

SCOPE OF WORK

Tender No.: T(Insert Tender Number)/24

Description: Main Sub 1 (MS-1) 11kV Switchboard

1 INVITATION TO TENDER

This document prescribes the requirements for **design, manufacture, supply, installation and commissioning** of the 11kV switchboard for the Foskor Phalaborwa Main Sub 1 (MS-1) substation.

2 PRE-QUALIFICATION

2.1 COMMERCIAL

Preference to be given to the BBBEE levels 1 to 4 suppliers as set out in the PPPFA.

2.2 TECHNICAL PRE-QUALIFICATION

The CIDB 6EP grading or higher is a mandatory requirement.

Experience of no less than five (5) years in the manufacturing, installation and commissioning of 11kV switchgear or higher is also a mandatory requirement for this tender.

Proposed switchgear must be Type tested

3 DEFINITIONS AND ABBREVIATIONS

BOQ	–	Bill of Quantities	MHSA	–	Mine Health and Safety Act
BRA	–	Baseline Risk Assessment	NDT	–	Non-destructive Test
COC	–	Certificate of Compliance	OH&S	–	Occupational Health and Safety
COP	–	Code of Practice	OHC	–	Over-Head Crane
CTD	–	Critical task Descriptions	PEE	–	Portable Electrical Equipment
DAP	–	Diammonium Phosphate	PPE	–	Personal Protective Equipment
DB	–	Distribution Boards	QA	–	Quality Assurance
DWA	–	Department of water affairs	QC	–	Quality Control
DWG	–	Drawing	QCP	–	Quality control Plan
ECO	–	Engineering Change Order	QMS	–	Quality Management System

HDG	–	Hot-Dip galvanizing	RFI	–	Request for Inspection
HIRA	–	Hazard Identification and Risk Assessment	ROPS	–	Rollover Protection System
IFC	–	Issued for Construction	SANS	–	South African National Standards
ISO	–	International Organization of Standardization	SHE	–	Safety, Health, Environment
LDV	–	Light Delivery Vehicle	SHERQ	–	Safety Health Environment Risk & Quality
MAP	–	Monoammonium phosphate	TMMS	–	Trackless Mobile Machines
MCOP	–	Mandator Code of Practice	WBS	–	Work-breakdown structure

3.1 **SCOPE BACKGROUND**

The MS-1 substation is a pre-existing substation which Foskor lost due to a fire incident in 2019. Unfortunately, the substation could not be recovered immediately and all the loads feeding from the MS-1 substation had to be rerouted and our 11kV reticulation revised. The purpose of this project is to recover the MS-1 substation and restore as much as possible of the initial reticulation design through the installation of the similar switchboard to increase the power availability and redundancy. The old single line diagram (SLD) of the MS-1 substation will be shared with this scope of works.

3.2 **COMPANY BACKGROUND**

Foskor is one of the world's largest producers of phosphate rock (concentrate) and phosphoric acid. It is one of the world's few vertically integrated producers of phosphoric acid and is the second-largest supplier to India, the world's largest consumer of phosphoric acid.

The Company owns and mines phosphate resources and beneficiates the mined material to produce a phosphate concentrate at Phalaborwa, in the Limpopo Province of South Africa. The phosphate concentrate is sold locally and also transported to the Richards Bay plant on the coast of Kwa-Zulu Natal to produce phosphoric acid, sulphuric acid and granular fertilisers MAP and DAP from phosphoric acid and is the leading supplier of fertilisers to South Africa. In all about 95% of the phosphoric acid is exported and the granular sales are divided between exports and local markets. Since 1951 Foskor has supplied more than 95% of South Africa's fertiliser requirements.

4 **SCOPE OF WORK**

4.1 **BACKGROUND DOCUMENTATION**

Not Applicable

4.2 SCOPE - EXTENT OF WORK OR SERVICE REQUIRED

4.2.1 General Scope Considerations:

Please allow for a competent Quality Control Officer to compile and manage the contractor's quality management. In the event of quality system failures, Foskop will request the Quality Official's experience and qualifications and if this is not acceptable, it will be expected that the contractor obtains this service at its own cost.

Please allow for a competent person to compile the method statement and the subsequent Microsoft Project plan. This person will manage and update this plan weekly and present it to the Foskop Project Engineer. It is expected that this planning and management is executed by the contractor. This service will be provided at the contractor's cost. If the contractor cannot execute this planning and report to management, it will be expected that the contractor obtains this service at his/her cost.

Scaffolding needs as may be required, to be arranged by the contractor. It is expected that arrangements will be communicated to the Foskop contracted service provider at least 3 days before the requirement. Proof of request and arrangements and actual scaffolding installation for Scaffolding to be provided to Foskop on request.

4.2.2 Project costing and expenses:

The contractor shall supply all engineering services, materials, labour, transport, supervision, and consumable materials, equipment, tools and every item of expense for the scope of work to be completed successfully unless otherwise stated.

4.2.3 Disposal of refuse

The Contractor shall be responsible for disposal of refuse and waste generated by his staff daily. The site is to be kept clean, neat, and tidy, by complying with Foskop Waste Management COP.

4.2.4 General requirements for commissioning

Commissioning or handover will be executed as per Foskop Procedures or as directed by the Engineer. Normally the Foskop Punch list and Hand over certificate will be used.

4.2.5 The successful or appointed service provider shall comply with the latest revisions of the following Foskop CTD's (Critical task Descriptions) (CTD's are available on request):

- i. **(Insert relevant text in context with the project – If applicable)**

N/A

4.3 **SCOPE**

4.3.1 **General**

The scope of this work covers the design, manufacture, supply (and delivery), installation and commissioning of an 18 Tier 11kV Medium Voltage Switchgear assembly according to the attached Switchgear Specification Sheet for the Foskor Main Subs 1 Switch board replacement Project in Phalaborwa, Limpopo province.

The Works shall be designed, constructed, tested and commissioned in accordance with the applicable scope, regulations, specifications, standards and recommendations. The Contractor shall be deemed to have made an allowance in the tender to comply with the above.

The three (3x) incomer panels have four (4x) 3x185mm² PEX cables to be terminated on each panel. A provision must be made for the termination of all the cables. The feeder panels have up to three (3x) 3x185mm² PEX cables to be terminated.

The Arc Protection scheme shall trip the feeder breaker where the arc originates, however if the arc is on the bus bars, the incomer and bus section breaker(s) of that bus must trip

The scope of this work shall also include obtaining the Foskor permit to do work for the installation of the switchboard.

All work shall also include the supply of all tools, labour, equipment, Transportation, Supervision by a Foskor authorized 2.9.2 supervisor and 2.6.1 subordinate manager, Quality management, Project management and communication, etc

4.3.2 **References**

The following documents are referenced in the text. Users of this document must ensure that the most recent editions of the following documents referenced in the text are used.

a. **Regulations**

In Particular the Works shall comply with the following regulations.

- a) Mines Health & Safety Act (Act 29 of 1996, as amended)
- b) Minerals Act (Act 50 of 1991, as amended)

b. **Specifications and Standards**

Abbreviations

BS	British Standard	
IEC	International Electrotechnical Commission	
NRS	National Rationalised user specification	
SABS	South African Bureau of Standards	
a)	Foskor Electrical COPs.	
b)	Foskor's Engineering Specifications:	EE-1, GE-1, and EC-1
c)	High-voltage switchgear and controlgear	SANS 62271
d)	Low-voltage switchgear and controlgear	SANS 60947
e)	Low-voltage switchgear and controlgear enclosed equipment	SANS 62626-1
f)	Coating by powder coating Process	SANS 1274
g)	National colour standards for paints	SANS 1091
h)	Moulded case circuit breakers	SANS 156
i)	Insulated bushings	SANS 60137
j)	AC metal-enclosed switchgear for rated voltages above 1 kV and up to and including 36 kV	SANS 1885
k)	Busbars	SANS 1195
l)	Measuring relays and protection equipment	SANS 60255-127
m)	Instrument transformers	SANS 61869-1, -2 & -3
n)	The Wiring of Premises Part 2 Medium-voltage installations above 1 kV a.c.	SANS 10142-2

The Contractor/Manufacturer shall adhere to the specifications and standards unless the Engineer has granted prior written authority for variation.

4.3.3 Switchgear rating

a)	Nominal Voltage	11,000 V AC
b)	Impulse level	95 kVip
c)	Peak Voltage	12000 V AC
d)	Frequency	50 Hz
e)	Fault level (for 2x 132kV trans. in parallel)	31 kA for 3 sec

- | | |
|------------------------|-------|
| f) IP rating | IP22 |
| g) Peak making current | 50 kA |

4.3.4 Construction of the switchboard

a. General Features

- a) The Switchgear and control gear shall be vacuum or SF6 gas filled, single bus, indoor, modular, free standing metal clad type.
- b) The Switchgear and control gear panels shall be bolted together to form a totally enclosed, continuous, self-supporting self-contained switchboard of uniform appearance.
- c) The Switchgear and control gear must be of the horizontal isolating, draw out, truck type.
- d) Any circuit breaker shall be interchangeable with any other similar breaker of the same rating on the board. It must not be possible to insert a circuit breaker into a higher current rated circuit.
- e) All openings, joints, etc. in the entire switchboard shall be adequately vermin proofed.
- f) The panels shall be built to withstand internal faults. In the event of an internal arc fault a person standing to the front or alongside the panel shall not be burnt or electrocuted. A means of pressure relief shall be provided and the Contractor shall describe in full the method used.
The underside of vent outlets, if used, shall be suitably supported to prevent accidental inward opening.
- g) 220 V anti-condensation heaters shall be provided to ensure that no condensation can occur in any of the components. An auxiliary contact shall be provided to switch the heaters on when the circuit breaker is open.
- h) Doors shall have stops to prevent over swing of the door when opening to prevent interference with adjacent panels.

b. Circuit Breaker Features

- a) The contacts shall ensure rapid and consistent extinction of the arc with a minimum release of arc energy under all loading and fault conditions.
- b) The arcing contacts shall be tipped or coated with an erosion resistant material, preferably a tungsten alloy.
- c) The main contacts shall be self-aligning with a high contact pressure and a self-cleaning action

c. Circuit Breaker Mechanisms

- a) The closing mechanism shall be either of the hand charged spring or hand operated, spring assisted, magnetic, motor wound spring charging or solenoid-operated types as specified in the attached Data Sheet(s).
- b) The closing action of the hand operated, spring assisted mechanisms shall ensure that once closing is initiated the action becomes independent of the operator.
- c) All mechanisms shall be of the trip-free type and it shall not be possible for the mechanism to maintain the circuit breaker in a "closed" position during fault conditions or when the "open" signal has been initiated.

