

Terms of reference (ToR) for the procurement of services below the EU threshold

CONFIDENTIAL

Installation of energy efficient LED luminaires and accessories to replace existing luminaires and the capacitation on the installation of the luminaires	Project number/ cost centre: 20.2108.7-003.00
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0. List of abbreviations

Where definitions and acronyms are not listed below, the definitions and acronyms given in SANS/IEC 60598-1, SANS/IEC 60598-2-5, and SANS 475, SANS 10098-1, SANS 10389-1, SANS 10142-1 or equivalent shall apply unless otherwise specifically defined within this document. The document shall take preference.

In addition, the following acronyms and definitions shall apply:

Acronyms and Definitions	
Area Lighting	The lighting required to illuminate large areas through the use of high mast flood lighting installations or similar installations. Area lighting includes the lighting of developed areas, such as residential or industrial areas, stadiums, parks, recreational facilities, parking areas and other public areas.
CIDB	Construction Industry Development Board
COID	Compensation for Occupational Injuries and Diseases
Employer	The Employer is defined as: Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) Hatfield Gardens Block C, 2nd Floor 333 Grosvenor Street Hatfield 0083, Pretoria South Africa
Engineer	The Engineer is defined as the Engineering service provider appointed by the Employer, who is instructed by the Employer to assist the Employer with aspects regarding the project. Details of the Engineer shall be provided upon appointment.
HID Lamp	High Intensity Discharge Lamp
HPS Lamp	High Pressure Sodium Lamp
LED	Light Emitting Diode
Luminous efficacy	Ratio of luminous flux of a light source (in lumens) to the total electric power consumed (in watts).
Lumen (lm)	An SI unit of luminous flux which is emitted in unit solid angle (steradian) by a uniform point source having a luminous intensity of 1 candela. It indicates the amount of light the light source provides.

Acronyms and Definitions	
Luminaire	An apparatus which distributes, filters or transforms the light transmitted from one or more light sources and which includes, except the light source themselves, all the parts necessary for fixing and protecting the light source and, where necessary, circuit auxiliaries together with the means for connecting them to the electric supply.
MH	Metal Halide Lamp
Street Lighting	Refers to the lighting of public thoroughfares including motorways, arterial routes, residential roads, town and city centres and pedestrian-orientated areas.
Uniformity ratio E_{min}/E_{av}	This is the variation of illuminance from the lowest value to the average value measured at a specified number of points spread evenly over an illuminated area on a given surface and expressed as a ratio.
U_o	Overall luminance uniformity, the ratio of the minimum to the average luminance on the road surface of the carriageway within the calculation area.
W	Watts

1. Context

Dr Beyers Naude Municipality, iLembe District Municipality, and Ekurhuleni Metropolitan Municipality, South Africa, are three of the 5 municipalities participating in this Energy Efficient Street Lighting Retrofit Project (EESTLRP) and have been considered for Phase 2 of the project. GIZ and the above-mentioned municipalities conducted a quantitative and partial technical audit and structural analysis of 6 high masts and 430 streetlight poles. These **6** high masts and **430** streetlight poles have been identified for replacement with energy efficient LED luminaires. The identified **6** high masts and **430** streetlight poles considered for luminaire replacement as follows:

Dr Beyers Naude Municipality

Approximately **180** streetlight poles with a height of 10m, and 2 high masts are installed within Dr Beyers Naude Local Municipality (Graaff Reinet, Jansenville, Aberdeen, Berg en Dal, and Adendorp)

Type of Streetlight /Highmast Poles	No. of Streetlight/Highmast Poles	No. of Luminaires
10m Pole	180	180 (1 per pole)
30 m Pole	2	18 (9 per pole)
TOTAL:	182	198

Additionally, each streetlight pole is currently fitted with one 150W HPS/MV street lighting luminaires, amounting to a total of **180** existing street lighting luminaires to be replaced whilst each highmast pole is currently fitted with 9 x 400W MV flood lighting luminaires, amounting to a total of **18** existing flood lighting luminaires to be replaced.

Ekurhuleni Metropolitan Municipality

Approximately 250 streetlight poles with a height of 9,25m are installed Ekurhuleni Metropolitan Municipality (Benoni CBD)

Type of Streetlight Pole	No. of Streetlight Pole	No. of Luminaires
Tom Jones Street		
9.25m Pole	91	91 (1 per pole)
Voortrekker		
9.25m Pole	73	73 (1 per pole)
Princes		
9.25m Pole	87 (-1)	86 (1 per pole)
TOTAL:	250	250

Each streetlight pole is currently fitted with one 400W HPS/MV street lighting luminaires, amounting to a total of **250** existing street lighting luminaires to be replaced.

iLembe District Municipality

The Mandeni Local Municipality has a soccer field with 4 high masts with a height of 40m installed.

Type of High Mast	No. of High Masts	No. of Luminaires
40m High Mast	4	32 (8 per mast)
TOTAL:	4	32

Each high mast is currently fitted with 8 x 2000W MV, flood lighting luminaires, amounting to a total of 32 existing luminaires to be replaced. Information regarding the high masts and or streetlight poles selected for luminaire replacement are detailed in the following annexures:
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Consequently, a total of **50** energy efficient LED flood lighting luminaires are required to replace the 2000W MV and 400W HPS existing flood lighting luminaires on the identified masts. Additionally, a total of **430** energy efficient LED street lighting luminaires are required to replace the 400W & 150W HPS/MV existing street lighting luminaires on the identified streetlight poles. The supply and delivery at premises of these energy efficient LED luminaires are currently procured by GIZ through a separate bidding process.

Purpose

The purpose of this bid is to appoint a suitably qualified Service Provider to replace inefficient high intensity discharge (HID) high mast and / or streetlight luminaires with energy efficient LED luminaires at Dr Beyers Naude Municipality, iLembe District Municipality and Ekurhuleni Metropolitan Municipality (including offloading and safe keeping). Services shall include the provision of capacity building to skilled and unskilled locals.

This contract is for the replacement and installation of luminaires only and does not include the supply and delivery at premises of the energy efficient LED luminaires, but does include collection, transportation, offloading, and safe keeping of the luminaires from the storage site to the installation site.

Objective

Through the support and participation from the local communities, the objective of the bid is to illuminate the selected areas of Dr Beyers Naude Municipality, Ekurhuleni Metropolitan Municipality, and iLembe District Municipality with newly installed energy efficient LED luminaires, thereby contributing to a reduced energy demand. The previously installed HID luminaires and lamps are to be removed from site and sustainably disposed of.

2. Tasks to be performed by the contractor

The interested Service Provider is hereby invited to submit a binding quote in relation to the collection, safe-keeping and installation of tele management ready, energy efficient high mast flood lighting and / or street lighting LED luminaires. The removal and disposal of the existing HID luminaires and provision of a skills transfer service shall be included in the quote.

The luminaire supplier will deliver the luminaires at a yet to be defined site within the boundaries of Dr Beyers Naude Municipality, Ekurhuleni Metropolitan Municipality and iLembe District Municipality. The municipalities will ensure safe keeping of the luminaires until installation. The transportation of the luminaires from the place of safe keeping to the place of installation form part of the scope of works. The works relating to the supply and delivery at premises of these luminaires on site are excluded from this scope of works.

The contractor is responsible for providing the following services:

- The work at Dr Beyers Naude Local Municipality involves the safe removal of 18 x 400W HPS luminaires in Graaff Reinet, and safe installation of 18 LED luminaires on 2 high masts with a height of 30m meters each. The LED luminaires shall be installed and connected on existing functional high mast structures. Additionally, the works include the safe removal of 180 x 150W HPS luminaires in Graaff Reinet, and safe installation of 180 LED luminaires on 180 street lighting poles with a height of 10m meters each. The LED luminaires shall be installed and connected on existing functional and street light structures. The work at Ekurhuleni Metropolitan Municipality involves the safe removal of 250 x 400W HPS/ luminaires MV in Benoni CBD, and safe installation of 250 LED luminaires on 250 street lighting poles with a height of 9.25m. The LED luminaires shall be installed and connected on existing functional streetlight structures. The work at iLembe District Municipality involves the safe removal of 32 x 2000W HPS/MV luminaires at Mandeni soccer fields, and safe installation of 32 LED luminaires on 4 high masts with a height of 40m meters each. The LED luminaires shall be installed and connected on existing functional high mast structures.
- Skills transfer services are to be provided for the recruited and employed local labour on this contract at Dr Beyers Naude Local Municipality, iLembe District Municipality and Ekurhuleni Metropolitan Municipality's operation and maintenance teams. The skills transfer services shall pertain to standard and safe electrical work practice and to luminaire handling, wiring, installation, operation, maintenance, sustainable disposal and repair.
- The handling, installation, reliability, performance, and safety of these luminaires have a direct impact on the energy consumption performance and on the standard of functional lighting to be provided.

The scope of works informs the following requirements that shall apply:

- (a) The Service Provider must adhere to all health and safety directives
- (b) The Service Provider must have a CIDB grading of at least **4 EP**.
- (c) The Service Provider shall be an Electrical Contractor that shall be registered with the Electrical Contracting Board of South Africa or South African Department of Labour, with the Workmen's Compensation Commissioner and the Unemployment Insurance Commissioner to qualify for this contract. The Service Provider shall always maintain registration and good standing with these bodies during the contract period.
- (d) The electrical installation may not commence before the registration certificate and proof that the electrician is registered as an installation electrician has been received and accepted by the Employer and Engineer.

(e) The duration of the works shall be: 8 weeks.

