Eskom	Service information	Hendrina Power Station

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CONTENTS

1. INTRODUCTION

1.1 EMPLOYER'S OBJECTIVES AND PURPOSE OF THE SERVICE

The contract is for the provision of maintenance and repair services at Hendrina Power Station for Electrical non-lethal Fence

- Repairs - electrical, mechanical, and civil structures of electrical fence
- Refurbishment
- Installation, interchanging and removal of equipment related to the security fence
- Electrical supply and commissioning of Energizers
- Repair/Commissioning of human machine interface (HMI) or computer system and communication
- Spares holding

It is the service provider's responsibility to ensure that the electrical fence stays in full functionality The services are applicable to Hendrina Power Station electrical fence in its totality

1.2 OPERATING PHILOSOPHY

Hendrina power station operates on 24-hours, 7 days a week continuously Thus, the electric fence as a security measure is expected to operate as such – 24 hours, 365 days non-stop

1.3 MAINTENANCE PHILOSOPHY

The contractor provides all services, specialized tools and equipment, specialist personnel and all associated workshop repair services to accomplish and execute the requirements of the service information The services will support the continuous operation of the electric fence

The works shall be performed on existing and/or new installations and shall comply with excellent engineering and maintenance practices and standards, and conforms to the legal, environmental, and other Eskom specifications, procedures, standards and conditions prevailing at the site

Services shall/will be carried out in the following categories

1.3.1 Corrective maintenance

This is the maintenance carried out after a failure has occurred and in intended to restore the system and/or component(s) of the electric fence to its original design base and optimum functionality

1.3.2 Preventive Maintenance

This is maintenance carried out at pre-determined intervals or corresponding to prescribed criteria and intended to reduce the probability of failure or the performance degradation of system and/or component

1.3.3 Routine Maintenance

This is time-based maintenance work that is performed with the Fence either on or off load

1.4 LEGISLATION AND SITE REGULATIONS

The contractor conforms to all prevailing legal requirements of the Republic of South Africa, Eskom SOC Limited and Hendrina Power Station site legal requirements with special references but not limited to the following:

- Occupational health and safety act 85 of 1993 as amended and its regulations.
- ISO 45001:2018, ISO 90001:2015, ISO 140001
- Compensation for occupational injuries and diseases Act 130 of 1993 as amended.
- National environmental Act 107 of 1998 as amended.
- National water Act 36 of 1998 as amended.
- Eskom procedures and safety requirements set out in safety, health and environmental specifications, revisions of Document 004 4830.
- Eskom procedure 32-95 Occupational, health and safety incident management procedure, revision 08.
- Any other act or procedure deemed necessary or applicable if the work includes some toxic and/or hazardous substances or activities stipulated in this document. In this case the *contractor* handles hazardous substances in accordance with applicable regulations and procedures and it is disposed of by the *contractor* in accordance with the applicable laws.

1.5 REFERENCES

The *contractor* will inform and adhere to all relevant Eskom and SAABS/SANS standards and procedures which are relevant to the works. If there is any ambiguity between the *Employer's* procedures the following shall be adopted instead.

Standards and Regulations

- 240–78980848 Specification for non-lethal energized perimeter detection system (NLEPDS) for protection of ESKOM installations and its subsidiaries
- ISO 9001 Quality Management Systems
- IS0 14001 Safety Management Systems
- 240-56227443 Requirements for Control and Power Cables for Power Station Standard
- 240-56355815 Field Instrument Installation Standard: Junction Boxes and Cable Termination
- 85-A-001 Functional Location KKS Coding and Labelling Standard
- SANS 1091 National Colours Standard
- SANS 10142-1: The wiring of premises, Part 1: Low-voltage installations
- 240-86973501 Engineering drawing Standard
- 240-60725641 Eskom Specification of Standard for Equipment Cabinets
- 36-681 Generation Plant Safety Regulations
- ISO 10007 Guidelines for Configuration Management
- Occupational Health and Safety Act, 1993
- Environmental Regulations for Workplaces, 1987
- 240-64636794 Standard for Wiring and Cable Marking in Substations
- 240-56356396 Earthing and Lightning Protection Standard
- SANS 10222-3:201 Electrical security installations. Part 3: Electric fences (non-lethal)

