Wind resistance area	

ITEM 2: (CONTINUE)

	ITEM 2A
HIGH PRESSURE SODIUM (SON) LUMINAIRES	**250 W**
Choke	
Manufacturer	
Country of origin	
% Local content	
Model/Type Number	
Outer dimensions L x W x H	
Weight	
Open or sealed type	
Insulation type and impregnating material	
Total designed current losses	
Temperature rise at designed current	
Capacitor	
Manufacturer	
Country of origin	
% Local content	
Model/Type Number	
Capacity and tolerance	
Working voltage	
Maximum temperature allowed	

8.2.2 ITEM 2:(CONTINUE)

	ITEM 2A	
HIGH PRESSURE SODIUM (SON) LUMINAIRES	**250 W**	
General		
Current consumed with capacitor connected during:		
(a) Starting		Amps
(b) Running		Amps
Full load current consumed by the lamp during:		Amps
(a) Starting		Amps
(b) Running		Amps
Current variation of lamp with 10 % Supply voltage variation.		Amps
Lowest average power factor of luminaries		
LAMP offered with luminaries. Manufacturer and stock code		
Normal lifespan		Burning hours
Initial light output ability		Lumen
Efficiency		Lumen/Watt

8.3 ITEM 3: HIGH PRESSURE SODIUM (SON) POST TOP LANTERN TYPE DECORATIVE LUMINAIRES (FOR 75mm POLE TOP DIAMETER: 3, 4 & 5 METER HIGH MOUNTING) TECHNICAL SPECIFICATIONS

Table 3: High Pressure Sodium (SON) post top lantern type

	ITEM 3A	**ITEM 3B**
HIGH PRESSURE SODIUM (SON) POST - TOP LANTERN TYPE DECORATIVE LUMINAIRES	**70 W**	**100W**
Luminaires		
Manufacturer		
Country of origin		
% Local content		
Model/Type Number		
SANS Mark (Yes / No)		
Material for luminaire base		
Material of luminaire roof		
Finish of luminaire casting and roof		
Material for reflector (if fitted)		
Material of refractor		
Material of locking catches, clips or screws		
Material of gasket		
Size and depth of pole top entry		
Type of insulation and size of internal wiring		
Manufacturer and type of lamp holder		
Weight of luminaire		
Maximum projected area		
Total current consumed by luminaire		
Wind resistance area		
Colours offered		

8.3.1 ITEM 3 (CONTINUE)

	ITEM 3A	ITEM 3B
HIGH PRESSURE SODIUM (SON) POST-TOP LANTERN TYPE DECORATIVE LUMINAIRES	**70 W**	**100W**
Choke		
Manufacturer		
Country of origin		
% Local content		
Model/Type Number		
Outer dimensions L x W x H		
Weight		
Open or sealed type		
Insulation type and impregnating material		
Total designed current losses		
Temperature rise at designed current		
Capacitor		
Manufacturer		
Country of origin		
% Local content		
Model/Type Number		
Capacity and tolerance		
Working voltage		
Maximum temperature allowed		

8.3.2 ITEM 3 (CONTINUE)

	ITEM 3A	ITEM 3B	
HIGH PRESSURE SODIUM (SON) POST-TOP LANTERN TYPE DECORATIVE LUMINAIRES	**70 W**	**100W**	
General			
Current consumed with capacitor connected during:			
(a) Starting			Amps
(b) Running			Amps
Full load current consumed by the lamp during:			Amps
(a) Starting			Amps
(b) Running			Amps
Current variation of lamp with 10 %. Supply voltage variation.			Amps
Lowest average power factor of luminaire			
LAMP offered with luminaire. Manufacturer and stock code			
Normal lifespan			Burning hours
Initial light output ability			Lumen
Efficiency			Lumen / Watt

8.4 TECHNICAL SPECIFICATION FOR LIGHT EMITTING DIODE (LED) LUMINAIRES

The successful bidder should be able to supply LED luminaires. The Led luminaires supplied should be equivalent to both a 70W and a 250W HPS luminaire. The bidder should also be able to supply LED luminaires that are compatible with solar powered system.

8.4.1 LED STREETLIGHT MANUFACTURERS

Only offers for streetlights which are manufactured in South Africa and supported by the original South African manufacturer, with maintenance facilities and spare parts located in the Free State will be considered.

Tenderers shall submit a summary of the percentage of local content with their offered product.

8.4.2 RECOMMENDED LIGHTING PERFORMANCE SPECIFICATION FOR LED STREETLIGHT LUMINAIRES

8.4.2.1 General guidelines:

High pollution, corrosion resistant. The LED luminaire shall be designed to meet the lighting criteria for Group A and B roads, as per the detailed schedule.

8.4.2.2 The luminaire shall be designed in accordance with the following requirements:

- **i.** Design life: more than 25 years. The replacement (upgrading and service) of the LED unit and the driver/power supply shall be possible without removing the whole luminaire but by means of replacing only the optical/gear compartment by means of a hinging mechanism.
- **ii.** Minimum IP rating of the light compartment, including driver compartment: IP66.
- **iii.** The protector shall be smooth, for easy cleaning, and shall be manufactured of tempered glass (IK08) or high-impact acrylic (IK10).
- **iv.** It shall be certified, in terms of IEC 60598, to operate at an ambient temperature of 35°C. The thermal design shall be particularly designed for African exterior conditions, i.e. high temperatures comply to the following standards:
- **v.** IEC 55015 “Limits and methods of measurements of radio disturbance characteristics of electrical lighting and similar equipment”
- **vi.** IEC 5502 “Information technology equipment. Radio disturbance characteristics.” IEC 61000-4-5 “Electromagnetic compatibility (EMC) - Surge immunity test”

vii. The cooling fins shall be designed in such a manner to prevent the accumulation of dirt, thus ensuring continuous effective cooling. The cooling rib height to width ratio may not exceed 0.7. Additionally, the top surface shall be curved in shape.

viii. The LED life expectancy shall be 60,000 hours at 80% lumen maintenance. (Documentary evidence from the LED manufacturer, by means of an appropriate datasheet, confirming the statistical correlation, shall be provided).

