ANNEXURE A: SCOPE OF WORK

CHAPTER 1: GENERAL SPECIFICATIONS FOR ELECTRO-MECHANICAL EQUIPMENT

1. PURPOSE OF THE REQUEST FOR QUOTATIONS

1.1 Air Traffic and Navigation Services SOC (herein this document referred to as “ATNS”) seeks to identify and appoint suitable supplier for the removal of existing fixed diesel generators and supply, installation, testing, and commissioning of new fixed diesel generators at the ATNS - OR Tambo International Airport radar site.

1.2 The project aims to achieve the installation of new fixed diesel generators at the OR Tambo International Airport radar site.

1.3 To ensure continued and sustainable system availability, ATNS further requires the same service provider to provide support, repair, and maintenance service of the same system for a period of twelve (12) months.

1.4 The purpose of this RFQ is to contract with a suitably qualified supplier with specific product knowledge and the requisite capacity to execute this project within the desired quality, scope, timeframe, and cost-effectiveness for ATNS.

2. EXTENT OF WORK

This project calls for the removal and disposal of the existing generators (two) at the FAOR radar site and the current external fuel tank with subsequent supply, delivery and installation of new generators at the FAOR radar site as well as a new external fuel tank. The project also includes relevant refurbishments, civil and electrical works at the FAOR radar site.

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2.1 SCOPE OF WORK

- Decommission and dispose of the existing generators (two) in line with the ATNS processes and procedures.
- Decommission and dispose of the existing external fuel tank in line with the ATNS processes and procedures.
- Supply, install and commission two standby generators and an external fuel tank which shall supply diesel to the new generators.
- Perform an overall assessment to validate that the current UPS and the generators' ratings are compatible together and sufficient to support the load.
- Perform all necessary and required civil and duct works.
- Establish a maintenance and support contract for the generators and the external fuel tank.

[A] The bidder shall demonstrate their understanding off the scope of work.

1 Generic requirements

1.1 General

[A] The Contractor shall decommission and dispose of the current generators and external fuel tank in accordance with ATNS's environmental policy, practices and procedures.

[B] A Turn-Key solution addressing all project requirements is required, this includes two new standby generators and an external fuel tank.

[C] The project scope also includes any necessary piping, civil and duct works which includes painting as well as wall filling.

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2 Generator Specifications

The following information regarding both generators shall be provided by the bidder:

[A] Both generators shall have the following specifications:

- Apparent Power – 125 kVA
- Frequency – 50Hz
- Power Factor – 0.8
- Rated Power – 100 kW
- Voltage rating – 400/230 V (Ph-Ph/Ph-N)
- Tolerance – +- 5%

[B] Both fixed generators shall be diesel generators.

[C] Within this specification a generator set is defined as consisting of an engine, alternator and fuel supply tank.

Generator components

Fault Current Rating

[A] All equipment shall be designed to withstand a fault current of at least 5 kA.

Deviation from Specification

[A] Any deviation from the specification shall be indicated.

Submittals

The following submittals shall be supplied by the bidder for the fixed generators by the bidder:

[A] All datasheets regarding the generator components such as the engine, alternator, control panel and battery.

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[B] Factory published specification sheet indicating standard and optional accessories, equipment ratings etc.

[C] Manufacturer's catalogue of all auxiliary components such as isolators, battery chargers, silencer, exhaust flex, main circuit breaker, etc.

[D] Dimensional elevation and layout drawings of the generator sets, enclosure and transfer switch gear and related accessories.

[E] Engine mechanical data at varying loads up to full load, including heat rejection, exhaust gas flows, combustion air and ventilation air flows, noise data, fuel consumption, etc.

[F] Generator electrical data including temperature and insulation data, cooling requirements, excitation ratings, voltage regulation, voltage regulator, efficiencies, waveform distortion and telephone influence factor.

[G] Full performance curves and illustrations of the equipment offered.

Equipment Installation

[A] The ATNS Project Manager reserves the right to attach ATNS Company officials to the Supplier's installation party during installation, setting up and commissioning of the equipment for gaining practical experience (OJT) on the equipment.

[B] The final parameters and settings will be recorded by the Contractor on the successful installation and will be made available to the Company as a part of the As-Built document.

[C] The generators shall have a design life of at least 10 years.

Cabling

The bidder shall describe their understanding on the following requirements relating to cabling:

[A] All cables shall be labelled, colour coded and include a numerical identifier, cable type, source (unit name, port, location) and destination (unit name, port and location).

[B] A proposed interconnection diagram depicting the flow of communication and power between the various system components shall be provided.

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[C] All power cables shall be neatly installed in cable trays and/or ducts as applicable and shall not run parallel to communication cables.

[D] All high voltage cables shall be designed according to local and international standards such as SANS 6289:2007and IEC 60183:2015.

Transition plan

The bidder shall propose an effective transition plan during the replacement project:

[A] A transition plan is required to be in place to support the replacement of the current generators with minimal disruption of service. The proposed solution design will, based on the required and proposed maintenance philosophy of the system, will ensure that there is no break in the service provided. An effective transition plan is required to be in place to allow continuous supply of services during the replacement project.

- Environmentally sustainable product procurement, the project must ensure that the procurement of the equipment considers environmental aspects (i.e. evaluated and selected suppliers should demonstrate how own operations address product cradle-to-grave lifecycle, pollution control of production process and transportation, chemical composition that has minimal environmental impacts when released into the atmosphere etc.)and social development i.e. locally sourced, job creation and be cost effective.

[A] A detailed Material Safety Data Sheet indicating the Global Warming Potential and chemical hazard status of all material shall be included.

Mains supply

The bidder shall describe their understanding of the mains supply:

[A] The system offered shall operate from a three-phase mains power supply 400 VAC, (Tolerance: +5% / -5%) with a frequency of 50 Hz (Tolerance: +2 Hz, -2 Hz). The tolerances and power supply at the site shall be confirmed.

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[B] Each system shall be supplied with an isolator switch installed between the equipment and the mains power supply.

Software

[A] All equipment related software shall be supplied on Compact Disk (CD) and be placed under configuration control.

[B] All CDs supplied may be copied by the Company for backup purposes and internal distribution.

[C] The laptops and/or desktop computers required to run the software provided under this project and to support the generator HMI shall be provided.

Environmental Conditions

[A] The systems offered shall operate within specifications under the following environmental conditions and tolerances.

Indoor Conditions	Operational Ambient Temperature	-5 °C to +60 °C
	Relative humidity	<95% in the range of –5°C to +35°C <60% in the range of + 35°C to 40°C
	Height above sea level	1 694 m

Table 1: Environmental parameters

Regulations

The bidder shall describe how their offered systems are compliant with at least the following regulations:

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[A] The installation shall be performed in accordance with at least the following Acts and regulations:

- SANS 10142-1:2017 Part 1: Low-voltage installations;
- SANS 8528-1:2008 2016 Reciprocating internal combustion engine driven alternating current generating sets Part 1 - 9: Application, ratings and performance.
- SANS 10131:2004 above-ground storage tanks.
- SAN/S 60529: 2013 degrees of protection provided by enclosures
- SANS 1652:2013 Battery chargers – Industrial type.
- The latest issue of SABS 0142: “Code of Practice for the Wiring of Premises”.
- The Occupational Health and Safety Act, 1993 (Act 85 of 1993).
- The Local Government Ordinance 1939 (Ordinance 17 of 1939) as amended.
- The Electricity Act 1984 (Act 41 of 1984) as amended.
- Hazardous Substances Act No. 15 of 1973
- National Environmental Management Act 107 of 1998.
- National Environmental Management: Waste Act No. 59 of 2008

[B] SANS compliance certificates shall be provided following the successful Site Acceptance Tests and commissioning.

