SHE SPECIFICATION FOR: INTELLIGENT SUBSTATION & SECURITY SYSTEMS

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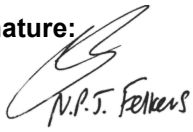
Security Manager Signature:  **Date:** 20 May 2026
Elre Du Plessis

SHE Practitioner Signature: **Date: 17 April 2024**
Nathen Felkers


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1. INTRODUCTION

Eskom is committed to safeguarding contractors (principal contractors, appointed contractors, suppliers, vendors, service providers and consultants) and the Environment against undesired operating exposures, which is in line with its Safety, Health, Environmental and Quality Policy. Therefore, as an organisation, processes need to be in place to identify all possible practical occupational health and safety risks to which contractors are exposed and to implement appropriate measures that need to be taken in order to prevent any incidents or injuries or environmental damage resulting from accidental exposure.

2. SCOPE

This specification shall apply to all contractors acquiring Security work throughout the Cape Coastal Cluster in the Eastern Cape. This specification covers the requirements for eliminating and mitigating incidents and injuries in all Cape Coastal Cluster sites within the Eastern Cape. This document will promote legal compliance as well as a health and safety culture amongst those conducting work and those affected by the activities taking place in and around them. The purpose of this document is to provide clear and unambiguous Safety, Health and Environment (SHE) specifications to enable a Tenderer / Principal Contractor to make provision for, and comply with the required Health, Safety and Environmental and other risk requirements - both in terms of relevant legislation, as well as any additional or site-specific SHE requirements required by the Client. This document forms an integral part of the Contract and Principal Contractors are required to make it an integral part of their contracts with Contractors and suppliers.

3. NOTE TO PRINCIPAL CONTRACTOR AND ITS CONTRACTORS

The SHE specifications are Eskom's minimum requirements. The contractor is expected to develop a SHE plan that includes COVID 19, which meets these requirements as well as all the relevant applicable legislation. Eskom in no way assumes the Contractors legal responsibilities. The Contractor is and remains accountable for the quality and the execution of his health and safety program for his employees and contractors employees. This SHE specification reflects minimum requirements and should not be construed as all encompassing.

4. REQUIREMENTS FOR A SAFETY HEALTH AND SPECIFICATION

The following sections contain minimum requirements that should be contained in all SHE specifications that are being developed. Depending on the scope of work tendered for, the site and/or the project, if there are any section/s or requirement/s that are not applicable in a specific project, then those sections or specific requirements should be deleted. If there are additional sections and/or requirements that are required, then they should be added to the site and project specific SHE specification.

This specification shall apply to all contractors in Security Services throughout Eskom Distribution in the Cape Coastal Cluster (Eastern Cape).

This specification covers the requirements for eliminating and mitigating incidents and injuries.

This document will promote legal compliance as well as a health and safety culture amongst those conducting work and those affected by the activities taking place in and around them.

The purpose of this document is to provide clear and unambiguous Safety, Health and Environment (SHE) specifications to enable a Tenderer / Principal Contractor to make provision for, and comply with the required Health, Safety and Environmental and other risk requirements - both in terms of relevant legislation, as well as any additional or site-specific SHE requirements required by the Client. This document forms an integral part of the Contract and Principal Contractors are required to make it an integral part of their contracts with sub-Principal Contractors and suppliers.

Note: This summary does not relieve the Contractor from legal obligations and/or any specifications within the **ESKOM OHS Management System**.

5. ABBREVIATIONS

COID: Compensation for Occupational Injuries and Diseases

CR: Construction Regulations

DOL: Provincial Department of Labour

GSR: General Safety Regulations

NEMA: National Environmental Management Act

OHSA: Occupational Health and Safety Act

PPE: Personal Protective Equipment

SHEQ: Safety, Health, Environment & Quality

HIRA Hazard Identifikation and Risk Assessment

6. Definitions

Agent **(OHS Act) means any person who acts as a representative for a client**

Baseline risk assessment baseline operational risks refer to the health and safety risks associated with all standard processes and routine activities in the business

Built Environment refers to the functional area in which registered persons practice. The Built Environment includes all structures that are planned and/or erected above or underground, as well as the land utilized for the purpose and supporting infrastructure

Business unit (BU) (32-296) means any defined unit within the Eskom environment, operating as a business under a particular cost-centre number. In the context of this document and in terms of health and safety, any reference to a BU includes a defined unit within any Eskom division and its subsidiaries.

Client (OHS Act) Eskom representative (Internal – Asset Owner), also referred to as the contract administrator/custodian or agent or project manager (as defined in the contract). He/she is the person responsible for ensuring that the works or services are executed in terms of the contract, as well as adherence to legislation pertaining to construction works

Competent person (OHS Act) means any person having the knowledge, training, experience, and qualifications, specific to the work or task being performed, provided that, where appropriate, qualifications and training are registered in terms of the South African Qualifications Authority Act, 1995 (Act No. 58 of 1995)

Principal Contractor (OHS Act) means an employer as defined in section 1 of the Act who performs construction work and includes principal contractors

Contractor In relation to this document, where the word “contractor” is used, it will mean all or some of the following: principal contractors, appointed contractors, suppliers, vendors, service providers and consultants.

Construction vehicle (OHS Act) means a vehicle used for means of conveyance for transporting persons or material or both such persons and material, as the case may be, both on and off the construction site for the purpose of performing construction work

Consultant means a person providing professional advice.

Controlled disclosure-controlled disclosure to external parties (either enforced by law or discretionary).

Duty of care to the environment means anybody who causes or has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing, or recurring. If such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, such person must minimise and rectify such pollution or degradation of the environment

Employee (OHS Act) means, subject to the provisions of subsection (2), any person who is employed by or works for an employer and who receives or is entitled to receive any remuneration or who works under the direction or supervision of an employer or any other person.

Employer (OHS Act) means, subject to the provisions of subsection (2), any person who employs or provides work for any person and remunerates that person or expressly or tacitly undertakes to remunerate him/her, but excludes a TES (ex-labour broker) as defined in section 1(1) of the Labour Relations Act 1956 (Act No. 28 of 1956)

Environment means:
a) the land, water, and atmosphere of the earth.
b) micro-organisms and plant and animal life; and

c) any part or combination of (a) and (b) and the interrelationships among and between them, and the physical, chemical, aesthetic, and cultural properties and conditions of the foregoing that influence human health and well-being.

Environmental aspect means any element of an organization's activities or products or services that can interact with the environment.

Environmental Impact any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects.

Eskom requirements Eskom requirements flowing from directives, policies, standards, procedures, specifications, work instructions, guidelines, or manuals

Hazard (OHS Act) means a source of, or exposure to, danger

Hazard identification (OHS Act) means the identification and documenting of existing or expected hazards to the health and safety of persons, which are normally associated with the type of construction work being executed or to be executed

Health and safety file (OHS Act) means a file or other record in permanent form containing the information required as contemplated in these (the Construction Regulations)

Health and safety plan (OHS Act) means a document plan that addresses hazards identified and includes safe work procedures to mitigate, reduce, or control hazards identified

Health and safety specification (OHS Act) means a document specification of all health and safety requirements pertaining to associated works on a construction site, so as to ensure the health and safety of persons.

Health and safety requirements: means comprehensive health and safety requirements for a contract, project, site, and scope of work. This specification is intended to ensure the health and safety of persons, both workers and the public, and the duty of care to the environment. The health and safety requirements must be specific to each contract, project, site, and scope of work.
Heatstroke (OHS Act) means a pathological condition arising from thermoregulatory failure of the human body.

Internal means an Eskom department that performs work for another Eskom department

Joint venture means a strategic alliance between two or more parties to undertake economic activity together. The parties agree to create a new entity (incorporated or unincorporated) together by each party’s contribution of equity, and they then share in the profits, losses, and control of the enterprise. The venture may be for one specific project only or a continuing business relationship.

Leader Eskom responsible person that operates closest to the contractor.

Lifesaving Rules (240-62196227) a rule that, if not adhered to, has the potential to cause serious harm to people.

Maintenance (maintenance management) - Schemes can be based around a number of techniques to focus on those parts which deteriorate an need to me maintained,
a) Preventative – planned maintenance involves replacing parts and consumables or making necessary adjustments at pre-set intervals, so there are no hazards created by component deterioration or failure.
b) Condition based – this involves monitoring the condition of critical parts and carrying out maintenance whenever necessary to avoid hazards which could otherwise occur.
c) Breakdown based – this is carried out when faults or failures have occurred. This is acceptable if the failure does not present an immediate hazard and can be corrected before the risk is increased.

Mandatary (OHS Act) includes an agent, a contractor, or an appointed contractor for work, but without derogating from his/her status in his/her own right as an employer or user.

Medical Certificate of fitness
(OHS Act) means a certificate valid for one year, issued by an occupational health practitioner, issued in terms of the regulations, whom shall be registered with the Health Professions Council of South Africa.

Pollution means any change in the environment caused by:
- substances;
- radioactive or other waves; or
- noise, odours, dust, or heat emitted from any activity; including the storage or treatment of waste or substances, construction, and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being, or on the composition, resilience, and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future.

Pre-job meetings means a meeting that is held prior to the commencement of the day's work and that is attended by all the relevant employees associated with the work task

Project means an activity or a group of activities that has a defined start and end date, a defined scope, and a defined sum of money allocated to complete the activities

Provincial director (OHS Act) means the provincial director as defined in Regulation 1 of the General Administrative Regulations under the Act.

Risk assessment (OHS Act) means a programme to determine any risk associated with any hazard at a construction site in order to identify the steps needed to be taken to remove, reduce, or control such hazard.

Site means an Eskom department, unit, complex, building, specific project, work site, or the site where agents, clients, principal contractors, contractors, suppliers, vendors, and service providers provide a service to Eskom, directly or indirectly

Service provider any private person or legal entity that provides any service(s) to Eskom for compensation

Supplier means a natural or legal person who renders a service and may include the following current or potential supplier vendor, contractor, and consultant.

Task a segment of work that requires a set of specific and distinct actions for its completion

Toolbox talks where the team leader, after conducting pre-task planning, shares all the tasks at hand and discusses task allocation, the identified risks, and the control measures with all his/her team members on site before commencing a specific task and documenting the agreed strategy. (This shall be done to ensure common understanding of the tasks, risks, and control measures required.)

The Act (OHS Act) means the Occupational Health and Safety Act No. 85 of 1993, as amended, and the Regulations thereto.

Vendor any private person or legal entity who qualifies to render services, perform work, or provide goods to Eskom, directly or indirectly, and may include contractors, contractors, consultants, suppliers, and service providers

Visitor any person visiting a workplace with the knowledge of, or under the supervision of, an employer or who is not providing a specific service to Eskom

7. PROJECT AND SCOPE OF WORK DETAILS

Location: Various Eskom Sites in the Cape Coastal Cluster in the Eastern Cape

Project description/detailed scope of work: INTELLIGENT SUBSTATION & SECURITY SYSTEMS

The services required in the ECOU shall, at any particular time be expected to include, but will not be limited to the following:

1.1 General Requirements

a) All scope of work shall be provided in compliance with the associated functional specification [3].

b) The contractor shall strictly adhere to Eskom's Operating Regulations for High Voltage Systems (ORHVS) throughout the execution of works in live substations.

c) The contractor is solely responsible for the appointment and management of their own appropriately authorised personnel.