ix. Use of high efficiency LED's (> 100 lumens/watt: Absolute photometry) CRI > 70. Documentary evidence of compliance with this clause shall be submitted with the tender.

x. Colour temperature shall be neutral white (4000K). A report from the LED vendor, for LED's used in the luminaire, shall be submitted, which shall include the following documentary evidence:

xi. LED manufacturer data that clearly correlates LED junction temperature and LED drive current to lumen maintenance.

xii. Direct conduction & maximized surface for external heat exchange shall be provided.

xiii. The PCB shall incorporate a temperature sensor which shall reduce the current to protect the LEDs at higher than rated ambient temperatures. The temperature sensor is not intended to switch off the LEDs at high temperatures.

xiv. Luminaire closure shall be by means of a double movement clip mechanism at the rear of the luminaire and secured by a tamper-proof screw to minimize theft and vandalism.

xv. The control gear compartment shall be incorporated into the luminaire housing.

xvi. The power supply connection must take place inside the luminaire.

xvii. The luminaire shall automatically disconnect the supply to the power supply once the luminaire is opened.

xviii. The luminaire housing shall be constructed of marine grade high pressure die cast (EN 1706 AC-47000) aluminium. Tenderers shall submit a metallurgical report from an independent metallurgist confirming the grade of aluminium for all the luminaires offered. The housing shall be robustly constructed, weatherproof, hail proof, insect proof, corrosion proof, ultraviolet light resistant and vandal resistant.

8.4.3 PHOTOMETRIC REQUIREMENTS

The tenderer shall submit the calculations, as per SANS 10098, for Group A or B roads.
Detailed calculations, confirming the results, shall accompany the tender document.
The photometric data submitted shall be based on measurements undertaken by an internationally certified lighting laboratory.

8.4.3.1 Copies of the photometric report shall be submitted and shall contain the measuring matrix, with measurement points as defined by CIE 140, illustrating:

- **i.** The candela values, at an ambient temperature of 25°C
- **ii.** The description and photography of the luminaire tested.
- **iii.** The supply voltage and LED currents during testing.

8.4.3.2 The calculation shall be based on the following criteria:

- **i.** LED lumen depreciation: 20%
- **ii.** Maintenance factor: 0.9 (allowing for a 10% light loss due to dirt on the protector surface).

8.4.4 POWER SUPPLY

The unit shall have the following features:

- **i.** The power factor shall be rated at ≥0.95.
- **ii.** The rated lifetime ≥ 60 000h at 90% survival.
- **iii.** The power supply shall be removable and shall be suitable for operation with the specified rating of the lamp on a 108-305VAC 50Hz single phase system.
- **iv.** Operating temperatures shall be from -15deg to +60deg on the housing (case temperature).
- **v.** Operating humidity shall be from 20% to 95%.
- **vi.** The control gear shall incorporate a thermal switch for protection when exceeding the case temperature.
- **vii.** The unit shall be EMC compliant to the EN55015 and EN61347-1 standard.
- **viii.** The unit shall provide the option to add a daylight sensor, on the low voltage side.
- **ix.** The unit shall be able to withstand surges up to 10kV/10kA by means of an external surge protection device mounted inside the gear compartment and shall be easily replaceable.

8.4.5 DETAILED LIGHTING DESIGN

Detailed lighting designs must accompany the tender clearly indicating compliance to SANS 10098.1 for the relevant road group as indicated elsewhere in this tender.

8.4.6 SPIGOT ENTRIES

Spigot entries shall be designed to fit easily over the bracket pipe and shall be truly parallel to the fitting axis and shall comply with Table 1 of SANS 1088 as follows:

For Type 2 luminaires (side entry): Nominal size 42 mm

The luminaire shall be secured to the spigot by means of at least two stainless steel M8 grub screws, as specified in ISO 4762. This should be done from the inside of the luminaire to minimise the risk of vandalism and theft. An additional safety screw, with a special coded screw head, shall protect the luminaire against pilferage.

8.4.7 LED STREETLIGHT LUMINAIRE TEST REPORTS

8.4.7.1 Failure to provide test reports of the following tests called for may result in the rejection of the Tender:

- **i.** Type test according to IEC 60598-1:2004 and IEC 60598-2-3:2003.
- **ii.** IP rating test reports for all items offered in accordance with SANS 60529.
- **iii.** A separate ambient temperature (Ta rating) test report shall be provided, in accordance with SANS 475.

8.4.8 The test reports shall be issued by SANS or IEC accredited test authority, Standards applicable:

- **i.** IEC 60598-1 Luminaires - Part 1: General requirements and tests.
- **ii.** IEC 60598-2-3 Luminaires - Part 2: Requirements - Section 3: Luminaires for road and street lighting.
- **iii.** ISO 4762 Hexagon socket head cap screws.
- **iv.** SANS 529 Heat-resisting wiring cables.
- **v.** SANS 121Hot dip galvanized coatings on fabricated iron and steel articles.

8.4.9 Specifications and test methods:

- **i.** SANS 1088 Luminaire entries and spigots
- **ii.** SANS 1091 Natural colour standards for paints
- **iii.** SANS 60529 Degrees of protection provided by enclosures (IP Code)
- **iv.** SANS 1507 Electric cables with extruded solid dielectric insulation for fixed installations (300/500 V to 1 900/3 300 V) Part 3: PVC Distribution cables
- **v.** SANS 1574 Electric flexible cores, cords, and cables with solid extruded dielectric
- **vi.** insulation Part 3: PVC-insulated cores and cables
- **vii.** SANS ARP 035 Guidelines for the installation and maintenance of street lighting 2014
- **viii.** SANS 61000-3-2 Electromagnetic compatibility (EMC) Part 3-2: Limits — Limits for
- **ix.** harmonic current emissions (equipment input current ≤ 16 A per phase)
- **x.** OHS-ACT (Act 85 of 1993) Occupational Health and Safety Act and Regulations

8.4.10 TECHNICAL DETAILS of EQUIPMENT OFFERED (LED STREETLIGHT LUMINAIRES)

Name of the LED streetlight luminaire manufacturer……

Place of manufacture……

Manufacturer's identification reference……

Physical Address of manufacturer in the Free State……

……

Type of luminaire LED……

What is the nominal lumen flux at Tq of 25 °C? .....