1.6 PLANT SAFETY REGULATION (PSR) AND OPERATING REGULATIONS FOR HIGH VOLTAGE SYSTEMS (ORHVS)

- The supplier will be required to be trained and authorised in terms of the regulations stipulated above to enable him/her to take permit to work (PTW) for the electric fence to execute the works
- The contractor supervises and manages the health and safety of his/her own employees
- A high voltage permit-to-work is necessary in terms of ORHVS when work on fence energizers is performed or when working of HV fence conductors
- When carrying out tests which require the electric fence to be live, regulation 5 09 of ORHVS must be adhered to
- Low voltage PSR permit to work is required when work is to be carried out on the low voltage side of the fence installation for example on the 380/220 V supply or equipment control and circuitry or if work is to be carried out on the electronics of the energizer
- Within three months from the contract start date the *contractor* will be required to have his own employees who are authorised to take permits on the HV and LV plants
- The *Employer* shall on request from the *Contractor* isolate the required plant from all sources of danger as described in the PSR or ORHVS
- The *Employer* shall on request make available a copy of the latest revision of the PSR and ORHVS regulations to the *Contractor*
- The *Contractor* shall conform to all rules and regulations applicable to PSR and ORHVS regulations and shall complete the workers register prior to working on the plant.
- The *Contractor* shall always provide at least two people for the execution of this task as per the eleven-point plan

1.7 PLANT EQUIPMENT AND OVERVIEW

At Hendrina Powe Station, the electric fence is installed between the inner and outer perimeter fence Hendrina Electrical security fence is approximately 5 8 km long We have a total of 10 energizers per 20 zones The energizers are situated at the fence and spaced accordingly per zones However, there's an empty room that was identified for the installation of energizers at the main security builder This will ensure that vandalism against the energizers is minimized

The energizers supply current to the electric fence aluminium conductors of 2mm thickness

2. SUPPORTING CLAUSES

2.1 SCOPE

The NLEPDS (Non-lethal energized perimeter detection system) has a three-fold function which is firstly to deter any unauthorized intruders from entering a protected sit, secondly to detect and alarm any unauthorised attempt to enter a protected site and lastly to delay the adversary from illegally entering a protected site

The maintenance of the NLEPDS shall include but not limited to the following components/ sub-components:

- Electric fence conductors
- Energizers
- Configuration PC/ Controller
- Power supply
- Communication infrastructure
- Anti-tunnelling structure
- Posts (Stain, intermediate and corner)
- Vegetation control slab
- Synchronizing equipment and/or mechanism
- Communication and cabling
- HT wire and aluminium wire
- Insulators and strainers
- Batteries
- Earthing
- Isolating boxes
- User interface or display unit

2.1.1 Energizer input/ output requirements

The specification of the energizer will be in accordance with IEC 60335-2-76 and Eskom document 240-78980848

- The peak value of voltage must be above 7.5kV, but not exceeding 10kV with the energizer not connected to the load (fence)
- The maximum energy delivered to a load of 500 ohm must be less than 7.5 J, but not exceeding 8J with the energizer not connected to the load.
- The required energy on each live conductor wire on the structure must not be less than 5J with a minimum difference potential of 7 kV.
- The minimum interval between pulses should not be less than 1 Hz.
- Pulses duration shall not exceed 10ms.

These values will be used to assess the performance of the fence and to determine the effectiveness of the maintenance being conducted by the *contractor*.

2.1.2 types of faults on the electric fence

Short circuit – the system has detected that a live-wires are touching or grounded.

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- This can also be due to any other object touching a live wire.
- Intruder tries to gain access and two consecutive conductor's touch.
- Conductor is broken and touches another
- Spider, snake or lizard climbing onto electric fence insulator
- Weeds growing into fence to such an extent that a short circuit alarm occurs.
- Electric fence bobbin or insulator is cracked and leaking to the steel bracket.