1.2 Designs Requirements

a) The successful tenderer shall be responsible for the comprehensive design of the system, ensuring it meets all functional, performance, and integration requirements outlined in the relevant documents and this Scope of Work.

b) The overall solution design and implementation approach (per site) shall be formally presented to the CCC Design Review Team (DRT) for technical governance and approval. This meeting is held monthly. Designs must be submitted at least 2 weeks prior to the meetings, and only after being reviewed by the core Eskom project teams.

c) All design drawings, including but not limited to, architectural layouts, system schematics, wiring diagrams, and equipment placement plans, shall be provided in a MicroStation DGN or DWG compatible format.

d) The tenderer shall provide all other necessary design documents, including detailed engineering specifications, system architecture diagrams, interface control documents, datasheets, operation and maintenance manuals, test plans, test reports and any other relevant reports or documentation pertaining to the entire system.

e) The make, model and field of view for all cameras shall be clearly indicated as part of the basic design provided at tender stage, in compliance with the functional specification [3].

f) The design shall strictly adhere to all applicable industry standards, local regulations, and Eskom's internal technical specifications and guidelines.

g) The design shall consider future scalability and potential expansion, ensuring the system can be adapted or upgraded with minimal disruption.

h) Cybersecurity principles shall be embedded into the design from the outset, addressing potential vulnerabilities and ensuring the robust protection of the system and its data.

i) The contractor's designs shall ensure that the security system is resilient to unauthorized disabling, protecting all components from tampering or malicious interference.

j) Any existing as-built drawings or documentation provided by Eskom are for informational use only and come without guarantee; the contractor is solely responsible for on-site confirmation of all conditions before design or installation.

k) All Eskom-supplied drawings shall be comprehensively updated to reflect the specific changes, installations, and configurations implemented by this project as part of the final as-built documentation. Where no existing drawing is available, the tenderer shall, at a minimum, compile and provide a new drawing detailing the additions made by this project to Eskom.

l) Where minimum specifications, quantities, and existing conditions are provided by Eskom within this document, tenderers shall utilize these as a baseline for their proposal. It remains the contractor's sole responsibility to thoroughly assess all site conditions, confirm requirements, and propose a comprehensive solution that optimally achieves the specified security objectives and ensures full operational effectiveness, even if it necessitates exceeding the minimums or addressing conditions not fully detailed.

m) Where necessary, all environmental authorizations and approvals shall be acquired to the satisfaction of the Eskom Land Development Environmental section.

1.3 Power Supply Requirements

The successful tenderer shall ensure that all power supply provisions for the Intelligent Security System comply with the following requirements to guarantee reliability, safety, and proper system operation:

a) The security system shall draw its power from the building's main Alternating Current (AC)

supply Distribution Board (DB).

b) Within substations, the system shall explicitly NOT draw power from existing AC/DC panels (unless specified or agreed to by Eskom) or, critically, from the station's auxiliary Direct Current (DC) supply, as these sources may be capacity-constrained, or designated for other critical operational loads.

c) A robust Uninterruptible Power Supply (UPS) backup system, utilising new Lithium Iron Phosphate (LFP) cells, shall be included as an integral part of the power solution for all critical security system components.

d) The UPS system shall provide a minimum standby capacity of two (2) hours to ensure continuous operation of the security system during power interruptions.

e) Refer to the site-category sections herein for further details.

1.4 Use of Existing Cableways

a) The successful tenderer shall, where feasible, utilise suitable existing cableways (cable trenches, conduits, ducts, etc.) for the installation of new security system cabling. This utilisation is subject to specific conditions to ensure system integrity, safety, and future maintainability.

b) Existing cableways may be utilised by the contractor only if they are 'open' and readily accessible (i.e., not enclosed within closed conduits or inaccessible structures).

c) The design and installation within existing cableways must ensure clear physical separation and unambiguous identification of all newly installed cables from any existing cabling.

d) For any shared cableways where work may occur in the future, the tenderer's installation shall incorporate appropriate measures to duly protect its cables. This protection may include, but is not limited to, the use of dedicated sleeves, flexible conduits, or the specification of armoured cable types to safeguard against potential damage during future interventions.

e) All installations within existing cableways shall strictly adhere to all relevant safety standards, Eskom's internal policies and standards, and industry best practices for cable management and protection.

f) Refer to the site-category sections herein for further details.

1.5 Alarm System

a) Where indicated per site, the scope may include the supply, installation, testing, and commissioning of a comprehensive hard-wired intrusion detection system to protect the specified areas.

b) The primary alarm system shall be a Paradox EVO 192, providing a robust and scalable intrusion detection platform.

c) Indoor areas of all buildings shall be protected by hard-wired Passive Infrared (PIR) motion sensors, strategically placed for optimal coverage and minimal false alarms.

d) No dedicated outdoor sensors are required.

e) All openable building's doors and windows throughout the site shall be secured with hard-wired magnetic contact sensors.

f) The alarm remote controls shall be fully operable from all designated entry and exit points, and the system must include a minimum of two wireless signal extenders, optimally placed to ensure maximised coverage.

g) No battery-powered sensors are permitted; all sensors must be hard-wired.

h) At least one (1) keypad shall be installed at a primary entry point, providing full system control and status indication.

i) Four (4) bright outdoor blue status LEDs shall be strategically mounted on the building corners to provide clear visual indication of the system's armed/disarmed status.

j) A high-decibel outdoor siren shall be installed to provide immediate audible alerts upon alarm activation.

k) The alarm system, including all its components, shall be seamlessly integrated with the existing lithium-based UPS system for continuous power backup. Alternatively, a suitable standalone LFP-based backup power solution shall be provided if integration with the existing UPS is not feasible or approved.

l) A minimum of ten (10) REM2 remote controls shall be provided for convenient arming and disarming by authorised personnel.

m) The system shall be capable of accepting an external dry contact input for remote arming and disarming functionalities, facilitating integration with other control systems.

n) The system shall support multiple alarm communication paths to:

    1) IP, GPRS/GSM module for cellular fallback (to transmit alarm events, status updates, and system faults to a central monitoring station),

    2) Designated personnel via SMS.

o) All system components, including the main panel, keypads, and critical sensors (PIRs, magnetic contracts), shall incorporate tamper detection mechanisms to alert against unauthorised access or tampering.

p) The system shall maintain a comprehensive, non-volatile event log, capable of storing a minimum of 500 events, complete with timestamps for forensic analysis.

q) The alarm system shall have a dedicated video alarm zone input, linked to the local NVR or other suitable device, to trigger an alarm based on object analysis, thus indicating an intrusion within the site perimeter rather than relying on potentially less accurate measures like the fibre perimeter sensing system alone.

r) The system shall be designed with sufficient spare zones (30% spare zone capacity) to allow for future expansion without requiring significant hardware replacement.

s) The entire alarm system installation shall comply with all applicable local standards, regulations, and Eskom's internal security specifications.

t) Comprehensive system documentation, including user manuals, programming guides, and as-built wiring diagrams, shall be provided.

u) User and administrator training shall be conducted upon system commissioning.

1.6 Decommissioning Requirements

a) The successful tenderer shall be responsible for the professional decommissioning and removal of all existing equipment rendered redundant or no longer in use, including those deemed damaged or no longer operable.

b) All equipment proposed for removal shall be subject to Eskom's explicit approval and confirmation during the detailed design stage, or, if identified during construction as faulty or no longer operable, to ensure alignment with asset management and operational requirements.

c) All decommissioned equipment shall be carefully removed, inventoried, and furnished to Eskom.

d) The contractor shall provide Eskom with a decommissioning plan, including a detailed Bill of Material (BOM) of all items to be decommissioned, prior to commencing any removal activities.

e) Decommissioning activities shall be conducted safely, efficiently, and in accordance with all applicable environmental regulations and Eskom's safety procedures. The tenderer shall ensure

minimal disruption to ongoing site operations during this process.

f) Upon removal of equipment, the tenderer shall ensure that the affected areas are left in a clean, tidy, and safe condition, consistent with the original site state where reasonably practicable.

g) Refer to the site-category sections herein for further details.

1.7 Earthing Requirements

a) The successful tenderer shall ensure that all newly installed structures and equipment, as part of this project, comply with stringent earthing requirements to ensure personnel safety, equipment protection, and optimal system performance. See [2] 240-91190304 for further requirements.

b) All structures not explicitly or comprehensively addressed in [2] or any other direct or indirectly referenced Eskom standard or document, shall be earthed in accordance with relevant national standards and industry best practices.

c) All earthing connections, terminations, and components shall be designed and installed to resist corrosion and ensure long-term integrity and reliability in the prevailing environmental conditions.

d) All earthing shall comply with the latest revision of D-DT-5240.

e) Refer to the site-category sections herein for further details.

1.8 Lighting Requirements (Indoor & Outdoor)

a) The design and implementation of the Intelligent Security System shall account for optimal lighting conditions necessary for its proper functioning, especially concerning camera performance and AI-based analytics. The tendered cost must already include all necessary provisions for any identified and required lighting upgrades to achieve the specified system performance.

b) The overall design shall include clear provisions and recommendations for any necessary lighting upgrades or modifications required to ensure the security system, particularly its optical components and video analytics capabilities, functions properly and achieves its specified performance parameters.

c) Eskom shall provide all available information and existing resources pertaining to site lighting. However, the successful tenderer is explicitly required to conduct their own independent site surveys and measurements to accurately assess current lighting conditions and determine the precise requirements for any proposed upgrades that contribute to optimal system performance.

d) All lighting provisions, whether new installations or upgrades, shall be designed to ensure continuous and adequate illumination levels to facilitate clear image capture and reliable operation of the security system, day and night, without creating glare or blind spots.

e) The installation shall exclusively utilise luminaires approved by Eskom, and designs done in compliance with Eskom standards.

f) All security lighting must comply with Eskom's standard 240-139282493, "Security Lighting for Eskom applications," and all relevant SANS standards contained within it.

g) The design of all lighting civil foundations and lighting mast structures shall comply with Eskom's standard D-DT-5217 (latest revision).

h) The aforementioned design shall form part of the overall design; however, it shall not be implemented or installed under this scope.

1.9 Network Configuration and Security

The network design and configuration shall adhere to the following stringent requirements:

a) The network architecture must strictly comply with Eskom's Network Architecture standard

(240-81321219).

b) The use of CAT (copper) cables for Ethernet communication outdoor shall be limited to end devices and not used on backhaul links. Such links and connector terminations shall be suitably protected against environmental influences.

c) No communication link length shall exceed 80% of its rated range.

d) To ensure a robust and reliable system, the network architecture shall utilise an open and standard redundancy protocol that provides at least two separate Ethernet routes back to the control room for a minimum of 90% of all cameras.

e) Network redundancy mechanisms must be capable of recovering from link or equipment failures and returning to the primary link within 30 seconds of the failure or link restoration. Additionally, any failure of a link, switch, or other network component must be alarmed and visually indicated within the control centre(s). RSTP or MRP shall be the preferred recovery mechanisms.

f) A dedicated firewall shall be integrated to provide robust network protection, meeting all relevant cybersecurity standards.

g) All security-related network traffic shall be exclusively routed through VLAN 1002 and assigned to the IP range 172.30.252.0/22. Within this range, 172.30.252.1 is reserved for the gateway device, and the usable IP range for all other devices is 172.30.252.3 through 172.30.255.254.

h) All networking equipment deployed shall support both static and dynamic Network Address Translation (NAT) functionalities, facilitating seamless integration with existing site-category IP ranges as required.

i) At some sites the solution shall utilise dedicated telecommunication circuits provided by Eskom's service provider, with a minimum bandwidth of 2 Mbps. However, the solution must provide for and support temporary cellular modem infrastructure (point-to-point) to ensure connectivity if the primary telecommunication links are not ready at the time of commissioning.

j) Refer to the site-category requirements, which may provide further detailed specifications.

1.10 Fibre Perimeter Intrusion Detection

a) The system shall implement a fibre-optic perimeter intrusion detection system to provide complete coverage for both the inner and outer fences.

b) Refer to the site-category requirements, providing further detailed specifications.

1.11 Perimeter Surveillance (PTZ Cameras)

a) The system shall include the deployment of PTZ cameras positioned to provide full, unobstructed views of all sections of the fibre-protected perimeter fences.

b) These cameras shall be automatically linked to the fibre perimeter detection system to direct to suspected breached areas upon alarm activation.

c) Refer to the site-category requirements, providing further detailed specifications.

1.12 Entry/Exit Point Surveillance (Bullet/Suitable Cameras)

a) Entry/exit point cameras shall provide clear, high-resolution footage of all individuals and vehicles entering or exiting the premises.

b) Cameras deployed at entry points shall be capable of integrating with and optionally utilising facial recognition and LPR technology to identify individuals and vehicles, against a pre-defined database.

c) Refer to the site-category requirements, providing further detailed specifications.

1.13 Site Overview and Anomaly Detection (Overview/High-Point Cameras)

a) Systems shall include the installation of high-point overview cameras, typically at the corners, and on poles within the substation yard, to achieve near-to-no blind spot coverage of the entire site, at once.

b) These cameras shall integrate advanced AI algorithms specifically for the detection of plant anomalies, including, but not limited to, smoke and fire detection, abnormal equipment states, and other critical environmental deviations.

c) Refer to the site-category requirements, providing further detailed specifications.