Luminaire installation inclination angle ……

Rated wattage……..

Number of LEDS per luminaire……

LED Current……

Class and type of luminaire……

Colour temperature……..

Luminaire efficacy lm/W…….

Colour rendering index 70 (minimum)……..

Lumen Depreciation of the LED luminaire when
installed for 60 000 hours (min.) 80% of initial lumens……..

Bears SANS 60598 Mark……

Degree of protection to SANS 60529……
Material of the LED luminaire…….

Aluminium grade of housing……..

Does the luminaire have a heat sink? …….

Standard to which hot-dip galvanizing all ferrous components comply with…….

……...

Steel grade for toggle clips, bolts, screws, nuts, and washers…….

Location of the LED drivers……

Sealed LED and driver unit replaceable without removal of luminaire……

Type and nominal size of spigot entry…….

Maximum length of spigot entry into luminaire……

Material of protector lens High impact glass or acrylic……..

Material of gasket silicon……

Driver specification with which drivers or power supply complies ……..

Driver manufacturer…….

Voltage service range of driver……..

Type of Driver or power supply……..

Power factor of the power supply 0,95 minimum……

Operating frequency……

Harmonic distortion levels of driver or power supply to comply with SANS 61000-3-2

……

Gross mass of complete luminaire ……..

Have test reports been submitted with the tender documents……

8.5 ITEM 4: 36 WATT LED STREETLIGHT LUMINAIRES TECHNICAL SPECIFICATION

The luminaire must consist of 3 compartments viz: LED Engine, Power supply and Spigot compartments. This allows for the easy installation of the LED engine by means of a hinging action onto a spigot base casting, with incorporated leveling device. It must be secured by stainless steel latches and an access screw. The LED engine must consist of an LED light source and the power supply unit must easily be replaceable when faulty. Both compartments must be rated at IP 66 according to SANS 60598-2-3.

The luminaire must be fitted with electronic temperature monitoring which prevents overheating of LEDs and power supply, positioned directly next to the LEDs (ThermiX®). ˚Luminaire spigot entries shall comply with SANS 1088 - Table 2:
• Side entry - ø42mm x 125mm long.

The luminaire must be fitted with 10kV/20kA Surge protection. The luminaire must be able to operate at a nominal line voltage of 230V and a mains tolerance voltage between 198-264V - 50Hz. The Lifetime residual flux @ Tq 25˚C In accordance with LM-80 – TM-21 must be 90% at 60 000 hours and 70% at 100 000 hours. The light colour must be Neutral white (4000K, CRI ≥70).

The luminaire must have an Aerodynamic resistance (CxS) of 0.03m². The luminaire will be mounted on a 9m steel pole with an inclination of 15˚ and 1.5m overhang. The poles will be spaced 40m apart with a setback of 1 meter. The application will be for Residential type B2 roads consisting of 2 lanes.

NB: To comply with the requirements of SANS 10098 Part 1, Bidders must submit Road Lighting Calculations (according to CIE 140) based on above with their bids. Illuminance results must include Minimum and Average Lux

8.6 ITEM 5: 88 WATT LED LUMINAIRE STREETLIGHT LUMINAIRES TECHNICAL SPECIFICATION

The luminaire must consist of 3 compartments viz: LED Engine, Power supply and Spigot compartments. This allows for the easy installation of the LED engine by means of a hinging action onto a spigot base casting, with incorporated leveling device. It must be secured by stainless steel latches and an access screw. The LED engine must consist of an LED light source and the power supply unit must easily be replaceable when faulty. Both compartments must be rated at IP 66 according to SANS 60598-2-3.

The luminaire must be fitted with electronic temperature monitoring which prevents overheating of LEDs and power supply, positioned directly next to the LEDs (ThermiX®). ˚Luminaire spigot entries shall comply with SANS 1088 - Table 2:
Side entry - ø42mm x 125mm long.

The luminaire must be fitted with 10kV/20kA Surge protection. The luminaire must be able to operate at a nominal line voltage of 230V and a mains tolerance voltage between 198-264V - 50Hz. The Lifetime residual flux @ Tq 25˚C In accordance with LM-80 – TM-21 must be 90% at 60 000 hours and 70% at 100 000 hours. The light colour must be Neutral white (4000K, CRI ≥70).

The luminaire must have an Aerodynamic resistance (CxS) of 0.03m². The luminaire will be mounted on a 9m steel pole with an inclination of 15˚ and 1.5m overhang. The poles will be spaced 40m apart with a setback of 1 meter. The application will be for Residential type B2 roads consisting of 2 lanes.

NB: To comply with the requirements of SANS 10098 Part 1, Bidders must submit Road Lighting Calculations (according to CIE 140) based on above with their bids. Illuminance results must include Minimum and Average Lux.

8.7 ITEM 6: LUMINAIRES FOR GENERAL PURPOSE FLOODLIGHTING

All luminaires must be of the asymmetrical wide beam type and must be suitable for 240 Volt, 400 Watt, high pressure (SONT) tubular lamps. The luminaires must be made of cast aluminium and must be suitable for wall and cross arm frame mounting. The control gear must be an integral part of the luminaire but must be housed in a removable cast aluminium box for possible separate mounting. Lamp charging must be done by means of a removable lamp holder without removing the glass cover.

Table 4: Luminaires for general purpose floodlighting

	ITEM 6A	**ITEM 6B**
HIGH PRESSURE SODIUM (SON/T) FLOODLIGHT	**400W**	**1000W**
Luminaires		
Manufacturer		
Country of origin		
% Local content		
Model/Type Number		
SANS Mark (Yes / No)		
Material of luminaire casting		
Finish of luminaire casting		
Outer dimensions of luminaires L x W x H		
Material of locking catches, clips or screws		
Material of gasket		
Material of control gear box		
Type of insulation and size of internal wiring		
Manufacturer and type of lamp holder		
Weight of luminaire		
Maximum projected area		
Total current consumed by luminaire		
Wind resistance area		
Method of lamp replacement		