The scope of technical work shall include the following:

- (a) Delivery of the LED luminaires from the place of safe keeping to respective sites that are to be identified and surveyed by the Service Provider within the Dr Beyers Naude Local Municipality, Ekurhuleni Metropolitan Municipality, and iLembe District Municipality where identified high masts and/or streetlight poles are erected. Information regarding the high masts and or streetlight poles selected for luminaire replacement are detailed in Error! Reference source not found.
- (b) Undertake to comply with the Occupational Health and Safety Act, No. 85 of 1993, including working at heights and duration of works.
- (c) The Service Provider shall liaise, communicate and co-ordinate with the Local Municipality/Metropolitan Municipality and power supply authority regarding site access, power supply access and switching.
- (d) The Service Provider may be required to test and refurbish vandalised and damaged masts and / or streetlight poles. Specialised structural integrity testing may be required for these structures that are identified on site as being visibly unsafe (severe rusting, leaning, cracked welding, shape deformation of the mast). Where necessary, the Service Provider may be responsible for the replacement of damaged or missing
 - I. ring, trailing cable, distribution board, control gear, earthing, feeder cable and/or access door of the high masts
 - II. and / or missing outreach arm, pole wiring, control gear, earthing, feeder cable and/or access covers of the streetlight poles.
- (e) Where necessary the Service Provider should implement minor repairs such as minimal steelwork repairs and galvanising, replacement of screws, grouting, new terminations, cabling etc.
- (f) Where necessary the Service Provider shall rewire the mast or mast distribution board to ensure proper connection and operation after luminaire replacement.
- (g) Where necessary the Service Provider shall rewire the streetlight pole or pole control gear to ensure proper connection and operation after luminaire replacement.
- (h) Removal of HID luminaires on existing functional and refurbished masts and / or streetlight poles identified.
- (i) Installation of new LED luminaires on existing functional and refurbished masts and / or streetlight poles and connection with the existing electrical power supply.
- (j) Adjustment of aiming angles on new LED luminaires according to approved engineering lighting design drawings and simulation reports provided by the luminaire supplier.
- (k) Testing and commissioning of new luminaires by conducting power and lux measurements on site (if applicable) to confirm compliance of the installation works and luminaire supplied in accordance with the Client's terms of references and approved engineering lighting design drawings and simulation reports provided by the luminaire supplier.
- (l) Decommissioning and certified sustainable safe disposal of the existing HID luminaires and lamps removed from site, as governed by the National Environmental Management: Waste Act 59 of 2008 ('the Waste Act').
- (m) Electrical system testing and commissioning complete with certificate of compliance (CoC) to SANS 10142-1, for every high mast lighting and / or street lighting installation.
- (n) There shall be a 12-month defects liability, maintenance and notification period that shall commence from the date of practical completion.
- (o) Commissioning and handing over to GIZ and the municipality in a satisfactory operating condition within one week after completion of project.

Additionally, the following accompanying tasks shall be carried out:

- (p) Hiring of local youth of legal working age, as defined under Section 1 of the National Youth Development Agency Act, 2008 (Act No. 54 of 2008): It is the intention that this Contract should make maximum use of the local labour force that is presently unemployed. To this end the Service Provider shall limit non-local employees to key personnel only and to employ and train local labour on this Contract. Furthermore, a detailed job creation or skills transfer plan shall accompany the proposal. Appointment of all local labour must be done in close consultation between the Service Provider and community representative or community liaison officer (CLO) (see below).

At the time of bid, the Service Provider **shall submit at least a 1-page labour resource proposal schedule describing their relevant skills, experience, and roles in the proposed work activities**. The Service Provider's proposal shall indicate how many non-local and local labour they intend to employ in the various categories and for the anticipated work activities.

The Service Provider shall ensure that the local labour content is at least 30% for key personnel and at least 80% for non-key personnel and include females. The local labour content percentage is to be stipulated on the proposal. In Mandeni subcontracting of a local electrician will be deliberated on, the % will be determined scale of the project.

Throughout the Contract period, the local labour content stipulated in the bid submission for site personnel shall be maintained for all personnel assigned to the Contract (inclusive of key personnel). The numbers stated will be strictly controlled during the Contract period and any changes to personnel and local labour content shall be subject to the approval of the Employer.

The Service Provider shall be required to arrange their own documentation regarding an Employment contract for locally employed labour and shall include provisions for the Occupational Health and Safety Act (1993) and the Compensation for Occupational Injuries and Diseases Act. The minimum daily wage to be paid shall be in accordance with the Wage Bill for the Municipal geographical area as stated in the Government Gazette in terms of Wage Determination for the Electrical Engineering Industry. Employment contract liability shall not transfer to the Employer.

- (q) The Service Provider shall provide structured training of the workforce. The locally hired labour force (see item (p)) shall be trained by the Service Provider or a training institution. The Service Provider shall detail in a **2-page concept proposal statement**, what kind of training shall be conducted and which elements it may consist of. The Service Provider shall issue certificates of training to the trained labour force after the training. A provisional sum to cover the cost of training shall be included in the Pricing Schedule.

- (r) Appointment of Community Liaison Officer (CLO):

A Community Liaison Officer (CLO) shall be appointed by the Service Provider only on instruction of the Employer. As the installation sites may be situated in various local municipalities. The service provider is expected to appoint a CLO for Dr Beyers Naude Municipality only. In the event of an appointment of a CLO, the Service Provider shall accept the appointment as part of his management personnel. Duties of the CLO will be the following:

- I. The CLO will liaise with GIZ and the Municipality for the appointment of local labour workforce for the duration of the Contract, irrelevant of the work being executed in various wards.
- II. To be available on site daily during times at which installation work takes place and at other times as the need arises.
- III. To determine, in consultation with the Service Provider, the needs of the local labour for relevant technical training. The Service Provider will be responsible for the identification of suitable trainees and will attend one of each of the training sessions.
- IV. To communicate with the Service Provider and the Engineer of the Luminaire Supplier to determine the labour requirements with regards to the quantity of labourers and skill requirement, to identify possible labour disputes and to assist in their resolution.
- V. To attend all meetings in which the community and/or labour is present or is required to be represented. In particular, the CLO will be required to attend the first part of a kick-off meeting to report on local community labour involvement.
- VI. To report to and liaise with GIZ and the municipality.
- VII. To inform local labour of their conditions of employment and to inform local labourers as early as possible when their period of employment will be terminated.
- VIII. To ensure that all labourers, who are involved in activities where tasks have been set, are fully informed regarding the principle of task work.
- IX. To attend disciplinary proceedings to ensure that hearings are fair and reasonable.
- X. To receive and attend to any complaints lodged by GIZ or the Municipality and members of the community.
- XI. To keep a daily written record of interviews held with the CLO and community liaison, a copy of which is to be submitted to the Service Provider and Employer with an accompanying summary page.
- XII. All such other duties as agreed upon between all parties concerned.
- XIII. To ensure that no member of GIZ or the municipality or any member of the community put any pressure on the consultant and/or the Service Provider involved to make any financial or other contribution to individuals or the community without the knowledge of the Service Provider, GIZ and the municipality.

(s) Payment for the CLO:

Remuneration of the CLO will be negotiated between the Service Provider and the selected community representative rate per hour unless otherwise ordered by the Employer. A special item must be indicated in the Pricing Schedule on a provisional sum basis, relating to payment of the CLO.

(t) Community Liaison and Community Relations:

The installation sites may be situated in various wards or township areas of the municipality. The Service Provider shall ensure the least possible disruption of movement of the public during construction as well as ensuring the safety of the general public while keeping the site and employees safe. The Service Provider shall be responsible for liaison with GIZ, the Municipality, the Ward councillors, and the community in respect of construction activities, including activities next to private properties and entrances to properties. No separate payment will be made in this regard.

Certain milestones, as laid out in the works programme below, are to be achieved during the contract term:

Works Programme

- The Service Provider's programme shall include allowance for all possible delays due to adverse weather conditions, builder's holidays, public holidays and social disruptions.
- The time for completion of this contract, from date of appointment up to and inclusive of commissioning and "first delivery" shall be in accordance with the Employer's programme.
- **The Service Provider shall state his proposed time for the completion of the contract.**
- The defects liability period of 12 months commences at practical completion, which is the date of signing by the Employer of the certificate of practical completion.
- Final delivery will take place at the expiry of the defect's liability period.
- A preliminary programme shall be submitted with the bid, indicating aspects and periods covering procurement, installation and commissioning of all equipment.
- A detailed works programme shall be submitted within three (3) days after appointment is accepted by the Service Provider. This programme shall be finalised in liaison with the Engineer and Employer and shall be approved by the Employer. The detailed programme shall include the estimated cash flow for the project.
- It is the responsibility of the Service Provider to place his orders for and receive delivery of material and equipment timeously. The Service Provider will be held responsible for any delays whatsoever.
- The works programme shall indicate critical paths/dates, sequence of events, material ordering times, main and/or other (sub) Service Provider's work completion dates, etc. which are relevant to the installation.

Period of assignment: from April until September

3. Concept

In the tender, the tenderer is required to show *how* the objectives defined in Chapter 2 (Tasks to be performed) are to be achieved, if applicable under consideration of further method-related requirements (technical-methodological concept). In addition, the tenderer must describe the project management system for service provision.

Technical-methodological concept

3.1 Methodology Statement

The methodology statement shall correspond to the Scope of Work and Site Information. It shall outline the Service Provider's proposed approach/methodology. The method statement should articulate what value the Service Provider will add in achieving the stated objectives for the project.

The Service Provider shall provide:

- (a) The outline method statements for each major activity of the Works; and
- (b) The method of management and an outline inspection and test plan report illustrating how the Service Provider and Employer may hold and witness activities and stipulate any activities requiring Employer acceptance.

The outline method statements shall include but not be limited to the:

- (a) Explanation of the methodologies which are to be adopted, and demonstration of the compatibility of those methodologies with the Employer's design. The approach should identify key risks and how risks will be mitigated and managed. The approach shall also state what contribution can be made regarding value management;
- (b) Explanation of the proposed methodology for the acceptance, safe keeping and storage, installation and testing of the luminaires;
- (c) Employment of local labour and training thereof;
- (d) Specific attention should be paid to Works difficulties, including access, safety, etc.;
- (e) Approach on any major claims (or their avoidance) or disputes and their resolution.

The outline of the method statement shall highlight particularly the quality, health and safety and environmental requirements and risks for each major activity of the Works and how these will be managed and/ or mitigated. A risk assessment is to accompany the methodology statement. The Service Provider shall submit the methodology statement with their bid submission. The **response shall not be more than 5 pages (A4 size) in length**, excluding supporting documentation.

3.2 Capacity Building Plan

The Service Provider shall submit with this bid a capacity building plan that shall respond to the Scope of Work and Site Information. The plan shall outline the Service Provider's proposed capacity building to skilled and unskilled local labour employed through this Contract. The plan should articulate the degree of capacity building and skills transfer to be provided by the Service Provider.