- d) The electrical closing circuitry shall be open circuited as soon as the closing sequence has been completed to prevent continued electrical loading of the closing coil and deactivate the closing signal until a new sequence is initiated.
- e) The mechanisms shall be capable of performing a "BREAK-MAKE-BREAK" operation.
- f) All electrically operated closing devices shall operate at any voltage between 80% - 120% and tripping devices for 50% -120% of the nominal control voltage at the device terminal.
- g) Anti-pumping devices shall be provided on all mechanisms to prevent repeated closing whilst the closing circuit remains energised and the circuit breaker either fails to latch or trips on closing.
- h) The trip circuit shall ensure "fail safe" operation.

d. Bus bars

- a) Bus bars shall be of the totally enclosed air insulated type, insulated for 15 kV and manufactured of hard drawn high conductivity copper with rectangular cross-section.
- b) The busbars shall be rated for the continuous current carrying capacity specified in the Detailed Technical Specification drawings and the specified fault levels. The bus bars shall be designed to withstand mechanical and temperature stresses for normal and fault conditions taking into account correction factors for different configurations, "proximity" and "skin" effects, the effect of ferrous enclosures, ventilation, etc. The maximum allowable temperature of bus bars carrying full load in the specified ambient temperature is 80°C.
- c) There shall be no barriers down the bus bar runs except on either side of the bus bar section switch. Barriers shall not be used to provide mechanical support for bus bars or connections.
- d) Entry through barriers between cubicles within the same panel shall be by means of purpose designed bushings.
- e) Applied insulation shall be in intimate contact with conductors and conductor joints to obviate voids.
- f) A copper earth bar of not less than 37 mm x 6 mm is to be provided along the full length of the switchboard. All metal parts of each circuit breaker are to be adequately earthed to this bar which is to protrude beyond the switchboard to facilitate ready access for future Switchgear. An earthing terminal is to be located on either end at the rear of the panel conveniently placed about 150 mm above floor level.

e. Painting

All equipment shall be painted and finished using a powder coating process to the requirements of SANS 1274 - 1979 type 2 (thickness 35 micron).

The colour finish shall be:

- Exterior, Electric Orange **B26** (Foskor)
- Interior (Instrument Housing) White

f. Voltage Transformers (VT's) - (INCOMER CABLE SIDE)

- a) Voltage transformers shall be withdrawable and shall be fully and solidly insulated by means of cast resin. They shall be of the double wound type fitted with primary and secondary fuses, with a secondary voltage of 230 V unless otherwise specified.

- b) The construction of the voltage transformers shall be so arranged that the primary fuses are not accessible unless the voltage transformer is withdrawn. The voltage transformer shall be padlock able in both the withdrawn and service positions. Primary fuses must be accommodated in the voltage transformer primary isolating spouts. One end of each fuse must engage with a spring-loaded contact. Each voltage transformer spout must be provided with a spring-loaded primary isolating contact. The spring used for spring loading the primary fuse contract and for spring loading primary isolating coil must be separate from each other and entirely independent of each other in operation.
- c) Voltage transformers shall be suitable for an impulse withstand level of 95 kV and shall have the following minimum accuracy classes:

Indicating instruments	1.0
Metering	0.2
Protection	3P

- d) Approved plug-in type connections arranged for easy isolation and removal of the voltage transformers shall be supplied. When isolated, the plug connections on the switchboard shall be fully shrouded by means of automatic shutters, which can be locked by means of a padlock.
- e) The rating shall be suitable for the connected burden and a minimum of 50 VA per phase.
- f) Panel doors incorporating instruments shall be suitably earthed using a green insulated flexible 4 mm² copper conductor and voltage terminals are to be shrouded.
- g) Voltmeters shall be protected with easily accessible HRC fuses.
- h) Neon indicators shall be provided at all incoming & ring feed switch panels to indicate "Cable Alive".

g. Current Transformers (CT's)

VT's and CT's shall be provided with the correct VA rating and class to suit the prospective system fault level, circuit rating, purpose and burden for all protection, metering, instrumentation and PLC requirements. Where required for restricted earth fault protection, transformer star-point CT's shall also be provided. CT VA ratings as detailed on the single line diagrams are provisional only and must be verified by the vendor for correct rating in terms of the application

- a) All CT's shall be fully and solidly insulated by means of cast resin. They shall be installed and labelled so that the ratio, class etc. is clearly visible.
- b) The secondary windings of the protection class CT's shall be brought out to terminal and test blocks with no connections being made internally. The secondary windings shall be earthed at the star point adjacent to the CT.
- c) Test blocks are not required for metering CT's.
- d) Current transformer chambers shall be so designed that no secondary connections can enter the high voltage compartment.
- e) The class of accuracy for current transformers shall be as follows:

Type	Class of Accuracy
Metering	
Indicating instruments such as ammeters, etc.	- Class 1
Metering – normal commercial grade kilowatt-hour meters. etc.	- Class 0.5

Protection

Over current and Earth fault - Class 5P

Unit Protection - Class X

- f) Phase colour coding similar to the busbars (R, W, BL, and BK) must be provided for all wiring to current transformers (4mm² secondary wiring).
- g) All CT's shall be tested and a certificate provided showing ratio, magnetising curve, secondary resistance and primary insulation to rated voltage, not type test certificates
- h) Where metering CT's are supplied on behalf of a supply authority, they shall be removed and handed to that authority for testing together with the magnetised curve details and saturation factors, following which they shall be re-installed.

h. Protection Relays

- a) Protective systems and relays shall be provided in accordance with the detailed approved design. Solid state protection relays will be provided for protection and will be suitable for control system interface via a communications bus.
- b) All relays are to be dustproof and suitable for flush mounting.
- c) Relay contacts shall be capable of repeatedly making and where required repeatedly breaking the maximum current possible in the circuits they control. Trip circuits will be interrupted by breaker auxiliary contacts once the breaker opens.
- d) Tripping contacts shall be stable and not change state due to vibration.
- e) Relays shall contain flag (LED) indication on each operating element. Hand resetting shall be accomplished without opening the case. These relays shall be accessible to a person of average height standing on the floor.
- f) Each relay shall be rated for its associated current transformer, to withstand the Over currents in the secondary winding of the current transformer under fault conditions and be continuously rated for any current setting.

i. Battery Tripping Units

Floor mounted folded Zintex sheet steel cabinet fitted with mains transformers, full wave rectifier, fuses, instruments, etc., all mounted in the upper compartment which shall have a hinged door forming the front control panel. Stainless steel hinges and catches shall be used. Batteries must be mounted in the lower compartment and pre-wired before delivery.

a) Battery Charging Unit

A constant voltage type charger with current limiting facilities shall be provided. The output voltage shall be kept within 1% of the float charge voltage designed for maximum charge conservation and maximum battery life for variations of +/- 10% of the input voltage.

The voltage will be 110 V DC.

Batteries and charger will be rated for the load required and in all cases not be less than 10 kVA.

The ripple content in the output of the charger shall be less than 2%.

The battery condition shall be continuously and automatically monitored to ensure that tripping the Switchgear will occur regardless of the mains having failed. Local and remote alarm facilities will be provided on the equipment to warn maintenance personnel of impending failure of the battery set. The cancel button for the alarm will be mounted on the front of the panel.

Suitable LED's must be fitted in the circuit to show that the mains are switched on and that the primary supply is healthy.

A suitable load resistor and spring-loaded test switch shall be incorporated in the battery discharge circuit to simulate load conditions and enable the maintenance personnel to check the state of the cells on load.

The "Boost" function will be automated (no manual facility).

b) Batteries

The supply and installation of the Battery Tripping Unit (BTU) for the Switchgear with the ventilated dry type nickel cadmium batteries sized/specified based on the switchboard load to be supplied and to last for up to 12 hours with no power supply.

j. Nameplates and Labels

The following requirements shall be deemed to be standard requirements.