8.7.1 ITEM 6 (CONTINUE)

	ITEM 6A	**ITEM 6B**
HIGH PRESSURE SODIUM (SON/T) FLOODLIGHT	**400 W**	**1000 W**
Choke		
Manufacturer		
Country of origin		
% Local content		
Model/Type Number		
Outer dimensions L x W x H		
Weight		
Open or sealed type		
Insulation type and impregnating material		
Total designed current losses		
Temperature rise at designed current		
Line starting current		
Line running current		
Capacitor		
Manufacturer		
Country of origin		
% Local content		
Model/Type Number		
Capacity and tolerance		
Working voltage		
Maximum temperature allowed		

8.7.2 ITEM 6 (CONTINUE)

	ITEM 6A	**ITEM 6B**	
HIGH PRESSURE SODIUM (SONT) FLOODLIGHT	**400 W**	**1000 W**	
General			
Current consumed with capacitor connected during:			
(a) Starting			Amps
(b) Running			Amps
Full load current consumed by the lamp during:			Amps
(a) Starting			Amps
(b) Running			Amps
Current variation of lamp with 10 % Supply voltage variation.			Amps
Lowest average power factor of luminaries			
LAMP offered with luminaries. Manufacturer and stock code			
Normal lifespan			Burning hours
Initial light output ability			Lumen
Efficiency			Lumen/Watt

8.8 ITEM 7: 200 WATT LED LUMINAIRES FOR GENERAL PURPOSE FLOODLIGHTING

The luminaire must consist of 3 compartments viz: LED Engine, Power supply and Spigot compartments. This allows for the easy installation of the LED engine by means of a hinging action onto a spigot base casting, with incorporated leveling device. It must be secured by stainless steel latches and an access screw. The LED engine must consist of an LED light source and the power supply unit must easily be replaceable when faulty. Both compartments must be rated at IP 66 according to **SANS 60598-2-5**

The luminaire must be fitted with electronic temperature monitoring which prevents overheating of LEDs and power supply, positioned directly next to the LEDs (ThermiX®). The power supply must automatically disengage when the luminaire is opened. The luminaire housing must be manufactured of marine grade aluminium **(EN 1706 AC-44300).** The Protector must be manufactured from High-impact clear glass IK 07 according to **SANS 62262.**
The bottom-entry mounting stirrup must be manufactured from 6mm x 60mm hot-dipped galvanized steel. The luminaire must be fitted with **10kV/20kA** Surge protection. The luminaire must be able to operate at a nominal line voltage of 230V and a mains tolerance voltage between 198-264V - 50Hz.

The Lifetime residual flux @ Tq 25˚C In accordance with LM-80 – TM-21 must be 90% at 60 000 hours and 70% at 100 000 hours. The light colour must be Neutral white (4000K, CRI ≥70). The luminaire must have an Aerodynamic resistance (CxS) of 0.045m².
The luminaire will be mounted on a **30m mast.**

NB: To comply with the requirements, Bidders must submit a Triangular Spacing design between masts with a minimum lux level of 1lx inside the triangle.

8.9 ITEM 8: 412 WATT LED LUMINAIRES FOR GENERAL PURPOSE FLOODLIGHTING

The luminaire must consist of 3 compartments viz: LED Engine, Power supply and Spigot compartments. This allows for the easy installation of the LED engine by means of a hinging action onto a spigot base casting, with incorporated leveling device. It must be secured by stainless steel latches and an access screw. The LED engine must consist of an LED light source and the power supply unit must easily be replaceable when faulty. Both compartments must be rated at IP 66 according to **SANS 60598-2-5**

The luminaire must be fitted with electronic temperature monitoring which prevents overheating of LEDs and power supply, positioned directly next to the LEDs (ThermiX®). The power supply must automatically disengage when the luminaire is opened. The luminaire housing must be manufactured of marine grade aluminium **(EN 1706 AC-44300).** The Protector must be manufactured from High-impact clear glass IK 07 according to **SANS 62262.**
The bottom-entry mounting stirrup must be manufactured from 6mm x 60mm hot-dipped galvanized steel. The luminaire must be fitted with **10kV/20kA** Surge protection. The luminaire must be able to operate at a nominal line voltage of 230V and a mains tolerance voltage between 198-264V - 50Hz.

The Lifetime residual flux @ Tq 25˚C In accordance with LM-80 – TM-21 must be 90% at 60 000 hours and 70% at 100 000 hours. The light colour must be Neutral white (4000K, CRI ≥70). The luminaire must have an Aerodynamic resistance (CxS) of 0.045m².
The luminaire will be mounted on a **40m mast.**

NB: To comply with the requirements, Bidders must submit a Triangular Spacing design between masts with a minimum lux level of 1lx inside the triangle.

8.10 ITEM 9: LAMPS AND CONTROL GEAR FOR STREETLIGHTING - LUMINAIRES

Supply voltage: 231 Volt, Frequency 50 Hz. Lamps must be screw-in type suitable for horizontal and vertical burning positions. Bidders must state the expected lifespan and output ability of lamps. Lamps that do not attain the stated lifespan and output ability must be replaced free of charge. **All lamps to be boxes individually**.

Table 5: Lamps and control gear for streetlighting

ITEM NO	LAMPS	NORMAL LIFESPAN IN BURNING HOURS	INITIAL LIGHT OUTPUT ABILITY (LUMEN)	EFFICIENY IN LUMEN/ WATT	MANUFACTURER	SANS OR OTHER	% LOCAL CONTENT
9A	70 Watt High Pressure Sodium with internal ignitor. (Elliptical)						
9B	70 Watt High Pressure Sodium for use with external ignitor. (Tubular)						
9C	100 Watt High Pressure Sodium High Pressure Sodium for use with external igniter. NAV T (SON) Super (Tubular)						
9D	250 Watt High pressure sodium SON (Elliptical)						
9E	250 Watt High pressure sodium SON-T (Tubular)						
9F	400 Watt High pressure sodium SON (Elliptical)						
9G	400 Watt High pressure sodium SON-T (Tubular)						
9H	1 000 Watt High pressure sodium SON-T (Tubular)						
9I	Choke for 70 W Sodium SON lamp						