The system should be able to indicate in what zone is the fault occurring

Open circuit – the system has detected that a live wire has been cut, resulting in an open circuit

- An intruder is trying to gain access to the premises by cutting the conductors
- The conductor breaks due to high tensioning or sudden drop in temperature
- Looping breaks loose due to heavy winds

The system should be able to indicate in what zone is the fault occurring

No communication – the system has detected that there is no communication from the communication infrastructure

- This can be because of an energizer being switched off or a malfunction as well as damage on the communication systems
- The mains failure and battery failure may result in communication failure
- HT voltage low alarm – this indicates that one or more of the energizers are faulty as the HT voltage low

2.1.3 Compliance of the electrical fence

The scope covers the required repairs to restore the electric fence back to full operating condition and to ensure compliance to Eskom standard 240 – 78980848 To achieve this requirement the following key areas shall be met.

- The NLEPDS shall comprise of sectors and zones
- The electric fence conductors shall be in an overlapping format to ensure effective functionality in the case where one or more energizers fail
- The maximum distance between electric fence conductors shall be 100mm in compliance to SANS 10222-2
- All NLEPDS electronic components shall be housed in the security equipment room and within associated cabinets of the protected sites unless stated otherwise
- The minimum life of an energizer shall be used to house NLEPDS equipment and shall comply with 240-60725641 Eskom specific standard for equipment cabinets

2.1.4 Maintenance

To successfully maintain the fence in a satisfactory condition, the following tasks shall be completed on the fence

Visual inspections

It is the *Contractors* responsibility to ensure that the electric fence is in 100% working order The *Contractor* must plan and schedule the inspections accordingly. The visual inspections must be carried bi-weekly, and a report/inspection plan must be completed and send to the system engineer.

The following must not be the only observations·

- Walk the perimeter of the electric fence and inspect all components of the fence for faults. (i.e., a clicking sound is audible where arcing occurs).
- Fix all faults reported prior to inspection, tighten all loose wires, replace and repair all faulty fence components.
- Inspect the electric fence energizer installation and ensure compliance.
- Inspect the energizer and electric fence earthing system. Tighten loose connection wires, replace worn-out clamps and corroded components.
- Inspect fence insulators and ensure that they are in working condition. Broken and deformed fence insulators shall be replaced.
- Observe for electric fence wires touching any other component not forming part of the electric fence installation and rectify to ensure compliance herewith.
- Check the fence for tightness and tighten loose wires
- Inspect all joints and replace broken or rusted clamps (or both).
- Ensure that joints are still electrically sound.
- Perform visual inspections and routine inspections and identify obvious faults / defects and risks.
- Observe for signs of corrosion on all metal structures and conductors, particularly on ground level
- Observe for faulty or cracked insulators
- Check if fence conductors are covered by wind-blown sand
- Check for broken conductors
- Check for weeds and plastic bags and remove where necessary.
- All crimp connection on the fence looping must be checked for corrosion and tightness, especially where HT terminals connect to the electric fence structure
- All strain and intermediate posts must be checked for corrosion at ground level
- Vegetation growing towards the electric fence must be removed.

- Check if the electric fence warning and zones signs are in place and not damaged
- Check for washed out wires & cablings and report
- Check and clean any water and mud build up
- Repairs must be carried out according to the contract terms

2.1.5 Routine maintenance

The monthly routine maintenance shall entail the following.

- All faults found during maintenance shall be corrected immediately
- The *Contractor* shall conduct fault finding utilizing test equipment, drawings / diagrams and manufacturer's specifications Any problematic / faulty components / equipment shall be identified and repaired/replaced immediately
- The *Contractor* shall verify and correct any mal operation of the communication system
- The *Contractor* shall repair/ replace any faulty equipment as per task order
- The *Contractor* shall report to supervisor any recurring defects
- The *Contractor* shall Initiate any appropriate actions to rectify any unsafe activities / or plant conditions
- The *Contractor* shall record full details, technical and cost related history of work carried out on notifications / defects and scheduled work / planned maintenance documents prior to submission to the supervisor with special reference to material used, repairs carried out and equipment used
- The *Contractor* shall conduct job observations and peer checks according to procedure
- The *Contractor* shall verify correct operating voltages of electrical fence wires at beginning, middle and end of the fence
- The *Contractor* shall check the fence structure and report any abnormalities
- The *Contractor* shall verify correct operation and maintenance on the energizers
- The *Contractor* shall tension electrical conductors according to standard
- The *Contractor* shall conduct on job training for trainees/artisans
- The *Contractor* shall Inspect the electric fence installation for faults at gates etc.
- The *Contractor* shall conduct risk assessments on live plant and mitigate risks

- The *Contractor* shall attend AD hoc meetings.
- The *contractor* will provide a 24h standby on the above-mentioned scope.
- Any other defects found to be non-compliant is addressed as part of this contract.