Electrical Work

The following electrical work shall be completed:

[A] The Contractor shall be responsible for disconnecting the current generators from the DBs and shall be responsible for supplying, installing and connecting power cables from the new generators to the DBs for three phase power and balancing the electrical load on all phases.

[B] Details on the circuit breakers required in the DBs that will be compatible with the installation of the new generators shall be provided.

[C] The Contractor shall replace the circuit breakers in the DBs which are not compatible with the new generators.

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[D] The Contractor shall be responsible for the supply of an Electrical Compliance Certificate (ECC) as issued by a certified electrical contractor for all DBs worked on and all electrical work completed.

[E] The Contractor shall be responsible for verifying that the connection of the generators to the DBs earth is adequately sufficient and in a good condition.

[F] The Contractor shall ensure that all equipment installed is properly earthed.

[G] A wiring diagram depicting the proposed layout of the power cables shall be provided as part of the as-builts.

[H] Each system shall be supplied with an isolator switch installed between the equipment and the mains power supply.

Warning Notices

[A] The Occupational Health and Safety Act 83 of 1993 shall be consulted and approval of the wording from this department obtained, prior to ordering the following notices and indicate letter colouring for all notices. These notices must be placed in the relevant places concerned with the Generator:

- Unauthorised entry prohibited.
- Unauthorised handling of equipment is prohibited.
- Procedure in case of electric shock.
- Procedure in case of fire.

[B] These notices shall be made of a non-corrodible and non-deteriorating material.

[C] All safety signages shall be engraved.

[D] The Generator area shall include an additional notice to include the following words:

DANGER: This engine will start without notice. Turn selector switch on control board to “OFF” before working on the plant.

[E] The Contractor shall also install other relevant signage relevant to the installation of the system.

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Manufacturing

[A] The supplier's product manufacturing processes considering environmental aspects shall be provided.

Commissioning

[A] The Contractor shall perform a quality test before commissioning of the systems and shall submit a report as a part of the documentation.

[B] The Contractor shall perform an overall assessment of the site loading to confirm the generators' operation after contract award and before delivery and installation of the systems.

[C] A certificate of compliance to the scope of work shall be provided at the Site Acceptance Test on the completion of all work.

Generator Alarm

[A] The generator sets shall be connected to a siren that will sound once a fault has been detected.

Interlocked Contactors

[A] To prevent the alternator being electrically connected to the mains supply when the mains supply is on and vice versa, a safe and fail proof system of suitably interlocked contactors shall be supplied and fitted onto the control panel.

Load Acceptance

[A] The generator set shall accept 75% of the electrical load at the site, 10 seconds after the starter motor is energised and the remaining 25%, 5 seconds thereafter, therefore 100% load acceptance shall not exceed 15 seconds.

Fuel Drip Tray

[A] The tank shall have adequate bunding such that it can contain 110%of total fuel quantity should there be a spillage incident.

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[B] A drip tray shall be mounted below the fuel tank and shall be large enough to collect any fuel that drips from the tank accessories.

[C] The drip tray shall be manufactured from mild steel.

Exhaust Silencer

[A] A critical type silencer, companion flanges, and flexible stainless-steel exhaust fitting properly sized shall be furnished and installed according to the manufacturer's recommendation.

[B] Mounting the silencer shall be done by the contractor, so that its weight is not supported by the engine and exhaust system growth due to thermal expansion will not be imposed on the engine.

[C] Exhaust pipe size shall be sufficient to ensure that exhaust backpressure does not exceed the maximum limitations specified by the engine manufacturer.

[D] Information which indicate that the exhaust fumes that leaves the exhaust pipe are within environmental regulations shall be provided.

[E] The exhaust pipe diameter shall be 50cm, to allow exhaust fumes to leave the generator and flow to the outside of the building.

Derating conditions

[A] The complete generator sets shall be de-rated according to the site conditions with all components tropicalized.

Generator Fuel consumption/n

[A] The fuel consumption of the complete generating set-in liters per hour (l/h) at Full load, ¾ load, and ½ load shall be indicated.

Note: A tolerance of 5% shall be allowed above the stated value of fuel consumption.

Diesel generator system operation

[A] The no load to full load voltage regulation shall be within 1% of the rated value.

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[B] The no load to full load frequency variation must be within 0.25% of rated value.

[C] The Total Harmonics Distortion (THD) at full load shall not exceed 5% of rated voltage and no single harmonic shall exceed 3% of rated voltage.

Diesel generator system protection

The following information regarding the diesel generator system protection shall be provided by the bidder:

[A] Diesel generator system earthing shall be provided to meet system protection and safety requirements.

[B] Provision shall be made for the earthing of the plant to the earth mat.

[C] The diesel generator system frame shall be flexibly earthed to the earth continuity conductor.

[D] A non-copper cable shall be used for earthing any exposed equipment.

The diesel generator system shall be equipped with:

[E] Protective relays for protection against faults occurring both inside and outside the diesel generator system.

[F] An over-current relay to monitor and protect the alternator.

[G] The over-current relay shall activate the connected Circuit Breaker (CB) to provide protection against overload and short-circuit.

[H] Proof of the system relay and other protective mechanisms been factory tested shall be provided, with the results of the factory tests.

[I] Circuit diagrams and safety placards shall be clearly displayed on the diesel generator system.

[J] The diesel generator system shall be protected against the following:

- over speed.

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- fuel overflow.
- direct lightning strike.

Diesel storage system

[A] The storage tank shall be supplied with a spill control system in line with the environmental management requirements as stipulated herein.

[B] The diesel level sensor in the storage tank shall be installed to control and maintain the predetermined limits.

[C] The diesel tank level shall be enabled for local and remote monitoring.

[D] The fuel system shall be equipped with a water and fuel separating device.

[E] The fuel system shall have a water content level alarm system installed.

[F] The fuel system shall be equipped with a fuel level monitoring system to give alarm indication at 25%, 50% and 75% loading.

[G] The fuel system and relevant pipping requirements shall not be constructed from material that may cause contamination i.e., galvanised material, zinc material, copper etc.

[H] The diesel storage tanks shall be supplied with a dedicated earthing facility to allow for connection of the earth conductor to the frame of the set.

Monitoring

[A] The generators shall be connected to the current Remote-Control Monitoring System such that the status of these systems can be monitored.

Remote Control Monitoring System

The bidder shall describe the required capability shown below:

[A] The offered generators shall include a status indicator module capable of remotely monitoring the following parameters:

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- Generator mode
- Generator status
- Generator fuel level

CHAPTER 2: SPECIFICATIONS FOR THE FIXED GENERATORS

1 General

1.1 Generator specifications

[A] The generators shall have the following specifications:

- Apparent Power – 125 kVA
- Frequency – 50Hz
- Power Factor – 0.8
- Rated Power – 100kW
- Speed – 1500RPM
- Voltage rating – 400/230 V (Ph-Ph/Ph-N)

1.2 Design & Specifications

[A] A generator mounted control panel for complete control and monitoring of the engine and generator set functions, shall include the following:

- Adjustable cool down timer.
- Adjustable cycle cranking.
- Automatic start/stop operation.
- Digital AC metering with phase selector switch.
- Digital engine monitoring.

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- Emergency stop push-button.
- Fault logging.
- Self-diagnostics capabilities.
- Shutdown sensors and alarms with horn and reset.

2 Automatic Transfer Switch

[A] The Automatic Transfer Switch shall transfer the load from the mains supply to a Generator set during the first power disruption and then transfer the load to other generator during the next disruption and so on.

[B] Should a generator fail to start on the transfer of load, the Automatic Transfer Switch shall transfer the load to the other generator.

[C] The Automatic Transfer switch ratings in amps and volts for its relays and its protection mechanism with adequate substantiation shall be indicated.

[D] The Ratings in amps of the change-over equipment, mains on load isolator, the by-pass switch & Circuit breaker to outgoing feed with adequate substantiation shall be indicated.