- a) All nameplates and labels shall be in English.
- b) Each switchboard shall be fitted with a nameplate in a conspicuous position indicating:
 - Maker's name
 - Makers type number
 - Maker's serial number
 - Employers contract number
 - Service voltage
 - Number of phases
 - Continuous rating
 - kA rating
- c) Duplicate nameplates for all current transformers shall be mounted on the inside of the relay compartment where they can be easily read. In addition the phase colour with which each current transformer is associated shall appear beneath each rating plate.
- d) Interchangeable, engraved labels showing the designation, shall be fitted to the front and the rear of the fixed part of each cubicle associated with withdrawable equipment.
- e) Screws or rivets shall fix labels other than interchangeable labels. Interchangeable labels shall be fitted in a slide-in aluminium holder, which shall be fixed by means of screws or rivets.
- f) Identification is required adjacent to all electrical control and protection equipment, switches, relays, etc whether these are mounted on the front of the control panels or inside compartments. Labels shall be placed adjacent to all fuses to state the rating.
- g) All identification labels shall correspond with the designations used in circuit and wiring diagrams.
- h) All labels shall be made of composite sandwich type plastic material such as Trafolyte of the following colour combinations:
 - Identification labels: black lettering on white background.
 - Danger labels: white lettering on red background.
 - Incomer & Bus coupler Designation labels: Red lettering on white background.

k. Low Voltage Wiring

- a) The low voltage auxiliary circuit feeders to each Switchgear panel shall be protected by means of moulded case circuit breakers. The moulded case circuit breakers shall have a rating suitable for the circuits protected.
- b) All instrument and control wiring shall be carried out in a minimum size of 1,5 mm² 0,67 mm stranded copper conductors, insulated with colour coded PVC wire, 600 – 1000 V grade to SANS 10142. Colour for Live conductor is RED and zero Volt conductor is BLACK.
- c) All CT secondary wiring shall be colour coded, numbered and a minimum dimension of 4mm².
- d) All wiring shall present a neat appearance and shall be suitably braced, placed in wiring channels or clipped and/or laced.
- e) All panel and equipment terminals, label, etc. shall be completely accessible after the wiring and cabling has been completed.
 - Each end of every wire shall be marked with cable ferrules in black lettering on white or yellow background and preferably of PVC or similar material. Split or “clip on” cable markers are not acceptable.
 - Each end of every wire shall be marked with cable ferrules in black lettering on white or yellow background and preferably of PVC or similar material. Split or “clip on” cable markers are not acceptable.
- f) The Engineer shall approve the system of terminal numbering.
- g) Termination of all wiring shall be done using compression crimp lugs suitable for the intended equipment terminal or terminal strip.
- h) For voltage ratings in excess of 50 V the wiring insulation shall withstand a test voltage of 2 kV to earth for one minute. For voltages of 50 V or less the insulation shall withstand 500 V to earth for one minute.
- i) All wiring between different panels within the same switchboard shall be installed in wiring channels. Grommets shall be installed in each hole in the metalwork through which conductor's pass. Wiring shall also be kept away from exposed metal edges or shall be protected where they cross metal edges.
- j) Conductors may only be jointed at equipment terminals or numbered terminals strips.
- k) To minimise the effect of electrolysis, DC circuits shall be so arranged that the isolator or N/O operation contacts are connected to the positive pole of the battery and all equipment operating coils or PC Boards connected to the negative pole of the battery.
- l) When approved for use, all fuses for the protection of auxiliary circuits shall be of the high rupturing capacity cartridge type and shall be mounted on insulated draw out carriers, which shall hold the fuses positively after withdrawal.
- m) The top terminals of fuses & MCB's shall be the live terminal in all cases.
- n) Fuses and MCB's shall be so positioned that they are readily accessible to a person of average height standing on the floor in front of the panel.
- o) Labels shall be fitted adjacent to fuses & MCB's stating their use, rating and duty.
- p) Secondary fuses and links shall be coloured as follows:
 - Fuses: Black
 - Solid link: White
- q) All external wiring and connections to auxiliary contacts, alarm, protection, intertripping, DC supply circuits, etc. shall terminate on numbered DIN rail mounted terminal strips, similar or equal to Klippon

type RSFI. All numbers shall appear on the switchboard drawings. Box type terminals shall be used with a pressure pad between the conductor and clamping screws. Terminals of the type where clamping screws are in direct contact with the conductor are not acceptable. Terminals shall be spring-loaded type, which will capture the hook blade lug securely even when the clamping screw is not tightened correctly.

- r) Approximately 10% with a minimum of 6 spare terminals shall be provided on each terminal strip.
- s) Terminal strips to which low voltage wiring is connected to external cables shall be arranged to allow a clear space of not less than 150 mm between the cable gland plate and the lowest terminals.

I. Unspecified Items

The installation shall include everything necessary and shall be installed to the approval of the Engineer. The supply and installation of equipment required for adherence to the Standards and Codes may not have been indicated in detail on the drawings or in the other parts of the specification, but will, nevertheless, be considered included in the contract value.

The same makes and type of apparatus shall be used for similar items throughout the installation.

4.3.5 Design Responsibility

The Foskor Project Engineer is responsible for preparing the scope, adjudicating the tenders, directing, controlling and co-ordinating the efforts of the Contractor to achieve completion on time within acceptable levels of quality and budget. The Project Engineer is not responsible for detailed design.

The Manufacturer will be responsible for the design, manufacture, supply, delivery, off-loading, installation, testing and commissioning of MV Switchgear, including the co-ordination of associated services to provide a proven, reliable, low maintenance system.

4.3.6 Design Review

The Engineer may decide to nominate a competent organisation (or individual) to perform an independent design review.

4.3.7 Equipment Maintainability

- a) Equipment must be designed and manufactured to require minimum maintenance over its lifetime.
- b) Parts must be easily accessible and interchangeable.
- c) Finishes (external/internal) and materials selected (piping, bolting, seals) must be able to withstand the environment and/or handling conditions they are exposed to.

4.3.8 Tests & Test Certificates

All component parts of the equipment shall be subject to type tests and routine tests in accordance with the relevant SABS, BS or IEC standard specifications.

a. Factory Acceptance Testing

- a) Equipment type and rating check
- b) The ratio, polarity and magnetisation curve of each current transformer after their installation in the board.
- c) Samples of the characteristic curves of each protection relay where applicable.
- d) The ratio of each voltage transformer.
- e) A functional test of the complete board, including all protective relays, by primary injection.
- f) Breaker opening & closing times.
- g) Mechanical function tests.
- h) System pressure test.
- i) Secondary wiring insulation resistance test.

b. Site Acceptance Testing

The equipment shall be tested on site after erection and prior to commissioning, in the presence of the Engineer.

The following minimum tests shall be performed as required:

- a) System pressure test.
- b) Actual IDMT relay curves.
- c) Insulation Resistance tests (Ducter Tests) on all Busbars & joints.
- d) Primary injection tests.
- e) Earth continuity and earth resistance tests.
- f) Functional tests.
- g) Any other test, which may be required to ascertain the correct functioning of the equipment.

c. Test Certificates

- c) Copies of type test certificates shall be submitted.
- d) Three copies of test certificates of all other works tests and on site tests shall be provided.

4.3.9 Drawings and Manuals

- a. It is the responsibility of the Contractor to produce an "as built" documentation record of design and construction.
- b. The Engineer shall endorse all "as built" documentation requirements. These records shall be presented in the form of a bound Data Book lodged with the Engineer.

- c. All drawings shall be generated on AutoCad RELEASE 14. The data storage format shall be 3.5 inch DS HD 1.44 MB stiffer computer disk DXF format, suitable for AutoCAD 14. The contractor shall be responsible for all back up procedures, and computer security and integrity. The Engineer shall verify the procedures. If reasonable systems are not in place the Engineer reserves the right to instruct the Contractor to rectify the situation at his own cost. The software package for spreadsheet work shall be MICROSOFT EXCEL.
- d. The FOSKOR drawing submitted with this tender is E 20 – 1 – 11 – 2. This drawing will act as a guide to the layout of the switchboard and the sizes of the circuit breakers and the protection and metering required by this tender.

4.3.10 Quality Assurance Requirements

For this Contract, the Manufacturer shall operate a documented Quality Assurance Programme/Management System. It is important that the system fully addresses the scope of work.

- a. For the purposes of filing and documenting the written Quality Assurance Programme, the guidelines laid down in ISO 9001 shall be used.
- b. It is the Manufacturer's responsibility to apply the appropriate requirements of ISO 9001 to any Subcontractor, to the extent necessary. The Manufacturer shall be required to verify and demonstrate that their Subcontractors are capable of meeting the quality requirements stated therein and the Manufacturer shall monitor the Subcontractors for implementation of the quality requirements.
- c. In the event that the Manufacturer considers that any of the criteria referred to in ISO 9001 are not applicable to the Manufacturer or his Sub-Contractor, the Contractor shall provide a written justification to the Engineer for consideration. If such justification is not submitted to and agreed by the Engineer, it will be assumed that all criteria are applicable.
- d. The Engineer reserves the right to verify by audits that the Manufacturer and any Sub-Contractor's have an implemented quality management system, which satisfies the requirements of ISO 9001 or approved equivalent.
- e. For this Contract, the Contractor shall submit a quality plan(s). The quality plan(s) shall be submitted to the Engineer for approval and no work shall commence until such approval is given.
- f. All Sub-Contractors working for the Manufacturer shall work in accordance with the Manufacturer quality system, procedures and documentation. Sub-Contractor's documentation shall not be accepted.
- g. The Engineer will require access to the Manufacturer facilities and the facilities of any Sub-Contractors, for the purpose of quality audit and surveillance inspection.

4.3.11 PACKAGING

Packaging must be suitable for protecting equipment from damage due to handling, transportation (shipping), environmental influences and storage. Packaging details must be provided. The movement of instruments, meters and electro-mechanical relays, if used with Engineers Approval, shall be protected against vibration damage during transit.