The Service Provider shall provide:

- (a) The outline for each major activity of the capacity building services;
- (b) An indicative capacity building schedule; and
- (c) An indication of the type of qualifications or accreditation offered by the capacity building services.

The Service Provider shall submit the plan with their bid submission. The **response shall not be more than two (2) pages (A4 size) in length**, excluding supporting documentation.

3.3 Evaluation Process

The submitted proposals from eligible and professional companies with local presence in South Africa will be evaluated for further tender participation based on the following assessment steps and criteria under Section **Error! Reference source not found.**

The contract will be placed with the Service Provider that offers the most cost-effective products/services based on the following assessment steps and criteria under Sections 3.3.1 and 3.3.2.

3.3.1 Assessment step 1 (technical evaluation)

The offered services will undergo a technical evaluation using the criteria stipulated in **Table 1** below.

Table 1: Technical Evaluation Criteria

Criteria	Weighting	Maximum possible points to be received in the evaluation
Company experience in general	30%	300
Company experience in the respective location	20%	150
Team experience	15%	150
Methodology, Workplan	15%	150
Skills Transfer Approach / Training Concept	5%	100
Local Youth Employment	5%	100
Company Compliance	10%	100

3.3.2 Assessment step 2 (technical and financial assessment)

The overall bid shall be assessed using the final assessment criteria shown below:

- (a) Technical component of the bid: 70% [p1]
- (b) Price component of the bid: 30% [p2]

Where the technical component assessment is based on **Table 1** above.

The above assessment criteria are to be incorporated into the following formula, which will be used to assess all responsive bids and determine the most cost-effective bid option.

$$G_x = \frac{F_x}{F_{best}} * [p1] + \frac{P_{best}}{P_x} * [p2]$$

List of variables:

- G_x: Total number of points awarded to Service Provider x
- F_x: Points awarded to Service Provider x in technical assessment
- F_{best}: Points awarded to best Service Provider (based on technical merit)
- P_x: Price offered by Service Provider x
- P_{best}: Lowest price offered

This will produce an overall ranking, starting with the most cost-effective bid.

3.4 Other Provisions

3.4.1 Changes to Scope of Works

It is a condition of this contract that the Employer reserves the right to limit the total expenditure on the Works due to possible budget constraints. Should the bid sum exceed the budgeted amount, the scope of the works may be reduced at any time before or during the contract period to ensure that the final contract amount does not exceed the budgeted amount.

3.4.2 Site Information

The Service Provider shall be aware of all matters pertaining to the site and the Service Provider shall price accordingly to mitigate any potential risk that may arise during works on site.

3.4.3 Insurance

The Service Provider undertakes to ensure that they shall, without lapsing, comply with the following contractual insurance conditions for the duration of the contract.

- (a) The Service Provider warrants that all their employees and/or their sub-Service Provider's employees if any, are covered in terms of the COID Act, which shall remain in force whilst any such employees are present in the project area. A letter is required prior to commencing any work on site confirming that the Principal Service Provider or Sub-Service Provider is in good standing with the Compensation Fund or Licensed Insurer. The Licensed Insurer must be approved by the Employer.
- (b) The Service Provider warrants that they are in possession of the Public Liability Insurance Cover, which shall remain in force whilst they, their employees and /or their Sub-Service Providers are present in the project area, or which shall remain in force for that duration of their contractual relationship with the Employer, whichever period is the longest.

3.4.4 Penalties and Delays

Penalties shall be applied for each calendar day by which the Service Provider fails to meet the prescribed dates for the Works. The quantum of the penalty shall be as listed in the General Conditions of Contract.

Any delays to the Works programme that are attributable to the Employer, or to other approved mitigating circumstances, will not be subject to penalties. In the event of such instances arising, any extensions of time granted shall be limited to the equivalent number of calendar days attributable to each instance. The application of penalties (or waiving of penalties in certain instances) and the granting of extension of time shall be at the sole discretion of the Employer. Any extension of time granted shall not cause payments to exceed any limit placed on the Contract Price.

3.4.5 Compliance with the Occupational Health & Safety Act 85 Of 1993

The Service Provider undertakes to ensure that they and/or their sub-Service Providers if any and/or their respective employees will at all times comply with the following conditions:

- (a) All work performed by the Service Provider on the Employer's premises must be performed under the close supervision of the Service Provider's employees who are to be trained to understand the hazards associated with any work that the Mandatary performs in the project area.
- (b) The Service Provider shall be assigned the responsibility in terms of Section 16(1) of the OHS Act 85 of 1993, if the Mandatary assigns any duty in terms of Section 16(2), a copy of such written assignment shall immediately be forwarded to the Employer.
- (c) The Mandatary shall ensure that they familiarise themselves with the requirements of the OHS Act 85 of 1993 (and regulations promulgated thereunder) and that they and their employees and any of their sub-Service Providers comply with the requirements.
- (d) The Service Provider shall ensure that a baseline risk assessment is performed by a competent person before commencement of any work in the project area. A baseline risk assessment document will include identification of hazards and risk, analysis and evaluation of the risks and hazards identified, a documented plan and safe work procedures to mitigate, reduce or control the risks identified, and a monitoring and review plan of the risks and hazards.
- (e) The Service Provider shall appoint competent persons who shall be trained on any Occupational Health & Safety aspects pertaining to them or to the work that is to be performed.
- (f) The Service Provider shall ensure that discipline regarding Occupational Health & Safety shall be strictly enforced.
- (g) Any personal protective equipment required shall be issued by the Service Provider to their employees and shall be worn at all times.
- (h) Written safe working practices/procedures and precautionary measures shall be made available and enforced and all employees shall be made conversant with the contents of these practises.
- (i) No unsafe equipment/machinery and/or articles shall be used by the Service Provider or sub-Service Provider in the project area.
- (j) All incidents/accidents referred to in OHS Act and regulations promulgated thereunder shall be reported by the Service Provider to the Provincial Director: Department of Labour as well as to the Employer.
- (k) No use or access shall be made by the Service Provider and/or their employees and or their sub-Service Providers of any of the Employer's machinery / article / substance / plant / personal protective equipment without prior written approval.
- (l) The Service Provider shall ensure that work areas are safe for employees and the general public.
- (m) The Service Provider shall ensure that all work is done within the standard safe clearances of other services and hazards.
- (n) The Service Provider shall ensure that any work to be done in the proximity of Live Lines shall only be done after receiving approval from the Employer for the submitted method statement for the works to be done and accompanying certification of "Live Line" personnel and plant/equipment to be used to do the works safely.
- (o) The Service Provider shall ensure that Notification of Work is submitted to the appropriate nearest local office of the Department of Labour, especially regarding working at heights and live-line work that form part of the scope of work. The Service Provider shall submit to the Employer, a copy of the submission as approved by Department of Labour.

- (p) The Service Provider shall ensure that work for which the issuing of a permit (e.g., issued by Department of Labour) is required shall not be performed prior to the obtaining of a duly completed approved permit.
- (q) The Service Provider shall ensure that no alcohol or any other intoxicating substance shall be allowed in the project area. Anyone suspected to be under the influence of alcohol, or any other intoxicating substance shall not be allowed in the project area. Anyone found in the project area suspected to be under the influence of alcohol or any other intoxicating substance shall be escorted off the said project area immediately.
- (r) Full participation by the Service Provider shall be given to the employees of the Employer if and when they inquire into Occupational Health & Safety.

3.4.6 Workmanship and Quality Control

The onus to produce work that conforms in quality and accuracy of detail to the requirements of requisite standards, the terms of reference and of the drawings rests with the Service Provider. The Service Provider shall, at his own expense, institute a quality-control system and provide experienced foremen, electricians, materials technicians, other technicians, and technical staff, together with all transport, instruments, and equipment to ensure adequate supervision and positive control of the quality of the Works at all stages of the Contract.

The cost of the Service Provider's supervision and process control, including all testing carried out by the Service Provider, will be deemed to be included in the rates bid for the various items of work. The Service Provider's attention is drawn to the provisions of the various requisite standards regarding the minimum frequency of process control testing that is to be executed. The Service Provider shall, at his own discretion, increase this frequency where necessary to always ensure adequate control of the quality of the Works.

Upon completion and submission of each portion of the Works to the Employer, Engineer, or their designated representatives, and/or representative of him/herself for examination, the Service Provider shall furnish the Employer, Engineer, or their designated representatives, and/or designated representative of him/herself with the results of relevant tests, measurements, and levels, thereby indicating compliance with the requisite standards and terms of reference. The Employer, Engineer, or their designated representatives, and/or designated representative of him/herself will not examine or inspect any portion of work submitted for approval unless the request for inspection and its approval by the Service Provider and Luminaire Supplier is accompanied by relevant tests, measurements and levels indicating compliance.

3.4.7 Access to Properties

The Service Provider shall organise the work to cause the least possible inconvenience to the public and to the property owners adjacent to or affected by the work. If, as a result of restricted road reserve widths and the nature of the work, the construction of bypasses is not feasible, construction shall be carried out under traffic management and/or accommodation conditions to provide access to properties. Barricades, traffic signs and drums shall be provided by the Service Provider to suit the specific conditions.

The Service Provider might have to install luminaires across major collector streets. The Service Provider must plan their work in such a way that the road will be open to traffic at night, during the construction period. Accommodation of traffic shall include for all the necessary road signs such as deviation signs, road closed signs, barricades, roadwork signs, keep left/right

signs, speed limit signs, STOP/GO-signs as well as delineators, drums and flagmen so that traffic can move safely through the construction area.

3.4.8 Works in Confined Areas

It will be necessary for the Service Provider to work within confined areas. The method of construction in these confined areas largely depends on the Service Provider's constructional plant.

Regardless, measurement and payment will be in accordance with the specified cross-sections and dimensions only, irrespective of the method used for achieving these cross-sections and dimensions. It is deemed that the rates bid in the Pricing Schedule include full compensation for all technical and specialised personnel, special plant, equipment and construction methods and for all difficulties encountered when working in confined areas, at heights and narrow widths, and at or around obstructions. No extra payment will be made nor will any claim for additional payment be considered in such cases.

3.4.9 Working at heights

It will be the Service Provider's responsibility that all employees working at heights have received training by a recognized accredited Service Provider done to unit standards as per the construction regulations.