[E] Once a fault on the mains supply had been detected, the automatic control feature shall make provision for three consecutive starting attempts on a generator set, thereafter the set shall be switched off and the start failure relay on the control panel shall provide a visible and audible indication of the fault with an indication on RCMS.

3 Diesel generator storage system

[A] The generator system shall be supplied with a factory fitted diesel day tank with all the required auxiliaries i.e. pipping, pumps, valves etc. to enable it to provide generator backup at full load for a minimum period of 24 hours.

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4 Signage

[A] The Contractor shall install signage associated with the placement of the system.

5 Operation

[B] Both generator sets shall be fully automatic and start when any one phase of the main supply fails or gets switched and shall shut down when the normal supply is re-established.

6 Generator Alarm

[A] Should a generator fail to start after three consecutive attempts the generator set shall be switched off and the start failure relay on the control panel shall provide a visible and audible indication of the fault with an indication on RCMS.

[B] The Generator shall be connected to a siren which will sound once a fault has been detected.

7 Interlocked Contactors

[C] To prevent the alternator being electrically connected to the mains supply when the mains supply is on and vice versa, a safe and fail proof system of suitably interlocked contactors shall be supplied and fitted to the control panel.

8 Fuel Supply Tank

[A] The tank shall have adequate bunding such that it can contain 110%of total fuel quantity should there be a spillage incident.

[B] A drip tray shall be mounted below the fuel tank and shall be large enough to collect any fuel that drips from the tank accessories.

[C] The drip tray shall be manufactured from mild steel.

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9 Exhaust Silencer

[A] A critical type silencer, companion flanges, and flexible stainless-steel exhaust fitting properly sized shall be furnished and installed according to the manufacturer's recommendation. Mounting the silencer shall be provided by the contractor, so that its weight is not supported by the engine and exhaust system growth due to thermal expansion will not be imposed on the engine.

[B] Exhaust pipe size shall be sufficient to ensure that exhaust backpressure does not exceed the maximum limitations specified by the engine manufacturer.

[C] Information which indicate that the exhaust fumes that leaves the exhaust pipe are within environmental regulations shall be provided.

10 Derating conditions

[A] The complete generator sets shall be de-rated according to the site conditions with all components tropicalized.

11 Generator Checklist

[A] The bidder shall submit datasheets for the offered systems containing the following information:

11.1 Engine

[A] The brake horsepower rating of the engine and speed variation in percentage (%).

[B] The engine protection mechanism in general and against high temperature and low oil pressure.

[C] Noise levels from the generator & at the tail of the exhaust pipe, both in dBA.

[D] The recommended interval in running hours for Lubricating oil change, Oil filter element change & Decarbonising.

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[E] The engine's de-rating capabilities, and percentage de-rating for site conditions such as altitude, temperature, humidity and total de-rating.

[F] The Engine shall be fitted with the following:

- A sump drainpipe with a shut-off valve placed in a convenient position outside the base frame to facilitate drainage.
- Indication of recommended oil types on the engine, or base frames, by means of suitable labels.
- Clear markings on the faceplates indicating all engine instruments, such as the normal operating zone(s), maximum and minimum allowable values/limits and danger zone(s).

[G] The engine may be either of the air-cooled or water-cooled type. With the following considerations:

- In the case of water-cooling, a built-on heavy duty, tropical type pressurised radiator shall be fitted. Only stand-by sets that are water cooled shall have electric heaters.
- For either method of cooling, protection shall be provided against running at excessive temperatures. The operation of this protective device shall give a visual and audible indication on the control panel.
- Water-cooled engines shall in addition be fitted with a low water cut-out switch, installed in the radiator, to switch the set off in the event of a loss of coolant. All air ducts for the cooling of the engine are to be allowed for. The air shall be supplied from the cooling fan cowling/radiator face to air outlet louvers in the plant room wall.

[H] The engine shall be fitted with an electric starter motor and be able to start under both summer and winter conditions without the need for special devices.

12 Alternator

[A] The generator's alternator shall be of the Low Harmonic Type and should be brushless. Information regarding the Class of insulation of windings, method of excitation and symmetrical short circuit current at terminals in Ampere is to be made available. During

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operation, it is required to know the efficiency at 0.8 Power Factor and, Full load, ¾ load and ½ load, the Transient voltage dip on full load & the maximum permanent voltage variation in percentage (%). Voltage recovery on full load application in milli-seconds shall also be indicated.

13 Control Panel

[A] The control panel shall display at least the following:

- Ratio of current transformers
- Manual Start & Stop Button

[B] The control panel shall contain the following digital readouts:

- Percentage of rated Power
- kVA, kVAr, Power Factor, kW & kWhr meters

[C] The control panel shall provide the following alarms:

- Low oil pressure, coolant level and low fuel main tank
- High water temperature & high battery voltage

14 Generator Battery

[A] Information of the Battery voltage, Number of cells & capacity in crank amp shall be available.

[B] The generator set shall be supplied with a battery. The battery will be housed in a suitable battery box and have enough capacity to provide the starting torque stipulated by the engine manufacturer. This battery shall be of the heavy duty “low maintenance” type.

[C] The generator battery should have its own voltmeter and ammeter for its battery charging circuit.

15 Fault Current Rating

[A] All equipment shall be designed to withstand a fault current of at least 5 kA.

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16 Deviation from Specification

[A] Any deviation from the specification shall be indicated.

17 Submittals

The following submittals shall be supplied:

[A] Factory published specification sheet indicating standard and optional accessories, equipment ratings etc.

[B] Manufacturer's catalogue cut sheet of all auxiliary components such as isolators, battery chargers, silencer, exhaust flex, main circuit breaker, etc.

[C] Dimensional elevation and layout drawings of the generator set, enclosure and transfer switch gear and related accessories.

[D] Engine mechanical data at varying loads up to full load, including heat rejection, exhaust gas flows, combustion air and ventilation air flows, noise data, fuel consumption, etc.

[E] Generator electrical data including temperature and insulation data, cooling requirements, excitation ratings, voltage regulation, voltage regulator, efficiencies, waveform distortion and telephone influence factor, is required to be available.

[F] Full performance curves and illustrations of the equipment offered, is required.

18 General

[A] The total weight and overall dimensions of the generator shall be provided.

[B] The operating instructions shall be included near the operating panel.

[C] The diesel generator system shall be factory tested to verify operation at rated power.

[D] All wiring shall be routed and housed to be clear of any heat sources.

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19 Generator operation

[A] The generators shall be so installed, such that generator A, will start up when a power failure occurs and then generator B, will start up, when the next power failure occurs, thereafter generator A, again. This cycling mechanism is required and the bidder shall describe their understanding of this requirement.

20 Supplier due diligence

[A] ATNS reserves the right to conduct supplier due diligence prior to final award or at any time during the contract period. This may include requests for additional information.

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CHAPTER 3: SPECIFICATION FOR THE EXTERNAL FUEL TANK

1 Bulk Storage Tank

[A] The current 5000l diesel tank shall be decommissioned and disposed off, in line with the ATNS processes and procedures.

[B] Supply, deliver and install a new 5000l diesel tank which shall be used to provide fuel for both generators.

[C] Tank must have adequate bunding i.e. be able to contain 110% of total fuel quantity should there be a spillage incident

[D] As per the Ekurhuleni Metropolitan Municipality Emergency Services By-Laws, a certificate of registration shall be obtained for the storage of the diesel for quantities exceeding 1100 litres.

[E] This tank shall be integrated with an analogue fuel gauge metering system that shall indicate the fuel level in the tank.

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CHAPTER 4: PROJECT MANAGEMENT

1 General

[B] The Contractor shall establish, implement and maintain extensive and comprehensive Project Management plans throughout the period of any contract arising from this bid. These plans shall be submitted to the Company for information and reporting purposes. Draft plans shall be submitted with the bid and shall be refined as necessary during the Contract development and reporting phases.