ITEM NO	LAMPS	NORMAL LIFESPAN IN BURNING HOURS	INITIAL LIGHT OUTPUT ABILITY (LUMEN)	EFFICIENY IN LUMEN/ WATT	MANUFACTURER	SANS OR OTHER	% LOCAL CONTENT
9J	Choke for 100 W Sodium SON lamp						
9K	Choke for 250 W Sodium SON Lamp						
9L	Choke for 400 W Sodium SON Lamp						
9M	Choke for 1 000 W Sodium SON Lamp						
9N	Ignitor for 100 W Sodium SON Lamp						
9O	Ignitor for 400 W Sodium SON Lamp						
9P	Ignitor for 1 000 W Sodium SON Lamp						
9Q	Capacitor 100 µF AC						
9R	Capacitor 45 µF AC						
9S	Capacitor 25 µF AC						
9T	Capacitor 20 µF AC						
9U	Capacitor 10 µF AC						

8.11 ITEM 10: TUBULAR FLUORESCENT, LED LAMPS, AND ACCESSORIES

Supply voltage – 231 Volt AC, Frequency 50 Hz. Colour of lamp to be cool-white. Bidders must state the expected lifespan and output ability of lamps. Compact fluorescent lamps offered to have a guaranteed minimum lamp life of 6000 burning hours. Lamps that do not attain the stated lifespan and output ability must be replaced free of charge. Lamps must comply with SANS 1041 - 1993 and chokes SANS 890 - 1977. **LAMPS TO BE BOXED INDIVIDUALLY**.

Table 6: Tubular fluorescent, led lamps, and accessories.

ITEM NO	LAMPS	NORMAL LIFESPAN IN BURNING HOURS	INITIAL LIGHT OUTPUT ABILITY (LUMEN)	EFFICIENY IN LUMEN/ WATT	MANUFACTURER	SANS OR OTHER	% LOCAL CONTENT
10A	18 Watt 600 mm x 26mm tube						
10B	20 Watt 600 mm tube						
10C	30 Watt 900 mm tube						
10D	36 Watt 1 200 mm x 26 mm tube						
10E	40 Watt 1 200 mm tube						
10F	58 Watt 1 500 mm x 26 mm tube						
10G	65 Watt 1 500 mm tube						
10H	55 Watt "Slimline"1800 mm tube						
10J	11W - 231-240V/ 50HZ - Compact fluorescent with control gear - ES						

ITEM NO	LAMPS	NORMAL LIFESPAN IN BURNING HOURS	INITIAL LIGHT OUTPUT ABILITY (LUMEN)	EFFICIENY IN LUMEN/ WATT	MANUFACTURER	SANS OR OTHER	% LOCAL CONTENT
10K	23W - 231-240V/ 50HZ - Compact fluorescent with control gear - BC						
10L	11W - 231-240V/ 50HZ - Compact fluorescent with control gear - ES						
10M	23W - 231-240V/ 50HZ - Compact fluorescent with control gear - BC						
10N	9W - 231-240V/ 50HZ - Compact fluorescent lamp without control gear to fit CCG base						
10O	8 Watt 600mm LED tube						
10P	14 Watt 900mm LED tube						
10Q	18 Watt 1200mm LED tube						
10R	24 Watt 1500mm LED tube						

8.11.1 ITEM 10 (CONTINUE)

ITEM NO.	ACCESSORIES	WEIGHT	OUTER DI- MENSIONS L x W x H IN mm	CATALOGUE NUMBER	MANUFACTURER	SANS OR OTHER	% LOCAL CONTENT
10S	1 Lamp 20 Watt Choke switch start type.						
10T	1 Lamp 30 Watt Choke switch start type.						
10U	1 Lamp 40 Watt Choke switch start type.						
10V	1 Lamp 65 Watt Choke switch start type.						
10W	1 Lamp Slimline Ballast for 1 800 & 2 400-mm Lamps.						
10X	2 Lamp Slimline Ballast for 1 800 & 2 400 mm Lamps.						
10Y	18 - 65 Watt 240 Volt Starters **(ST 111 & ST 151)**						

8.12 ITEM 11: INCANDESCENT AND LED LAMPS

The lamps must comply with SANS 56/1990 as amended and **boxes individually.**
Preferred Working Voltage 250 V AC

Table 7: Incandescent and LED lamps

ITEM NO.	DESCRIPTION	BRAND NAME OFFERED	VOLTAGE RATING	MANUFACTURER	SANS OR OTHER	% LOCAL CONTENT
11 A	15 Watt B C Pigmy, clear					
11 B	15 Watt S E S Pigmy, clear					
11 C	6 Watt LED B C					
11 D	9 Watt LED B C					
11 E	14 Watt LED B C					
11 F	23 Watt LED B C					
11 H	6 Watt LED E S					
11 I	9 Watt LED E S					
11 J	14 Watt LED E S					
11 K	23 Watt LED E S					
11 L	29 Watt LED E S					
11 M	45 Watt LED G E S					

8.13 ITEM 12: MOUNTING BRACKETS

These brackets should be hot dipped galvanized and adjustable to fit a wooden pole with top diameter between 120 -200mm. An earth stud M10 x 30mm should be welded to the bracket prior to galvanizing. All to have a 76 mm DIA spigot at a 15°angle.

Bracket as per drawing TS - 7 - 1

Table 10: Mounting brackets

ITEM NO.	DESCRIPTION	MANUFACTURER	SANS OR OTHER	% LOCAL CONTENT
12A	Type 1 - 500mm			
12B	Type 2 - 1000mm			
12C	Type 3 - 1200mm			
12D	Type 4 - 1500mm			
12E	Type 4 - 2500mm			

8.14 ITEM 13: STREETLIGHT POLE COVERS

8.14.1 Streetlight Pole Cover

The cover is used to serve as a cover for the street light pole aperture/window. It is primarily used to provide authorized access to technicians to perform work tasks on electrical items in the pole but also to prevent non-authorized personnel access to the electrical items in the pole.
The covers required should be manufactured by utilizing non-metal material/s, to replace the old metal covers. The non-metal material/s should have no recycling value, be more cost effective and provide higher performance standards than the existing metal covers.

Figure 1: Views of cover

8.14.2 Material

The cover shall be manufactured from a non-metal material from Glass fibre reinforced Nylon PA6. Nylon PA 6 is an environmentally friendly material. The Nylon PA 6 material shall be anti-UV, anti-ageing, and be both corrosion resistant and shock resistant. The Impact strength of the Nylon PA6 cover shall be stronger than that of the similar sixed metal cover.