Working at heights teams shall consist of:

- (a) Normal working at heights employees, US: 229998 – Level 1 grading
- (b) A supervisor working at heights employee, US: 229995 – Level 2 grading
- (c) A fall arrest supervisor, US: 229994 & 229999 – Level 3 grading

The Service Provider shall compile and maintain the following working at heights documentation:

- (a) A Fall Protection Plan;
- (b) Rescue Plan;
- (c) Risk Assessment;
- (d) Training Requirements;
- (e) Equipment Requirements; and
- (f) Safety File.

The Service Provider shall submit acceptance certificates, signed by authorised safety inspectors, of all plant/equipment to be used for working at heights and that the plant/equipment is safe for use. This shall include but not limited to:

- (a) Personnel safety full body harnesses and lanyards;
- (b) Cherry Pickers;
- (c) Sky lifts/cranes;
- (d) Ladders;
- (e) Scaffolding; and
- (f) Raised platforms of various height and form.

The Service Provider shall comply with Section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) - Construction Regulations, 2014, or as amended.

3.4.10 Accommodation of Traffic

The Service Provider shall provide, included in the rate, erect and maintain the necessary traffic-control devices, road signs, channelization devices, barricades, warning devices and road markings (hereinafter referred to as traffic-control facilities and safety devices) in accordance with these special provisions and as shown in the South African Road Traffic Signs Manual (SARTSM), and shall remove them when no longer required. It shall be incumbent upon the Service Provider to see to it that the above-mentioned traffic-control facilities and safety devices are present at all times and are functioning properly, but prior to any section of the road which requires the above facilities being opened to traffic, the Service Provider shall submit his proposals in this connection to the Employer for his information and comment.

The Service Provider shall immediately make good any shortcomings to the temporary traffic-control facilities. The Service Provider shall indemnify the Employer, Municipality and Engineer against all proceedings, claims, actions, damages, and costs which may arise from or be related to the absence or improper functioning or placement of road-traffic facilities, channelization devices, warning devices and road-traffic marks. Road signs, channelization devices and barricades no longer required may be moved for re-use, and if no longer suitable for use, replaced without any additional compensation if they are required for re-use.

The type of construction, spacing, placement, relocation and removal of traffic-control facilities and safety devices shall be in accordance with the prescriptions and recommendation of the latest edition of the SARTSM, and in accordance with the review and comments of the Municipality. The various traffic-control facilities and safety devices which may be required are the following:

- (a) Traffic-control devices, such as portable STOP and GO-RY signs and traffic signals, which include the use of flagmen;
- (b) Statutorily required road signs and barricades;
- (c) Channelisation devices and barricades;
- (d) Barriers for preventing vehicles from leaving the permitted lanes or from entering the project site area; and if applicable
- (e) Warning devices.

3.4.11 Information in Respect of Employees

Information relating to labour and management on Site shall be recorded in the Daily Diary. In addition, the Service Provider shall deliver to the Employer, Engineer or their designated representatives, and/or designated representative of him/herself, on a weekly basis, a detailed summary of supervisory staff, labour employed (own and local labour) by category, and sub-Service Providers (both local and imported) for each day of the week. These shall be submitted to the Employer by the first day of the week following the week to be reported.

3.4.12 Information in Respect of Plant /Equipment

Information relating to plant/equipment on Site shall be recorded in the Daily Diary. In addition, the Service Provider shall deliver to the Employer, Engineer or their designated representatives, and/or designated representative of him/herself, on a weekly basis, a detailed summary of construction plant/equipment kept on the Site, full particulars given for each day of the week. Distinction shall be made between plant/equipment in working order and plant/equipment out-of-order. Such inventory shall be submitted by the first day of the week following the week to be reported.

3.4.13 Plant & Equipment to be Employed on this Contract

The Service Provider's attention is directed to the several sections of the Terms of reference. The Service Provider shall enumerate hereunder:

a) Which equipment/plant will be available immediately;

Equipment/Plant Description	Qty	Duration

b) Which equipment/plant will be available from outstanding orders for equipment/plant,

Equipment/Plant Description	Qty	Duration

c) Which additional equipment/plant will be acquired if the Contract is awarded to the Service Provider.

Equipment/Plant Description	Qty	Duration

3.4.14 Truck Mounted Cranes and Cherry Picker Truck

It will be the Service Provider's responsibility that all operators of Truck Mounted Cranes (Code C32) are trained and certified by an accredited training company in alignment with US 242978 - Operate truck mounted cranes so as to comply with the Driven Machinery Regulations of Section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993).

The operator should be aware of possible works near live overhead power lines and understand the safety aspects of operating a truck mounted crane. All necessary regulations, procedures, permits, authorisation, and safety requirements shall be implemented and adhered to.

3.4.15 Winches and Power Tools

Winch

The portable winch, used for the raising and lowering of the luminaire ring, will be single and double drum worm gear type, and shall meet all relevant local and international safety requirements.

The winch should have a gear ration of at least 50:1 and be suitable for both hand and power operation. The winch should run in a fully enclosed oil bath.

The winch shall be fitted with a safety device to ensure that the drum is locked positively when the cranking handle or power tool is removed from the drive shaft. The safety device shall be applied automatically to the driving spindle when not in use.

The winch shall fit inside the mast base and be driven by a portable power tool fitted with a single-phase motor, operated from a switch fitted with a 5 m extension cable for remote operation. The switch shall be of the type which must be held in position for the motor to operate.

A certificate shall be supplied with each winch and shall state the safe working load of the winch and shall be issued by a recognised testing authority. The test certificate shall be submitted to the Engineer and Employer prior use of each winch. Winches shall be fitted with a label and rating plate of a permanent nature in an easily visible position.

Power Tool

The standard power tool used to drive the winch shall be a single-phase, single speed electric motor, fitted with a reduction gear box.

The power tool, which shall be slotted into the winch slide, when in use, shall be supplied complete with a 5-metre cable and remote forward/reverse control switch, for safe operation.

The power tool shall be fitted with a torque limiting device, which shall be set to slip before any damage can be done to the wire ropes, in the event of over-winding.

3.4.16 Telemanagement Devices

No telemanagement devices or systems are to be installed and commissioned under this contract.

3.4.17 Engineering Drawings

If available, a set of drawings may be issued to the successful Service Provider as part of the contract documents. The drawings may contain information regarding the locality of the site, layout of the streets and positioning of the luminaires.

The Service Provider is to obtain specified details of drawings from the Employer for the detail of the LED luminaire installation, lighting designs of high mast lighting and street lighting as specified in this document.

Any additional attached drawings are for bidding purposes only and the actual positions of the masts and street light poles shall be determined on site with the awarded Service Provider.

The Service Provider shall be responsible for surveying the actual positions of the masts and street light poles on site and submit these positions in the form of a schedule and an engineering drawing to the Employer upon handover.

3.4.18 Switching for Testing

All switching for testing or commissioning shall be arranged after prior arrangements with the Employer, Municipality and Engineer and will be carried out by the designated electrician of the Service Provider, who shall supervise and approve all switching operations.

All switching and testing details shall be recorded by the Service Provider, i.e. date, time off/time on, etc.

3.4.19 Inspection and Tests

All tests prior to commissioning shall be arranged for and carried out by the Service Provider in compliance with the applicable Regulations.

The tests shall include all necessary mechanical, lighting and electrical testing procedures for the parts, and the whole of the installation, in the presence of the Employer, Engineer or their designated representatives, and/or designated representative of him/herself. The Service Provider shall make timely arrangements for such tests and give the Employer, Engineer or their designated representatives, and/or designated representative of him/herself at least 48 hours notification of required site tests. Copies of all test certificates must be provided to the Employer, Engineer or their designated representatives, and/or designated representative of him/herself for record purposes.

The Service Provider shall have all test equipment and data required ready prior to tests being arranged. All necessary tests as required shall be successfully completed by the Service Provider and Luminaire Suppliers prior to commissioning. Further, the whole installation shall be in working operation for at least seven (7) days under normal operating conditions after which arrangements shall be made for first handover.

3.4.20 Commissioning and Handover

The Service Provider shall make all necessary arrangements for the proper commissioning of the whole installation prior to handover. The commissioning shall include for all the necessary adjustments and aiming of luminaires and control gear and equipment. The Service Provider shall advise the Employer, Engineer or their designated representatives, and/or designated representative of him/herself 14 days prior to the installation, or major part thereof, being ready for commissioning and firm arrangement for commissioning shall be made in writing. The Service Provider shall produce a detailed programme for the commissioning. This program shall include a scheduled timetable giving the times when Specialists of the Luminaire Supplier will be in attendance to effect the commissioning. Handover shall be affected by the Service Provider in the presence of the Municipality, and the representatives of the Employer.

3.4.21 Defects Liability Period

With effect from the date of the First Delivery Certificate the Service Provider shall at the Service Provider's own expense undertake the regular servicing of the installation during the 12-month Defects Liability Period and shall make all adjustments necessary for the correct operation thereof.

In order that the Works and Service Provider's Documents, and each Section, shall be in the condition required by the Contract (fair wear and tear expected) by the expiry date of the relevant defects liability period or as practicable and upon an agreed date thereafter, the Service Provider shall:

- (a) Complete any work which is outstanding on the date stated in a Taking-Over Certificate, within such reasonable time as is instructed by the Employer; and
- (b) Execute all work required to remedy defects or damage, as may be notified by (or on behalf of) the Employer on or before the expiry date of the defects liability period for the Works or Section (as the case may be).

If a defect appears or damage occurs, the Service Provider shall be notified accordingly by (or on behalf of) the Employer or Municipality.

If during the said period the installation is not in working order for any reason for which the Service Provider is responsible, or if the installation develops defects, the Service Provider shall immediately, upon being notified thereof, take steps to remedy the defects and make any necessary adjustments.

Should such stoppages however be so frequent as to become troublesome, or should the installation otherwise prove unsatisfactory during the said period the Service Provider shall, if called upon by (or on behalf of) the Employer, at the Service Provider's own expense replace the whole of the installation or such parts thereof as the Employer (or on behalf of the Employer) may deem necessary, with apparatus specified by (or on behalf of) the Employer.