[C] The project shall be divided into management plans and activities, which can be managed, monitored, and measured in terms of duration, cost, and resources. These activities shall be organised into logical sequences. Such logical activity sequences shall be used as the main framework for planning, budgeting, controlling and reporting to the Company throughout the period of the Contract.

[D] The Contractor shall utilise an automated Project Management Scheduling tool to assist in the overall control of this project. The Company may require direct access to such Project Management Scheduling System for at least monitoring and audit purposes. Indication shall be made on the Project Management Scheduling tool they are using.

[E] Project Management shall encompass the management of all the various facets of the project as defined in the Contract. These include design, development, production and supply of all equipment and its auxiliaries. Resource allocation and management of sub-contractors. On-site installation and construction. As well as all Integrated Logistic Support activities such as testing, transitioning, commissioning and transportation movements etc.

2 Project Management Plan

[A] A detailed draft Project Management Plan (PMP) with the proposal response shall be provided. The Project Management Plan will be a formally accepted and approved document used to manage and control project executions throughout the project life-

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cycle phases. The PMP shall be comprehensive and detail the activities necessary to successfully complete the project.

3 Project Status Reports

[A] The Contractor shall provide at monthly intervals (or at other such mutually agreed intervals) Project Status Reports to the Company, which documents project implementation performance to date, and makes recommendations for future implementation and changes. The project status shall be presented relative to the project schedule critical path and cost and shall also include a Risk Report. The Risk Report shall identify risks and the mitigation measures taken to either manage or avoid the risks. The Project status report shall also include the Master Project Schedule and Schedule Analysis. The Contractor shall promptly submit to the Company any Master Project Schedule which, when updated, shows a negative float or indicates a significant change to the delivery schedule. A submission of a project report template that addresses the above requirements shall be provided.

[B] The contractor shall provide project status reports at two-weekly intervals, this shall capture the project performance to date and make recommendations for future implementations and changes. (D)

[C] The contractor shall provide the acceptance of the system once commissioning has been completed. (D)

[D] The contractor shall provide as-built drawings of all systems on commissioning of the system. (D)

4 Master Project Schedule

[A] The contractor shall develop, maintain and track progress against the Master Project Schedule, which shall be organized to depict flow of work, task interdependencies and interrelationships necessary to accomplish the program objectives from contract award

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to completion. This Master Project Schedule shall be broken down to a sufficient level of detail and included in this bid. (D)

[B] A detailed Master Project Schedule for the entire management of the project shall be developed. (D)

[C] Project Status shall be presented relative to schedule critical path and cost and shall include a Risk Report, which will identify risks and place measures in place to manage or avoid these risks. (D)

[D] Th project schedule includes all contractual specified milestones, identifies the critical path and is linked to the Work-Breakdown Structure. (D)

5 Project Review Meetings

[A] The Contractor shall attend Progress Review Meetings at monthly intervals (or at other mutually agreed intervals) to present the monthly Project Status Report to the company. The regular Progress Review meetings shall be held at the airport premises or at the Company's Office, or any other mutually agreed locations. A copy of the written Project Status Report and meeting presentation material shall be submitted to the Company at least one week prior to the Progress Review Meeting.

[B] The Contractor shall be represented by appropriate key personnel in each significant area to be considered during the meeting to enable effective discussion of agenda items and the Progress Report. The Project Manager and relevant specialists and support personnel shall represent the Company. The Project Manager shall chair the Progress Review Meetings.

[C] The Contractor shall submit a draft Agenda for Company concurrence at least two weeks prior to a scheduled Progress Review Meeting. The Company may submit items for inclusion in the Agenda. The Contractor shall provide administrative support for the progress review and/or technical review meeting and prepare and distribute a draft record of the minutes of the meeting within one week of the meeting. The minutes are to include an Action Item List. The Company and the Contractor shall submit any updates

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to the Action Item List during the meeting. The Company and the Contractor prior to the next meeting shall review the draft minutes for accuracy.

[D] The Contractor and the Company will each meet their own related costs associated with attending Progress Review Meetings.

6 Installation Management Plan

6.1 General

[A] The Contractor shall prepare an Installation Management Plan to clearly indicate the technical management of proposed methods, activities and work packages for installation, testing integrating and commissioning the generators, while the service provided by the existing generators continues. The Plan shall furthermore indicate how the transition from the existing installation will be achieved, leading to the commissioning and acceptance of the generators. A draft Installation Management Plan shall be submitted.

[B] A draft safety plan for the required scope of work shall be submitted. (D)

6.2 Work Breakdown Structure

The Work Breakdown Structure enables the Company to maintain visibility of the project elements. A draft WBS for FAOR FAOR radar sitesite shall be submitted. The WBS shall identify all activities and work packages required from contract award to successful completion and commissioning of the generators. The WBS shall be included in the draft Construction and Installation Management Plan to be submitted as part of the proposal response.

6.3 Statement of Work (SOW)

[A] A SOW shall be provided, for each of the identified activities and/or work package which includes a detailed description of the methodology and resources required to implement and complete the work package. The Statement of Work will also be used as an input into the development of the Site Safety File. The SOW shall be included in the draft Installation Management Plan to be submitted as part of the proposal response.

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6.4 Resource Allocation Plan

[A] A Resource Allocation Plan, which identifies the resources, including sub-contract resources, to be applied to each element, activity and/or work package of the project shall be submitted. The Plan shall clearly identify all project related organisational breakdowns, responsibilities and work proposed. The Resource Allocation Plan shall be included in the draft Installation Management Plan to be submitted as part of the proposal response.

6.5 Resumes of Key Personnel

[A] The Contractor shall ensure that only appropriately qualified and experienced personnel will be employed on the tasks and/or work packages identified. The Company shall retain the right to direct the Contractor to remove from the project any personnel considered by the Company to be inappropriately qualified or experienced, or unacceptable to the Company. The response shall include as part of the resource allocation the resumes of key personnel to be dedicated to the project.

6.6 Technical Reviews and Meetings

[A] The Contractor shall be required to conduct technical reviews and meetings with Company personnel either at the Company Headquarters or on-site at the airport. It is preferred that these reviews be held concurrently with Progress Review Meetings, where possible. The below requirements are representative requirements, certain alternative plans may or may not be offered. These plans must list and describe the Technical Reviews and Meetings they would propose for this project. The technical reviews and meetings should consist of at least a Site Survey and Acceptance Test Readiness Review. (I)

6.7 Installation and Construction Specification

[A] A draft installation and construction specification shall be submitted. The specification shall indicate the comprehension of the scope of work required.

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7 Testing & Commissioning

7.1 Test and Evaluation Master Plan

[A] The Contractor shall prepare, implement and maintain a Test and Evaluation Master Plan (TEMP) that describes the plan for all Tests and Evaluations to be undertaken in demonstrating compliance with the technical, operational, contractual and performance requirements of the project. This Plan shall include an Acceptance Matrix, which identifies all deliverables, and methods of testing proposed, to demonstrate compliance. A draft Test and Evaluation Master Plan shall be submitted with the bid.

7.2 Acceptance and Commissioning Tests

[A] Specific testing and evaluation procedures for the Acceptance Tests (e.g. Physical Inspections, Final Site Acceptance Tests etc.) shall be defined and detailed in the Test and Evaluation plan for each project deliverable. Indication shall be made of the type of test equipment required for each test described and shall be clearly documented.

8 Risk Management Plan

8.1 Risk Policy and Procedures

[A] The proposal response has an outline of their risk policy and methodology for risk identification, assessment and abatement for all equipment and services to be supplied shall be submitted under this project.

8.2 Risk Abatement

[A] The Contractor shall provide, during the execution of the contract, information which identifies risk, the estimated level of risk, the consequences of failure, and risk reduction strategies associated with:

- Construction and Installation objectives;
- Equipment and cables; and
- Construction and Installation schedules.