5 PROJECT URGENCY

This project has been budget for the 2024/25 financial year and the expected completion is by the 31st March 2025. If delayed this will have an adverse bearing on CAPEX projects budget of the organization for the next financial year. This should be considered throughout the planning and delivery of the project.

6 DELIVERY OF MATERIALS AND EQUIPMENT

It is the responsibility of the Contractor to take delivery, off-load, store and move into their permanent position all equipment and materials covered under this Scope. The Contractor shall, at his own expense, be responsible for the delivery to the Site of imported plant and equipment, materials and Contractor's plant and equipment in connection with the execution of the works, including but not limited to securing of permits and customs clearances, and payment of handling costs, storage costs, releasing costs, transportation costs, and duties, taxes, imports, excise and charges of any kind that may be imposed by the South African Government, or any of its agencies and political subdivisions relating to the supply and delivery to the site of the imported plant and equipment, materials and Contractor's plant and equipment.

TAKE NOTE - Foskor pays for material delivered to Foskor site only!

NB: The contractor/ consultant must clearly state in his tender submission if there is an exclusion on the Foskor scope (As per the site meeting procurement scope and site meeting minutes) Failure to state the exclusion will mean that the full Foskor scope is still applicable.

7 BATTERY LIMITS – INCLUSIONS AND EXCLUSIONS

(Insert relevant text in context with the project – If applicable)

7.1 TABLE OF INCLUSIONS AND EXCLUSIONS

List the boundaries in terms of equipment (Foskor plant specific). Up to where is it Foskor's responsibility and where/what is the contractor's responsibility.

WHO WILL SUPPLY THE FOLLOWING?													
FF = FOSKOR, FREE OF CHARGE				FC = FOSKOR, AT COST TO CONTRACTOR				C = CONTRACTOR				N/A = NOT APPLICABLE	
1. Sanitary		2. Transport		3. Quality		4. Security		5. Lifting and Rigging		6. Medicals		7. Communication devices	
1.1 Water on site and toilet facilities / janitorial services	C	2.1 Labour	C	3.1 Plan, Management, QA, QC	C	4.1 Site Security	C	5.1 All rigging equipment (Slings, Chain blocks, turfers, etc	C	8.1 Entry and Exit	C	7.1 All communication devices like laptops, computers, networks, radios, cellphones, etc	C
1.2 Potable connection point	C	2.2 Materials	C	3.2 All quality test Civil, Paint, Mechanical, etc	C	4.2 Foskor ID Card	C	5.2 Rigger	C	8.2 First aid box at place of work	C		
1.3 Connection to construction water supply	N/A	2.3 Equipment	C	3.3 Sampling and laboratory testing	C			5.3 Mobile cranes	C				
1.4 Change rooms	FF	2.4 All TMMS	C										
8. PPE		9. Surveying		10. Safety File		11. Training & Authorizations		12. Site Establishment		13. Waste management		14. Painting	
8.1 Supply, Issue, inspect and manage	C	9.1 Site Surveys	C	10.1 Foskor will issue template	FF	11.1 All Required Training	C	13.1 Site office/s with suitable facilities for daily “Green Area” meetings, and lunch area	N/A	13.1 Transport all on site to waste to Foskor designated waste sites	C	14.1 All Equipment and tools paint, labour, etc	C
				10.2 Ensure file conform/ populate to Foskor standards	C	11.2 Authorisation - As per Foskor COP	FF	13.2 Site establishment space	N/A				
15. Fuel		16. Mechanical		17. Labour		18. Compressed air		19. Scaffolding		20. Tools & Equipment		21. Training	
15.1 Fuel Supply	C	16.1 Conveyor Belt	N/A	17.1 All labour as per Scope of Work to execute task including management	C	18.1 Sandblasting or flash blast	N/A	19.1 Scaffolding Supply & Erect	FF	20.1 All Portable Electrical Equipment	C	21.1 All required training and training manuals as required to ensure that Foskor can train its workforce and operate the plant / equipment safely	C
15.2 Fuel storage	C	16.2 Conveyor 59 Drive Gearbox	N/A			18.2 Compressor	N/A	19.2 Scaffolds be managed by the Contractor	C	20.2 Hot Work Equip as per Foskor COP - Welding Machines, Gas Cutting, Grinding, Gauging, etc	C		
15.3 Fuel fire protection	C	16.3 Idlers, Rollers and Frames	N/A			18.3 Air for power tools - If available	C	19.3 Cherry Picker’s – only if and when available by pre-booking	FF	20.3 Tools as required to execute task	C		
15.4 Refuelling	C							19.4 Cherry Picker’s Driver– Trained and authorized driver	C			21.2 All manuals and related documents to be supplied to project Eng. and Foskor Drawing office for safe keeping	C
22. Certificates		23. Consumables		24. Storage and inventory control		25. Electrical							
22.1 Supply All certificates as required	C	23.1 Welding rods	C	24.1 Protective coverings/tarpaulins	N/A	25.1 Generators	C	25.4 Temporary lighting	C	25.7 Electric panel + distributing wiring	C		
		23.2 Bolts & Nuts, etc.	C	24.2 Storage area and inventory control	N/A	25.2 Electrical Extensions	C	25.5 Power for tools on site from existing Foskor electrical supply point (Welding plugs and 220 v plugs	C	25.5 Electrical connection point	FF		
						25.3 COC Site Establishment	C	25.6 Connection to Electrical supply	C	25.9 Electrical and Instrumentation Installation	N/A		

****NOTE**

Foskor has made provision for the supply scaffolding free of charge the size and nature of the works. It is expected that arrangements will be communicated to the appointed Scaffolding contractor at least 3 days before requirement. Proof of request and arrangements and actual scaffolding installation for Scaffolding to be provided to Foskor on request

It should be noted that FOSKOR has an existing appointed and accredited scaffolding supplier who could be sub-consulted and provide part of the local company requirement of the contract.

7.2 ADDITIONAL BOUNDARIES

(Insert relevant text in context with the project – If applicable)

N/A

8 AS BUILT DRAWINGS

As built drawings are to be submitted after completion

Note! – All drawings to be delivered in hard copy and in AutoCAD electronic format. All drawing to be detail engineering drawings

9 QUALITY

- i. The service provider must provide the necessary quality management systems and plans to ensure that the quality of his work complies with the requirements of this scope of work
- ii. The service provider shall during all phases of construction comply with the Foskor approved Quality Assurance Plan
- iii. The service provider shall be responsible for all the resources required for executing the Quality Management System including but not limited to, developing the Quality Assurance Plan & performing the Quality Control measures to ensure that the deliverables comply with the specifications & standards mentioned in the scope of work
- iv. Any change requests / additional work resulting due to inadequate quality management system will be to the account of the service provider
- v. Foskor might appoint a third party for Quality Control Inspections
- vi. The Service provider will have to provide an approved quality system for all work executed.
- vii. This will include the following but is not limited to:
 - a. Quality plan
 - b. Quality compliance – Performance and reports
 - c. Quantity surveying
 - d. Quality Assurance
 - e. Quality Authorization matrix – part of the Quality plan

- f. Quality control
- g. Quality administration. – All documents, checks, measurements, reports, variances, analysis, Corrective actions, etc. needs to be properly filed and available on request at any time. The file will require an index
- h. Includes all test work, laboratories, Filing, etc.
- i. Survey and survey verifications
- j. Construction versus design - Any Deviations from the approved “Construction Drawings”
- k. Quality communication – What needs to be reported to whom and at what frequency
- viii. Foscok envisage a complete quality System driven by the Service provider and this system/plan will be approved by Foscok and the appointed designer (if applicable) before construction/fabrication will be started.
- ix. Compliance to this plan will be measured and failure to adhere to the quality plan will result in the stopping of construction activities until concerns have been addressed. The cost for this delay will be for the service providers account.
- x. Foscok may appoint a third party to measure and control Foscok’s interest in the terms of quality in this contract and the service provider is expected to work in conjunction with this company
- xi. Hold points will be discussed and finalized with the successful service provider based on the approved Quality plan

The Quality plan will only be compiled and signed off after the Method Statement and WBS* have been compiled.

Quality on Shutdown type tasks will be included in the Scope of Works but the service provider will have to submit proof of an experienced quality assurer or relevant qualifications. IF the service provider does not have this it will be required that this service be hired in by the service provider at his cost.

- i. State any specific hold points that are not negotiable here
- ii. State any other applicable quality that is not in the “Parameters” section

Method statement – the service provider must list all steps and actions required to complete the work as per the scope of work – typically includes the items listed below:

- i. Key step and stages of the work required
- ii. Tools, Equipment, TMMS, etc
- iii. Labour requirements, etc
- iv. Spares, resources,
- v. Safety requirements

***WBS** is a hierarchical and incremental decomposition of the project into phases, deliverables and work packages. It is a tree structure, which shows a subdivision of effort required to achieve an objective, for example, a program, project, and contract.

This includes arrangements, tools, equipment labour, Tasks, Purchase, Quality, Communication, etc

9.1 QUALITY FILE INDEX

The quality file index listed below will be the minimum requirement.