Should luminaires fail during this period, the Service Provider shall be responsible for contacting and co-ordinating with the luminaire supplier for the replacement or repair of the faulty luminaire. All associated works involved in removing the faulty luminaire and installing the repaired/replacement luminaire onto the high mast or street light pole from which it came shall be inclusive of the Service Provider's works responsibility. The Service Provider shall log all faulty luminaires and remedial action taken, which shall be submitted to the Employer and Municipality in the form of a fault report.

Luminaires will be tested upon the completion of the Defects Liability Period for compliance to the contract specifications. If the test results indicate non-compliance the Service Provider shall, by instruction by (or on behalf of) the Employer, at the Service Provider's own expense replace the whole of the installation or such parts thereof as the Employer (or on behalf of the Employer) may deem necessary, with apparatus specified by (or on behalf of) the Employer.

3.4.22 Operational and Maintenance manual

This manual shall contain the detailed descriptions of all repair works, new switchgear and control equipment in distribution boards, light poles/masts, luminaires, lightning protection, etc. i.e. all proprietary assemblies, shall be provided to assist the user personnel of the Employer and Municipality with advanced knowledge of the equipment for short, medium and long term maintenance and operations of the plant and the works.

The descriptions must be complete in all respects and the Service Provider shall also ensure that these manuals are prepared in such a manner that, in the opinion of the Engineer, a competent and qualified technician can trace any fault, identify any defective component, replace it with the correct spare part and follow, without difficulty, the exact function of every component.

To this end, care must be exercised to correlate the text with the circuit diagrams, to relate the diagrams one with another and to provide a simple method of diagnosis and test to be used wherever breakdowns occur. The manuals shall also include block diagrams giving the layout of equipment as well as a description of the function and operation of every unit in the system.

Two (2) hard copies (original and one copy) of the manual shall be neatly prepared, in typewritten and/or printed format, indexed, with appropriate dividers between each section to facilitate ready reference. All documentation shall be presented in the English language.

The description shall, as a minimum requirement, include:

- (a) Certificate of Compliance
- (b) All test results
- (c) Co-ordinate schedule of all masts and/or light poles where the LED luminaires were installed
- (d) "As-Built" Electrical Drawings
- (e) Operational and maintenance data and details of all assemblies or components of electrical equipment and material installed. Copies of operational manuals of manufacturers can be inserted in these descriptions. In the case of insufficient descriptions in manuals of manufacturers, the Service Provider shall provide additional descriptions to enable maintenance of the equipment. The descriptions shall include:
 - I. Technical details of all equipment installed.
 - II. A complete description of the operation of all equipment.
 - III. A parts and spares list of every item of equipment together with a description of the item, the name, address and telephone number of the original supplier or wholesaler of the equipment. Brochures may be added as additional information but must not replace the data required.
- (f) Complete equipment schematics.
- (g) All manufacturers' handbooks having reference to the equipment.
- (h) Installation test and alignment procedures.
- (i) All circuit diagrams.
- (j) All interconnection and inter cabling diagrams.
- (k) Complete trouble shooting procedures and any other information deemed necessary to permit rapid and efficient maintenance of any part of the equipment by a qualified technician.

The Contract will not be regarded as completed and will not be accepted as finalised by the Employer unless all the requirements for testing, drawings, manuals and the certification has been completed and all data has been handed to the Employer.

4. Schedule 1: Mandatory Returnable Documents

Service Providers must ensure that the following mandatory returnable documents are submitted as indicated in **Schedule 1** and that the schedule is marked clearly and submitted with the bid. Failure to submit any of the mandatory returnable documents may render the Service Provider ineligible and shall not be evaluated further.

Schedule 1: Schedule of Mandatory Returnable Documents

Item No.	Details	Submitted [Yes/No]
1	Cover letter for the bid	
2	Letter of Authority for Signatory	
3	Company Registration Document	
4	Tax Clearance Certificate	
5	Financial Capacity (Bank Rating Letter from the bank or Financial Institution)	
6	CIDB registration Certificate	
7	COIDA registration Certificate	
8	CSD Registration Certificate	
9	Public Liability Insurance Certificate	
10	Service Providers All Risk Insurance	
11	Locality of Business	
12	Company experience	
13	Schedule of Resource, Personnel and Experiences	
14	Plant, Tools and Equipment	
15	Capacity Building Proposal	
16	Proposed Workplan Methodology	
17	Proposed Work's Programme	
18	Pricing Schedule (to be submitted separately for financial evaluation)	

5. Personnel concept

5.1 Eligibility

1. Only companies that certifies the Commercial Assessment “Part I of the EoI” eligibility test of the (EoI) will be considered for technical assessment, “Part II of the EoI”
2. Only Service Providers registered with the CIDB, or produce proof of being so registered prior to the evaluation of submissions, in a Service Provider grading designation equal to or higher than a Service Provider grading designation determined in accordance with the sum bid, or a value determined in accordance with Regulation 25 (1B) or 25 (7A) of the Construction Industry Development Regulations, for a **4 EP** or higher class construction work, will be considered and are eligible to have their bids evaluated.
3. The Service Provider must be registered as a Certified Electrical Contractor with the Electrical Contracting Board of South Africa / Department of Labour, with the Workmen's Compensation Commissioner and the Unemployment Insurance Commissioner to qualify.
4. Energy efficiency sector know-how and/or experience.
5. Energy efficient lighting know-how and/or experience.
6. Companies with presence in South African will have an advantage.

The overall EoI shall be assessed using the final assessment criteria shown below:

- A) All companies with a final technical assessment score of 500 point will be assessed their financial proposal provided they meet all the Commercial assessment criteria as well as minimum requirement of at least 5 reference projects in the last three financial years.

Joint Ventures are eligible to submit bids provided that:

- (a) Every member of the joint venture is registered with the CIDB.
- (b) The lead partner has a Service Provider grading designation in the **4 EP** or higher class of construction work.
- (c) The combined Service Provider grading designation calculated in accordance with the Construction Industry Development Regulations is equal to or higher than a Service Provider grading designation determined in accordance with the sum bid for a **4 EP** or higher class of construction work or a value determined in accordance with Regulation 25 (1B) of 25 (7A) of the Construction Industry Development Regulations.
- (d) Every member of the joint venture is registered as a Certified Electrical Contractor with a valid wireman's licence; and
- (e) Have a letter indicating Board resolution or minutes signed-off by duly authorised officials from both sides indicating agreement to form a joint venture.

5.2 Qualification of Personnel

Full particulars of the site organisation, complete with names of key personnel the Service Provider proposes to allocate to this project, are to be submitted with this bid.

The Service Provider shall provide appropriate personnel for such time periods as required in terms of the Contract and shall enter all data pertaining to personnel including titles, job descriptions, qualifications, and estimated periods of engagement on the performance of the Works in a Personnel Schedule to be drafted by the Service Provider.

The Works shall be performed by the personnel listed in the Personnel Schedule for the periods of time indicated therein. The Service Provider may, subject to the approval of the Employer, make such adjustments to the data provided in the Personnel Schedule above as may be appropriate to ensure the efficient performance of the Works without negatively affecting the quality of work delivered, provided that the adjustments will not cause payments to exceed any limit placed on the Contract Price.

The Service Provider shall:

- (a) Forward to the Employer for approval, within three (3) days of the award of the Contract and acceptance by the Service Provider, the Personnel Schedule, and a timetable for the placement of Personnel.
- (b) Inform the Employer of the date of commencement and departure of each member of Personnel during the course of the Project.
- (c) Submit to the Employer for his approval a timely request for any proposed change to Personnel, or timetables.

5.3 Supervisory Staff and Identification

All work done on site shall always be under the direct and full-time supervision of a site contract manager who shall be a qualified installation electrician who will sign the certificate of compliance.

Whilst on the site all staff and labourers employed by the Service Provider shall wear distinctively marked clothing bearing the name and/or identification logo of the Service Provider.

6. Costing requirements

Sustainability aspects for travel

GIZ would like to reduce greenhouse gas emissions (CO₂ emissions) caused by travel. When preparing your tender, please incorporate options for reducing emissions, such as selecting the lowest-emission booking class (economy) and using means of transport, airlines and flight routes with a higher CO₂ efficiency. For short distances, travel by train (second class) or e-mobility should be the preferred option.

If they cannot be avoided, CO₂ emissions caused by air travel should be offset. GIZ specifies a budget for this, through which the carbon offsets can be settled against evidence.

There are many different providers in the market for emissions certificates, and they have different climate impact ambitions. The [Development and Climate Alliance \(German only\)](#) has published a [list of standards \(German only\)](#). GIZ recommends using the standards specified there

6.1 Work Activities

The activities and tasks included in the contracted scope of works are described in the section below, along with the requisite elements determining and confirming acceptance or approval of the work activities completed and delivered (both as a whole and partially). The Service Provider shall remain responsible for overall compliance with the requirements of the technical specifications. Where applicable, the following sub-paragraphs include reference to specifications and to relevant specific paragraphs in the contract.

6.1.1 Scheduled Items

The different work activities and tasks are listed here in the same sequence as the Contract Pricing Schedule (Bill of Quantities), for ease of reference. Each item is addressed in sequence of description of item and its intended purpose, reference to specification (where applicable), unit of measure, and certification of measurement for payment purposes.

6.1.1.1 Preliminary and General

(a) Site Establishment and Management

I. Site Management & Supervision

This item shall be for the site management and supervision of the works by the identified qualified key personnel for the entire duration of the contract period defined.

The rate shall include the implementation of site quality management and control processes, preparation and submission of related quality management and control documentation, and the recording and reporting processes as prescribed in the Terms of Reference.

Certification for payment shall be made for the value of completed scheduled weeks subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: Weeks

II. Provision of Equipment

This item shall be for the use of quality equipment that shall be required to fulfil the work duties for the entire duration of the contract period defined.

The rate shall include all equipment as listed in **Section 3.4.13**, but not be limited to this listing.

Certification for payment shall be made for part of and up to the full Sum value upon submission of supporting documentation (purchase orders or rental invoices).

Unit of measure: Sum

III. Provision of Plant

This item shall be for the total cost for the use of quality plant that shall be required to fulfil the work duties for the entire duration of the contract period defined.

The rate shall include all plant as listed in **Section 3.4.13**, but not be limited to this listing.

Certification for payment shall be made for part of and up to the full Sum value upon submission of supporting documentation (purchase orders or rental invoices).