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8.3 Risk Report

[A] The Contractor shall provide a Risk Report at each Progress Review Meeting to indicate the status and action associated with identified risk items. The format of the Risk Report shall be mutually agreed.

8.4 Delivery of Project Risk Management Plan

[A] A detailed Project Risk Management Plan after contract award and completion of the site survey, before implementation shall be submitted.

9 Quality assurance

9.1 QA Policy and Procedures

[A] The Contractor shall include in their details, the company quality assurance policy and procedures and relevant accreditations held by the company.

9.2 Responsibility for Quality

[A] The Contractor shall be responsible for ensuring that the quality of equipment and installation materials are supplied in accordance with the terms of the Contract, and any construction and installation activity performed, fully conforms to the prescribed requirements. The Company will undertake a monitoring and audit role in relation to the Quality Plan and program to determine whether equipment, construction and installation deliverables meet the contractual requirements.

9.3 Audit Reports

[A] The Contractor shall prepare monthly Audit Reports in respect of the project as part of his internal QA procedures and provide details of any corrective actions taken. Audit Reports shall be submitted for evaluation by the Company during Project Progress Review Meetings.

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9.4 Company Quality Inspections

[A] The Company reserves the right to perform inspections, conduct tests or perform audits at the Contractor's or sub-contractors' premises at any time when such actions are deemed necessary to ensure supplies and services conform to the specified requirements.

9.5 Delivery of Project QA Plan

[A] A detailed Project Quality Assurance Plan after contract award and completion of the site survey shall be submitted.

10 Safety, Health and Environment (SHE)

10.1 Occupational Health and Safety Plan

10.2 Roles and responsibilities

[A] Appointed principal contractors

The appointed contractor shall:

- Carry out all duties as listed in section 8, 9 and 10, the various other regulations that form part of the OHS Act.
- Carry accountability and responsibility for the safety and health of their employees within their working area, as contemplated by section 37(2) of the OHS Act;
- Shall keep a record of all employees including date of induction, relevant skills and licenses and be able to produce this list at the request of the ATNS Project Manager.
- Ensure that all their appointees are made aware of their accountabilities and responsibilities in ter/ms of their appointment and that they advise and assist these appointees in the execution of their duties.
- Ensure that the minimum legislative, regulatory and ATNS SHE requirements are complied with on site.
- Compile a SHE (Safety, health and environmental) file where all relevant health and safety records Shall be kept.

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- The appointed principal contractor Shall provide the project manager **with a certified copy of his/her Compensation Commissioner's valid letter of good standing before the commencement of work and any future renewal letters obtained during the project for record-keeping purposes**. The letter of good standing shall reflect the name of the contractor's company. The nature of business reflected on the issued Logs Shall be in line with the issued scope of work.
- Appoint competent staff to perform the project work and ensure that all employees are trained in the health and safety aspects relating to such work and that the employees understand the hazards associated with all other work being carried out on the project.
- Ensure that all employees are conversant with all relevant work procedures and that they adhere to such procedures.
- Stop his /her employees if project work is not in accordance with the safety health and environmental plan or if such work poses a threat to the health and safety of persons or a risk of degradation to the environment.
- Appoint full-time competent employees in writing to supervise the performance of all specified work throughout the contract period.

Note 2: No work may commence and or continue without the presence of the project manager or project supervisor during performance of the contracted work.

- Appoint a full-time safety officer as per project risk.
- Not victimise or dismiss employees, by virtue of the employees divulging health and safety information or suspecting such information has been divulged, in the interests of health and safety requirements;
- Follow a process of disciplinary action if any of their employees have transgressed any of the requirements of the health and safety specification, safety and health plans, site rules or any other requirements.
- Ensure that pre-task risk assessments are conducted and documented daily and prior to the starting of any new task, irrespective of whether it is a repetitive task or not.
- Take prime responsibility for all aspects of environmental management associated with the project activity for which they are responsible.
- Principal contractor is required to approve sub- contractor's health and safety plans if they meet all the requirements.

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- Ensure that pre-employment, periodic and exit medicals are carried out on their employees. Medical assessments Shall be conducted by a registered Occupational Health Practitioner.

Note 3: should the appointed principal contractor entertain visitors on site,he/she will be held responsible for the provision and wearing PPE.

- Where performing work with the environment, ensure that minimal damage is done and that where an Environment Management Plan is in place, then adhere to the plan.
- Shall have a substance abuse program which Shall be in line with the requirements of the OHS Act.
- Ensure that no alcohol or other intoxicating substances are brought on to, or remains on the work sites.
- Ensure that all equipment and tools used comply with OHS Act requirements with respect to condition, use, care, storage, maintenance, and the management of these;
- Ensure that all incidents are reported and investigated timeously by competent incident investigators.
- Establish health and safety committees, hold such committee meetings on site.
- Chair their own health and safety committee meetings and record such meetings.
- Appoint sufficient number of health and safety representatives in terms of legislative requirements.
- When appointing contractors, advise the ATNS project manager/contract manager in writing timeously and obtain his/her approval prior to them commencing work.

[B] Site Managers

- Assist the contractor and/or the safety officer in conducting site induction training for new staff and site visitors.
- Communicate to all employees under their control on any hazardous and related work procedures, before any work commences and thereafter, at such times as may be determined by a risk assessment.
- Ensure that the minimum legislative and ATNS SHE requirements are complied with on all work sites.

- Stop any work that is not in accordance with the safety and health plan or if such work poses a threat to the safety and health of persons or a risk of degradation to the environment.
- Ensure that risk-based personal protective equipment (PPE) has been issued and employees wear/use the PPE as instructed.
- Inspect such PPE on a regular basis and record the inspections.
- Ensure that all incidents are reported to the client and are investigated.
- Be involved in all investigations that occur within their area of responsibility.
- Carry out audits and or inspections on their sub- contractors on instructions of their contractor.
- Ensure that employees under their control are conversant with all relevant work procedures and that they adhere to such procedures.
- Ensure that daily or pre-task risk assessments are conducted and documented daily and prior to the starting of any new task, irrespective of whether it is a repetitive task. Ensure that the team are involved in the abovementioned risk assessments.
- Hold toolbox talks at the start of each day/ task to discuss health and safety issues as well as confirming the requirements of the daily risk assessments.
- Ensure that all appropriate precautions are taken to protect persons (visitors, members of the public, and other contractors) present at work or in the vicinity of a project site against all risks that may arise from such site.
- Ensure that no alcohol or other intoxicating substances are brought on to, or remains on, the premises / work sites and that no employee remains on site if he/she is under the influence.
- Ensure that all equipment and tools used on site comply with OHS Act requirements with respect to condition, use, care, storage, maintenance, and the management of these.
- Not victimise their employees by virtue of their employees divulging health and safety information or suspecting such information has been divulged, in the interests of health and safety requirements (reference – section 26 of the OHS Act).
- Where any work is performed which involves the environment, ensure that minimal damage is done to the environment and that where an Environment Management Plan is in place, then the plan adhere to the plan.

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- Stop any employee or contractor from performing work which is not in accordance with the appointed principal contractor's health and safety plan which poses a threat to the health and safety of persons.

[C] Contractor site supervisor

The contractor site supervisor shall:

- Be competent to perform the required supervisory tasks; have attended a supervision or legal liability competent training from SAQA approved training provider.
- Ensure their employees comply with the required statutory and ATNS requirements.
- Ensuring a Safe working environment is established and maintained by the contractor for the elimination of unsafe acts by all people whilst on the project site.
- Conduct site Inspections for compliance to SHE requirements and compiles the relevant inspection reports.
- Participate in the appointed contractor's emergency preparedness planning.
- Ensure that their own employees are competent to perform the tasks assigned.
- Assist the appointed contractor with the handing over process, in particular the SHE file and relevant documentation.