This file must be kept up to date for the duration of the project and will be handed to the Foskop project Engineer on completion of the project

9.1.1 QUALITY FILE INDEX

	QUALITY FILE INDEX FOSKOR: TSS - PROJECTS	Doc. No.:	FSK-P-GEN-IX-001
		Rev. No.:	00
		Date:	12 - July - 2019

Contents

Issued for Construction (IFC) drawings – Approved.....	1
Quality Control Plan (QCP) Approved.....	2
Competency of People – Welder Qualifications, Trade, Authorization, Certifications, etc	3
Designer/Engineers Instructions, Specifications, Approvals, Concessions applied for & approved. Site instructions, Variations and ECO's	4
Method Statement of contractor– Approved	5
Material orders & Delivery notes.....	6
Certificates – Material, Data Sheets, Compliance, Certification, etc	7
Test Results – Each Discipline – Test cubes, NDT, etc.....	8
Request for inspection (RFI).....	9
As Built Drawings	10
Reports - Survey, etc.....	11
Punchlist/Snag list	12
Handover/ Occupations/ Taking over Certificates/Commissioning.....	13

9.2 ADDITIONAL QUALITY REQUIREMENTS

(Insert relevant text in context with the project – If applicable)

N/A

10 PROJECT DELIVERABLES

10.1 THE DELIVERABLES FOR THIS PROJECT INCLUDE:

(Insert relevant text in context with the project – If applicable)

1. The complete switch board
2. The racking tool
3. Switching pendent
4. Detail engineering GA and schematic drawings

10.2 DATA BOOKS

During the official handover of the OHC, the service provider shall submit a detailed DATA BOOK that shall contain the following documents and information:

- a) Certificates and documents indicating welding procedures and standards used, material grade certificates and the qualifications of welders and workmen used in the OHC fabrication process.
- b) Comprehensive NDT (Non-Destructive Testing) report, including name and registration number of inspector indicating that all welds, joints and high-stress points have been examined and are free from defects and cracks.
- c) All certificates, documents and records to be cross-referenced for purposes of traceability

NB! ALL CERTIFICATES AND DOCUMENTS MUST BE CROSS-REFERENCED

10.3 MANUALS AND DOCUMENTATION

(Insert relevant text in context with the project – If applicable)

Manuals for all equipment and instruments shall be supplied

10.4 FORMAT OF DOCUMENTS AND MANUALS

Note! - All Manuals must be in English

10.5 TRANSMITTAL OF DOCUMENTS AND MANUALS

Documents and Manuals to be submitted in the flowing formats:

Type of Document	Hard Copy	Electronic Format
Manuals	X	X
Drawings	X	X
Reports	X	X
Data Books	X	X

Hard Copy: Book or binding arch file format and must be durable and of high quality.

Soft Copy: Manuals, Reports and Data Books – Word, Excel, PDF, etc.

Storage – Compact Disk

Language: English

10.6 PROJECT COMPLETION

On project completion, the contractor will issue Foskor with a Handover certificate

The handover certificate will be accompanied by the following document

1. Quality file
2. Safety File
3. data book
4. **(Insert additional text in context with the project – If applicable)**

11 DOCUMENTS / DRAWINGS ISSUED BY FOSKOR

Drawing or Document No	Title	Revision
1	Mainsub 1 rev 21	21

12 ON-SITE SUPERVISION REQUIREMENT

- A Foskor work permit before commencement of site work.
- A full time 2.9.2 appointed supervisor will be on this site for the entire duration of site work
- A 2.6.1 appointed site manager for overall site management
- Appointed SHE Rep for the entire duration of site work

12.1 ADDITIONAL REQUIREMENTS

(Insert relevant text in context with the project – If applicable)

N/A

13 TENDER DELIVERABLES

The deliverables will include: -

- Complete Foskor pricing schedule (BOQ)
- Preliminary Project Schedule
- Preliminary method statement to execute the site work
- Company training Matrix indicated minimum training requirement compliance or the tenderer should provide an undertaking to comply with Foskor Safety requirements during the tendering stage and fulfil the requirements if awarded the work. Any deviation may lead to the cancellation of the order/contract. Timeframes need to be attached
- Copy of Certificate of Passing Foskor 2.6.1 and 2.9.2 Legal Exam for the people that are intended to be used in this task /project
- Tax Clearance
- Letter of Good standing (Workman compensation)
- BEE Certificate
- Commercial documents requested by Procurement
- Not submitting the required documentation or not completing the documentation (Pricing Schedule) correctly will lead to a disregard of the tender.
- Take note of the tender evaluation documents that need to be submitted

14 SAFETY

Service provider to refer to the full and updated Foskor COP's available:

- The service provider and sub-service providers need to always comply with the Mine Health and Safety act. All Foskor COP's Policies and procedures need to be adhered to.

- ii. A service provider 2.9.2 to be permanently on-site.
- iii. Medical, Induction, Foskop ID Card, etc. is approximately R800 per person. Exit medicals need to be done at the termination of the contract.
- iv. The Successful tenderer will be required to compile a Foskop Work permit and at least 2 weeks should be allocated for this. The service provider must provide the following appointed persons in terms of the MHSA: 2.6.1; 2.9.2 and Section 29(1) – SHE REP for the duration of the contract
- v. All vehicles and cranes and other TMM's to be inspected before entering Foskop Premises.
- vi. All person competencies to be verified before being allowed to work on Foskop premises for a specific task.
- vii. The service provider must compile a Safety File as per Foskop standard for all service providers and sub-service providers
- viii. Site access will need to be controlled and all persons must receive site-specific induction before entering the site.
- ix. Conduct inspections as per Foskop Safety System. Analyse data and trends and recommend preventative measures where required
- x. Ensure all authorizations are in place as per the Foskop Safety System. Arrangement with Foskop training to be done by the service provider to ensure that authorization and training are conducted. Arrange timeously.
- xi. Ensure all workers competencies are available and have been validated.
- xii. Ensure proper security, signboards, fencing and barricading is in place on-site where applicable
- xiii. The service provider shall in general comply with the FOSKOR General Engineering Specifications, COP's, latest revisions and all relevant regulations
- xiv. The service provider must complete a Baseline Risk Assessment (COP 01) before a work permit can be issued for the installation.
- xv. All service providers not in possession of a valid Foskop ID card have to complete the Foskop induction course and have to undergo a medical examination at the Foskop clinic for the service provider's account
- xvi. The service provider shall be responsible for coordinating and integrating his schedule and responsibilities with other FOSKOR appointed contract manager on-site for this Scope of Work.
- xvii. All personnel operating mobile equipment including LDV's must have a Foskop driver's permit.
- xviii. An open Pit Licence is required for driving in the mining area's
- xix. All the required PPE and Safety Equipment are for the service provider's account.
- xx. All service providers must ensure that:
 - a. His workers are issued with the correct personal protective equipment free of charge.

- b. That the workers wear the PPE per the project area's requirements or as given by the service provider Supervisor.
 - c. Training is provided in the correct use of PPE to workers.
 - d. Daily inspections are done on PPE.
 - e. The registers will be complete at least monthly on findings on PPE. (All PPE must be kept in good condition)
- xxi. All providers of services need to be informed of the following minimum training applies to all service providers (irrespective of the tasks or scope of work) that will enter the Foskor Phalaborwa site with effect from 1 April 2014. This training is not presented by the Foskor Training section and service providers must ensure that the training is sourced through accredited external training companies:
 - a. Basic health and safety principles
 - b. HIRA
 - c. First Aid Training
- xxii. All other training requirements must be aligned with the baseline risk assessment. Risks identified in the baseline risk assessment will guide the requirements for training. A summary of the training must be completed as well as status on required authorization as per Foskor COP's.
- xxiii. Training certificates will be accepted if complying with the following:
 - a. Unit Standard Title
 - b. Learner Full name
 - c. Learner ID number
 - d. Competency achieved
 - e. Date of Assessment
 - f. Assessors signature
 - g. Training provider logo
 - h. Training provider registration number and accreditation number.
 - i. Seta logo

15 LEGISLATIVE REQUIREMENTS – SUMMARY

15.1 MINIMUM LEGISLATIVE REQUIREMENTS:

The successful or appointed service provider shall comply with:

- i. The Mines Health and Safety Act with Regulations (Latest revision)
- ii. The National Road Traffic Act with Regulations (Latest revision)
- iii. All applicable national and international legislative requirements and regulations.
- iv. Foskor (Pty) Ltd. COP (Code of Practise) No. 25 for Service Provider Control (Available on request)
- v. Foskor (Pty) Ltd. COP (Code of Practise) No. 59 for Trackless Mobile Machinery (Available on request)
- vi. All Foskor (Pty) Ltd. safety, health, quality and environmental procedures applicable to the successful application of the contract. (Available on request)
- vii. All Foskor procedures and policies apply to the successful application of the contract. (Available on request)

15.2 SUMMARISED REQUIREMENTS/EXTRACTS FROM FOSKOR COP'S

15.2.1 **Before entering and operating a service vehicle (Own vehicle) on the Foskor site, the appointed service provider shall:**

- i. Ensure that his driver/s have a valid national driver's licence for the specific class of vehicle, has been tested by the Foskor mobile equipment training centre and authorised by a Foskor MHSA (Mines Health and Safety Act) regulation 2.13.1 appointee for the class of vehicle to be used on site.

(Contact the Foskor mobile equipment training centre on 015 789 2840 to make an appointment for competence testing and authorisations)
- ii. The appointed service provider shall, before entering and operating a vehicle or trailer on the Foskor premises:
 - a. Obtain permission from the Foskor Safety & Security manager to operate his nominated service vehicle/s or trailers on the Foskor site. (Forms will be provided)
 - b. Obtain a certificate of fitness (COF) from the Foskor Light Vehicle maintenance workshop supervisor or appointed a Foskor inspector for his nominated service vehicle/s. Inspections conducted daily between 08:00 and 08:30 and between 13:30 and 14:00 (Excl. Fridays) at the Light Vehicle Maintenance workshop.
 - c. Submit the above permission and COF at the main security office for the issue of a vehicle access disk.
- iii. Ensure that his service vehicles/trailers have been inspected (Daily) by the Foskor standard (COP 59) to ensure that they are safe and fit for use. (Forms will be provided)

See Foskor COP 59, Trackless Mobile Machinery for details.