1.14 AI-based Plant Monitoring Solution

a) For all AI-based plant monitoring solutions, refer to the included specification **Error! Reference source not found.** for a complete and detailed list of expected functions to be performed.

b) The site-category requirements will specify which sites require this feature and provide additional detailed specifications.

1.15 Execution of Works

a) All required Eskom authorizations shall be acquired in a timely manner before the commencement of work.

b) All work conducted by contractors and stakeholders within the substation must be done under the proper Eskom authorizations and work permits.

c) As required, wayleaves shall be requested and obtained from Eskom's Land Development department before any work can begin.

d) It is strictly prohibited to remove or relocate any existing cables utilised within sites, unless explicitly approved by Eskom.

e) All security cables not routed through existing trenches to be marked with the appropriate warning tape.

1.16 Provided Site Drawings & Documentation

All relevant project site documents and drawings are provided within clearly organised folder structures.

2. Site-category Requirements

2.1 Scope of work: A typical large Substation

The scope for a typical large Substation includes the comprehensive design, supply, installation, testing, and commissioning of a complete site protection and advanced surveillance capability system, inclusive of an:

a) integrated CCTV and perimeter detection system,

b) fibre perimeter detection solution on all perimeter and fences,

c) alarm system.

2.1.1 Proposed Equipment Placement Plan

This section provides an illustrative top-down view of a typical large substation to demonstrate how cameras and sensors may be strategically positioned across a site. It serves as a general guideline for equipment placement and system design. Tenderers are required to develop and submit their own detailed proposals, including drawings that clearly indicate fields of view and coverage areas, to confirm that their designs meet the required operational objectives.

Figure 1: Example of a typical large Substation

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2.1.2 Fibre Perimeter Intrusion Detection

Req.	Description	Measure / Qty	Unit
a)	Outer fence estimated length:	1400 (including storage / pole area)	m
b)	Inner fence 66kV yard estimated length:	200	m
c)	Inner fence 132kV yard estimated length:	900	m
d)	Perimeter structures:	200m diamond mesh fencing surrounding pole storage yard. Poor condition. 900m Palisade fencing Surrounding 132kV and 66kV yard outer perimeter. Medium integrity condition. 300m diamond mesh fencing shared with the Transmission MTS. Medium integrity condition.	

2.1.3 Perimeter Surveillance (PTZ Cameras)

The minimum number of PTZ cameras to be deployed to provide full perimeter coverage, with each camera strategically located at approximate 90-degree turns on the perimeter fence, shall be determined by the tenderer.

2.1.4 Entry/Exit Point Surveillance (Bullet/Suitable Cameras)

The minimum number of bullet cameras to be deployed, or other equally suitable fixed cameras at the designated entry and exit point, shall be determined by the tenderer.

Req.	Description	Measure / Qty	Unit
a)	Locations of entry & exit points:	Eastern side only: Bottelary Road	Entry/Exit point

2.1.5 Site Overview and Anomaly Detection (Overview / High-Point Cameras)

The minimum number of high-point overview cameras, typically at the corners, and on poles within the substation yard, to achieve near-to-no blind spot coverage of the entire site, shall be determined by the tenderer.

Req.	Description	Measure / Qty	Unit
a)	Overview cameras shall at minimum be installed at:	Any suitable location	

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2.1.6 Server & Control Room Equipment Location

Req.	Description	Measure / Qty	Unit
a)	All core security equipment, including NVRs, alarm system, and associated infrastructure, shall be installed within the:	Dedicated server room	

2.1.7 Site Layout and Access Points

a) The only entry point to this substation is located on the Eastern side, via Bottelary Road, and is currently controlled by permanent manned security due to the site's importance. This human presence and the distinction of threats should be a key consideration in the overall security system design.

2.1.8 Power availability and backup

a) The security system's primary AC power supply shall be drawn from the existing building Distribution Board (DB).

b) A suitably rated 2-pole MCB for the AC supply must be installed within the available space on the existing DB. The MCB shall include an auxiliary contact to indicate when it has tripped or been switched off.

c) This new MCB shall be clearly and appropriately labelled upon installation.

d) A revised Certificate of Compliance (CoC) for the entire electrical installation shall be issued upon completion.

2.1.9 Telecommunications

Req.	Description	Measure / Qty	Unit
a)	The main control centre telecommunication link for this site shall be provided by:	Eskom (NTCSA)	n/a
b)	The type of communication link:	Router / ADM (1410ADM / Cisco IR8340) 10 Mbps bandwidth	n/a
c)	The interface to which the solution shall connect:	Optical SFP / Copper SFP / built-in ports on telecoms devices Ethernet connection, 1Gbps or greater	n/a

d) The substation has an existing Add-Drop Multiplexer (ADM) installed in the same building as the security equipment, which can provide a dedicated circuit to the control centre.

e) All necessary cabling from the security equipment to the ADM shall be included within this scope of work.

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2.1.10 Decommissioning Requirements

a) The contractor shall be responsible for the complete decommissioning and removal of the existing, derelict security system from the site.

b) The scope of removal includes all components of the legacy system, specifically:

    1) Outdoor camera foundations and poles.

    2) Cameras and their mounts.

    3) Associated distribution and equipment boxes.

c) Upon removal, all decommissioned materials shall be handled in accordance with the specific decommissioning requirements detailed elsewhere in this document.

2.1.11 Underground Services / Infrastructure

a) The substation may have live underground High Voltage (HV) and Medium Voltage (MV) cables running through the site.

b) To ensure the safety of personnel and equipment, the contractor shall request all underground infrastructure drawings from the Land Development section and shall avoid all live services.

2.2 Scope of Work: A typical small Substation

The scope for a small substation includes the comprehensive design, supply, installation, testing, and commissioning of a complete site protection and advanced surveillance capability system, inclusive of an:

a) integrated CCTV and perimeter detection system,

b) fibre perimeter detection solution on all perimeter and fences,

c) AI-based plant monitoring solution,

d) remote video assistance platform,

e) alarm system.

2.2.1 Proposed Equipment Placement Plan

This section provides an illustrative top-down view of a typical substation to demonstrate how cameras and sensors may be strategically positioned across a site. It serves as a general guideline for equipment placement and system design. Tenderers are required to develop and submit their own detailed proposals, including drawings that clearly indicate fields of view and coverage areas, to confirm that their designs meet the required operational objectives.

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Figure 2: Example of a typical small Substation

2.2.2 Fibre Perimeter Intrusion Detection

Req.	Description	Measure / Qty	Unit
a)	Fence estimated length:	327	m
b)	Perimeter structures:	Solid precast concrete fence (1.5m high) with razor wire.	

2.2.3 Perimeter Surveillance (PTZ Cameras)

The minimum number of PTZ cameras to be deployed to provide full perimeter coverage, with each camera strategically located at approximate 90-degree turns on the perimeter fence, shall be determined by the tenderer.

2.2.4 Entry/Exit Point Surveillance (Bullet/Suitable Cameras)

The minimum number of bullet cameras to be deployed, or other equally suitable fixed cameras at the designated entry and exit point, shall be determined by the tenderer.

Req.	Description	Measure / Qty	Unit

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a)	Locations of entry & exit points:	Passageway off Edge Road.	Entry/Exit point

2.2.5 Site Overview and Anomaly Detection (High-Point Cameras)

The minimum number of high-point overview cameras, typically at the corners, and on poles within the substation yard, to achieve near-to-no blind spot coverage of the entire site, shall be determined by the tenderer.

Req.	Description	Measure / Qty	Unit
a)	Overview cameras shall at minimum be installed at:	Any suitable location	

2.2.6 AI-based Plant Monitoring Solution – Outdoor Transformers

Req.	Description	Measure / Qty	Unit
a)	Outdoor direct monitoring of transformer metrics as described in **Error! Reference source not found.**, including and not limited to • temperatures (incl. body, bushings and cable terminations), • oil and winding gauge temperature, • detection of anomalies.	2x 66/11kV Transformers	Transformers

2.2.7 AI-based Plant Monitoring Solution – Indoor Control Room

Req.	Description	Measure / Qty	Unit

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a)	As described in **Error! Reference source not found.**, visual monitoring & AI-based interpretation of control plant panel states and readings, situated throughout the control room, each typically 800 (w) x 600 (d) x 2400 (h) mm in size.	Four sets of side-by-side panels: 1. 2x Panels: Transformer & AC/DC. 2. 1x Panel: HV Feeder 3. 4x Panels: MV Feeders 4. 1x standalone DC charger (short panel)	panels
b)	The control room's approximate size is:	11 x 5.5	m
c)	The current state of lighting within the control room & contractor's requirements:	Lighting inadequate, contractor to replace defective units and include any automated lighting controls necessary to enable the visual monitoring functions.	n/a

2.2.8 Telecommunications

The substation will be connected to a security control room.

Req.	Description	Measure / Qty	Unit
a)	The main control centre telecommunication link for this site shall be provided by:	Eskom	
b)	The type of communication link:	L2 or L3	
c)	The interface to which the solution shall connect:	100Base-Tx	

2.2.9 Remote Video Assistance Platform

a) A remote video assistance platform shall be installed as detailed in **Error! Reference source not found.**.

b) The entire substation yard shall be covered by this platform.

2.2.10 Site layout and access points

a) The substation is accessed via a narrow, brick-paved alley south of the site off Edge Road This alley extends to a secondary access point at the rear, which includes a substation gate.

a) The substation yard is equipped with an existing main earth mat constructed from 10mm diameter black copper rod. The earth mats for the 11kV switch room and the control room are also made from 10mm diameter black copper rod. The system utilizes 50 x 3 mm flat copper for the earth tails.

b) The substation has underground power cables running from the 11kV switch room.

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2.2.11 Power Availability and backup

a) The security system's primary AC power supply shall be drawn from the existing building Distribution Board (DB).

b) A suitably rated 2-pole MCB for the AC supply must be installed within the available space on the existing DB. The MCB shall include an auxiliary contact to indicate when it has tripped or been switched off.

c) This new MCB shall be clearly and appropriately labelled upon installation.

d) A revised Certificate of Compliance (CoC) for the entire electrical installation shall be issued upon completion.

2.2.12 Lighting Conditions

a) Drawings indicating the positions of existing light poles in the substation yard shall be provided.

b) On-site analysis / measurements shall be performed by contractor to complete security lighting design. The contractor shall not be required to implement this design.

2.2.13 Environmental Considerations

a) The substation is bordered by residential units on its North, South, and West sides.

b) Given the proximity to these residential areas, the design and implementation of the security system must be sensitive to the privacy of surrounding properties and mitigate any potential impact on their occupants.

2.2.14 Control Room Layout

a) The existing control room has available space for the installation of security panels.

b) Should multiple panels be required, vertical stacking (one above the other) is the preferred installation method, subject to panel dimensions.

c) Eskom will provide a floor layout plan indicating the precise positioning of the panel(s) once their sizes are finalized

2.2.15 Decommissioning Requirements

a) Where an existing, non-operational security system is installed on-site it must be fully decommissioned and removed by the contractor.

2.3 Scope of Work: A typical CNC

The scope for the CNC includes the comprehensive design, supply, installation, testing, and commissioning of a complete site protection and advanced surveillance capability system, inclusive of an:

a) integrated CCTV and perimeter detection system,

b) fibre perimeter detection solution on all perimeter and fences,

c) alarm system.

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2.3.1 Proposed Equipment Placement Plan

This section provides an illustrative top-down view of a typical CNC to demonstrate how cameras and sensors may be strategically positioned across a site. It serves as a general guideline for equipment placement and system design. Tenderers are required to develop and submit their own detailed proposals, including drawings that clearly indicate fields of view and coverage areas, to confirm that their designs meet the required operational objectives.