[D] Contractor Health and Safety officer

- The Safety officer Shall be suitably qualified with recognised safety qualification.
- Shall be part time on site as per project risk.
- Promote a SHE culture within the organisations involved in the project / contract.
- The contractor's safety officer shall assist in the control of all health and safety-related matters on the sites.
- Be involved in the developing the project SHE plan and SHE policy.
- Ensure that this SHE specification is adhered to by his/her appointed contractor.
- Conduct inspections of all work sites for the duration of the project.
- Be involved in the organisations incident investigations when required.
- Conduct organisational, site and visitor induction training.

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- Stop any employee or contractor from performing work which is not in accordance with the appointed contractor's health and safety plan which poses a threat to the health and safety of persons.

Section 37(2) (Legal) Agreement

A section 37(2) agreement Shall be signed between ATNS Contract Manager/Project Manager and the appointed principal contractor at the time of awarding the contract. This agreement Shall be submitted as part of the safety file package.

Construction Professional Registration

The appointed principal contractor and all his/her appointed contractors shall be registered in their respective levels as professionals in terms of the requirements of the SACPCMP.

The SACPCMP web address is http://www.sacpcmp.org.za

- SHE professionals (which include Construction Safety Officers) are required to register as professionals with the SACPCMP.

Notification of Construction Work

Unless otherwise contractually agreed upon, the appointed principal contractor Shall notify the relevant provincial director of the Department of Employment and labour of the intention of carrying out any construction work as defined in Construction Regulation 4 of the Act. The notification form of construction work is listed as an annexure to the construction regulations of the OHS Act. A copy of the notification letter sent to the DoE shall be forwarded to the Project Manager on the same day as sent to the DoE. A copy of the letter and their approval Shall be kept in the SHE file. When the DoE provide a letter of approval, a copy of the approval Shall be sent to the ATNS Project Manager, and a copy filed in the SHE file.

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Site Access requirement

The Safety file package Shall be submitted to the SHE unit **2 weeks** before the agreed project commencement date.

- Before the successful Contractor commences with any work, the ATNS Project Manager/Contract Manager shall ensure that;
- A copy of the SHE Specification document is in the possession of the responsible person of the contracting company.
- The responsible person of the contracting company and the ATNS project manager/contract manager have signed the ATNS section 37 (2) agreement.
- The appointment of the appointed principal contractor has been concluded and signed by the contractor and appointed project manager. A task specific baseline risk assessment Shall be part of the SHE Plan and accompanied by a risk assessment procedure applied. A monitoring and review plan Shall form part of the baseline risk assessment.
- Where a Subcontractor(s) is appointed by the appointed principal contractor, the contractor supplies the applicable ATNS SHE specifications to the subcontractor(s).
- The SHE unit shall assess and give written feedback to the appointed principal contractor. The safety file shall be approved in a form of a written letter from the SHE unit.

Costing for SHE within the Project

The SHE costing Shall be itemised and Shall take into consideration the scope of work. The appointed principal contractor Shall make sure that he/she made adequate provision for the cost of health and safety measures during tendering process.

Risk assessment (refer sec 8 & 9 of the OHS Act)

The appointed principal contractor shall develop a Risk Assessment in line with Section 8 (2)(d) of the OHS Act. Emerging risks and hazards Shall be managed during the duration of the contract. This means that if there are significant changes to a process or activity, or any new process, then these should also be subjected to risk assessment.

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All risks Shall be rated. Activity based risk assessments shall be conducted by a competent person of the Appointed Contractor.

Housekeeping and Order

- The appointed principal contractor shall maintain a high standard of housekeeping for the duration of the project.
- Prompt disposal of waste materials, scrap and rubbish is essential.
- Materials/objects shall not be left unsecured in elevated areas –falling objects may cause serious injuries/fatalities.
- Nails protruding through timber shall be bent over or removed so as not to cause injury.
- All packaging material including boxes, pallets, crates, etc. to be removed from the work area immediately.
- On completion of his / her work, the contractor is responsible for clearing his / her work area of all materials, scrap, temporary buildings and building bases to the satisfaction of the client/agent.

Tools and Equipment

- The appointed principal contractor shall ensure that all tools and equipment are identified, safe to be used and is maintained in a good condition.
- Contractor shall ensure that all tools and equipment are listed on an inventory list, be regularly inspected at least monthly or as required by legislation and risk assessments.
- The equipment should be numbered or tagged so that it can be properly monitored and inspected.
- All tools that emit noise shall be clearly marked with the emitted noise levels.
- Where applicable, tools and equipment Shall have the necessary approved test or calibration documentation prior to being brought onto the project and the records shall form part of the SHE plan. Maintenance calibration shall be undertaken in terms of the manufacturer's requirements.
- Where defective tools and equipment's are identified, such tools and equipment shall be removed out of site immediately, locked away to prevent further use until such time as the tool or piece of equipment has been repaired.

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- Contractor shall ensure that the appropriate records are kept for all tools and equipment used on the project. Such tools and equipment's shall be subjected to regular inspections.

Hand tools

- All hand tools (hammers, chisels, spanners, etc.) Shall be recorded on a register and inspected by the supervisor on a monthly basis as well as by users prior to use.
- Tools with sharp points in tool boxes Shall be protected with a cover.

Medicals

Note: ATNS will only accept medical surveillances conducted by an Occupational Health Practitioner who holds a qualification in occupational health.

- Appointed principal contractor Shall ensure that his/her employees have a medical surveillance program whereby employees undergo entry, periodic and exit medical fitness examinations.
- Medical fitness certificates shall be renewed annually for employees who are working on site. This shall be maintained until completion of the contract.
- The appointed contractor Shall ensure that his / her employees have undergone pre-entry medical examination before starting work on the contract.

Personal Protective Equipment Requirements

- Appointed principal contractor shall comply with the requirements of GSR 2 of the OHS Act.
- The risk-based PPE matrix Shall be compiled detailing the types of PPE that is required to be issued to employees performing the respective tasks.

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- Where there are unusual instances where particular activities require additional type of PPE, then a risk assessment Shall be conducted where such PPE requirements will be identified, and the issuing be carried out.
- Appointed contractor shall ensure that his/her visitors wear and use the correct PPE whilst on worksites.
- Where PPE is required and visitors are not in possession of, then it is the individual contractor's responsibility to provide the PPE.
- All PPE purchased and used by all contractor employees including visitors Shall comply with the relevant SANS standards.
- Where deemed as a requirement, then high visibility vests shall be worn.

Incident Investigation

- All incidents shall be investigated in terms of OHS Act General Administrative Regulations 8 and 9 and where injuries as contemplated in sections 24 and 25 have been sustained, be reported to the Department of employment and labour.
- Appointed principal contractor Shall develop their own incident management procedure.
- The appointed Contractor shall use the standard General Administrative Regulation Annexure 1 "Recording of an Incident" form for all incident investigation reports.
- The objective of incident investigation should not only be a legal requirement, but should establish why and how the incident occurred and find out the real root cause of the incident and to decide on precautionary measures that are required to address the root cause to prevent any further recurrences of the same or similar incidents.

Emergency Management

- The appointed contractor Shall develop his/her own emergency management procedure detailing the possible emergencies that could arise due to the activities that he/she conducts at ATNS premises and how he/she will evacuate the area in case of any emergency.

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- Periodic emergency drills Shall be undertaken to test the effectiveness of the plan. This Shall be recorded and provided on request.

Non-Conformance and Compliance

- Any non-compliance to any health and safety requirement in this SHE specification is subject to discipline.
- Should the contractor fail to provide adequate PPE to their employees for the tasks being performed and/or to visitors; failure to enforce the wearing of such PPE will be viewed as a transgression of the legislative and ATNS requirements.