15.2.2 Before entering and working on the Foskor site the appointed service provider shall ensure that his workmen are:

- i. Briefed on the required task and have been informed of any abnormal conditions/situations.
- ii. Physically, emotionally, and mentally fit to perform their duty.
- iii. Issued with the necessary PPE (Personal Protective Equipment) to safely operate his service vehicles and perform the duty of maintaining, servicing, inspecting, and testing earthmoving- and mobile equipment.
- iv. Before commencement of work:
 - a. All tools and equipment shall have been inspected and tested to be in good and safe working order.
 - b. All workmen have participated in the completion of a standard Foskor site risk assessment (Commonly known as a HIRA or Hazard Identification and Risk Assessment) and taken appropriate actions to mitigate any identified hazards.

15.2.3 Before entering and working on the Foskor site the appointed service provider shall:

- i. Ensure that his portable electrical equipment has been tested and declared safe to use by the Foskor electrical services workshop.

16 PERMIT TO WORK

Before any on-site work under this contract may commence, the appointed or successful service provider shall obtain from Foskor a PERMIT TO WORK. The following guidelines are provided to assist the appointed service provider in obtaining a PERMIT TO WORK. (See Foskor COP 28 Permit to work and COP 25 Control of Externally Provided Processes, Products and Services (Service provider Control) for details):

- i. The PERMIT TO WORK can be obtained from- and on completion returned to the Legal Administrator, Foskor Safety department.
- ii. Obtain a contract number from the Foskor procurement or projects department.
- iii. Appoint a subordinate manager under Regulation 2.6.1 and an on-site supervisor under Regulation 2.9.2 of the Mines Health and Safety Act.

The appointed subordinate manager and -supervisor shall be required to write and pass the Foskor 2.6.1 and 2.9.2 legal examinations within 30 days after being awarded this contract.

Attend an hour-long legal exam briefing any Thursday between 08:00 and 09:00 at the Security training hall.

Write legal examination any Friday between 07:30 and 10:30 at the Security training hall. (Please book)

- iv. Appoint an on-site SHE-Rep under section 29(1) of the MHSA to assist Regulation 2.6.1 and 2.9.2 in the daily on-site management of health, safety and environmental issues.

The designated SHE Rep must have the ability to read, write and express him/herself.

The appointed SHE-Rep shall be required to attend a five-day SHE-Rep training course within 30 days after being awarded this contract (Training free of charge). Make booking on 015 789 2531

A pre-requisite for attending the SHE-Rep training course is successful completion of Basic Health & Safety Principals- and HIRA training.

See Foskop's COP 5 Health and Safety Representatives for details.

- v. Provide a name list, including ID numbers, residential and postal addresses and telephone numbers of all of the appointed service providers on-site employees.
- vi. All the appointed service providers on-site employees shall undergo a full medical examination at the Foskop on-site CLINIX Clinic. The clinic can be contacted at 015 789 2427 for an appointment. Please note:

All NEW- and employees LEAVING the service of the appointed service provider must undergo a full entry or exit medical examination

Women who are pregnant or suspect that they may be pregnant must notify the examining medical practitioner.
- vii. The appointed service providers designated on-site drivers shall receive competence testing and authorisation to operate vehicles on the Foskop site
- viii. All the appointed service providers' employees shall receive/have received training in:
 - a. Basic Health & Safety Principals (Provide own training)
 - b. HIRA (Provide own training)
 - c. First aid level 1 (Provide own training)
 - d. Working at heights (Provide own training)
 - e. Basic firefighting. (Provide own- or receive Foskop training, contact 015 789 2531 to book)
 - f. Lockout. (Provide own- or receive Foskop training, contact 015 789 2531 to book)

All training not provided by Foskop must be verified by the Foskop training superintendent. Please call 015 7789 2525 to make an appointment for the training approval on the PERMIT TO WORK.

- ix. All the appointed service providers' on-site employees shall receive the basic Foskop site induction training at the Foskop Security office.
- x. All the appointed service providers' on-site employees shall receive site-specific induction training provided by the Foskop SHE-Rep of that site.
- xi. A BRA (Baseline Risk Assessment) shall be completed for ALL "typical" tasks that will be completed under this contract. The BRA to be approved by the responsible Foskop MHSA 2.13.1 appointee and signed by all of the service providers employees. Make use of Foskop's BRA document, Annexure 1.2, contained in COP 1, Risk and Opportunities Management (Available on request)
- xii. Attach a detailed SCOPE OF WORK describing the required task and -outcome of this contract.

- xiii. All FOSKOR's appointed MHSA Regulation 2.9.2, 2.6.1, 2.13.1 and 3.1. a manager must undersign/approve the PERMIT TO WORK.
- xiv. Registration and proof of payment under the Compensation for Occupational Injuries and Diseases Act, no. 130 of 1993. The registration number must be provided.
- xv. SARS issued a tax clearance certificate.
- xvi. All relevant documentation and/or evidence of compliance must be attached to the PERMIT TO WORK.
- xvii. Upon successful completion and approval of the PERMIT TO WORK the security department will issue the appointed service providers' employees with access ID cards.
- xviii. Any other documents, certificates or records as requested by a FOSKOR official deemed necessary to ensure that all safety, legislative and administrative requirements have been met must be attached to the PERMIT TO WORK.
- xix. The appointed service provider must allow at least three to ten working days to complete all the PERMIT TO WORK requirements.

17 **SAFETY FILE**

The appointed contractor must compile a SAFETY FILE specifically for this contract. The SAFETY FILE must always be available for inspection by a FOSKOR official: The following guidelines are provided to assist the appointed contractor in compiling a SAFETY FILE:

Before any work may commence, the appointed service provider must IN CONJUNCTION WITH THE FOSKOR SAFETY DEPARTMENT, compile a SAFETY FILE specifically for THIS contract. (Contact the area responsible safety representative, or attend the monthly service providers meeting every 2nd Monday of the month (3rd Monday if the 2nd Monday is a public holiday) at 13:30 in the FOSKOR Plant Training hall)

The SAFETY FILE must always be available for inspection by a FOSKOR official.

17.1 **FOSKOR SAFETY FILE INDEX - TYPICAL**

Template SHE FILE INDEX: - TYPICAL

<u>ISO clause / Description of item</u>	<u>File divider</u>
1. Integrated Management System; Clause 5.1 & 5.2	1
2. Policies Clause 5.2: OH&S Policies	2
3. COP 1: FOSKOR risk management Clause 6.1.2.1 & 6.1.2.2: Hazard identification, risk assessment and determining controls.	3

4. COP 88: Objectives, targets and management programmes Clause 6.2: Objectives and programs	4
5. COP 2: Compliance obligations and appointments COP 5: Health and safety representatives, Clause 5.3: Legal and other requirements Clause 5.3 / 7.1: Resources, roles, responsibility, accountability and authority Clause 6.1.3: compliance obligations/ legal and other requirements	5
6. COP 15: SHERQ Competency and awareness training Clause 7.2 / 7.3: Competence, training and awareness	6
7. COP 17: Mobile, technical and process training Clause 7.2 / 7.3: Competence, training and awareness	7
8. COP 6: SHERQ Committees COP 7: Communication Clause 7.4: Communication, participation and consultation	8
9. OCCUPATIONAL HYGIENE COP 42: Lighting: natural and artificial; COP 43: MCOP Occupational health programme on thermal stress COP 44: Sanitation plant hygiene amenities COP 45: MCOP occupational health program on personal Exposure to Air borne Pollutants COP 64: Ergonomics COP 86: MCOP for Occupation Health Program for noise Clause 8.1.2 Eliminating hazards and reducing OH&S risks	9
10. COP 49: Waste management COP 58: Hazardous chemical substances and control Hazchem and waste management Clause 8.1.2 Eliminating hazards and reducing OH&S risks	10
11. COP 53: Lock out system and usage Clause 8.1.1 General Clause 8.1.2 Eliminating hazards and reducing OH&S risks	11
12. COP 55: Stairs walkways handrails and Ladders Clause 8.1 Operational planning and control, Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	12
13. COP 56: Lifting machinery and lifting Tackle Clause 8.1 Operational planning and control, Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	13
14. COP 57: Boilers and vessels under pressure work forms Clause 8.1 Operational planning and control,	

Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	14
15. COP 59: MCOP for the operation of TMM's	
Clause 8.1 Operational planning and control,	
Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	15
16. COP 60: Portable electrical equipment checks and registers	
Clause 8.1 Operational planning and control,	
Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	16
17. COP 61: Earth leakage Relays and checks	
Clause 8.1 Operational planning and control,	
Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	17
18. COP 62: General Electric installations and machinery in hazardous locations	
Clause 8.1 Operational planning and control,	
Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	18
19. COP 63: Hand tools	
Clause 8.1 Operational planning and control,	
Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	19
20. COP 65: Personal Protective Equipment	
COP 67: MCOP Women in mining PPE	
Clause 8.1 Operational planning and control	
Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	20
21. COP 69: Maintenance of fire equipment;	
Clause 8.1 Emergency preparedness and response,	
Clause 8.1.2 Eliminating hazards and reducing OH&S	21
22. COP 72: Firefighting emergency drill and instructions	
COP 74 Emergency preparedness and response	
Clause 8.1 Operational planning and control,	
Clause 8.2 Emergency Preparedness and response	22
23. COP 93: MCOP for the safe use of conveyors installation for the transportation of minerals, material or personnel	
Clause 8.1 Operational planning and control,	
Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	23
24. COP 94: Hot work	
Clause 8.1 Operational planning and control,	
Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	24