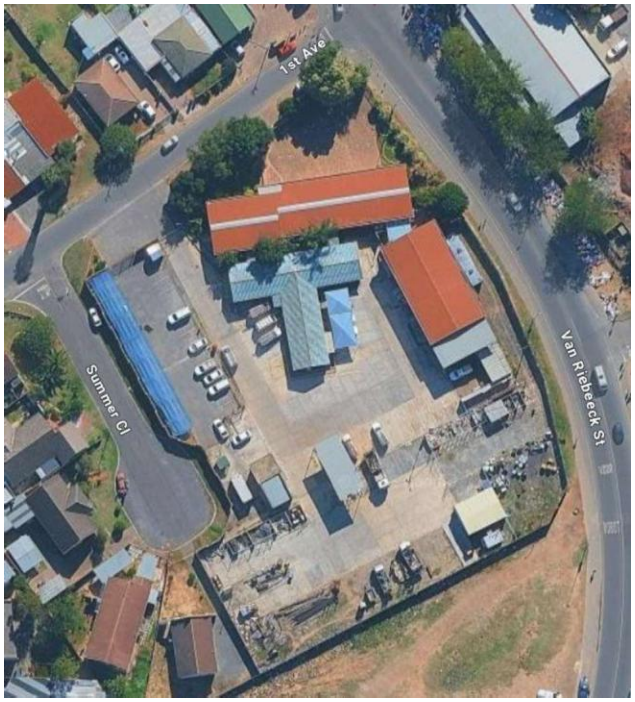

Figure 3: Example of a typical CNC

2.3.2 Fibre Perimeter Intrusion Detection

Req.	Description	Measure / Qty	Unit
a)	Outer perimeter estimated length:	400	m
b)	Perimeter structures:	Combination of: • Palisade fence • Precast concrete • Brick walls	

2.3.3 Perimeter & Outdoor Surveillance

The minimum number of PTZ cameras to be deployed to provide full perimeter coverage, with each camera strategically located at approximate 90-degree turns on the perimeter fence extreme edges, and one in the centre of the facility:

Strategically located bullet (or similar) outdoor cameras at the most vulnerable areas.

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2.3.4 Strategic Surveillance Areas

Dome cameras located indoor within stores areas and strategic locations, providing for a wide field of view.

2.3.5 Entry Point Surveillance (Bullet/Suitable Cameras)

Minimum number of bullet cameras to be deployed, or other equally suitable fixed cameras at the designated entry and exit point(s):

Req.	Description	Measure / Qty	Unit
a)	Locations of entry & exit points:	1x Guarded gate off 1st Avenue Road	Entry/Exit point

2.3.6 Server & Control Room Equipment Location

Req.	Description	Measure / Qty	Unit
a)	All core security equipment, including servers, alarm system, and associated infrastructure, shall be installed within the:	Dedicated server room	
b)	A local display within the supervisor's office shall be provided to show a live grid view of cameras, preferably with simple controls:	55"+ Display 3x3 Grid	
c)	The local display shall be situated at:	Supervisor's office (approx. 35m from server room)	

2.3.7 Telecommunications

Req.	Description	Measure / Qty	Unit
a)	The main control centre telecommunication link for this site shall be provided by:	Eskom (NTCSA)	n/a
b)	The type of communication link:	Router / ADM (1410ADM / Cisco IR8340) 10 Mbps bandwidth	n/a
c)	The interface to which the solution shall connect:	Optical SFP / Copper SFP / built-in ports on telecoms devices Ethernet connection, 1Gbps or greater	n/a

2.3.8 Site Description

This section provides a detailed description of the Customer Network Centre (CNC) site, outlining its operational characteristics and existing infrastructure relevant to the proposed security system.

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a) The site functions as a critical field depot, accommodating field staff, their vehicles, tools, dedicated office spaces, and various storage facilities for materials and consumables.

b) Presently, the facility's security is managed by contracted personnel stationed at the main gates, complemented by security patrols conducted at regular intervals across the premises.

c) During standard work hours, the facility is actively manned by field staff. Significant activity also occurs after-hours, primarily driven by responses to power network events.

d) The security system shall provide an intuitive interface for on-site security staff to temporarily pause active alerting for specific sections while they are conducting patrols. This functionality must not disable the camera feed or recording but should allow for the selective suspension of alarms to prevent false alerts during manual surveillance.

2.3.9 Lighting Conditions

a) The site currently has LED floodlights covering vulnerable sections, though not all areas are comprehensively illuminated.

b) Tenderers are required to thoroughly assess these existing lighting conditions and tender a comprehensive solution that ensures optimal performance of the security system under all operational scenarios.

2.3.10 Decommissioning Requirements

a) The successful tenderer shall be responsible for the professional decommissioning and removal of all existing and redundant security equipment on site.

b) Decommissioning requirements include, but are not limited to, cameras, sensors, cables, conduits, poles with equipment boxes, and any other associated infrastructure rendered obsolete by the new security system.

2.3.11 Provided Site Drawings & Documentation

All relevant project documents and drawings shall be provided to Eskom within a clearly organized, separate folder structure.

2.4 Scope of Work: A typical Warehouse

The scope for a typical Warehouse includes the comprehensive design, supply, installation, testing, and commissioning of a complete site protection and advanced surveillance capability system, inclusive of an:

a) integrated CCTV and perimeter detection system,

b) fibre perimeter detection solution on all perimeter and fences.

2.4.1 Proposed Equipment Placement Plan

This section provides an illustrative top-down view of a typical Warehouse to demonstrate how cameras and sensors may be strategically positioned across a site. It serves as a general guideline for equipment placement and system design. Tenderers are required to develop and submit their own detailed proposals, including drawings that clearly indicate fields of view and coverage areas, to confirm that their designs meet the required operational objectives.

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Figure 4: Example of a typical Warehouse

2.4.2 Fibre Perimeter Intrusion Detection

Req.	Description	Measure / Qty	Unit
a)	Outer perimeter estimated length:	1 100	m
b)	Perimeter structures:	Combination of: • Steel mesh fence with razor coil wire (2.5 – 3m high) • Electric fence on the inside of the perimeter fence.	

2.4.3 Perimeter & Outdoor Surveillance

The minimum number of PTZ cameras required to provide full perimeter coverage shall be determined by the tenderer. Each camera should be strategically positioned at approximate turns along the perimeter fence, with at least one camera located within the yard to cover the outdoor stores and entryway.

The minimum number of strategically located outdoor bullet (or similar) cameras, intended to complement the PTZ cameras, shall also be determined by the tenderer.

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2.4.4 Indoor Surveillance Areas

Securing the vast indoor Complex and Warehouse, an extensive facility encompassing large open stock areas for diverse items and stacked consumables, numerous office spaces and passageways, and at least five key entry/exit points requiring continuous monitoring, necessitates a comprehensive security solution; Eskom will provide a minimum camera count as a guiding baseline for tendered proposals.

2.4.5 Entry/Exit Point Surveillance (Bullet/Suitable Cameras)

The minimum number of bullet cameras to be deployed, or other equally suitable fixed cameras, at the designated entry and exit point(s) shall be determined by the tenderer.

2.4.6 Server & Control Room Equipment Location

Req.	Description	Measure / Qty	Unit
a)	All local security equipment, including servers, an operator station, and associated infrastructure, shall be installed within the:	Dedicated security office, located at the main entrance.	
b)	The existing control room utilises 5x32" primary displays, with another smaller display to compliment these. Tenderers must propose solutions that offer enough viewable area, comparable to at least the existing 5 displays each with up to a 9x9 grid view. The solution must offer full local control (all hardware provided) of all cameras (incl. PTZ control), video playback, providing for alerts and event searching, etc.		

2.4.7 Site Description

a) The site is characterized by a large, central metal-roofed warehouse structure.

b) It features multiple access-controlled gates, dedicated storage yards, and various parking areas.

c) Additionally, the facility includes external open areas for storing oversized items (e.g., steel, poles, pipes), all serviced by inner access roads branching off Reynolds Street and internal service lanes. Several sections of this facility are cordoned off by palisade fencing.

d) The contractor shall assess and communicate all vegetation clearance requirements with the site, notably along the northern and eastern sides of the warehouse, where trees and vegetation currently hinder visibility along the mesh fence. This communication will enable Eskom to perform the necessary clearing to support the security system design.

e) The warehouse building has emergency exit points (wooden door on the Eastern side of the building) in addition to the main entrance/exit points which are roller shutter doors.

f) The security system shall provide an intuitive interface for on-site security staff to temporarily pause active alerting for specific sections while they are conducting patrols. This functionality must not disable the camera feed or recording but should allow for the selective suspension of alarms to prevent false alerts during manual surveillance.

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2.4.8 Existing conduits/trenching and perimeter fence

a) Existing metal conduits and cable trays, previously utilised for the legacy camera system, shall be assessed by the contractor for their suitability, structural integrity, and adequate capacity. Where found compliant, these existing pathways shall be reused to accommodate new security system cabling.

b) Any existing underground trenching within the site, utilised for relatable power, communication, or previous security systems, shall also be assessed. These trenches may be reused for the new security system's cabling infrastructure, provided they meet all technical and safety standards.

2.4.9 Power availability and backup

For power connectivity, Distribution Boards (DBs) are available on-site, each possessing sufficient space to accommodate the security system's electrical requirements.

2.4.10 Lighting Conditions

The contractor shall conduct comprehensive on-site measurements and assessments of existing lighting conditions. These measurements are essential to inform and complete the detailed design of the security lighting system, ensuring optimal illumination for effective surveillance.

2.4.11 Decommissioning Requirements

a) The existing legacy security system shall be fully decommissioned and removed by the contractor.

b) This includes both internal and external components thereof, as well as permitter detection and control room hardware.

2.5 Scope of Work: A typical Security Control Centre

The scope for a typical Security Control Centre includes the comprehensive design, supply, installation, testing, and commissioning of the complete control centre solutions for the intelligent substation & security system, inclusive of:

a) all required server infrastructure,

b) dedicated overview monitors to provide for adequate situational awareness at all sites,

c) dedicated or shared monitors to provide for site-category interrogation of video feeds and alarms,

d) all other hardware required to a fully operational solution.

2.5.1 Site Description

a) This section defines the requirements for the establishment of a typical Security Control Centre facility. No existing control centre infrastructure is currently in place; therefore, tenderers shall be responsible for proposing a fit-for-purpose facility capable of accommodating all required equipment and achieving the objectives of the pilot project. The compliance of the proposed facility shall form an integral part of the tenderer's submission. suitability, functionality, and

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b) Tenderers shall propose a primary location for the control centre as part of their submission. The proposed option shall demonstrate compliance with the operational, technical, and spatial requirements defined in the specification.

2.5.2 Alternative Location

a) Tenderers shall propose an alternative location for the control centre as part of their submission, where feasible. The proposed option shall demonstrate compliance with the operational, technical, and spatial requirements defined in the specification.

2.6 Training

The successful tenderer shall provide comprehensive training to ensure all relevant personnel are fully proficient in the operation, maintenance, and administration of the deployed Intelligent Security System.

The training shall include/cover:

a) hosting in the designated provinces to maximise accessibility and relevance for local teams;

b) as a minimum requirement, both technical aspects tailored for maintenance personnel (e.g., system diagnostics, troubleshooting, preventative maintenance, component replacement) and operator-level instruction for end-users (e.g., VMS operation, alarm monitoring, incident response protocols, report generation);

c) presentation by qualified and experienced instructors with proven expertise in the deployed systems and technologies;

d) both in-person and online delivery methods, with recordings of all sessions provided to Eskom for future internal use. The specific delivery method and frequency (**up to four sessions**) shall be mutually agreed upon between Eskom and the successful tenderer, allowing for a combination of in-person and online instruction;

e) post-training support to address any queries or issues that may arise during the initial operational period.

2.7 Guarantees, Warranties, and Support

The tenderer shall provide comprehensive guarantees and warranty provisions covering all hardware, software, and the overall system implementation. The warranty period shall be clearly defined and shall include, as a minimum, coverage for defects, performance, and workmanship. The tenderer shall also outline the support arrangements during the warranty period, including response times, and escalation procedures.

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2.8 Software and Hardware Licensing

The tenderer shall provide a flexible, transparent, and clearly defined licensing model for all software and hardware components. Licensing structures shall accommodate future expansion, upgrades, and scalability requirements without imposing undue restrictions or excessive costs. Full details of licensing terms, including validity periods, renewal conditions, and associated costs, shall be included in the proposal.