COID

The appointed principal contractor shall be registered with an appropriate employment compensation commissioner and have available a valid letter of good standing (LoG) from such commissioner. The obligation lies with the contractor to ensure that the LoG remain valid throughout the contract period. A copy of the LoG Shall be filed in the contractor SHE file.

Statutory Appointments

For the duration of the contract, the appointed principal contractor shall appoint competent employees who will meet the requirements of the OHS Act. Where appointments are made, contractor shall ensure that the appointees have been suitably trained and or informed of their responsibilities before getting them to accept such appointment. The relevant statutory appointments shall be made in accordance with the requirements of the OHS Act which includes the requirement of a competent person being appointed in the relevant roles.

SHE Communication Systems

Principal Contractor Shall develop a communication strategy/plan outlining how he/she intends to communicate SHE issues to his/her staff, the mediums he/she will employ and how he/she will measure the effectiveness of the SHE communication.

Safety requirements specific to the removal of existing fixed diesel generator and supply, installation, testing, and commissioning of new fixed diesel generator

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Directors: Z Majavu (Chairman)
NP Mdawe (Chief Executive Officer)
JM Mohlola (Chief Financial Officer)
MA Amod, CR Burger, MJ Neluheni, KS Boqwana,
NL Ngema, NC Kubheka, PN Sibiya, P Mangoma, SG Kudumela

Acting Company Secretary: N Mongali

All employees performing the removal of existing fixed diesel generator, supply, installation, testing, and commissioning of new fixed diesel generators scope of work Shall comply with the following:

- Employees should be trained and competent to perform the removal of existing fixed diesel generator, supply, installation, testing, and commissioning of new fixed diesel generator scope of work.
- Employees Shall be trained and competent to handle hazardous chemical substances (diesel from the generator)
- All work involving excavations (piping, civil and electrical works) Shall comply with the requirements of the Occupational Health and Safety Act, Act 85 of 1993 and all relevant regulations, including the Construction Regulations 2014 (CR14), Electrical installation Regulations (EIR 2009) and the General Safety Regulations 2003 (GSR 2003).
- Excavation and trenching are amongst the most dangerous operations in the construction industry. Dangers can include cave-ins, falling loads, hazardous atmospheres, and hazards from using heavy equipment.
- Regular pre-work inspections can reduce hazards and serious risk of injury. Safety inspections should check for the type of excavation being conducted, support and warning systems in place, access areas, weather conditions, heavy equipment, and PPE.
- Excavation work Shall be done under supervision of a competent person who has been appointed in writing for that purpose.
- The appointed contractor Shall submit method statements/work instructions indicating how the excavation work, the removal of the existing diesel generator and the installation of new fixed generator will be done safely.
- A detailed baseline risk assessment pertaining to excavation work, the removal of the old diesel generator and the installation of the new diesel generator shall form part of the safety file package. (this is a detailed document indicating all the associated activities and identifying hazards and associated risks)

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- Part of the baseline risk assessment Shall detail the control measures to be implemented as per the hierarchy of controls, the risk assessment procedure Shall have a monitoring and review plan.
- All risk assessments Shall be compiled by competent person, who has a certificate of competency for Risk Assessment from SAQA approved training provider.
- A task specific risk assessment Shall be conducted for all excavation, the removal of the old diesel tank and the installation of the new diesel tank activities.
- Where the lifting of the generator will be done using a crane jack, Rigging should not be adjusted while a load is suspended, and all work should be performed while the load is on the ground.
- The workers undertaking the rigging task should be trained to comply with all the rigging procedures and equipment handling.
- Where applicable, the principal contractor shall provide suitable notice boards that will be mounted outside the works area when they begin work.
- Such signboards shall indicate the service provider's name, contact details of the responsible site agent, the name/number of the building they are working on, and a short description of the works that are being performed there.
- In addition, warning notices and other barricade will be erected to keep the public away from the locations where there is work being performed. It is the service provider's responsibility to ensure that all persons are informed of the hazards associated with the works and to keep persons outside of the working areas from a health and safety perspective.
- The principal contractor shall only utilize equipment that is safe and in good serviceable order. No work will be undertaken without using the appropriate and correct tools for the purpose.
- Old equipment that is removed from site shall be disposed of safely, and in an environmentally safe and responsible manner as per ATNS waste procedure.

Construction vehicle safety

- It is the responsibility of the driver to ensure:

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- Their passengers wear seat belts whilst the vehicle is in motion.
- Comply with all traffic road rules, safety, direction and speed signs.
- Ensure that vehicle loads are properly secured prior to moving off.
- Ensure that vehicles are not overloaded.

- No drivers or operators may text, talk on cell phones or two way radios whilst driving, unless a hands free kit is used.
- All drivers of construction vehicles are to have valid medical fitness certificates.
- Contractor Shall maintain their vehicles in a roadworthy condition and a vehicle license Shall be valid at all times.
- Drivers of light vehicles Shall avoid stopping or parking in the vicinity of machines. At least 30 (thirty) meters Shall be left clear between such a vehicle and such a machine
- Contractor vehicles can be subject to inspections by the client's representative. Vehicles which are not roadworthy will not be permitted to be used on the project.
- Drivers/operators shall be responsible for the travel-worthiness of all loads conveyed by them. Precautions shall be taken to secure all loads properly. Loads projecting from vehicles shall be securely loaded and in daytime a red flag and during darkness a red light or red reflective material shall be attached to the extreme end of such projecting material.

Site establishment

- Principal contractor's site facilities should be managed at all times.
- Prior to establishing a project site, a site plan is required to be drawn listing position of all buildings, amenities, storage and stacking areas. The appropriate colour coding and demarcation of storage and stacking areas Shall be carried out.
- Where, working in the field and material is stored at the work sites, then proper stacking and storage shall be carried out.
- When compiling the site plan, cognisance Shall be taken to the establishment of the site camp, ablution facilities and dining area in relation to one another and away from stacking and storage areas.

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- The principal contractor together with the client Shall conduct a Risk assessment for site establishment.
- ATNS does not guarantee the provision of a storage to accommodate the service principal contractor's tools and equipment.
- If such site establishment/storage is not be available, the principal contractor will be responsible for establishing and disestablishing its own storage facility, the location of which Shall be agreed with ATNS (if established within ATNS premises).
- The principal contractor may not make use of the site for residential purposes, and no workers will be permitted to set up sleeping quarters on ATNS premises.
- The principal contractor may display discrete signage to indicate the ownership of plant or equipment only and as required in order to comply with health and safety requirements.
- The principal contractor shall clear up all site establishment after use, and reinstate the same to the state prior to occupation, at the service provider's cost.

SHE file

- A SHE file means a file or other record in permanent form, containing the information about the safety and health management system during construction and all information relating to the post-construction phase after handover to the client, so that the client can maintain the works in a healthy and safe way.
- The principal contractor is required to keep a SHE file on every project site. If there is more than one site per project, a file per site shall be kept at that site. Principal contractor may keep additional files at his/her head office as additional records. The SHE file shall be maintained by the principal contractor on his/her project/construction sites and shall be available on request for audit and inspection purposes.
- The SHE file shall consist of the requirements in terms of the project's safety specification, the principal contractor's safety and health plans.
- The sequence of filing the documentation Shall be kept in the same sequence as listed in this SHE specification and the SHE plan.
- Each record shall be separated by partitions to afford easy identification and access. Each partition Shall be labelled.

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- On completion of the work/project, the principal contractor Shall hand over a consolidated health and safety file to the project manager. The principal contractor Shall also hand over all drawings, designs, lists of materials used, and other applicable information about the completed structure, as well as the list of subcontractors, the agreement, and the type of work completed.
- In case where the project is extended, should the documentation in the SHE files become cumbersome, the older documentation Shall be archived in boxes which shall be correctly labelled and be available for auditing purposes. The archived documentation Shall be handed over at the completion of the project.