25. COP 95: Confined space entry	
Clause 8.1 Operational planning and control,	
Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	25
26. COP 96: Working on Heights	
Clause 8.1 Operational planning and control	
Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	26
27. COP 97: Erection and use of scaffolding	
Clause 8.1 Operational planning and control,	
Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	27
28. COP 98: Water safety	
Clause 8.1 Operational planning and control,	
Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	28
29. COP 101: MCOP: The right to refuse dangerous work and withdraw from dangerous workplace.	
Clause 8.1 Operational planning and control	
Clause 6.1: Actions to address risks and opportunities/Hazard identification, risk assessment and determining controls.	
Clause 8.1.2 Eliminating hazards and reducing OH&S Risk	29
30. COP 102: MCOP: Risk based emergency care on mine	
Clause 8.1 Operational planning and control	
Clause 8.2 Emergency preparedness and response	30
31. COP 103: Use of mobile devices on the mine premises	
Clause 6.1: Actions to address risks and opportunities/Hazard identification, risk assessment and determining controls.	
Clause 8.1 Operational planning and control	
Clause 8.2 Emergency preparedness and response	31
32. COP 22: SHEQ Inspection	
Clause 8.1 Operational planning and control	
Clause 8.2 Emergency preparedness and response	32
33. COP 23: Internal and external audit.	
Clause 9.2 Internal audit	
Clause 9.2.1 general and 9.2.2 internal audit programme.	33

Notes:

1. If a COP is not applicable to your section, please complete and attach the “Not Applicable” form in the space of the COP.

2. Always keep your file neat and clean
3. A Foskor representative may add or remove any other Foskor safety, health, quality and environmental policies and/or procedures deemed applicable.
4. If a COP is not applicable to this contract/project, please complete and attach the "Not applicable" form in the space of the COP

17.2 TYPICAL CONTENTS OF SAFETY FILE:

- i. Title and index cover page
- ii. A copy of the PERMIT TO WORK.
- iii. A copy of the MHSA Regulation 2.6.1 and -2.9.2 and SHE Rep appointment letters.
- iv. A copy of FOSKOR COP 25, Service provider control.
- v. Base line risk assessment of ALL and ANY POTENTIAL tasks that may be performed on site under this contract. See FOSKOR COP 26, Critical Task Descriptions for details.
- vi. Copies of critical task descriptions and standard operating/maintenance procedures.
- vii. Copies of the appointed service providers safety, health, environmental, HIV and AIDS, smoking and waste management policies.
- viii. Training records of all on-site employees.
- ix. Employee records of actual time worked (Normal and overtime).
- x. Copy of on-site induction training.
- xi. Records of inspections of TMM (Trackless Mobile Machinery) and trailers. See FOSKOR COP 59, Trackless Mobile Machinery for details.
- xii. Records of issues and inspections of PPE (Personal Protective Equipment) and safety equipment. See FOSKOR COP 65, Personal Protection Equipment for details.
- xiii. Records of issues and inspections of PEE (Portable Electrical Equipment). See FOSKOR COP 60, Portable electrical Equipment for details.
- xiv. Records of issues and inspections of tools and equipment. See FOSKOR COP 63, hand tools for details
- xv. Records of daily, weekly and monthly 2.6.1 / SHE Rep safety inspections. See FOSKOR COP 22, SHE Inspections for details.
- xvi. Records of daily green-area and safety talks. See FOSKOR COP 7, Communication for details.
- xvii. Any other documents, certificates or records as requested by a FOSKOR official deemed necessary to ensure that all safety, legislative and administrative requirements have been met.

Note:

The bidder / Service provider can obtain updated FOSKOR COP's and Engineering Specification on request

17.3 COP 25 – CONTRACTORS LEGAL OBLIGATION AND MINIMUM REQUIREMENTS

Contractor must comply to the requirements below within 4 weeks from awarding the contract unless otherwise agreed with 3.1 a and SHE Manager within 10 days from the awarding of such contract

	Visitors	Short Term Contractors (1-5 days)	Medium Term Contractors (1 days -1 month) – low risk	Long Term Contractors (>1 month) – low risk work	Medium or Term Contractors (1 days up to 12 month) – Risk work
Definition	Consultations, Salespersons, Foskor arranged and organised visitor groups, Family of injured employees	Deliveries, Consultation, Specialist, Auditors for less than 5 days and do not exceed 4 visits per year	Contractors working on the Mine premises for period more than 6 day but less than 1 month.	Duration of work is longer than 1 month	Duration of work is irrelevant (only focus on Risk exposure)
Special conditions	May perform no work on site	May perform no physical work on site that will involve tools, equipment, or machinery.	No work that relates to life saving rules e.g. Construction, Conveyors, Lifting, Electrical, Lock-out, Working at Heights, Hot work. Specialist and consultants (experts) working in teams smaller than 5 for less than 1 month on site.	No construction work or work that relates to life saving rules e.g. Conveyors, Lifting or Rigging, Electrical maintenance, Lock-out, Hot work, confined spaces, use of TMM's, Working at heights	This include all work relating to relates to <u>life saving rules</u> (risk work) and therefore must comply to relevant training and Authorisations as required in the Foskor COP's before work can start and permits signed.
Supervision	The organiser is responsible for the group. The visitors <u>must</u> be accompanied by a Foskor Regulation 2.9.2, Regulation 2.6.1, or legally appointed person.	Direct supervision of Foskor appointed Regulation 2.9.2. and Regulation 2.6.1	Direct supervision of Foskor appointed Regulation 2.9.2. and Regulation 2.6.1 appointed manager may be provided if contractor is unable to supply.	Must provide dedicated Regulation 2.9.2. with proof of competency and direct supervisor. Regulation 2.6.1 appointed manager may be provided if contractor is unable to supply.	Must provide <u>dedicated</u> Regulation 2.6.1. and Regulation 2.9.2. appointees with proof of competency. The Regulation 2.9.2 appointee must have technical competency and experience in line with scope and trained in the in all aspects as defined in Baseline risk.
Medical Surveillance	Only completed a declaration of fitness and health matters relevant to visit	Shortened medical surveillance Must declare Pregnancy and all chronic medical conditions at Mine Clinic	Full Medical Surveillance as per COP Must declare Pregnancy and all chronic medical conditions at Mine Clinic	Full Medical Surveillance as per COP Must declare Pregnancy and all chronic medical conditions at Mine Clinic	Full Medical Surveillance as per COP Must declare Pregnancy and all chronic medical conditions at Mine Clinic
Permit required	Day Permit is obtained at Security (Valid for 1 day)	Short term ID card at Security Return permit to Security when completed. (Permit each day)	Short term ID card at Security Permit to work at Foskor is required unless Specialists or Product experts. Return Permit to Security when work is complete	Permit to work at Foskor Permanent ID at security Return Permit to Security when work is complete	Permit to work at Foskor Permanent ID at security Return Permit to Security when work is complete
Induction	SHERQ Induction pamphlet only	Attend full Foskor Induction Site Specific Induction SHE Induction Pamphlet	Attend full Foskor Induction Site Specific Induction SHE Induction Pamphlet	Attend full Foskor Induction Site Specific Induction SHE Induction Pamphlet	Attend full Foskor Induction Site Specific Induction SHE Induction Pamphlet
Minimum training	None	None	First Aid Training HIRA Understanding Basic Health and Safety Principles	First Aid Training HIRA Understanding Basic Health and Safety Principles <u>PLUS</u> , all training as defined in Baseline risk assessment and Scope (COP 1)	First Aid Training HIRA Understanding Basic Health & Safety <u>PLUS</u> , all training as defined in Baseline risk assessment and Scope (COP 1). When construction or maintenance work is done – minimum 1 artisan per team.
Letter of Good standing	Not required	Not required	<u>May</u> be required (dependant on scope) and correct nature of business must reflect on the Letter of Good standing	Required and correct nature of business must reflect on the Letter of Good standing	Required and correct nature of business must reflect on the Letter of Good standing

17.4 REMINDER OF RISK IDENTIFICATION – LIFE SAVING RULES

- *Risk Assessments and clearance certificates*
- *Lifting operations*
- *Working at heights*
- *Confined space entry*
- *Positive energy Isolation and lockout*
- *Moving Machinery*
- *Personal protective equipment*

Risk assessment is applicable to all jobs and training apply to all that will do physical work!

17.5 ADDITIONAL SAFETY REQUIREMENTS

- **None**

18 PARAMETERS

18.1 DESIGN PARAMETERS

All plant and equipment will be designed to:

- Operate satisfactorily under atmospheric, ambient, and other conditions present at the site location
- Ensure interchangeability of units and/or sub-parts throughout the plant to reduce spares holding requirements – take old plant equipment into account
- Ensure reliability and maintainability. Minimum availability of 98% is required
- Operate without undue vibration, stresses (temperature and built-in) and excessive noise
- Comply with legal requirements in terms of the water license and DWA

18.2 SPECIFICATIONS, CODES, STANDARDS AND REGULATIONS

The Latest edition of the South African National Standards in effects at the date of projects design shall establish the minimum requirements for design, materials, and construction. This should be referenced with the Foskor General Engineering specifications and requirements of the Foskor SHERQ system (COP's)

No work shall be contemplated which is in breach of any legislation in South Africa – Typically:

- Water license (04/B72K/ACGIJ/962)
- Occupational Health and Safety Act
- South African Mine Health and Safety Acts and regulations (Act 29 of 1996)

- Explosive Acts and Regulations - South Africa
- DWA and the National Water Act.
- Foskor COP's
- Foskor Engineering Specifications
- The latest revisions of the SANS standardized specifications and Foskor Specifications as applicable at the time of quotation shall apply to this contract.