8.14.3 Appearance requirement

The cover required shall have sealing performance, to meet outdoor protection requirements.
The surface of the cover required should be smooth and the colour should be similar to that of the metal cover.

8.14.4 Special fixed structure

The special fixed structure of the screw ensures that the cover cannot be move after being installed. The separated fixed structure (upside and downside) provides for easy installation.

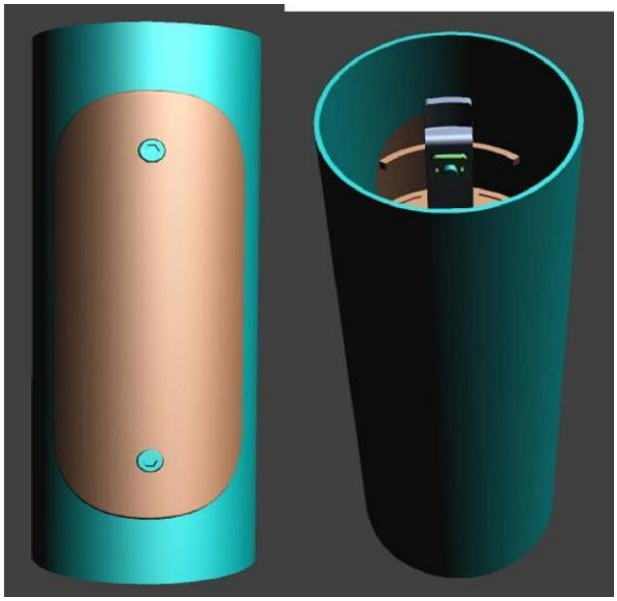

Figure2: Outside and Inside structure

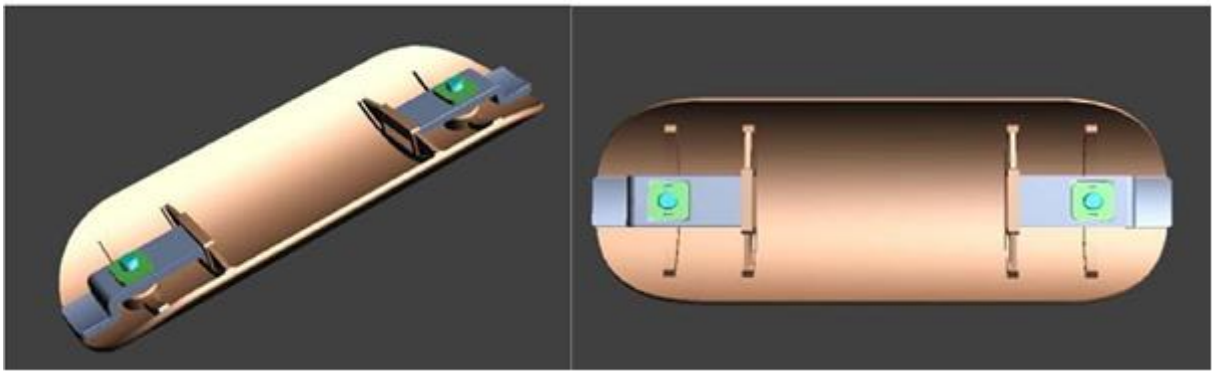

Figure3: Cover structure

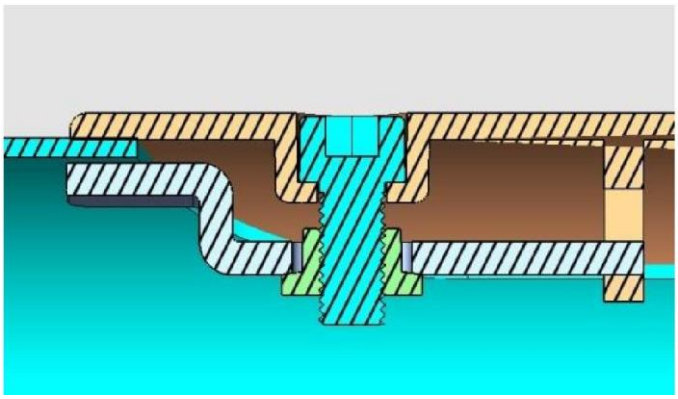

Figure3: Fixed principle

8.14.5 Performance requirement

- **(i)** Material density: 1.39g/cm³
- **(ii)** Water absorption: < 0.06~1.2 % (23℃, 24h)
- **(iii)** Bending Modulus: > 7750 MPA (6.4mm)
- **(iv)** Bending strength: > 199 MPA (6.4mm)
- **(v)** Tensile strength: >159MPA
- **(vi)** Thermal distortion temperature: >210℃ (1.82 MPA)
- **(vii)** Flammability: HB
- **(viii)** Dielectric strength: >25kV/mm
- **(ix)** Impact strength: >12kJ/m² (3.2mm)

9 SPECIAL CONDITIONS OF CONTRACT

9.1.1 Please note that CENTLEC reserves the right to appoint more than one bidder where applicable.

9.1.2 The successful bidder will be expected to enter into a Service Level Agreement with CENTLEC.

10 EVALUATION CRITERIA

All proposals submitted will be evaluated in accordance with the criteria set out in the policy of Supply Chain Management of the Entity.

The most suitable candidate will then be selected. Please take note that CENTLEC is not bound to select any of the bidders' submitting proposals.

Furthermore, technical competence is the principal selection criteria. CENTLEC will evaluate the technical criteria first and will only look at the price and specified goals if it is satisfied with the technical evaluation. As a result of this, CENTLEC does not bind itself in any way to select the bidder offering the lowest price.