1 Contingency plan

1.1 The Contractor must have contingency plans in place for at least the following:

a) Strike / labour unrest amongst own employees;

b) Shortage of manpower due to e.g. absenteeism, sick leave, annual leave, etc.;

c) Equipment failure, e.g. vehicle breakdown and communication system;

2 General

2.1 The principal contractor shall ensure all sub-contractors comply with the requirements stipulated in this document. The Employer reserves the right to evaluate the principal contractor and all sub-contractors at any time to ensure compliance

2.2 The Contractor will update the Employer regarding any changes to employees, which are involved in performing the service. Such update will include a revised company organogram, contact details and proof of relevant training and registration as specified in this document

2.3 The Contractor will report the total number of employees and total man-hours spent performing this service to the Employer on a monthly basis in a format as specified by the Employer from time to time;

3 Schedule of deficiency and penalties

3.1 The contractor will be held liable for damages or losses suffered by Eskom, as a result of the contractor's or his /her employee's gross negligence or intent, which originates at the sites or premises they are monitoring and responding to;

3.2 Eskom will not affect payment for items required under the service information, which are found to be defective, damaged or not working;

3.3 Early warning will be issued and followed by a Notification of Default where the contractor has a repeat finding and or non-compliant to the below instances. Following these Eskom may impose suspension or termination of a contract:

a) Non – compliance to Eskom policies, procedures, protocols and standards;

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b) Non – compliance to legislative requirements;

c) Non – performance of duties and negligence by response officers to site;

d) Non – compliance to the Employer's service information and all contents of the NEC contract.

The following high risk activities have been identified:

See attached risk assessment

7.1 Program details:

For Evaluation and Assessment of the Cycle: SHE plan at least 1 month prior to commencement of work.

7.1.1 Turn around for evaluation: 5 days

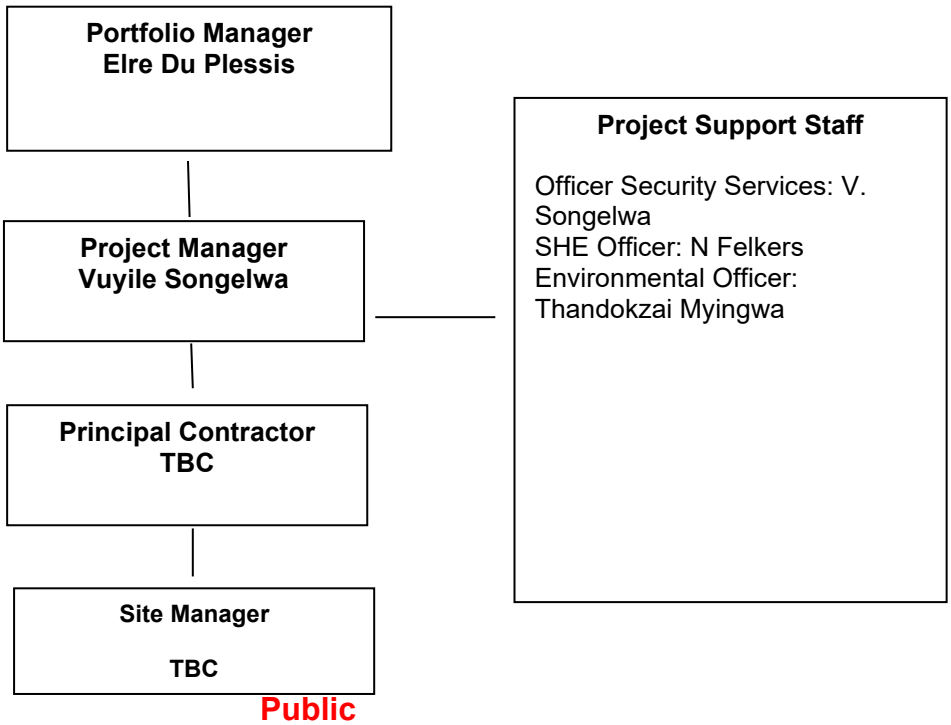
7.1.2 Anticipated date for the commencement of work on site: Thembakazi Wellem

7.1.3 Project completion date or project duration: Thembakazi Wellem

8. CLIENT/AGENT AND PRINCIPAL CONTRACTOR: DETAILS, ACCOUNTABILITIES AND RESPONSIBILITIES:

If there are any specific appointment/responsibility below that is not applicable, then that appointment/responsibility should be removed (as long as it is not a legally required appointment/responsibility).

8.1 The Project Organogram:



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8.2 ACCOUNTABILITIES AND RESPONSIBILITIES:

8.2.1 Client Representative: ESKOM PORTFOLIO MANAGER: NAME: Elre Du Plessis

The overall Project Manager is the overall accountable person for the overall management of the project both on and off-site.

If applicable: If an Agent is to be appointed, - Appointment as per OHS Act, CR 4(5) as an Agent representative by the Client representative.

The discipline/contract manager is responsible for managing the contract with the Principal Contractor and ensures that the SHE specifications are developed and issued with tender enquiries and that the Principal Contractor's SHE plan is approved prior to commencement of work. He must ensure that all the statutory requirements, Eskom and SHE specification and SHE plan requirements are adhered to by Principal Contractor and (if applicable) their contractors at all times.

8.2.2 ESKOM CONTRACT PROJECT MANAGER
NAME: Vuyile Songelwa

8.2.3 ESKOM PROJECT HEALTH AND SAFETY PRACTITIONER:
NAME: N Felkers

The responsibility of the Health and Safety Manager/Practitioner is to provide assurance, as well as advice, assist and support to the **Project /Site Manager** in the management of the health and safety issues on the project which includes ensuring proper co-ordination amongst the various Contractors. The SHE Manager/Practitioner will also be responsible for assisting in the development of site and project specific SHE Specifications and ensuring that SHE specification are issued with enquiry documents and that the Contractors SHE plans are submitted; evaluated and approved. He/She will be responsible for auditing and ensuring compliance to legal requirements.

8.2.6 ESKOM ENVIRONMENTAL OFFICER: NAME: Thandokazi Myingwa

Note: This position may be a permanent position on the Project Organogram, or it might be a service rendered by a line Division (which may be managed by a Service Level Agreement).
The responsibility of the Environmental Control Officer is to provide assurance, advice, assist and support to the Eskom Site/Project Manager in the management of the environmental issues on the project which includes ensuring compliance to the Record of Decision (ROD) and the Environmental Management Plan (EMP).

9. SECTION 37 (2) AGREEMENT

A Principal Contractor is an employer with duties as prescribed in the OHS Act.
Principal Contractor is mandated to ensure that all work is performed or machinery and plant to be used by their employees is accordance with the requirements of the OHS Act.

No Principal Contractor will be permitted to commence work without a signed section 37 (2) agreement. None of the additional safety requirements specified by the Client/Agent reduces the Principal Contractor's accountability and responsibility for the health and safety of his employees and contractor employees within his working area

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10. Compensation for Occupational Injuries and Diseases Act

The Principal Contractor shall submit a letter of good standing with the Compensation Commissioner or Insurer at the tender stage. The letter of good standing shall be valid throughout the project period.

11. COMPETENCY FOR PRINCIPAL CONTRACTOR'S RESPONSIBLE PERSONS

The Principal Contractor shall compile and maintain a current register/inventory of all supervisory and management personnel appointed. The inventory shall include SHE and professional competencies for each person appointed. The inventory shall be submitted to the client for approval preferably at tender stage as part of the SHE plan.

12. ORGANOGRAM

A site organogram clearly defining the reporting structure and legal appointment structure shall be drawn up and submitted by the Principal Contractor to the Client as part of the SHE plan.

13. SAFETY, HEALTH AND ENVIRONMENTAL (SHE) PLAN

The Principal Contractor shall develop, compile and issue a SHE Plan as per the Client's specifications. The SHE Plan shall be submitted for approval by the Client prior site establishment. For ease of reference, the format and minimum contents of a SHE Plan is attached in Annexure 1.

14. COMPLIANCE AND NON-CONFORMANCES

As legislation forms part of any country's legal system, the Client/Agent requires all of its Contractors to comply with legislation as part of the contract.

Should the Principal Contractor appoint a contractor, the Principal Contractor would then have the same role and responsibility in relation to the contractors, in a similar way as the Client has in relation to the Principal Contractor.

The Client/Agent's representative reserves the right to stop work and issue a non-conformance report whenever safety, health or environmental violations are observed for both Principal Contractors and/or their contractors. Expenses incurred as a result of such work stoppage and standing time shall be for the Principal Contractors account. Any non-conformances/findings/observations found in these audits/inspections on contractors shall be raised and discussed with the relevant Principal Contractor (with whom the contractor is contracted with).

The requirements within this specification should not be considered to be exhaustive and the Client/Agent reserves the right to add, delete or modify conditions where it is considered to be appropriate.

15. LEGAL COMPLIANCE

It is required that all Contractors on site comply with the following legislation and standards:

- The Constitution of the Republic of South Africa (particularly Section 24 of the Bill of Rights).
- Occupational Health and Safety Act 1993 (Act 85 of 1993) and its Regulations.
- National Environmental Management Act 1998 (Act 107 of 1998).

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- Environment Conservation Act 1989 (Act 73 of 1989).
- National Water Act 1998 (Act 36 of 1998).
- Conservation of Agricultural Resources Act 1983 (Act 43 of 1983).
- Civil and Building Work Act.
- COID Act.
- Applicable South African National Standards (SANS).
- Applicable international standards.
- Operating Regulations for High Voltage Systems.
- Plant Safety Regulations (Low Voltage Regulations).
- Explosive Act

It is the duty of the Principal Contractor and contractor to ensure that they are familiar with the necessary SHE legislation required.

The Principal Contractor shall compile ah legal register listing all applicable legislation and standards that may have an impact on the scope of work that they are performing on the construction project. The register shall be updated on a regular basis.

16. SHE POLICY

The Principal Contractor and the contractor companies shall each have a SHE Policy authorised by their Chief Executive (OHS Act Section 16(1) appointee) that clearly states overall SHE objectives and commitment to improving Safety, Health and Environment performance.

Eskom has a SHE Policy that clearly states the guiding principles by which Eskom operates and the commitment to SHE excellence and is authorised by the Chief Executive and the Managing Directors.

17. APPOINTMENTS AND COMPETENCIES

21.1 The Principal Contractor shall ensure that all their appointees are made aware of their accountabilities and responsibilities in terms of their appointment, and to advise and assist these appointees in the execution of their duties.

21.2 Appointment letters and competency certificates which are signed by the OHS Act Section 16(1) or 16(2) appointee which refers to the relevant training certificates and proof of experience of appointees must be submitted with the Health and Safety File.

21.3 All minimum required training that is stipulated below are to be provided by accredited training service providers.

21.4 **The Principal Contractor shall ensure that competent persons are appointed in writing in accordance with the following applicable appointments:**

(Note: If there are any appointments that are not applicable, then a brief explanation as to why they are not applicable should be made, but should an appointment become applicable during the duration of the contract work, then these appointments are to be made available)

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a. OHS Act, Section 16(2) – Assistant to Chief Executive Officer.

Training

- COID Act Training
- OHS Act Training

b. OHS Act, Section 17 – Health and Safety Representative.

Staffing

- At least One trained Health and Safety Representative for every site one for every 20 or part thereof.
- To be elected and appointed per work area and discipline and comply with OHS Act Section 17 and 18 and GAR Section 6.

Competencies/Training

- General Health and Safety Training
- Health and Safety Representative Training
- Hazard Identification and Risk Assessment Training
- Incident Investigation and Root Cause Analysis Training

Competencies for Short Term Contractors (working on site for less than 30 days)

Indicate which competent person will perform these duties:

- General Health and Safety monitoring
- Health and Safety Representative duties
- Hazard Identification and Risk Assessment duties
- Incident Investigation and root cause analysis duties

c. OHS Act, Section 19 – Health and Safety Committee Member (if there are 2 or more Health and Safety Representatives then there will be a Health and Safety committee)

d. Chairperson of Health and Safety Committee

e. OHS Act, GSR 3 – First Aiders

Staffing

One first-aider trained to Level 2 per team (as per OHS Act or project risk profile of workers.)