2.1.6 Test and measurements

Calibration of each zone for correct fault indication shall be done bi-annually. The tests and measurements shall be done and shall be in accordance with the IEC 60335-2-76. The results shall be documented and made available to the head of security and the System Engineer.

The following test shall be conducted.

- One monthly measurements of the integrity of the electric fence system must be recorded in a log sheet or book to allow the recognition of changes and for counter measures if values deteriorate.
    - Measurements must be taken on the electric fence and compared to previous measurements to see if the fence integrity is still intact.

- The output of the energizers is tested off-line and on-line every second month and the results recorded.

- Fence energy and voltage readings will give an indication what the integrity of the fence is.

- It is important that the original level is maintained and should not deviate more than 10 % of the original readings after installation.

- High levels of energy and voltage should be maintained on the electric fence as this provides the deterrence effect of the perimeter security fence system.

- Energy readings should be taken by using the BS017 Energy/HT meter. This instrument will measure the energy reading in Joules and the voltage level in kV across a load of 500 Ω.

- A minimum of seven joules and 7,5 kV must be maintained on the electric fence.

- The type of conductors used on the perimeter electric fence is aluminium with 2,0 mm in diameter. This type of conductor may contract and expand during different seasons. The tension on the electric fence conductors is checked and maintained properly to ensure proper working of the system.

- The perimeter electric fence zones must be tested regularly to ensure accuracy which will assist in fault finding and proper response from security personnel. This is an essential test and needs to be documented properly.

- The fence zones must be checked at least every month.

- Power supply batteries must be checked and/or replaced every six months.

- Perform spot checks monthly by applying a short to the fence (functional zoning checks) to confirm system zoning and fault identification.

- Use an energy/HT meter to test the performance of the fence at various points.

2.1.7 Energizers and equipment room

The following tasks shall be carried out

- Take measurements once a month on the electrifier battery terminals with the charging circuit On (±13V should be measured)
- Disconnect batteries from the charging circuit and measure the voltage on the battery This reading should not be less than 11 5V, should it be, the battery must be changed
- Switch off the power supply once every 6 months and confirm that the system does operate with battery power for 1 hour (Actual backup time is 5 hours)
- Do tightness checks on all electrical connections on the electrifier boxes and line taps on the fence.
- All measurements taken shall be documented and compared to previous measurements to see if the fence integrity is still intact

2.1.8 Maintenance frequency

The above-mentioned maintenance programs and tests shall be conducted as follows

- Inspections shall be conducted every second week
- Tests and measurements shall be conducted once every four weeks

2.1.9 Spares

The recommended spares shall be kept with the *Employer* A quotation shall be handed to the contract-supervisor who shall issue a task order for the spares to be purchased by the *Contractor* to keep the fence in optimal operation

The required spares should include but not limited to the following:

- Energizers
- Energizer boards
- CT units
- charger units
- HT transformers
- monitor board
- Synchronous units
- Intermediate isolators
- Strain isolators and studs
- Tensioners and studs
- Battery charger
- Energy/joule meter
- Battery 12V 7.5 A/H
- 2 0 mm Aluminium wire
- Combi tensioners heavy duty

- Intermediate insulators
- Safety and warning signs
- 4mm/6mm aluminium ferrules
- RS485 to RS232 converter module
- Or equivalent spares

The *Contractor* will inform the *Employer* of any critical spares that have long lead times or are not available off the shelf that needs to be purchased by the *Contractor* upfront when they receive a task order. These spares should be kept at the *Employer's* facilities. This shall eliminate any downtime caused by unavailability of spares.

2.1.20 Experience and staff

- All staff shall be qualified and competent of performing all work within safe and correct technical specifications.
- Qualifications shall be necessary for an installer or maintainer of electric fence.