Unit of measure: Sum

IV. Temporary site facilities

This item shall be for the establishment of the required temporary site facilities, secure site storage of materials, ablution units, and the management and maintaining in good order of the site facilities for the entire duration of the Contract period.

The rate shall include full compensation for the supply, operational expenses, erection, maintenance and removal of the complete temporary site facilities.

Certification for payment shall be made for the value of completed scheduled weeks and supporting documentation subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: Weeks

V. Construction Sign Board

This item shall be for the number of construction sign boards designed, submitted for Employer's approval, manufactured, supplied, erected and maintained for the entire duration of the contract period and the removal thereafter, inclusive of all associated costs.

The Service Provider shall submit the construction sign board design to the Employer for approval prior to manufacturing, delivery to site and erection.

The rate shall include for the design, manufacture, supply, erection, maintenance and removal of the sign boards and associated works.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

VI. Site Rehabilitation

This item shall be for the number of mast / street light pole sites to be rehabilitated to their existing state prior to the construction works being imposed on the site. The Service Provider shall submit photographic evidence of how the site looked prior to construction works and after completion of rehabilitation

works, inclusive of material and works quantity schedules to validate the works done for payment certification.

The rate shall be fixed, irrespective of the cost and quantity of material and associated works required to rehabilitate the area surrounding the site.

Certification for payment will only be granted upon the approval of the rehabilitation works by the Employer.

Unit of measure: No.

(b) Construction and Occupational Health and Safety management

I. Site Occupational Health & Safety

This item shall be for the Service Provider to ensure compliance and management of site health and safety requirements as prescribed in **Section 3.4.5**, inclusive of the project specific risk assessment and safety plan, Notification of Work, personal protective equipment (PPE), first aid, safety signage, personnel health and fitness screening and associated safety equipment and materials as may be required for the entire duration of the contract period defined.

Certification for payment shall be subject to the approval of the Employer or the Safety Agent assigned by the Employer.

Unit of measure: Sum

II. Safety File

This item shall be for the preparation, submission, auditing, reporting and management and control of the safety file that shall include all project related works for the entire duration of the contract period.

Certification for payment shall be subject to the approval of the Employer or the Safety Agent assigned by the Employer.

Unit of measure: Sum

III. Site Safety

This item shall be for the total cost for the Service Provider to ensure the safety and wellbeing of site personnel and the public. The rate shall include all associated personnel (including personnel of sub-Service Providers or specialist Service Providers), works and material to ensure site safety compliance and management for the entire duration of the contract period.

Certification for payment shall be made for part of and up to the full Sum value upon submission of supporting documentation. Certification for payment shall be subject to the approval of the Employer or the Safety Agent assigned by the Employer.

Unit of measure: Sum

(c) General

I. Operation and Maintenance Manual

This item shall be for the Service Provider's preparation and collation, and submission to the Employer of two hard copies of the complete Operational and Maintenance manual as detailed in **Section 3.4.22** and bound in lever arch files and copied into electronic format onto three CD's.

A suitable CAD package shall be used for the drawings where required. Exact positions of cables and all electrical services installed shall be clearly shown.

The masts / street light poles selected for luminaire replacement shall be surveyed and a detailed schedule shall be submitted

The rate shall include all labour, materials, all printing materials, book binding, packaging, storage and delivery of the documentation.

Certification for payment shall be made on delivery of the specified manuals and documentation to the Employer and the Employer's approval thereof.

Unit of measure: Sum

II. Capacity Building

This item shall be for the provision of capacity building and training as detailed in **Section Error! Reference source not found.(q)** and the Service Provider obtaining approval from the Employer for the capacity building plan.

The rate shall include all associated costs for capacity building and training for the entire duration of the contract period.

Certification for payment shall be made for part of and up to the full Sum value upon submission of supporting documentation. Certification for payment shall be subject to the approval of the Employer.

Unit of measure: Sum

III. Community Liaison Officer

This item shall be for the Service Provider providing a community liaison officer as detailed in **Section Error! Reference source not found.(r)** and the Service Provider obtaining approval from the Employer.

The rate shall include all associated costs for the community liaison officer for the entire duration of the contract period defined.

Certification for payment shall be made for part of and up to the full Sum value upon submission of supporting documentation. Certification for payment shall be subject to the approval of the Employer.

Unit of measure: Sum

6.1.2 Lighting Infrastructure Repairs

(a) Masts

I. Inspection of Mast

This item shall be for the number of masts inspected, with reports submitted by the Service Provider and approved by the Employer to verify what remedial work actions are required to be taken for the list of masts as indicated in *Error! Reference source not found.* of the Terms of Reference. The item includes the Service Provider's compilation of evidence, documentation, and submission of an inspection report to the Employer for review and approval.

The rate shall include the following minimum inspection activities:

- I. Visual inspection of appearance of mast, identifying flaws that may result in the failure of the mast or prevent the operation of the new luminaires (e.g., access door missing, damaged or rusted mast sections, etc.)
- II. Test for voltage supply to mast and luminaires;
- III. Test the electrical protection and switchgear within the mast;
- IV. Test the operation of lowering and raising the hoist ring or hinged mast section; and
- V. Test the earthing of the mast.

Certification for payment shall be made for the value of completed units subject to the submission of reports to the Employer and approval of the reports by the Employer in conjunction with the Engineer.

Unit of measure: No.

II. Distribution board replacement

This item shall be for the number of existing distribution boards that are missing, vandalised, or tested to be fully non-operational and are to be replaced with newly supplied, installed, tested and commissioned fully wired distribution boards.

The rate shall include all associated costs involved in bringing the distribution boards to full operational status. Labelling and wiring are to be included in the rate.

The distribution boards shall be IP54 rated and be manufactured in accordance with local Municipality standards and requirements. In the LV compartment, rails shall be mounted to accommodate the control gear listed below. LV circuit breakers and wiring are measured as included in this rate.

In addition, the following minimum gear shall be included in the rate:

- I. 30A 5kA 400V Mains Isolator;
- II. 5A 1P 5kA bypass switch CB
- III. 3P 40kA Surge Protection

- IV. 3P 30A Contactor
- V. 3 x 10A 1P CB 5kA
- VI. NEMA Socket Photocell and Adapter
- VII. 5-PIN CEE Male & Female adapters
- VIII. 30A 5kA 230V 2P Isolator with 30mA E/L
- IX. 15A 1P 5kA, IP65 15A SSO (for use with winch)

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

III. Replace photocell

This item shall be for the number of existing photocells that are missing, vandalised, or tested to be non-operational and are to be replaced with newly supplied, installed, tested, and commissioned photocells. The photocell shall be IP65 rated with UV stabilised polycarbonate housing with NEMA socket type base configuration, having a light level detection rating of 70/35 lux and have negative switching that sets the luminaires / contactor to the "off" state at a lower lux level.

The rate shall include provision for any associated material and works for termination of wiring from connecting circuits to terminals.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

IV. Replace 3P 30A contactor

This item shall be for the number of existing contactors in the mast distribution board that are missing, vandalised, or tested to be non-operational and are to be replaced with newly supplied, installed, tested, and commissioned 3P 30A 5kA 400V rated contactor of similar quality or higher, inclusive of wiring, labelling and mounting.

The rate shall include provision for any associated material and works for termination of wiring from connecting circuits to terminals.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

V. Replace circuit breaker

This item shall be for the number of existing circuit breakers in the mast distribution board that are missing, vandalised, or tested to be non-operational and are to be replaced with newly supplied, installed, tested and commissioned 1P 20A 5kA 230V rated circuit breaker of similar quality or higher, inclusive of wiring, labelling and mounting.

The rate shall include provision for any associated material and works for termination of wiring from connecting circuits to terminals.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

VI. Replace 5-PIN CEE male & female adapter

This item shall be for the number of existing trailing cable IP44 5-PIN CEE male & female adapter at the base of the mast near the distribution board that are missing, vandalised, or tested to be non-operational and are to be replaced with newly supplied, installed, tested, and commissioned IP44 5-PIN CEE male & female adapters.

The rate shall include provision for any associated material and works for termination of wiring from connecting circuits to terminals.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

VII. 3 phase heavy-duty 5-core trailing cable for 40m Mast

This item shall be for the number of existing masts that have trailing cables that are missing, vandalised, or tested to be non-operational and are to be replaced with newly supplied, installed, tested and commissioned 3 phase flexible heavy-duty 5-core trailing cable of length and ampacity rating suitable for 40m masts and electrical loading of 9kW three phase.

The rate shall include all associated works and material to ensure proper operation.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

VIII. 3 phase heavy-duty 5-core trailing cable for 30m Mast

This item shall be for the number of existing masts that have trailing cables that are missing, vandalised or tested to be non-operational and are to be replaced with newly supplied, installed, tested and commissioned 3 phase flexible heavy-duty 5-core trailing cable of length and ampacity rating suitable for 30m masts and electrical loading of 6kW three phase.

The rate shall include all associated works and material to ensure proper operation.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

IX. Replace IP65 splitter box on mast ring

This item shall be for the number of existing mast IP65 splitter boxes located on the mast ring that are missing, damaged or tested to be non-operational and are to be replaced with newly supplied, installed, IP65 splitter boxes of similar dimension and includes all bus bars, wiring, terminations, glands and mounting bracket and associated works and material to ensure the proper operation.

The rate shall include all associated works and material to ensure proper operation.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

X. Repair hoist system

This item shall be for the number of existing mast hoist systems of the mast that are missing, damaged or tested to be non-operational and are to be like for like replaced with newly supplied, installed, hoist systems (pullies, trailing cable, hoist cables, bearings, split pins, bolts, nuts and washers, terminations, etc) and includes all associated works (working at heights), plant, equipment and material to ensure the proper operation of the mast hoist system.

The rate shall include all associated works and material to ensure proper operation.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

XI. Replace hoist cable safety clips

This item shall be for the number of existing mast hoist cable safety clips located at the base of the mast that are missing, damaged or tested to be non-operational and are to be like for like replaced with newly supplied, installed, hoist cable safety clips and includes all associated works and material.

The rate shall include all associated works and material to ensure proper operation.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

XII. Replace mast ring

This item shall be for the number of existing mast rings that are missing, damaged or tested to be non-operational and are to be like for like replaced with

newly supplied, installed, mast rings manufactured specifically to the type of mast ring to be replaced for each mast type required and includes all associated works and material.