Competencies/Training

In possession of a valid level 2 first aid certificates issued by any one of the following: The SA Red Cross Society; the St John's Ambulance; the SA First Aid League; or a person or organisation approved by the Chief Inspector for this purpose.

f. OHS Act, GAR 9 (2) Incident/Accident Investigator

Training

HIRA, Incident investigation and root cause analysis

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g. OHS Act, CR 5(1)(k) Appointment of the Principal Contractor by the Eskom Client/Agent (to be done when contract is awarded)

h. OHS Act, CR 7(1) (c) Sub-Contractor Appointment by the Principal Contractor (If appointing Sub-Contractors)

i. OHS Act, CR 8(1) Site Manager

For existing contracted contractors: For appointees that do not meet the minimum competencies: full compliance to the above competencies would be expected within 6 months after the contract is placed. A weekly status report on meeting 100% compliance shall be submitted to the SHE Manager/Practitioner for tracking.

For new contracts: To meet all requirements prior to commencement of work.

j. OHS Act, CR 8(2) – Assistant Site Manager

For those contractors that do not meet the minimum competencies: full compliance to the above competencies would be expected within 6 months after the contract is placed. A weekly status report on meeting 100% compliance shall be submitted to the SHE Manager/Practitioner for tracking.

k. OHS Act, CR 9 (1) Person to Compile Risk Assessments
- HIRA

l. OHS Act, CR 23(1) (d)(i) Construction Vehicle and Inspector

m. OHS Act, CR 29 (h) Fire Fighting Equipment Inspector

n. Eskom requirement Emergency Planning Co-ordinator

o. Eskom requirement Fire Official

Training

Basic firefighting training

18. TRAINING

The aim of this section is to outline Eskom's expectations in respective of the scope of the training which the Principal Contractor and contractor's employees receive. The scope of the training includes but is not limited to the type of work being performed and the relevant procedures. Additional to the requirements, will be that the Principal Contractors and contractors would have the appropriate qualifications, certificates and tickets, and are under competent supervision. Records of all training and qualifications of all contractor employees must be kept. The Contractor shall maintain comprehensive records of all employees under his control (including all employees of the contractor) attending induction training. Acknowledgement of receiving and understanding the induction must be signed by all persons receiving the induction respectively.

When there is an amendment to the Acts and/or to the regulations, SHE specification and SHE plan, all affected staff shall undergo the relevant re-training.

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For existing contracted contractors: For appointees that do not meet the minimum competencies: full compliance to the above competencies would be expected within 6 months after the contract is placed. A training plan must be submitted on a weekly basis to reflect progress of meeting the minimum training requirements.

Training Matrix

Annexure 3 Updated Training matrix must be sent to Eskom SHE Officer on a Monthly Basis.

19. CONTRACTOR'S FACILITIES

The aim of this section is to outline how The Principal Contractor's site facilities should be managed.

- **Fire Extinguishers**
- **First Aid Kits**
- **Hand Sanitizers**

20. PROJECT AND SITE RULES (ZERO HARM TO PEOPLE AND THE ENVIRONMENT)

The objective of this section is to define the rules that are over and above the internal regulations and procedures of Eskom and relevant legislation which will ensure zero harm to persons and the environment. These rules will be specific to the project and site.

a. Eskom Life Saving Rules

There are 5 Life rules that have been identified by Eskom. Failure to adhere to these rules by any Eskom employee or employee of a Principal Contractor or contractor will be considered a serious transgression. These rules are being implemented to prevent serious injury or death of any employee, labour broker or contractor working in any area within Eskom site.

The rules are:

RULE	DESCRIPTION OF RULE
Rule 1	**Open, isolate, test, earth, bond, and/or insulate before touch**
Rule 2	**Hook up at heights**
Rule 3	**Buckle up**
Rule 4	**Be Sober**

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Rule 5	**Ensure you have a permit**

Eskom will take a stance of zero tolerance on these rules.

Any non-compliance to any health and safety requirement in this SHE specification is subject to discipline/removal of person from the project site.

Non-compliance to Life saving rule will be considered serious misconduct and will lead to serious disciplinary action, which may include dismissal.

This is to ensure that **every person** who works on or visits an Eskom work site **returns home safely to his or her family**.

b. Management of Substance Abuse

No person (employees, contractors, consultants, visitors) shall report for duty or continue with his/her duties, if he/she is under the influence.
No person may consume alcohol or drugs/controlled substances while on Cape Coastal Cluster Eastern Cape sites or while on Cape Coastal Cluster Eastern Cape business.
Contractors shall manage substance abuse and conduct periodic testing
All contractor employees, consultants and visitors shall comply with any reasonable request to undergo random or specific alcohol testing.

c. Personal Protective Equipment (PPE)

The minimum required PPE on any construction site:

- Steel toe cap safety boots with ankle support
- Other risk based PPE to be confirmed by the project team

d. Smoking

Smoking is only permitted at designated areas.
Facilities to consist of a covered area, with bench seating, and provided with:

- Fire Extinguishers.
- Sand Buckets.

- Health warning signs as required by the Tobacco Products Act, as amended.

e. Cellular Phones

Do not use Cellular phones in areas where cell phone usage is prohibited including whilst driving.

f. Recognised Walkways

When walking through the site or to personal work areas use recognised thoroughfare. Don't take short cuts or walk on uneven ground surfaces.

g. Vehicles and Traffic Rules

Refer to Section on: "CONSTRUCTION VEHICLES" for requirements.

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h. Fire Extinguishers

All fire extinguishers shall be:

- Be clearly labelled
- Conspicuously numbered
- Entered in a register
- Inspected monthly by a competent person
- Tested and serviced at recommended intervals by an accredited supplier
- Results entered in the register and signed by competent person.
- No open or unattended fires are allowed within the Construction site.

21. HAZARD AND RISK MANAGEMENT

a. Specific Health and Safety Hazards

In complying with the requirements of the OHS Act, the Eskom Site/ Project Manager shall outline the site-specific health and safety hazards pertaining to the environment and physical conditions that the security contractor will be exposed to in performing their work on site.

This section shall be reviewed by the project manager, the client and/or agent and design team to make it project/site specific.

The Eskom Project Manager shall make all reasonable efforts to ensure that the information provided is complete and correct. However, the Principal Contractor shall make his own assessment of the hazards and risks associated with the work under the Contract.

The principal contractor shall establish and maintain procedures for continuous identification of hazards, the assessment of risks, and the implementation of necessary control measures. This shall include routine and non-routine activities, activities of all personnel having access to the workplace, facilities at the workplace and so forth.

(a) **Risk Assessment (Additional Guidelines)**

Activity based risk assessments must be conducted and approved by the Principal Contractor's competent person before any activity begins on site and must be updated regularly to ensure its relevance to changing scope and/or circumstances.

The intent is Zero Tolerance of unsafe acts and conditions on the various sites in ECOU through the assessment of risk of each operation executed by the Principal Contractor and the provision of the necessary means to eliminate or minimise the risk to ensure a healthy and safe working environment.

The process involves input from a multi-disciplinary team e.g., site manager, supervisor(s), safety practitioner, as well as the health and safety representative for the workplace concerned. Additional task specific risk assessments are required for certain tasks throughout the project.

Guidelines for actual steps involved in an task specific risk assessment are:

- Each activity is listed;
- Specific hazards are identified and listed against each activity;
- The magnitude of each risk is rated as Low. Medium or High;
- All known documentary and supervisory controls are listed. For instance: What Safe Work Procedures exist for scaffolds and ladders;

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- The relevance, effectiveness and sufficiency of these controls are assessed;
- In the event of deficient controls for the particular activity. Actions to be taken will be recorded and safe working procedures drawn up;
- Persons responsible for implementing and supervising the task are to be identified. Nominated and duly assigned;
- Persons responsible for monitoring the task and carrying out the Planned Job Observation must be nominated;
- Completed Risk Assessment must be handed to the Eskom Site/Project Manager representative for comment and approval;
- Names of employees who have received instruction on the work content and the sequence of the activities listed in the risk assessment are to be recorded, obtain their confirmation of understanding of their roles (signature or other markings). This instruction must be done through an interpreter if required and recorded on the toolbox talk, with reference to applicable Risk Assessments.

22. SAFE WORK PROCEDURES AND PRACTICES

There must be written safe work procedures for all identified high risk activities ie the Risk Assessments document should always be referred to when developing safe work procedures. A safe working procedure should be reviewed when:

- Changing a job or task;
- Reviewing a procedure when problems have been identified, e.g. from near miss incidents or an accident/incident investigation.

The safe working procedure should identify:

- The supervisor for the task or job and the employees who will undertake the task;
- The tasks that are to be undertaken that pose risks;
- The equipment and substances that are used in these tasks;
- The control measures that have been built into these tasks;
- Any training or qualification needed to undertake the task;
- The personal protective equipment to be worn;
- Actions to be undertaken to address safety issues that may arise while undertaking the task.

23. HIGH RISK ACTIVITIES

When the Principal Contractor and/or his contractors are working in an area where a high health and safety hazard exists, the Principal Contractor shall:

a) Ensue that permanent and adequate on-site supervision is available

The Principal Contractor shall maintain, at all times, defined access ways, which is clear of objects or obstructions, so as to allow for easy access and egress.

24. OCCUPATIONAL HEALTH, REHABILITATION AND HYGIENE

Referring to the scope of work the Principal Contractor shall develop a Health Risk Assessment of all Occupational Hygiene stressors associated with the activities they will be performing as well as the

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area within which the activities will be done. The risk Assessment shall include, but not be limited to, identification of employees exposed to the stressors, frequency of exposure, measure to be taken to mitigate exposure to the stressors.

Records of all this assessment should be documented and kept up to date. These assessments shall be conducted by an Approved Inspection Authority accredited by the Department of Labour. The findings from these assessments shall be communicated to all affected parties and reporting to authorities done timeously.

Workers Compensation

The Principal Contractor must submit proof of registration and a letter of good standing with the compensation fund or with a licensed compensation insurer for his company and each of his contractors'. This must remain valid for the duration of the contract. The Letter of Good Standing must reflect the name of the Principal Contractor and/or Contractor Company.

Employee Health and Wellness Programme

Principal Contractor shall submit details of their Employee Health and Wellness Programme as part of their Health and Safety Plan which should include a Medical Surveillance Program and an Employee Assistance Program as detailed below.

Medical Surveillance Programme

- The Principal Contractor must ensure that all his employees and contractor employees shall be registered on a medical surveillance programme and shall be in possession of a valid medical health certificate. The certificate of fitness is also required that is relevant to the type of work (risk based) that the employee will be conducting.

- The Principal Contractor must ensure that his employees and contractor employees have undergone pre-entry medical examination before starting work on site. An exit medical examination must be done by all employees before leaving site.

- The certificate shall be issued before commencement of work and shall be presented at induction. If the Principal Contractor does not provide proof of valid certificates of fitness for his employees and contractor employees, then Eskom will not give those employees site access.

- The certificate shall be renewed annually until completion of the project, at which stage an exit medical examination shall be conducted, unless otherwise advised by the Occupational Health Practitioner.

- All employees shall be issued with the required medical records to prove medical status at the time of exiting the construction project.

- The principal contractor shall provide a documented process for managing those employees who are issued with a conditional certificate of fitness.

- All medicals to be completed on Annexure 3.

Note: Eskom will only accept medical surveillances conducted by an Occupational Health Practitioner who holds a qualification in occupational health. No medical surveillance conducted by the General practitioner or clinic nurse will be accepted.

Emergency Care

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- A list of emergency numbers must be posted at phones and in every office. Principal Contractor must ensure that his employees and contractor employees are familiar with the emergency numbers and also are provided with stickers, with the emergency numbers printed on, to place inside their hardhats.

- The Cape Coastal Cluster has established a contract with ER 24 for all employees and its contractor employees for emergency medical assistance incurred whilst on duty anywhere in South Africa. **ESKOM EMERGENCY NUMBER ER 24 – 010 205 3400**

- Contractors shall have an appointed first aider on every site and where there are different teams working at different locations there should be one first aider per team.

- More first aid boxes shall be provided if the risks, distance between work teams or workplace requirements require it (it should be available and accessible for the treatment of injured persons at that workplace).

    - A prominent notice or sign in a conspicuous place at a workplace (SABS 1186 approved signs to indicate location of first aid boxes), indicating where the first aid box or boxes are kept as well as the name and contact details of the First Aider of such first aid box or boxes.