2.1.21 Civil and structural works

- All concrete works shall adhere to SANS 2001-CC1 and SANS 10100-2 standards unless otherwise stated.
- All broken and damaged concrete underneath the electrical fence must be replaced as per SANS standards above.

2.1.22 Safety signs and/or labelling

- Safety /danger signs shall be mounted on the inner and outer fence, 50 meters apart, signs face outwards.
- Signs shall be made of durable, rigid, and UV protected material
- Danger/Safety signs shall be installed at a height of 1,5 meter, and secured on Electrical fence, 50 meters apart.
- Signage shall comply with the requirements of SANS 10222-3
- Labels shall be affixed in such a way that removal thereof is done in a forcibly manner
- Labels shall be visible and not obstructed by components
- Labels shall be in accordance with NWS 1582

2.1.23 Documentation

- A full-service report shall be compiled and provided to Hendrina Power Station
- The report shall contain a high-level description of the work done
- The report shall contain the approved QCPs of work on site and all related check sheets and reports
- All technical notifications shall be shown as well It will contain a section on spares used report

2.1.24 Included in a Contract

- The *Contractor* shall be always on standby, in case of a failure on the fence the *Contractor* shall be called out to come to site and rectify the issue within 24hours
- **The repair of the fence** The contractor shall execute the repair of the fence scope as soon as possible to get the fence in a working condition

2.1.25 Excluded from a contract

- **Horticulture:** The *contractor* shall not be responsible for Vegetation removal in and around the fence, and the control of soil erosion shall also be excluded from this contract
- **Force majeure** The *contractor* shall not be responsible for any natural disasters like flooding, falling of trees over the fence or any other accidents which is not maintenance related like vehicles driving through the fence etc
- **Barrier/Perimeter fences**: The *contractor* shall not be responsible for any maintenance works on the inner- and outer barrier fences
- **Vandalism**: The contractor is not responsible if the fence is vandalized, damaged by intruders The contractor needs to submit a quotation for the repairs if the fence was vandalized

2.1.26 Engineering services as required by Eskom Generation

The contractor is responsible for engineering services, material and labour as follows.

- Verify the performance matching requirements of replacement equipment and parts
- Inspection and testing prior to and after repairs, recording, reporting, and making recommendations and providing the necessary information where applicable
- The contractor must provide detailed breakdown reports clearly stating the contributing factors and root causes of the failure
- The contractor must ensure that the employer and others required are present during dismantling, testing and assessment to inspect any evidence of failure or aspects of defective design or workmanship uncovered And furthermore, ensure that correct photographic records are kept

2.1.27 House keeping

- All workplaces must be always kept clean, Interface with other contractors to ensure compliance.
- Discard waste in correctly allocated coloured waste bins.
- Ensure that plant worked on is cleaned before clearance of any permit or leaving the work area.

2.1.28 Training

The *Contractor* shall provide training for his/her personnel in the execution of this Service Information as required by Hendrina Power Station.

- Attends mandatory courses provided by the *Employer.*
- The *Contractor* shall be trained in terms of the Permit to Work System, and shall be authorised on the following
    - ORHVS- Operating regulations for High Voltage systems

3. SAFETY RISK MANAGEMENT

The *Contractor* shall conform to the following management requirements:

- The Quality requirements as per ISO 9001:2015 and the Employer's Standard QM 58.
- The ISO 14001, Environmental management system.
- The ISO 45001:2018, Health and Safety management system.

4. COMPLETION COMMUNICATION

- Completed tasks shall be communicated to the supervisor.
- The *Contractor* shall inform the supervisor and give progress feedback.
- The *Contractor* shall submit detailed reports on all tasks executed.

5. MEETINGS

The contractor shall adhere to the requirements as stipulated and ensure that:

- All relevant meetings must be attended.
- The *Contractor* shall attend other meetings as required and directed by the Contract Manager.