- SHE file shall be submitted as per the Occupational Health and Safety Act No. 85 of 1993 and regulations requirements for approval by ATNS SHE unit before any project/construction work may commence at the site. The draft SHE File to be submitted shall address the minimum requirements of the Occupational Health and Safety Act No. 85 of 1993 and regulations as listed below. Table: Minimum Requirements for Draft Safety File

No	Item	Included in Draft SHE File	Comments
1.	Health and Safety Policy (signed)	Yes	Shall be signed by the CEO/MD of the company.
2.	Department of Employment and Labour - Valid Letter of Good Standing. (COID)	Yes	
3.	Public Liability Insurance Certificates (Valid)	Yes	

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No	Item	Included in Draft SHE File	Comments
4.	Scope of Work including the Company Organogram, resource allocation and individual OHS responsibilities	Yes	Based on proposal offered
5.	Method Statements/ safe operating procedures	Yes	Based on proposal offered
6.	Notification of Construction Work (Where Applicable)	Yes	Completed form and signed for transmission to DoE after contract award and completion of SHE File
7.	OHS 37(2) Mandatory Form • Agreement between ATNS and the appointed principal Contractor	Yes	Completed form where possible. Agreements will be included after contract award and completion of SHE File
8.	Mandatory Agreements – Between Principal Contractor and Sub-Contractors (if applicable)	Yes	Signed agreement, if any
	Legal Letters of Appointments 16.2 - Designated employer assigned by CEO CR 8.5 – Construction Health and Safety Officer	Yes	All appointment letters Shall be duly singed.

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No	Item	Included in Draft SHE File	Comments
4..	CR 8.1 - Construction Manager CR 8.7 - Construction Supervisor CR 9(1) - Risk Assessor GAR 9(2) - Incident Investigator CR 13.1(a) - Excavations Supervisor CR 23 - Construction Vehicle/Mobile Plant Supervisor Health and safety representative First aider Evacuation warden Fire marshal All other Legal Appointees as applicable		
5	Competency Certificates for all Legal Appointees.	Yes	Valid certificates for all Appointees included
6	ATNS OHS Specifications	No	ATNS Specifications to be provided after contract award for completion of SHE File
7	Health and Safety Plan	Yes	In draft format and Shall be based on work to be undertaken

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Directors: Z Majavu (Chairman)
NP Mdawe (Chief Executive Officer)
JM Mohlola (Chief Financial Officer)
MA Amod, CR Burger, MJ Neluheni, KS Boqwana,
NL Ngema, NC Kubheka, PN Sibiya, P Mangoma, SG Kudumela
Acting Company Secretary: N Mongali

No	Item	Included in Draft SHE File	Comments
			and in relation to the proposal offered
8	Baseline Risk Assessment	No	To be developed in conjunction with ATNS after contract award and during completion of the SHE File. BRA Shall include monitoring and review plan.
9	Baseline Risk Assessment + Risk Matrix	No	To be developed in conjunction with ATNS after contract award and during completion of the SHE File
10	Medical proof of all Contractor employee's physical and psychological fitness to work **ON SITE** at the individual airports listed	No	Valid medical certificates will be submitted after contract award for inclusion in the SHE File
12	**Check Sheets and Registers** Personal Protection Equipment Powered Mobile Plant Site Establishment Trenching and excavation Firefighting equipment Inspection First Aid Box inspection	Yes	

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No	Item	Included in Draft SHE File	Comments
	Hand Tools Hygiene Facilities Daily risk assessment Vehicle inspection Ladder inspection		
13	Incident Investigation and Reporting Procedures	Yes	Comprehensive Procedures and all forms for reporting
14	Toolbox talks	Yes	List of subject matters applicable and record keeping thereof
15	Emergency preparedness Plan	No	To be developed after contract award for inclusion in the SHE File
16	Waste Management Plan	Yes	Detailed Waste Management Plan
17	Environmental management plan	Yes	Detailed EMP

11 Site Survey

11.1 Requirements

[A] A comprehensive site survey of the civil works, for the FAOR VHF transmitter (TX) site generators shall be provided. The site surveys shall be completed at the beginning of the project activities and at least before any equipment is ordered. The site survey shall include but not be limited to: (I)

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- Detail investigation of the status of the current generator's electrical connections including remote monitoring interfaces
- Identification of the cable routing
- Actual measurements of route lengths
- Detail inspection of the available space on existing cable trays
- Photographs of all aspects identified

[B] A draft detailed site survey and use of the information gathered to update planning, design, installation and implementation specifications shall be submitted.

12 Environmental

[A] Contractor shall comply with ATNS' environmental policies, standards and procedures.

[B] The contractor shall prepare an environmental management plan detailing identified environmental aspects and impacts relating to their activities that will be carried out will be managed throughout the project execution. As there is civil works included, environmental management programme shall address, without limitations, the following:

- Energy efficiency pertaining to all aspects of the project;
- The use of Environmentally sustainable materials and products;
- Biodiversity management i.e. soil erosion, clearance of vegetation, rehabilitation of the site, all flora and fauna protection;
- Waste and water management;
- Air quality management i.e. dust suppression; and Visual and aural impacts

[C] Waste management plan of decommissioned equipment as per ATNS Waste Management Procedure Shall be developed covering how the components will be disposed and certificates of disposal issued. The Plan Shall be approved by the Safety Health and Environment unit. Registration certificate for a waste service provider appointed by the contractor shall be included in the documentation

[D] Contractor employees shall attend induction on environmental management prior to commencement of work and records kept

[E] Contractor shall ensure duty of care during execution of the project shall be liable for the costs for the costs of remedying pollution, environmental degradation and consequent adverse health effects as per the National Environmental Management Act 107 of 1998

[F] All environmental incidents shall be recorded and reported to ATNS

[G] Diesel is considered Group II hazardous substance according to the Hazardous Substance Act. Diesel is classified as a Class 3 hazardous substance (Flammable Liquid) according to SANS 10228. As per the Ekurhuleni Metropolitan Municipality Emergency Services By-Laws, a certificate of registration shall obtained for the storage of the diesel for quantities exceeding 1100 litres. Additionally, integrity monitoring shall be currently undertaken on the underground diesel storage tank.

[H] A suitably qualified environmental officer or service provider shall render the services required as per EMPr activities associated with this project. (D)

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CHAPTER 4: LOGISTICS & MAINTENANCE

1 Warranty

[A] The Generators and external fuel tank shall have a minimum 1-year warranty.

[B] The warranty shall cover all system malfunctions such that it shall maintain the system to its initial commissioning status.

2 Operational Training

[A] Operational training shall be provided to three technical staff, on the use of these systems at commissioning, to monitor system status and contact the contractor when major faults occur.

[B] The operational manual shall be delivered with the generators.

3 Maintenance Contract

[A] A detailed maintenance contract shall be provided, clearly indicating all required maintenance activities such as preventative and corrective maintenance per annum as well as, all labour and spare parts costs for a period of 5 years. Which includes a one-year warranty and four-year support and maintenance.

[B] Routine maintenance for the generators as well as for the external fuel tank during the one-year warranty period shall be described.

[C] The generators as well as the external fuel tank shall have a four-year maintenance contract in place, which commences after the one-year warranty period.

[D] The maintenance contract shall be for both generators as well as the external fuel tank and shall be for a period of four years and commences after the one-year warranty. The bidder shall include as part of the bid the technical and pricing schedule for the 4-years support and maintenance for both generators as well as for the external fuel tank.

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[E] The contractor shall therefore be responsible to keep the system fully operational for a total duration of 5 years. The bidder shall include as part of the bid the technical and pricing schedule for the 4-years support and maintenance for both generators as well as for the external fuel tank.

4 Service-Level Agreement

[A] Should the system or any of its component's malfunction, the contractor shall return the system to full operation within 12 hours. This also applies to the warranty and maintenance contract.

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