    - The Principal Contractor and contractor shall ensure that arrangements shall be made for possible incidents occurring after normal working hours.

    - Principal Contractor shall make arrangements for any medical assistance. Proof of this must be made available in the Principal contractors SHE Plan.

Employee Assistance Programs (EAP)

Where Principal Contractors and contractors do not have EAP service providers, then Eskom's EAP service provider is available to aid. All costs are to be borne by the Principal Contractor. Details are: **ICAS – Tel. No.: 0800 611 059.**

Welfare facilities

The following welfare facilities must be provided for in a clean and suitable condition, unless agreement with the Client/Agent's representative has been confirmed regarding the use of existing facilities:

- Sanitary facilities.
- Drinking water at strategic locations on site.

Potable Water for drinking/consumption purposes shall be provided on site marked "drinking water".

25. EMERGENCY PREPAREDNESS AND RESPONSE

The aim of this section is to remind the Principal Contractors and his contractors about the importance of developing a site specific emergency response plan.

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The Principal Contractor, together with his contractors, will develop their own emergency response plan (as a guideline) for both site and offices and submit this plan to the Eskom Project Manager for approval. It may be decided that one site specific emergency response plan be used for all contractors. He will ensure that his employees and his contractor's employees are trained on this plan.

26. ENVIRONMENTAL MANAGEMENT

The aim of this section is to outline Eskom's requirements with regards to management of the environment in and around the construction site.

The following criteria need to be complied with by any Contractor before performing work.

Refer to the Project Environmental Management Plan (EMP).

a. **Fire hazard**

The Contractor shall ensure that staff are educated in fire prevention and will be held responsible to avoid the risk of fire. No area is to be denuded of vegetation to create firebreaks, to prevent or make fires. No open fires are allowed on site. The contractor must ensure that operations are in compliance with statutory requirements at all times.

b. **Waste**

A register of hazardous waste. A waste plan is to be compiled before commencing of work. A register of hazardous waste. Keep record of disposal. No waste, whether it be biodegradable or not, is to be left on site once work has ended. Domestic and hazardous waste generated will not be burned, buried, or disposed of on Eskom or other Landowners' property but will be controlled and removed to a registered waste site on a regular basis. (Daily / Weekly). The contractor and contractor working on site must ensure that oil, fuel, and chemicals are confined to specific and secure areas throughout the construction period. These materials must be stored in a bunded area with adequate containment for potential spills and leaks.

Contractors must ensure that sufficient waste bins / containers are made available for waste control.

a) **Non-Statutory SHE Committee Meeting**

Objective: this is the overall governing forum for all SHE issues affecting the project. The Committee shall meet to discuss safety issues concerning the current work being performed, training, upcoming work and safety requirements, incidents and lessons learned, specific safety problems, safety performance, action plans and other relevant safety issues.

Chairman: Principal Contractor Project Manager

Frequency: Monthly

Required Attendees:

- Principal Contractor/s and their contractor/s:
- Senior Supervisors
- Statutory Health and Safety Representative
- Safety Practitioners

b) **Contractor Statutory SHE Meetings**

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Objective: this is a meeting where the Principal Contractor will co-ordinate, SHE efforts, establish safety co-operation, ensure project SHE goals are met, and to ensure SHE rules and procedures are understood. The Committee shall meet to discuss SHE issues concerning the current work being performed, training, upcoming work and SHE requirements, incidents and lessons learned specific SHE problems, safety performance, action plans and other relevant SHE issues such as but not limited to:

- Hazardous conditions
- Hazardous materials / substances
- Work procedures
- Protective clothing / equipment
- Housekeeping
- General SHE topics
- Off the job safety

Chairman: Principal Contractor Construction Supervisor

Frequency: Three Monthly

Required Attendees:

- Principal Contractor/s and their contractor/s
    - Project Managers
    - Site managers
    - Supervisors
    - Health and Safety Practitioners
    - Health and Safety Representatives

All other relevant statutory meetings as prescribed in the OHS Act need to be complied with.

27. VEHICLES

a. All motor vehicles operated by Contractors within the area shall, in all respects, comply with the Road Traffic Ordinance and Road Traffic Act. Designated drivers shall be in possession of a driver's licence, valid for the class of vehicle. The driver's license shall be kept by the person so authorised and shall produce such card on request.

b. All drivers of construction vehicles to have medical certificates of fitness
Each Security site will have system/ process to manage vehicle access to site. This process/system must be defined in the SHE Plan and displayed on site.

c. No drivers or operator may talk on cell phones whilst driving, unless a hands-free kit is used.

d. It is the responsibility of the driver to ensure:

- He/she and their passengers wear seat belts whilst the vehicle is in motion.
- Comply with all safety, direction and speed signs.
- Ensure that vehicle loads are properly secured and loaded onto vehicles.
- Ensure that vehicles are not overloaded.
- Drivers shall have valid licence

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- Carry out daily pre-trip inspections

e. No person must be transported at the back of the vehicle unless the vehicle has been designed and manufactured for the purpose.

f. The Principal Contractor shall ensure that his employees and those of his contractors do not.

- Leave vehicles unattended with the engine running.
- Park vehicles in unauthorised zones/areas.

g. Eskom reserves the right to search any vehicle on the premises or when entering or leaving the premises.

h. The Contractor shall be solely responsible for the safety and security of any of his vehicles (including private vehicles) on the premises.

i. The Contractor must maintain his vehicles in roadworthy condition and a valid license. These vehicles shall be subject to inspection by the Client/Agent's representative. Vehicles which are not roadworthy will not be allowed onto the site.

j. In the event where the principal Contractor and his contractor do not own the equipment, the principal Contractor is still responsible for ensuring all conditions are complied with by all of his contractors or hire companies.

All vehicles used for Eskom business shall meet the following requirements where available in the market:

- Factory-fitted antilock braking system (ABS) for all vehicles.
- Factory-fitted driver and passenger air bags.
- Alarm/immobiliser – factory-fitted, and if not available by the manufacturer, it shall be fitted at approved fitment centres.
- Factory-fitted power steering.
- Tyres as per the manufacturer's specifications for the intended purpose. Managers have to consult the Eskom Fleet Services for advice, where needed, for special circumstances.
- Two emergency warning triangles.
- Factory-fitted air conditioner.
- Reverse beeper shall be standard on all heavy commercial vehicles, buses and construction equipment or vehicles being used on construction sites.

28. HOUSEKEEPING

a. The Principal Contractor and contractors shall maintain a high standard of housekeeping within the site.

29. PERSONAL PROTECTIVE EQUIPMENT (PPE)

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In terms of Section 8 of the OHS Act, the duty of the employer is to take steps to eliminate or mitigate (hierarchy of control measures) any hazard or potential hazard to the safety or health of employees before resorting to PPE.

Principal Contractor shall ensure that a PPE issue matrix that is Risk based is developed, implemented and monitored.

30. FIRE SAFETY

Contractors must develop a fire safety procedure for the specific construction site prior to commencing work.. All workers entering and working in the site need to be trained in fire safety and any duties they are required to perform. Pre-existing fire systems in buildings shall be maintained during construction whenever possible. Any changes must be approved by the Client/Agent.
Bar heaters and stoves are not allowed at Eskom sites. Security employees are strictly forbidden to make any fires on sites.

a. Fire Safety Plan

The fire safety plan shall include:

I. The designation and organization of site personnel to carry out fire safety duties, including fire watch service if applicable.

II. The emergency procedures to be used in the case of fire, including.

- Sounding the fire alarm.
- Notifying the fire department
- Instructing site personnel
- Fire fighting procedures
- And integrating with existing emergency procedures.

III. The control of fire hazards in and around the building.

IV. Maintenance of fire fighting facilities.

31. WORK STOPPAGE

The aim of the section is to outline the conditions under which work will be stopped and the process to be followed to ensure that the worksite is rendered safe. The conditions that lead to work stoppages are based on:

- Management of change – this is when there are changes to the work environment (e.g.: climatic changes) and/construction work (e.g.: modifications to the design), in any phase of the construction project, and/or amendments with regards to Eskom rules and regulations and/or legislative amendments;
- Unsafe acts/behaviours;
- Unsafe conditions;

The process to be followed is:

- The relevant activity must be stopped;

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The Eskom site/project manager and/or Principal Contractor shall immediately remove the workforce from the work area and correct the health and safety deficiencies by allowing only the people in the area that are competent to make the area safe.
Principal Contractor shall ensure that no other work is being performed during this time. Should the estimated time from the outset to make the area safe where life threatening/imminent danger situations exist, then the area will be barricaded and a sign placed with the wording “Unsafe Area – Authorized Access Only”.

- The Eskom Site/Project Manager shall review the affected parts/sections of the SHE specification with the purpose of providing sufficient SHE information to the principal contractor.
- The principal contractor shall then revise the relevant sections in the SHE plan to accommodate the changes.
- The Eskom Site/project manager must ensure that the revised provisions in the SHE plan are adequate and must approve it before the work activity is commenced.

Before the workforce is allowed back in the area, Principal Contractor shall ensure:

- The area is re-inspected by Contractor Safety Practitioner and supervisor and note corrective actions taken;
- Declare the area safe for work by signing off on the “work stoppage” notice issued by the Eskom Site/Project Manager.

32. SHE AUDITS

Eskom reserves the right to conduct unannounced audits on contractors

a. Compliance and Approval of Contractor SHE Plan

The Contractor’s SHE Plan will be audited against a compliance checklist so as to confirm compliance to the requirements in the Eskom SHE specifications. Once there is compliance will only then the contractors SHE plan be approved by the Client/Agent. The implementation of the SHE Plan shall be assessed by conducting a systems and physical conditions evaluation.

b. Contractor SHE Performance Evaluation

Eskom shall evaluate contractor SHE performance on an ongoing basis against the Eskom requirements.

c. Internal Audits

Contractors are required to conduct internal audits on both their employees and their contractors on the implementation of their SHE Plan on a monthly basis or when the scope of work changes. A summary of the findings and the proposed corrective actions shall be submitted to the Eskom Project/Site Manager on the last day of the audit. The report shall be submitted within one week after completion of the audit.

d. Third Party Legal Compliance Verification Audits

If Contractors have a third party legal compliance verification audit that is to be conducted on the site activities, then a copy of the summary of the findings and the proposed corrective actions shall be submitted to Eskom Project/Site Manager. The written report shall be submitted within one week after the completion of the audit.

e. SHE Plan Audits

There will be monthly inspections conducted by the Client on the principal contractors. These audits shall be attended by the contractor’s site manager or his representative.

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If there are any life threatening non-conformances identified in these inspections, work will be stopped for that specific Principal Contractor. Refer to section on “Work Stoppage” in this SHE Specification.

33. INCIDENT MANAGEMENT PRINCIPAL CONTRACTOR AND CONTRACTORS

a. The Principal Contractor shall report all incidents/accidents as required in terms of legislation including near miss incidents, first aid, medical treatment, lost time incidents (lost time injuries and fatalities); Section 24 and 25 incidents; electrical contact; major equipment damage; chemical spillage and other environmental incidents within 24 hours or before the end of the work shift.

b. All fatal incidents, employee and contractor incidents, shall be investigated by the committee within one week after the incident. Preliminary investigation information shall be shared.

c. All employee and contractor incidents that were in contravention of any one of the Eskom Life Saving Rules must be investigated by the relevant Business Unit Manager or the Managing Director of the contracting company.

d. If it is found that the Principal Contractor or his contractor are hiding/not reporting incidents then steps (which may include disciplinary action) would be taken against the Line Management of the Principal Contractor.

e. A comprehensive and detailed investigation report shall be submitted to the Eskom project manager within 7 days after the incident.

f. The Principal Contractor shall ensure that all accidents/incidents are investigated by him/her and are discussed at the Project SHE committee meeting held on site.

g. Accidents/incidents shall be investigated and recorded in terms of the requirements of the Occupational Health and Safety Act, Eskom Procedure 32-95 and the National Environmental Management Act and National Water Act as applicable.

h. The Client/Agent shall be allowed to participate in any accident/incident investigation if the accident/incident is directly linked to any activity within the scope of the construction project.

i. Contractors shall share all findings and implement recommendations from all incident investigations.

j. The Principal Contractor shall keep on site/workplace a record of all accidents and incidents reported in the form of the OHS Act Annexure 1 investigation form as referenced in the OHS Act. (Incident Investigation Report)

k. The Principal Contractor shall provide SHE related statistics to the Client at the end of each month.

l. Eskom reserves the right to conduct an independent investigation in any incident.

m. investigation committees

Note that the committees below are the investigation committees that are expected as a minimum for the Principal Contractor to establish for incidents and accidents.