- The *Contractor* shall attend monthly scheduled contract meetings

6. INTEGRATION WITH THE EMPLOYER'S ORGANIZATION

The *Contractor* shall provide the Services in an integrated manner with the *Employer's* organization at Hendrina Power Station until the end of the Contractor The *Contractor* shall

- Attend to breakdowns, until completed, unless otherwise agreed with the Contract Manager
- Provide personnel, in accordance with his conditions of service

- The *Contractor* shall conform to the following management requirements:
  - The Quality requirements are as per ISO 9001:2015 and the Employer's Standard QM 58
  - requirements of ISO 14001, Environmental management system
  - The requirements of ISO 45001.2018, Health and Safety management system.
  - The Contractor utilizes the Employer's quality documentation forms.
- Apart from any statutory data packages required, the *Contractor* shall compile a data package of the relevant drawings, and test certificates for the works which must be reviewed and signed off by the Supervisor
- The *Contractor* shall be responsible for defining the level of QA/QC or inspection to be imposed on his *Subcontractors* and *suppliers* of material This level is based on criticality of equipment and is submitted to the Contract Manager for acceptance
- The *Contractor* shall submit the following, as directed by the Contract Manager: QA plan/manual, (I&TP's) Inspection and Test Plan

7. PROVIDING ACCESS TO AND INTERFACE WITH OTHERS

Other *Contractors* are working in the same area as the work of this contract In this regard, the Contractor co-ordinates his work with the Contract Manager to maintain harmonious working conditions on Site

8. MANAGEMENT MEETINGS

Regular meetings of a general nature may be convened and chaired by the Contract Manager as and when required Meetings of a specialist nature may be convened as specified elsewhere in this Service Information or if not so specified by persons and at times and locations to suit the Parties, the nature, and the progress of the services

Records of these meetings shall be submitted to the Contract *Manager* by the person convening the meeting within five days of the meeting.
All meetings must be recorded using minutes or a register prepared and circulated by the person who convened the meeting. Such minutes or register shall not be used for the purpose of confirming actions or instructions under the contract as these shall be done separately by the person identified in the conditions *of* contract to carry out such actions or instructions.

9. DOCUMENTATION CONTROL

All contractual communications will be in the form of properly compiled letters or forms attached to e mails and not as a message in the e mail itself unless stated otherwise.

10. INVOICING AND PAYMENT

Within one week of receiving a payment certificate from the Contract Manager in terms of core clause 51.1 of the NEC document, the *Contractor* shall provide the *Employer* with a tax invoice showing the amount due for payment equal to that stated in the Contract Manager's payment certificate.
The *Contractor* shall address the tax invoice to:
Invoiceseskomlocal@eskom.co.
And include on each invoice the following information:

- Name and address of the Contractor and the Contract Manager.
- The contract number and title.
- Contractor's VAT registration number.
- The Employer's VAT registration number 4740101508.
- Description of service provided for each item invoiced based on the Price List.
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT.

11. SUB-CONTRACTING

Contract with subcontractors is back-to-back with the main contract, using the NEC conditions of the contract and are subject to acceptance by the Contract Manager prior to such contracts being entered into by the *contractor*.

11.1 SUBCONTRACTING DOCUMENTATION AND ASSESSMENT OF SUBCONTRACTOR TENDERS

Copies of every order issued by the contractor to his Subcontractor or by his Subcontractor to his suppliers are submitted to the Contract Manager for his assessment of the amount due, within the assessment interval. Prices must be shown on such orders and in all respects the copies are true copies of the original order to the subcontractors.

11.2 LIMITATIONS ON SUBCONTRACTING

The *Employer* may require that the *Contractor* must subcontract certain unspecialised work, or that the *Contractor* shall not subcontract more than a specified proportion of the whole of the contract, as per 32-1034 procurement Directive

12. PLANT AND MATERIALS

The *Contract Manager* shall direct the contractor to procure materials where the *Contractor* shall submit qualified quotations for approval The Contractor shall supply all spares and consumables

13. EMPLOYER SITE ENTRY AND SECURITY CONTROL, PERMITS AND SITE REGULATIONS

The *Contractor* applies for access permits (Contractor's permit) at the Security gate on the Contract Award date of the contract The *Contractor* personnel shall be required to be always in possession of an access permit

To assist Protection Services with the issuing of permits and the identification of personnel on site the *contractor* shall provide a list of all personnel that he/she shall have on site, at least 72 hours prior to entry into the power station This list must be delivered to Protection Services The list, identified with the *Contractor's* name, shall contain the following information:

- Employee name
- Employee ID Number
- The *Employer's* Safety Coordinator's signature
- Electrical Maintenance Manager signature
- Copy of the ID book for every employee of the *Contractor*

Access permits must be returned to protective services when the worker/s leave site, either after completion of the *services*, or upon early termination of service of a worker during the contract period

To speed up the process of gaining access to the site, the *Contractor* must compile detailed lists of all tools and equipment (including serial numbers where applicable) to be taken on site before arriving at the Power Station Security gate

An authorised copy of this list must be retained by the *contractor* - to be used again when the tools and equipment are removed from site after the completion of the *services.* Any additional tools or equipment brought to site, or any tools or equipment removed during the contract period must be reported to protection services and all lists amended likewise

Gate release permits will not be issued for the removal of any tools or equipment not specified on the tool list The *Contractor's* visitors and all personnel shall always conform to the security arrangements in force at the site Application forms for visitors must be filled in by the *Contractor's* Site Manager and

approved by the *Contract Manager,* one day before the visit and submitted to the *Employer's* Protection Services office.

Visitors will not be allowed on site if the necessary forms are not in the possession of the security staff. The Chief of Protection Services may, with valid cause, remove any, of the *Contractor's* personnel from the site, either temporarily, or permanently. He may deny access to the site to any person whom, in the opinion of the said Chief of Protection Services, constitutes a security risk.

No unauthorised vehicles will be allowed on site. Only *Contractor*'s Vehicles with displayed Contract Vehicle Permits disks will be allowed on site. Contract Vehicle Applications should be directed to the *Service Manager.*

The *Contractor* will be restricted to the *working areas* associated with his place of work. The *Contractor* is forbidden to enter any other areas and must ensure that his employees abide by these regulations.

14. RESTRICTIONS TO ACCESS ON SITE, ROADS, WALKWAYS AND BARRICADES

Contractors shall adhere to all the rules and site regulations

14.1 PEOPLE RESTRICTIONS ON SITE, HOURS OF WORK, CONDUCT AND RECORDS

Restrictions and hours of work may apply on Site. It is very important that the *Contractor* keeps records of his people on Site, including those of his which the Contract Manager or Supervisor have access to at any time. These records may be needed when assessing compensation events.

Lunch time is between 12:00 until 12:30. Site working hours is from 07H00 to16H15 from Monday to Thursday and till 12:00 on Friday. The Service Provider work to complete the tasks, to ensure the Return of Supply.

15. AMENITIES

The following amenities shall be provided by the *Employer* to the *Contractor*

- Portable water shall be provided to the Contractor.
- Electrical power supply either 380 and/or 220 V as per the *Contractor's* needs
- Sanitary facilities
- Waste removal bins
- Telecommunication infrastructure e.g., landlines etc.

The following amenities and/or equipment shall be provided by the *Contractor.*

- The Contractor is to provide all facilities in connection with this Service Information, including but not limited to the following
    - Workshop equipment and tools for the service
    - Mobile workshop, tools, equipment,
    - Pressure washers, cleaning chemicals and materials (Environmentally friendly approved only by Eskom)
    - Test equipment to execute electrical testing as deemed necessary by the Electrical Engineer
    - Own electrical generating units/generators for executing the services (Eskom do not guarantee supply of electricity once transformer units are switched out for Service execution)
- Transportation, heavy haulage, rigging and lifting equipment
- All vehicles shall comply with roadworthy requirements, and Eskom conditions prevailing at the site as minimum, the Employer reserves the right of refusal to site any non-compliant or non-roadworthy vehicles
- All documentation in connection with the Service

16. EXCAVATIONS AND ASSOCIATED WATER CONTROL

Whenever it is required to do excavation, an excavation permit will be required Ensure the correct routing of cables is identified prior to starting excavation Ensure authorisation for any excavation is obtained from the Employer

17. COMMISSIONING

It is the responsibility of the Service provider to safely commission, test and put in operation. It is the responsibility of the Service provider to arrange, for such work

It is the responsibility of the Service provider to submit on completion of every task, a detailed data pack with all information, pictures, ITP's, test results drawings, and documentation related to the executed service to the Employer, and the Plant custodian (Electrical Engineering department)

17.1 START-UP PROCEDURES REQUIRED TO PUT THE WORKS INTO OPERATION

All procedures, processes, and arrangements to put in service, or to remove from service, for maintenance, will be the responsibility of the Service provider

17.2 TAKE OVER PROCEDURES

All documentation, procedures, reports, drawings, designs, and any other related documentation in connection with this Service information is the property of the Employer (Eskom) and is transferred to the Employer on request or during termination, or at contract expiry date.