The rate shall include all associated works and material to ensure proper operation.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

XIII. Repair access door

This item shall be for the number of existing mast doors that are missing, damaged or tested to be non-operational or accessible and are to be like for like replaced with newly supplied, installed, access doors manufactured specifically for each mast type required and includes labelling and secure locking of the access door to local Municipality requirements (e.g. welding of sections).

The rate shall include all associated works and material to ensure proper operation.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

XIV. Grouting

This item shall be for the number of existing masts with grouting between the mast base plate and mast foundation that is identified as removed or forcibly damaged and shall be fully removed and re-grouted with high strength non-shrinkable grout that is wire-mesh re-enforced with two weeping holes included.

The rate shall include all associated works and materials to complete the works.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

XV. Test and repair minor faults

This item shall be for the number of existing masts that are to undergo testing and repair of minor faults provided that structural integrity is not compromised. These minor faults include missing components (bolts, nuts, hinges, pullies, covers) and localised damage (rust patch) to masts.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

XVI. Mast integrity test

This item shall be for the number of existing masts that are to undergo integrity testing. The existing mast shall undergo complete MPI testing of key stress points, galvanising thickness testing, rust inspection and overall quality visual inspection of all mast sections and parts, including the foundation bolts and moving parts. Included in the rate is the compilation of a test report and submission thereof to the Employer for review prior to refurbishment. Additionally, the report shall include method statements as to how to rectify faults identified.

The rate shall include all associated works, equipment and plant required for the inspection and testing of the masts.

Certification for payment shall be made for the value of completed units subject to the submission of reports to the Employer and approval of the reports and method statements by the Employer in conjunction with the Engineer.

Unit of measure: No.

XVII. Repair of badly rusted/damaged mast

This item shall be for the number of existing badly rusted/damaged masts identified by integrity testing as being repairable and being repaired inclusive of associated costs.

The repair works shall be done in accordance with the integrity test report method statements.

The rate shall include all associated works and material to ensure proper operation.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

XVIII. Replacement of badly rusted/damaged mast

This item shall be for the number of existing badly rusted/damaged masts identified by integrity testing as requiring replacement. The rate shall include the full removal and disposal of the existing mast and the supply, installation, commissioning, electrical reticulation, foundation, grouting, earthing of a new replacement mast and complete with all accessories so as to provide a completely new mast lighting system.

The rate shall include all associated works and costs.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

XIX. Mast earthing

This item shall be for the number of existing masts that have been identified and tested to have no or poor earthing, an earth resistance value less than 10 Ohm. The rate shall include providing a new earthing system for the existing mast to obtain an earth resistance value less than 10 Ohm.

The rate includes 1.2m 16mm ϕ earth spikes, 70mm² earth continuity conductors, termination and joint clamps, lugged terminations and all lugs and insulating material needed to complete the termination. The earth system is to be installed at least 800mm below final ground level.

The rate shall include all associated works, civil works (trenching, form work, etc) and material to ensure a properly earthed system.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

(b) Street Light Poles

I. Inspection of street light pole

This item shall be for the number of street light poles inspected, with reports submitted by the Service Provider and approved by the Employer to verify what remedial work actions are required to be taken for the list of street light poles as indicated in *Error! Reference source not found.* of the Terms of Reference. The item includes the Service Provider's compilation of evidence, documentation, and submission of an inspection report to the Employer for review and approval.

The rate shall include the following minimum inspection activities:

- VI. Visual inspection of appearance of street light pole, identifying flaws that may result in the failure of the street light pole or prevent the operation of the new luminaires (e.g. access cover missing, damaged or rusted pole sections, etc.)
- VII. Test for voltage supply to pole and luminaires; and
- VIII. Test the electrical protection and switchgear within or mounted to the pole;

Certification for payment shall be made for the value of completed units subject to the submission of reports to the Employer and approval of the reports by the Employer in conjunction with the Engineer.

Unit of measure: No.

II. Replace circuit breaker

This item shall be for the number of existing circuit breakers in the street light pole that is missing, vandalised, or tested to be non-operational and are to be replaced with newly supplied, installed, tested, and commissioned 1P 10A 5kA

230V rated circuit breaker of similar quality or higher, inclusive of wiring, labelling and mounting.

The rate shall include provision for any associated material and works for termination of wiring from connecting circuits to terminals.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

III. Replace pole wiring

This item shall be for the number of existing wiring internal or external to the street light pole and luminaire that is missing, vandalised, or tested to be non-operational and are to be replaced with newly supplied, installed, tested, and commissioned 1.5mm² 3-core UV 1000V LV resistant trailing cable wired from the circuit breaker to the luminaire termination, inclusive of labelling and mounting.

The rate shall include provision for any associated material and works for termination of wiring from connecting circuits to terminals.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

IV. Repair pole access cover

This item shall be for the number of existing street light pole access covers that are missing, damaged or tested to be non-operational or accessible and are to be like for like replaced with newly supplied, installed, access covers manufactured specifically for each street light pole type required and includes labelling and secure locking of the access cover to local Municipality requirements (e.g., welding of sections).

The rate shall include all associated works and material to ensure proper operation.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

V. Test and repair minor faults on street light poles

This item shall be for the number of existing street light poles that are to undergo testing and repair of minor faults provided that structural integrity is not compromised. These minor faults include missing components (bolts, nuts, covers) and localised damage (rust patch) to street light poles.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

VI. Pole integrity test

This item shall be for the number of existing street light poles that are to undergo integrity testing. The existing mast shall undergo complete MPI testing of key stress points, galvanising thickness testing, rust inspection and overall quality visual inspection of all streets light pole sections and parts. Included in the rate is the compilation of a test report and submission thereof to the Employer for review prior to refurbishment. Additionally, the report shall include method statements as to how to rectify faults identified.

The rate shall include all associated works, equipment and plant required for the inspection and testing of the street light poles.

Certification for payment shall be made for the value of completed units subject to the submission of reports to the Employer and approval of the reports and method statements by the Employer in conjunction with the Engineer.

Unit of measure: No.

VII. Repair of badly rusted/damaged street light pole

This item shall be for the number of existing badly rusted/damaged street light poles identified by integrity testing as being repairable and being repaired inclusive of associated costs.

The repair works shall be done in accordance with the integrity test report method statements.

The rate shall include all associated works and material to ensure proper operation.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

VIII. Replacement of badly rusted/damaged street light poles

This item shall be for the number of existing badly rusted/damaged street light poles identified by integrity testing as requiring replacement. The rate shall include the full removal and disposal of the existing street light poles and the supply, installation, commissioning, electrical reticulation, planting of a new replacement street light pole and complete with all accessories so as to provide a completely new street light pole lighting system.

The rate shall include all associated works and costs.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

IX. Repair of badly rusted/damaged outreach arm

This item shall be for the number of existing badly rusted/damaged outreach arms identified by integrity testing as being repairable and being repaired inclusive of associated costs.

The repair works shall be done in accordance with the integrity test report method statements.

The rate shall include all associated works and material to ensure proper operation.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

X. Replacement of badly rusted/damaged outreach arm

This item shall be for the number of existing badly rusted/damaged outreach arms identified by integrity testing as requiring replacement. The rate shall include the full removal and disposal of the existing outreach arms and the supply, installation, commissioning, electrical reticulation, alignment, and orientation of a new replacement outreach arm and complete with all accessories so as to provide a completely new street light pole lighting system.

The rate shall include all associated works and costs.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

(c) General

I. 25mm² Copper 4-core PVC SWA-ECC PVC FR LV Cable

This item shall be the cable length in meters supplied, installed, tested and commissioned.

All cable ends shall be labelled.

The rate shall include the supply and fitment of the labels in accordance with relevant specification.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: m

II. 25mm² Copper 4-core PVC SWA-ECC PVC FR LV Cable Termination

This item shall be the number of terminations supplied and installed, including lugs, glands/clamps for securing the cable.

The termination shall be rated for 2000V and be made from heat shrinkable material.

The rate shall include all associated works and costs.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

III. 25mm² Copper 4-core PVC SWA-ECC PVC FR LV Cable Joint

This item shall be the number of 1000V rated joints supplied and installed, tested and surveyed as as-built information. The joint shall be sized appropriately for the cables to be jointed.

The joint shall be rated for 1000V and be made in accordance with local supply authority standards.

The rate shall include all associated works and costs.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

IV. Cable Warning Tape

This item shall be the number of metres supplied and installed. The warning tape shall be installed 300mm above LV cables.

Trenching is measured elsewhere and shall be priced separately.

The rate shall include all associated works and costs.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: m

V. Hand pickable soil trenching

This item shall be the number of cubic metres of hand pickable soil removed to form the trenches and cleared from site.

The maximum width of a trench shall be fixed at 450mm for LV cables up to a maximum depth of 1,150mm.

The rate shall include all associated works and costs.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: m³

VI. Machine excavation trenching

This item shall be the number of cubic metres of soft rock removed to form the trenches and cleared from site.

The maximum width of a trench shall be fixed at 450mm for LV cables up to a maximum depth of 1,150mm.

The rate shall include all associated works and costs.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: m³

VII. Hard rock pneumatic plant trenching

This item shall be the number of cubic metres of hard rock removed to form the trenches and cleared from site.

The maximum width of a trench shall be fixed at 450mm for LV cables up to a maximum depth of 1,150mm.

The rate shall include all associated works and costs.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: m³

VIII. Sifting of local soil for bedding

This item shall be the number of cubic metres of bedding sifted and installed in the trenches.

The bedding shall have a thermal resistivity of at least 1.2 K.m/W and be approved by the Employer in conjunction with the Engineer prior to installation. A 6mm grid shall be used during the sifting process.

The bedding shall be 150mm above and below the cable as well as cover the width of the trench (maximum of 450mm).

The rate shall include all associated works and costs.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: m³

IX. Back filling and compacting

This item shall be the number of cubic metres of backfilling and compaction done to close the trenches (the measurement shall be based on the size of the

trench). When backfilling, every 150mm layer shall be compacted to 90% AASHTO.

The size of the trench shall be from the top of the bedding to ground level with a trench width maximum of 450mm.