10.1 The relative technical weighting of the criteria is as follows:

Table 11 – Evaluation criteria

No.	Criteria	Description	Points
1.	Track record and experience	Submit reference letters on company's letterhead confirming previous services related to the scope of work. Letters must be signed by a duly authorized person (Executive Manager or HOD). i) Two (2) reference letters = **10 Points** ii) Three (3) or more reference letters = **20 Points**	20
2	Technical specified requirements	i) Submit drawings as required in point no.5 (Drawings and diagrams) = **20 points** ii) Complete all detailed schedules as required in point no.8 (Technical Specification schedules) = **20 points**	40
3.	Quality and compliance to SANS requirements as specified in the technical specifications	Submit standards certificates for all items that needs to comply with such standards. i)Certificates submitted for at least: ISO 9001 certificate as obtained from the manufacturer = **10 points** ii)Relevant SANS Certificates as per technical specification as obtained from manufacturers = **10 points**	20
4.	Local Mangaung Metropolitan Municipality operational capability and economic investment	Does the bidder have an existing and established local office (CENTLEC distribution area) = **20 points** **Bidder must submit pictures of the premises. The Bid Evaluation Committee has the right to verify the existence of premises before the allocation of points.** If not (Within South Africa) = **10 points**	20
	TOTAL		**100**

A bidder who gets a minimum of 80 points and above on will qualify to the next stage. Individual tenders would have to be evaluated according to the preferential point system.

The bidder must score minimum points as follows:

Item 1 - 10 points

Item 2 - 40 points

Item 3 - 20 points

Item 4 – 10 points

10.2 PRICE AND REFERENTIAL POINTS SCORING – STAGE 2 (Price and Specified Goals)

All Bidders that have passed the technical evaluation threshold of 80 points would also be scored based the 90/10 principle where 90 Points is for the Price and 10 points for specified goals as per the detail given below.

10.3 Points awarded for price.

A maximum of 90 Points is allocated for price on the following basis:

Where $Ps = 90[1 - \frac{Pt - P\ min}{P\ min}]$

Ps = Points Scored for comparative price of bid under consideration

Pt = Comparative Price of bid under consideration

P min = Comparative Price of lowest acceptable bid

10.4 Points awarded for Specified Goals Requirement

In terms of Regulation 3.(1) An organ of state must, in the tender documents, stipulate— (a) the applicable preference point system as envisaged in regulations 4, 5, 6 or 7; (b) the specific goal in the invitation to submit the tender for which a point may be awarded, and the number of points that will be awarded to each goal, and proof of the claim for such goals in accordance with the table below;

Table 12: Specified Goals for Preferential Point System

Specified Goals	**Points Allocation**
50% Black owned	6
50% Women owned	2
50% Youth owned <35 years	2
Total Points	**10**

11 PRICE SCHEDULE

Bidders not completing the price basis schedule will be penalized.

BID PRICES MUST EXCLUDE VAT BUT INCLUDE DELIVERY TO BLOEMFONTEIN. Preference will be given to luminaries bearing the SANS Mark of approval.

Table 13: High Pressure Sodium (SON) luminaires

ITEM NO	DESCRIPTION	MAKE	UNIT PRICE (R) *VAT EXCLUSIVE*
1	**70W High Pressure Sodium (SON)**		
1.1	70 Watt High pressure sodium luminaire		R
1.2	Replacement Diffuser/shade only for 70 Watt HPS		R
1.3	Replacement Igniter only for 70 Watt HPS		R
1.4	Replacement Choke only for 70 Watt HPS		R
1.5	Replacement 12uf Capacitor only for 70Watt HPS		R
1.6	Replacement Lamp only for 70 Watt HPS		R
TOTAL FOR ITEM 1.1 – 1.6			**R**
2	**250W High Pressure Sodium (SON)**		
2.1	250 Watt High pressure sodium luminaire		R
2.2	Replacement Diffuser/shade only for 250 Watt HPS		R
2.3	Replacement Igniter only for 250 Watt HPS		R
2.4	Replacement Choke only for 250 Watt HPS		R
2.5	Replacement 20uf Capacitor only for 250Watt HPS		R
2.6	Replacement Lamp only for 250 Watt HPS		R
TOTAL FOR ITEM 2.1 – 2.6			**R**

ITEM NO	DESCRIPTION	MAKE	UNIT PRICE (R) *VAT EXCLUSIVE*
3A	**70W High Pressure Sodium (SON) post top lantern type**		
3A.1	70 Watt High pressure sodium post top lantern type luminaire		R
3A.2	Replacement Diffuser/shade only for 70 Watt HPS		R
3A.3	Replacement Igniter only for 70 Watt HPS		R
3A.4	Replacement Choke only for 70 Watt HPS		R
3A.5	Replacement 12uf Capacitor only for 70Watt HPS		R
3A.6	Replacement Lamp only for 70 Watt HPS		R
TOTAL FOR ITEM 3A.1 – 3A.6			**R**
3B	**100W High Pressure Sodium (SON) post top lantern type**		
3B.1	100 Watt High pressure sodium (SON) post top lantern type luminaire		R
3B.2	Replacement Diffuser/shade only for 70 Watt HPS		R
3B.3	Replacement Igniter only for 70 Watt HPS		R
3B.4	Replacement Choke only for 70 Watt HPS		R
3B.5	Replacement 12uf Capacitor only for 70Watt HPS		R
3B.6	Replacement Lamp only for 70 Watt HPS		R
TOTAL FOR ITEM 3B.1 – 3B.6			**R**

ITEM NO	DESCRIPTION	MAKE	UNIT PRICE (R) *VAT EXCLUSIVE*
4	**36 Watt LED Luminaire.**		
4.1	36 Watt LED Luminaire. Complete as specified		R
4.2	Replacement Glass only for 36 Watt LED		R
4.3	Constant Current Driver for 36 Watt LED		R
TOTAL FOR ITEM 4.1 – 4.3			**R**
5	**88 Watt LED Luminaire.**		
5.1	88 Watt LED Luminaire. Complete as specified		R
5.2	Replacement Glass only for 88 Watt LED		R
5.3	Constant Current Driver for 88 Watt LED		R
TOTAL FOR ITEM 5.1 – 5.3			**R**
6A	**400W High Pressure Sodium (SON/T) floodlight**		
6A.1	400 Watt High pressure sodium luminaire		R
6A.2	Replacement Glass only for 400 Watt HPS		R
6A.3	Replacement Igniter only for 400 Watt HPS		R
6A.4	Replacement Choke only for 400 Watt HPS		R
6A.5	Replacement 45uf Capacitor only for 400Watt HPS		R
6A.6	Replacement Lamp only for 400 Watt HPS		R
TOTAL FOR ITEM 6A.1 – 6A.6			**R**