17.3 ACCESS GIVEN BY THE EMPLOYER FOR CORRECTION OF DEFECTS

Defects shall be attended to as per works management guidelines.
All notifications against this Service are the responsibility of the Service provider.

18. FIRE PRECAUTIONS

Any tampering with the Employer's fire equipment is strictly forbidden and is a criminal offence.
All exit doors, fire escape routes, walkways, stairways, stair landings and access to electrical distribution boards must be kept free of obstruction, and not be used for work or storage at any time. Firefighting equipment must always remain accessible.

In case of a fire, report the location and extent of the fire to the Electrical Operating Desk at extension 3471. Take the necessary action to safeguard the area to prevent injury and spreading of the fire.

19. REPORTING OF ACCIDENTS

The Employer follows an accident prevention policy that includes the investigation of all accidents involving personnel and property. This is done with the intention of introducing control measures to prevent a RE-OCCURRANCE of the same incidents. The Contractor is expected to fully co-operate to achieve this objective. The Contract Manager must be informed immediately of any incidents and any damage to property or equipment must be reported within the same shift.

NOTE! This report does not relieve the Contractor of his legal obligation to report certain incidents to the Department of Labour, or to keep records in terms of the Occupational Health and Safety Act, and Compensation for Occupational Injuries and Diseases Act.

20. ACCOMODATION AND CATERING

The Contractor will be responsibility for the provision of accommodation to his personnel – the Employer does not provide accommodation.
The Contractor or any of his employees or subcontractors will be allowed to use the Employer's dining facilities.

The Contractor or any of his employees or subcontractors may also buy take away meals from the fast-food outlet on Site. Lunch time is from 12:00 to 12:30.

The contractor shall provide own accommodation, vehicles, equipment, and all required measures to execute the given services.

21. APPLICABILITY

This document shall apply throughout Hendrina Power Station Non-lethal energized perimeter detection system

21.1 NORMATIVE/INFORMATIVE REFERENCES

Parties using this document shall apply the most recent edition of the documents listed in the following paragraphs

21.1.1 Normative

[1] ISO 9001 Quality Management Systems

[2] Occupational Health and Safety Act 85 of 1993

[3] National Environmental Management Act 107 of 1998

[4] Mine Health and Safety Act 29 of 1996 (Where applicable)

[5] ISO 45001.2018

[6] Eskom Policies and Procedures

[7] Compensation for Occupational Injuries and Diseases Act of 1993 (COID)

21.1.2 Informative

[8] All staff will undergo Safety Induction training before site occupation

[9] Eskom and Hendrina Power Station's zero tolerance for non-compliance

[10] Eskom's and/or Hendrina Power Station's safety rules and regulations

[11]

22. ABBREVIATIONS

Abbreviation	Description
CDSS	Contractor Document Submission Schedule (CDSS)
COMS	Communication
ENG	Engineering
EMS	Environmental Management System
GEN	Generation
GSR	General Safety Regulations
HT	High Tension
IEC	International Electro technical Commission
LV	Low Voltage
OHRVS	Operating Regulations for High Voltage Systems
ISO	International Standard Organisation

Abbreviation	Description
KPIs	Key Performance Indicators
KV	Kilovolts
MS	Microsoft
MV	Medium Voltage
NLEPDS	Non-Lethal Energised Perimeter Detection System
NEC	New Engineering Contract
NKP	National Key Point
OHS	Occupational Health and Safety
O&M	Operating and Maintenance
OEM	Original Equipment Manufacturer

Alarm response: Delineates the response or actions to be taken in response to an alarm received in the unit control room.
Functional location: Numbering according to function performed by equipment and KKS numbering system