The rate shall include all associated works and costs.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: m³

6.1.3 Installation of Luminaires

(a) Decommission existing mast HID luminaires & lamps

This item shall be the number of existing luminaires and lamps that are safely removed from the mast, separated into luminaires and lamps, and delivered and off-loaded to an accredited luminaire / lamp disposal facility for environmentally conservative and safe disposal of the material.

The Service Provider is to submit the details of the proposed disposal facility and accreditation certification to the Employer for review and approval prior disposing of the material.

Certification for payment shall only be made for items and quantities identified on a signed disposal facility delivery note and an environmentally conservative and safety disposal certificate for these items. These documents shall be submitted to the Employer and shall be subject to the approval of the Employer.

Unit of measure: No.

(b) Decommission existing street lighting HID luminaires & lamps

This item shall be the number of existing luminaires and lamps that are safely removed from the street light poles, separated into luminaires and lamps, and delivered and off-loaded to an accredited luminaire / lamp disposal facility for environmentally conservative and safe disposal of the material.

The Service Provider is to submit the details of the proposed disposal facility and accreditation certification to the Employer for review and approval prior disposing of the material.

Certification for payment shall only be made for items and quantities identified on a signed disposal facility delivery note and an environmentally conservative and safety disposal certificate for these items. These documents shall be submitted to the Employer and shall be subject to the approval of the Employer.

Unit of measure: No.

(c) 2000W HID replacement LED flood light luminaires

This item shall be the number of new LED flood lighting luminaires obtained from storage, delivered to site, stored in secure site facility until installed onto the mast, orientated correctly, tested and successfully commissioned.

The Service Provider shall be responsible for the correct installation and wiring of the luminaires in strict accordance with the luminaire supplier's installation requirements and aimed accordingly to the approved compliant lighting simulations submitted by the luminaire supplier, unless formally instructed otherwise.

The rate shall include the supply & installation of a 4m 1.5mm² 3-core 1000V LV UV resistant trailing cable per luminaire, terminations thereof into the luminaire and splitter box and IP65 compression glands, mounting bracket per luminaire.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

(d) 400W HID replacement LED flood light luminaires

This item shall be the number of new LED flood lighting luminaires obtained from storage, delivered to site, stored in secure site facility until installed onto the mast, orientated correctly, tested and successfully commissioned.

The Service Provider shall be responsible for the correct installation and wiring of the luminaires in strict accordance with the luminaire supplier's installation requirements and aimed accordingly to the approved compliant lighting simulations submitted by the luminaire supplier, unless formally instructed otherwise.

The rate shall include the supply & installation of a 4m 1.5mm² 3-core 1000V LV UV resistant trailing cable per luminaire, terminations thereof into the luminaire and splitter box and IP65 compression glands, mounting bracket per luminaire.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

(e) 150W and 400W HID replacement LED street light luminaires

This item shall be the number of new LED street lighting luminaires obtained from storage, delivered to site, stored in secure site facility until installed onto the street light pole, orientated correctly, tested, and successfully commissioned.

The Service Provider shall be responsible for the correct installation and wiring of the luminaires in strict accordance with the luminaire supplier's installation requirements and aimed accordingly to the approved compliant lighting simulations submitted by the luminaire supplier, unless formally instructed otherwise.

The rate shall include the supply & installation of a 4m 1.5mm² 3-core 1000V LV UV resistant trailing cable and termination material per luminaire, terminations thereof into the luminaire, pole termination and mounting bracket per luminaire.

Certification for payment shall be made for the value of completed units subject to the approval of the Employer in conjunction with the Engineer.

Unit of measure: No.

(f) Test and issue certificate of compliance

This item shall be the number of successfully tested and inspected masts / street light poles, as per **Section 3.4.19**, that are operating electrically correct and are wired in accordance with SANS10142-1 and the lighting installation tested in accordance with SANS389-1, SANS10098-1 and -2 test methods accordingly.

Signed Certificates of Compliance shall be issued for successfully tested and accepted light masts and lighting installations.

One original and a copy of the Certificate of Compliance per mast shall be issued to the Employer.

The rate shall include all works, materials, accessories, and calibrated test equipment necessary to test and certify each light mast electrical and lighting installation.

Certification for payment shall only be made for each mast or street light pole upon the submission of the corresponding Certificate of Compliance to and acceptance thereof by the Employer.

Unit of measure: No.

6.1.4 Measuring and Payment Principles

- (a) All rates shall allow for fault finding, implementing corrective measures and completion of commissioning procedures as well as include making, conveying, importing, delivering, unloading, storing, unpacking, hoisting, setting, fitting, aiming and fixing in position, cutting and waste, plant, temporary works and profit. All equipment and materials supplied to the contract shall be new and unused.
- (b) All material shall be determined on site with the acceptance of the Employer and then measured by the Service Provider before any material ordered.
- (c) The rates shall include all permanent labelling and numbering on all switchgear, cables and equipment. All ends of cables shall be labelled.
- (d) The Service Provider shall be responsible for obtaining the Employer's signature accepting any measurements and payment certificate by no later than one week before the payment certificate is to be submitted to the Employer for payment.
- (e) Payment for Materials on Site (MOS), with written Employer's approval, may be claimed for billed items purchased by the Service Provider and stored securely on site, provided the Service Provider submit delivery notes of material on site and invoices for the materials supplied by the suppliers. The Service Provider may only claim 80% of the full invoiced amount of MOS submitted by the supplier, provided that the total claimed MOS for each billed item does not exceed 80% of the full amount allowed for each billed item in the pricing schedule. No advanced payment shall be considered. Although MOS may be claimed, the MOS will remain the Service Provider's responsibility, although clearly marked and witnessed as being the Employer's property, until project completion and hand-over to the Employer, after which the defect liability period will become effective with the issuance of the Certificate of Completion.

Any damage, loss, vandalism, theft, etc. of materials will be the Service Provider's responsibility to replace and repair at the Service Provider's own expense.

6.1.5 Pricing Instructions

- (a) The General Conditions of Contract and the Terms of Reference shall be read in conjunction with the Pricing Schedule.
- (b) The Pricing Schedule comprises items covering the Service Provider's profit and costs of general liabilities and of the construction of Temporary and Permanent Works.
Although the Service Provider is at liberty to insert a rate of their own choosing for each item in the Pricing Schedule, he/she should note the fact that the Service Provider is entitled, under various circumstances, to payment for additional work carried out and that the Employer is obliged to base assessment of the rates to be paid for such additional work on the rates the Service Provider inserted in the Bill.
The measurement and payment item of each Particular Specification, read together with the relevant clauses of the Terms of Reference, all set out which ancillary or associated activities are included in the rates for the specified operations.
- (c) Descriptions in the Pricing Schedule are abbreviated and may differ from those in the Terms of Reference. No consideration will be given to any claim by the Service Provider submitted on such a basis. Should any requirement of the measurement and payment clause of the appropriate Terms of Reference(s) be contrary to the terms of the Pricing Schedule, the requirement of the appropriate Terms of Reference, shall prevail. The Service Provider shall request clarity from the Employer in the event that such ambiguity or contradiction persists.
- (d) The quantities of work finally accepted and certified for payment, and not the quantities given in the schedule of quantities, will be used to determine payments to the Service Provider. Unless stated to the contrary, items are measured nett in accordance with the Drawings without any allowance having been made for waste.
- (e) The amounts and rates to be inserted in the Pricing Schedule shall be the full inclusive amounts to be charged for the work described under the several items. Such amounts shall cover all the costs and expenses that may be required in and for the construction of the work described, and shall cover the costs of all general risks, profits, taxes (but excluding value-added tax), liabilities and obligations set forth or implied in the documents on which the Bid is based.
- (f) An amount or rate shall be entered against each item in the Pricing Schedule, whether or not quantities are stated. An item which is included elsewhere in the Pricing Schedule shall be indicated as "INCLUDED".
- (g) The Service Provider shall fill in a rate against the items where the words "rate only" appears in the amount column. Although no work is foreseen under these items and no quantities are consequently given in the quantity column, the rates shall apply should work under these items actually be required.
- (h) The rates and prices shall, subject only to the provisions of the Conditions of Contract, remain valid irrespective of any change in the quantities during the execution of the Contract.

The rates included in the Pricing Schedule shall form the basis for evaluation of proposed pricing for additional items where such additional items are deemed to be required for the successful completion of the contract and where the Employer requests such pricing proposal.

(i) Ordering of materials is not to be based on the quantities indicated in the Pricing Schedule, but only on information issued for construction purposes and site requirements.

(j) For the purposes of this Bill of Quantities, the following words shall have the meanings hereby assigned to them:

Unit: The unit of measurement for each item of work as defined in the Standardized, Project or Terms of Reference.

Quantity: The number of units of work for each item.

Rate: The payment per unit of work at which the Service Provider bids to do the work.

Amount: The quantity of an item multiplied by the rate of the (same) item.

Sum: A fixed amount inserted for an item, the extent of which is described in the Pricing Schedule, the Terms of Reference or elsewhere, but of which the quantity of work is not measured in units.

Lump Sum: A fixed amount inserted for an item, the extent of which is described in the Pricing Schedule, the Terms of Reference or elsewhere, but of which the quantity of work is not measured in units.

Prime Cost: Is a specific type of Provisional Sum where payment is made on the production of invoices showing the cost price of the implementation or installation of the service required. Services rendered in this manner carry a mark-up, priced as a separate item, for which a rate is offered at bid stage to cover all the Service Provider's handling, supervision and liability costs and profit in providing the item or services.

Provisional Sum: Means a sum (if any) which is specified in the contract as a provisional sum, for the execution of any part of the works or the supply of plant, materials, or services.

(k) The units of measurement indicated in the Pricing Schedule are metric units. The following abbreviations may appear in the Pricing Schedule:

%	=	percent
h	=	hour
ha	=	hectare
kg	=	kilogram
kl	=	kilolitre
km	=	kilometre
m	=	metre
mm	=	millimetre
m ²	=	square metre
m ³	=	cubic metre
MPa	=	megapascal
No.	=	number
Prov Sum	=	Provisional sum
PC Sum	=	Prime Cost sum
t	=	ton (1000kg)

6.1.6 Pricing Schedule

Your quotation is to be submitted together with your bid in a separate pdf marked **“83484212_Price Quotation”**.

Refer to Annex 1: BOQ

7. Annexes

- Annexure A: List of Infrastructure
- Annexure B: Technical Assessment Grid