ITEM NO	DESCRIPTION	MAKE	UNIT PRICE (R) *VAT EXCLUSIVE*
6B	**1000W High Pressure Sodium (SON/T) floodlight**		
6B.1	1000 Watt High pressure sodium luminaire		R
6B.2	Replacement Glass only for 1000 Watt HPS		R
6B.3	Replacement Igniter only for 1000 Watt HPS		R
6B.4	Replacement Choke only for 1000 Watt HPS		R
6B.5	Replacement 45uf Capacitor only for 1000Watt HPS		R
6B.6	Replacement Lamp only for 1000 Watt HPS		R
TOTAL FOR ITEM 6B.1 – 6B.6			**R**
7	**200 Watt LED Floodlight**		
7.1	200 Watt LED Floodlight luminaire. Complete as specified		R
7.2	Replacement Glass only for 200 Watt Flood Light LED		R
7.3	Replacement 10kV/20kA Surge Arrestor		R
7.4	Constant Current Driver for 200 Watt Flood Light LED		R
TOTAL FOR ITEM 7.1 – 7.4			**R**
8	**412 Watt LED Floodlight**		
8.1	412 Watt LED Floodlight luminaire. Complete as specified		R
8.2	Replacement Glass only for 412 Watt Flood Light LED		R
8.3	Replacement 10kV/20kA Surge Arrestor		R
8.4	Constant Current Driver for 412 Watt Flood Light LED		R
TOTAL FOR ITEM 8.1 – 8.4			**R**

ITEM NO	DESCRIPTION	MAKE	UNIT PRICE (R) *VAT EXCLUSIVE*
9	**Lamps and control gear for streetlighting**		
9A	70 Watt High Pressure Sodium with internal ignitor. (Elliptical)		R
9B	70 Watt High Pressure Sodium for use with external ignitor. (Tubular)		R
9C	100 Watt High Pressure Sodium High Pressure Sodium for use with external igniter. NAV T (SON) Super (Tubular)		R
9D	250 Watt High pressure sodium SON (Elliptical)		R
9E	250 Watt High pressure sodium SON-T (Tubular)		R
9F	400 Watt High pressure sodium SON (Elliptical)		R
9G	400 Watt High pressure sodium SON-T (Tubular)		R
9H	1 000 Watt High pressure sodium SON-T (Tubular)		R
9I	Choke for 70 W Sodium SON lamp		R
9J	Choke for 100 W Sodium SON lamp		R
9K	Choke for 250 W Sodium SON Lamp		R
9L	Choke for 400 W Sodium SON Lamp		R
9M	Choke for 1 000 W Sodium SON Lamp		R
9N	Ignitor for 100 W Sodium SON Lamp		R
9O	Ignitor for 400 W Sodium SON Lamp		R
9P	Ignitor for 1 000 W Sodium SON Lamp		R

ITEM NO	DESCRIPTION	MAKE	UNIT PRICE (R) *VAT EXCLUSIVE*
9Q	Capacitor 100 µF AC		R
9R	Capacitor 45 µF AC		R
9S	Capacitor 25 µF AC		R
9T	Capacitor 20 µF AC		R
9U	Capacitor 10 µF AC		R
TOTAL FOR ITEM 9A – 9U			**R**
10	**Tubular fluorescent, led lamps, and accessories**		
10A	18 Watt 600 mm x 26mm tube		R
10B	20 Watt 600 mm tube		R
10C	30 Watt 900 mm tube		R
10D	36 Watt 1 200 mm x 26 mm tube		R
10E	40 Watt 1 200 mm tube		R
10F	58 Watt 1 500 mm x 26 mm tube		R
10G	65 Watt 1 500 mm tube		R
10H	55 Watt "Slimline"1800 mm tube		R
10J	11W - 231-240V/ 50HZ - Compact fluorescent with control gear - ES		R
10K	23W - 231-240V/ 50HZ - Compact fluorescent with control gear - BC		R
10L	11W - 231-240V/ 50HZ - Compact fluorescent with control gear - ES		R
10M	23W - 231-240V/ 50HZ - Compact fluorescent with control gear - BC		R

ITEM NO	DESCRIPTION	MAKE	UNIT PRICE (R) *VAT* EXCLUSIVE
10N	9W - 231-240V/ 50HZ - Compact fluorescent lamp without control gear to fit CCG base		R
10O	8 Watt 600mm LED tube		R
10P	14 Watt 900mm LED tube		R
10Q	18 Watt 1200mm LED tube		R
10R	24 Watt 1500mm LED tube		R
TOTAL FOR ITEM 10A – 10R			**R**
11	**Incandescent and LED lamps**		
11 A	15 Watt B C Pigmy, clear		R
11 B	15 Watt S E S Pigmy, clear		R
11 C	6 Watt LED B C		R
11 D	9 Watt LED B C		R
11 E	14 Watt LED B C		R
11 F	23 Watt LED B C		R
11 H	6 Watt LED E S		R
11 I	9 Watt LED E S		R
11 J	14 Watt LED E S		R
11 K	23 Watt LED E S		R
11 L	29 Watt LED E S		R
11 M	45 Watt LED G E S		R
TOTAL FOR ITEM 11A – 11M			**R**

ITEM NO	DESCRIPTION	MAKE	UNIT PRICE (R) *VAT EXCLUSIVE*
12	**Mounting brackets**		
12A	Type 1 - 500mm		R
12B	Type 2 - 1000mm		R
12C	Type 3 - 1200mm		R
12D	Type 4 - 1500mm		R
12E	Type 4 - 2500mm		R
TOTAL FOR ITEM 12A – 12E			**R**
13	**Streetlight Pole Cover**		
13 A	Non-metal pole covers		R
TOTAL FOR ITEM 13A – 13A			**R**

12 CONTACT INFORMATION

12.1.1 For any further technical information regarding the document contents please contact Mr Andre Oelofse e-mail: Andre.Oelofse@centlec.co.za such queries must be done in writing, the email address provided serves this purpose. The answer to one question will be sent to all the other prospective bidders that have bought the bid documents.

12.1.2 For Supply Chain Related questions, Please contact Me. Palesa Makhele at palesa.makhele@centlec.co.za