In addition to the Principal Contractor and his contractor investigations, Eskom will also, separately, conduct its own separate investigation. The principal contractor and contractor would be required to

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co-operate with the Eskom investigation committee. No joint investigations would be held, i.e: with Eskom and Principal Contractor.

Parties to be involved in the investigation of any of the following are as follows:

First Aid Injuries

Chairman: Supervisor of Injured Person / Principal Contractor Relevant Supervisor

Attendees:

- Principal Contractor/s and their contractor/s
  - Safety representative
  - Safety Practitioner
  - Injured

Medical Treatment Injuries

Chairman: Principal Contractor's OHS Act Section 16(2) appointee

Attendees:

- Principal Contractor/s and / or their contractor/s
  - Safety representative
  - Safety Practitioner
  - Injured (if possible)
  - Witness (if any)
  - Supervisor of the injured
- Eskom
  - Area/Discipline Project Manager

Lost Time Incidents (Lost Time Injuries, Occupational Diseases and Fatalities) :

Chairman: Principal Contractor's OHS Act Section 16(2) appointee

Attendees:

- Principal Contractor/s and / or their contractor/s
  - Safety representative
  - Safety Practitioner
  - Injured (if possible)
  - Witness (if any)
  - Supervisor of the injured
  - OHS Act Section 16(2) of the injured

- Eskom
  - Eskom Project Manager
  - Eskom Area/Discipline Project Manager
  - Eskom SHE practitioner

Near miss Incidents

- Chairman: Principal Contractor/s Construction Supervisor 8 (7) appointee

Attendees:

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- Principal Contractor/s and / or their contractor/s
  - Person/s affected by near miss
  - Health and Safety representative
  - SHE Practitioner
  - Supervisor of the area
  - Principal Contractor 's OHS Act Section 16(2) appointee

- Eskom
  - Eskom contract supervisor
  - SHE practitioner
  - Other
  - Witnesses (if any)

The severity and potential for injury and/or damage to plant/equipment will be determined, by at least the following people below:

- Eskom Area/Discipline Project Manager
- Person involved or owner of equipment involved
- Health and Safety representative
- SHE Practitioner

All investigation teams must include at least 1 person (from both the Eskom and Principal Contractor) that is competent in Root Cause Analysis.

Contractors shall ensure the incident/accident scene is not disturbed until after the investigation unless it is done to prevent further injury or for rescue purposes (OHS .Act, Section. 24(2) applies). Investigation shall begin promptly after the incident/accident. Where applicable and with proper authorization, photographs may be taken of the scene of the incident as well as any equipment involved in the incident. The results of the investigation together with the Root Cause Analysis of the incident and the committee's recommendations for preventative action(s) shall be submitted to Eskom Project Manager, within 3 days after the incident occurred unless proof can be given that due to technical or other difficulties, more time is needed.

Contractors shall also review and analyse all incidents; to establish trends that may indicate deviations from established work standards and safe working procedures/practices.

The Contractor shall investigate all incidents immediately and give the Eskom Project Manager a report within the specified time frame, which shall include:

- Date, time and place of incident;
- Description of incident;
- Root cause of incident/accident;
- Type of injury (if any);
- Medical treatment provided (if any);
- Persons involved;
- Names of witness/s;
- Corrective action to prevent recurrence (with clear deadlines and responsible persons). It is required that all corrective action is closed out as agreed upon by the investigation committee.
- If it is found that the Principal Contractor or his contractor are hiding/not reporting incidents then steps (which may include disciplinary action) would be taken against the Line Management of the Principal Contractor and contractor.

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- Please note that providing the Accident/incident investigation report does not exempt the Principal Contractor from providing accident reports required by Statutory Authorities, in particular, the Contractors' responsibility for reporting accidents in accordance with the requirements of the OHS Act and COID Act.

- It is essential that the Principal Contractor demonstrate that corrective action has been taken and that correction action is communicated by a predetermined means to all Contractors staff affected. Feedback on the status of close out of corrective actions must be communicated at the following forums:

  a) Progress Meeting

  b) Contractor SHE Meetings

  The Contractor shall compile and implement procedure for:

  a) Reporting and investigation of incidents – This document sets out the procedures to be followed when reporting, recording and investigating incidents that occur on a construction site.

  b) Workplace Injury and Disease Recording – The purpose of this document should be a guide to the Principal contractor on how to accurately evaluate, define and categorise fatalities, injuries and occupational diseases in a data format for the calculation of performance indicators for health and safety.

34. MONTHLY STATISTICAL REPORTS

The aim of this section is to outline all the SHE statistics that the Contractors must report to Eskom, on the last day of every month,

- **Incidents: Lost time, medical; first aid, near misses reported and all environmental incidents**
- **Actual man-hours worked**
- **Status on incidents investigated and recommendations closed out**
- **Status on audits conducted and findings closed out.**

35. CONTRACTORS SHE PLAN

All Contractors must use the applicable SHE information herein to develop a suitable and sufficient SHE plan, submitted with tender documents, which will indicate to the Client/Agent the level of compliance to the SHE requirements. The safety, health and environment plan shall identify each construction activity to be undertaken by the Contractor, the foreseeable internal and external hazards, the specific precautions and controls that shall be necessary to ensure that the works proceed safely and without risks to health or adjacent operations.

Upon discussions with the Principal Contractor, a final accepted SHE plan would be signed and approved. The Principal Contractor is thereafter required to do the same when procuring other contractors. The Principal Contractor will not be allowed to commence work on site until the SHE plan has been approved.

When a Principal Contractor intends appointing a contractor, the Principal Contractor shall ensure that his SHE Plan is based on the Eskom SHE Specification that was issued for the project and he shall further more ensure that the activities of the contractor are included in the SHE Plan to be submitted for approval.

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The plan shall demonstrate management's commitment to SHE and shall, as a minimum include the following elements:

SEE ANNEXURE 1

The safety plan shall be reviewed to ensure that it fully addresses all the issues and complies with the requirements of the SHE Specifications and contract. If necessary the Contractor shall amend the SHE Plan as required by the Client/Agent Representative.

36. OMISSIONS FROM THIS SHE SPECIFICATION

By drawing up this SHE specification Eskom has endeavoured to address the most critical aspects relating to SHE issues in order to assist the contractor in adequately providing for the health and safety of employees on site.

Should Eskom not have addressed all SHE aspects pertaining to the work that is tendered for, the contractor needs to include it in the SHE plan and inform Eskom of such issues when submitting the tender.

37. SHE FILE

The Contractor must have a SHE file in which records of this specification and the SHE plan are kept. All information required in the specification and plan, for the duration of the Principal Contractor and contractors contract, is to be recorded in the file.

The SHE file that will be maintained will be per construction site.

The Principal Contractor must also record on the file:

- Information about removal or dismantling of installed plant and equipment
- Hands information about equipment needing cleaning and maintenance, for future purposes
- Nature, location and markings of services

The file must be kept on site and must be available on request for audit and inspection purposes.

The SHE file at the end of the Principal Contractor's contract shall be handed over to the Client/Agent.

38. PRINCIPAL CONTRACTOR'S ACCOUNTABILITIES FOR THEIR CONTRACTORS

a. In the event that the Principal Contractor needs to introduce a new contractor, the Principal Contractor must first inform the Client/Agent's and obtain his approval. Such contractors must, in every respect, meet the Client's/Agent's SHE requirements.

b. Should the principal contractor appoint a subcontractor, the principal contractor would then have the same role and responsibility in relation to the contractors, in a similar way as the Client/Agent has in relation to the principal contractor.

c. The Principal Contractor is directly accountable for the actions of his contractors. The Principal Contractor will also be responsible for initiating any remedial action (recovery plan) that may be necessary to ensure that the contractor complies with all requirements.

d. The Principal Contractor shall ensure that the contractors appointed have the necessary competencies and resources to perform the work safely.

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e. The Principal Contractor shall provide any contractor who is making a bid or appointed to perform construction work, with the relevant sections of the documented SHE specification, who would in turn provide the client/agent with a SHE plan for approval.

f. The Principal Contractor **shall carry out audits** on the contractor at least monthly to ensure that their SHE plan is being implemented and maintained.

g. Eskom may conduct audits on the Principal Contractor's contractor/s. Any non-conformances/findings/observations found in these audits shall be raised and discussed with the relevant Principal Contractor (with whom the contractor is contracted with).

h. The Client/Agent and/or the Principal Contractor shall stop any contractor from executing construction work which poses a threat to the safety and health of persons or the environment or non-compliance to the approved SHE plan.

39. HOURS OF WORK

All work conducted on site shall fall within the legal requirements in accordance with the Basic Conditions of Employment Act.

Contractors will notify their Eskom Supervisor/s of any work that needs to be performed after hours according to the agreed arrangements. (The application needs to be submitted timeously). Where applicable, the notification should include proof of application, for overtime, to the Department of Labour and /or the letter of approval from the Department of Labour.

Staff consistently working excessive hours of overtime risk their health and safety and that of their colleagues due to fatigue.

The Principal Contractor shall put measures in place to make sure that overtime is managed and staff has enough resting time.

40. SUPPORTING DOCUMENTS

Annexure 1: SHE Plan Evaluation Checklist

Annexure 2: Scoring card
Annexure 3: Training Matrix
Annexure 4: Acknowledgement form for Eskom rules and requirements
Annexure 5: Risk Assement
Annexure 6: SHE File Evaluation Form

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ANNEXURE 1: SHE Plan Evaluation Checklist

Contractor	
Contact person	
Contact Details	
Brief Description of work/ Activity	

No.	Things to be included in the SHE Plan	Yes	No	Comments
1.	Scope			
2.	SHEQ & COVID policies			
3.	Letter of Good Standing(COID)			
4.	Company Organogram			
5.	Is the acknowledgement form for Eskom's rules and requirements signed and submitted by the tenderer?			
6.	Signed 37(2) document			
7.	Emergency Plan(include first aid)			
8.	COVID 19			
9.	Fire Safety			
10.	Implementation and monitoring Life Saving Rules			
11.	Waste Management Plan			
12.	Substance abuse Policy			
13.	Medical Surveillance			
14.	Legal and Other Appointments			
15.	SHE Training(Details of the SHE Training Matrix)			
16.	Detailed Costing for SHE			
17.	SHE Reps and Committees			
18.	Process in place to address Health and Safety Violations			
19.	SHE Statistics			
20.	HIRA(To include Health Risk Assessment			
21.	Safe Work Procedures			
22.	PPE			
23.	Hours of Works to avoid fatigue			
24.	Monitoring and Evaluation			
25.	Reporting, Recording and Investigation of Accidents and Incidents			

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26.	How is corrective and preventative action management, from incidents, lessons learnt, etc. addressed			
27.	Housekeeping			
28.	Facilities			
29.	Documentation			
30.	Right to Refuse			
31.	Sub-Contracting			
32.	Transportation of Workers			

NB: This checklist is for Pre-Tender SHE plan evaluation only

SHE Officer: **Signature:** **Date:**

Comments:

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Eskom	SHE File Evaluation Checklist	Document Identifier	DXSHEQSF0014
		Revision	01
		Authorisation Date	1 September 2017
		Review Date	1 September 2023

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Annexure 3: Training Matrix
Contractor name:…… Project:……

	OHS ACT	COID ACT	Safety Induction	Fire Fighting	HIRA	First Aid Level 2	Vehicle Driving	Basic H&S Training	H & s Rep Training	Incident Investigation/ RCAT
Managing Director	*	*	*			*				*
16 (2) Appointee	*	*	*			*				*
8(1) Site Manager	*	*	*		*	*	*	*		*
8(2) Assistant site manager	*	*	*		*	*	*	*		*
Risk Assessor			*		*	*				
Fire Fighter			*	*		*				
H&S Rep			*			*		*	*	
First Aider			*			*			*	
Site Personnel			*			*		*		
Incident Investigator			*			*				*

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