Note! The equipment to be capable of continuous operation 24 hrs/day, 365 days/year with operating availability equal to 100%.

18.3 SITE GEOGRAPHY

The plant is located at Phalaborwa, Limpopo, South Africa

18.4 AMBIENT CONDITIONS

- Ambient temperature

Summer	35 °C Avg.	50 °C Max
Winter	17 °C Avg.	2 °C Min

- Site Altitude: 380 m
- Prevailing wind direction: Generally South Easterly - Maximum design velocity 40 m/s (144 km/h)
- Very dusty conditions
- Average annual rainfall = 540 mm

18.5 FOSKOR GENERAL ENGINEERING SPECIFICATIONS (SHOULD BE CONSULTED BEFORE FINALIZATION OF ANY DESIGN OR SPECIFICATION)

	Name	Modified	Modified By
	Engineering Specification Index	... 15 April, 2016	☐ Khayelihle Pepu
	GS001 - General Design Information - Rev 1	... 15 April, 2016	☐ Khayelihle Pepu
	GS002 - Engineering Drawings - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS003 - Quality Control Procedures - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS005 - Concrete and Formwork - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS007 - Plate work - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS008 - Welding procedures - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS009 - Structural fabrication and erection - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS011- Piping - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS012 - Pressure vessels - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS013M - Painting and Protective Coatings	... 15 April, 2016	☐ Khayelihle Pepu
	GS014 - Rubberlining - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS015 - Fencing - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS016 - Roofing and side cladding - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS017 - Fuel - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS018 - Lubrication - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS019 - Liquid containemt bund walls - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS020 - General purpose valves - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS021 - Gearboxes - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GS022 - Chainblocks and lever hoists - Rev 0	... 15 April, 2016	☐ Khayelihle Pepu
	GSI-004 - Field Instrumentation Standards	... 15 April, 2016	☐ Khayelihle Pepu

Service provider /Contractor /Supplier - Please ensure that you have the latest copy of the specifications before any activity is committed.

18.6 SPECIFICATION

ELECTRICAL SPECIFICATIONS		
<u>NUMBER</u>	REVISION	TITLE
EE-1	Latest Revision	Motor Control Centre & Switchgear
EE-2	Latest Revision	Squirrel Cage Induction & Wound Rotor Motors
EE-11	Latest Revision	Power Factor Correction Equipment
GE-1	Latest Revision	Design Criteria for Electrical Installations
GA-1	Latest Revision	Procedures for Enquiries & Tenders
GD-1	Latest Revision	General Requirements for Design, Project Management & Tenders
GD-2	Latest Revision	Engineering Change Order (E.C.O) Procedure
GM-1	Latest Revision	Mechanical Equipment
GM-5	Latest Revision	Pipe Standards
GM-6	Latest Revision	Engineering Drawing & Document Requirements
GM-8	Latest Revision	Surface Protection
GM-3	Latest Revision	Painting & Surface Protection of Steel
GS-1	Latest Revision	Structural Steel work & Plate work Fabrication & Erection
GQ-1	Latest Revision	Quality Control
GI-1	Latest Revision	General specifications & Procedures
GI-2	Latest Revision	Installation & Commissioning
GI-3	Latest Revision	General Equipment Specification
GI-4	Latest Revision	Field Instrumentation Specification

18.7 ADDITIONAL SPECIFICATIONS IF REQUIRED

- None

19 PROJECT MANAGEMENT - CONTRACTOR

- a) Nominate a single window of communication to FOSKOR – Typically the appointed contractor 2.6.1
- b) Attend meetings as agreed during the project kick-off meeting
- c) Submit Progress reports (Format & interval) as defined in the Kick-off Meeting (Invoicing, Labour, Performance against the plan, Contractor purchases, Quality Management, Safety, Etc.
- d) Manage and participate in the “Daily Journal” as part of executing the project
- e) All meetings will be held at FOSKOR offices unless otherwise stated
- f) The contractor to provide updated project management plans on progress as defined by the FOSKOR Project Engineer.
- g) If the project is executed based on a shutdown approach the contractor will produce a formal Works Breakdown Structure of the works.
- h) If the contractor cannot produce a proper WBS then the contractor will be required to subcontract this function to produce the WBS and manage the WBS for the duration of the project. This cost must be included in the contractor's price
- i) **WBS - WBS** is a hierarchical and incremental decomposition of the project into phases, deliverables, and work packages. It is a tree structure, which shows a subdivision of effort required to achieve an objective, for example, a program, project, and contract.
- j) This includes arrangements, tools, equipment, labour, Tasks, Purchase, Quality, Communication, etc
- k) **Project progress updates** - If the contractor cannot produce proper updates on a WBS then the contractor will be required to subcontract this function to produce the WBS updates for the duration of the project. This cost must be included in the contractor's price

The Service provider is responsible for managing the project and this is graphically displayed below indicating where what functions lies. Graphical presentation only covers some basic aspects.

19.1 ADDITIONAL PROJECT MANAGEMENT REQUIREMENTS:

- (Insert relevant text in context with the project – If applicable)

19.3 PLANNING AND SCHEDULING:

- The Project Section has a planning standard that needs to be adhered to during the execution as per the relevant order placed
- The FOSKOR scheduler can be contacted to provide schedule details input and guidelines if needed.
- Schedule must be compiled within one week after kick off meeting conducted by the FOSKOR Project Leader
- The Contractor schedule needs to be signed off by contractor 2.6.1 before approval by FOSKOR
- The FOSKOR scheduler will issue the Templates to be used - This templates must be adhered to and no changes to be made

- Progress Update is needed every once week one day before the weekly progress meeting or as requested
- The progress Updates to be submitted to Foskop Scheduler/Planner via email.
- It is the contractor's responsibility to appoint the competent person to manage the contractors schedule which that person will directly communicate with Foskop Scheduler - If the contractor's responsibility to add cost of the competent person on the project. Commercial action to be taken if the performance in planning is lacking
- Foskop requires all contractors to use MS project software which it will be fully implemented latest 1 February 2022.

Typical aspect that need to be adhered to

- It is the subcontractor's responsibility to produce a detailed schedule which tie up to the Foskop standards of requirements.
- The Schedule must not have open ended activity task.
- The schedule must be fully resourced.
- The schedule must not have constraints.
- The Calendar must be created and assigned in the schedule. Confirm the templates with the Foskop Scheduler
- It is Foskop responsibility to review the schedule before it's been approved
- A schedule must be Approved by Project scheduler/Project Manager & Project Engineer
- The approved baselined schedule must be updated by the contractor to show Planned Vs Actual
- The contractor must show S-Curve which will be constructed from the schedule.
- Project Updates Must be submitted to the Project Planner/Scheduler for review.

20 LIAISON AND CO-OPERATION WITH OTHERS

- The CONTRACTOR/ SERVICE PROVIDER shall be required to co-operate and liaise with Foskop appointed project manager
- The CONTRACTOR/ SERVICE PROVIDER must note that construction is within an operational plant.
- The CONTRACTOR/ SERVICE PROVIDER may appoint a Foskop approved sub-contractor
- The CONTRACTOR/ SERVICE PROVIDER shall be required to work in conjunction with the Foskop appointed structural-, electrical-, equipment- and instrumentation installation contractor – if applicable.

20.1 ADDITIONAL REQUIREMENTS

- **(Insert relevant text in context with the project – If applicable)**

20.2 PROJECT PLANNING/SCHEDULING

- The Project Section has a planning standard that needs to be adhered to during the execution as per the relevant order placed
- The Foskop scheduler can be contacted to provide schedule details input and guidelines if needed.
- Schedule must be compiled within one week after kick off meeting conducted by the Foskop Project Leader
- The Contractor schedule needs to be signed off by contractor 2.6.1 before approval by Foskop
- The Foskop scheduler will issue the Templates to be used - This templates must be adhered to and no changes to be made
- Progress Update is needed every once week one day before the weekly progress meeting or as requested
- The progress Updates to be submitted to Foskop Scheduler/Planner via email.
- It is the contractor's responsibility to appoint the competent person to manage the contractors schedule which that person will directly communicate with Foskop Scheduler - If the contractor's responsibility to add cost of the competent person on the project. Commercial action to be taken if the performance in planning is lacking
- Foskop requires all contractors to use MS project software which it will be fully implemented latest 1 February 2022.

Typical aspect that need to be adhered to

- It is the subcontractor's responsibility to produce a detailed schedule which tie up to the Foskop standards of requirements.
- The Schedule must not have open ended activity task.
- The schedule must be fully resourced.
- The schedule must not have constraints.

- The Calendar must be created and assigned in the schedule. Confirm the templates with the Foskor Sheduler
- It is Foskor responsibility to review the schedule before it's been approved
- A schedule must be Approved by Project scheduler/Project Manager & Project Engineer
- The approved baselined schedule must be updated by the contractor to show Planned Vs Actual
- The contractor must show S-Curve which will be constructed from the schedule.
- Project Updates Must be submitted to the Project Planner/Scheduler for review.

21 GENERAL CONDITIONS – COMMERCIAL

21.1 EXTENSIONS, PENALTIES AND RETENTIONS

- Extension on the promised completion or Milestone date may be requested but needs to be approved by Foskor. The contractor should be in possession of a formal document issued via Foskor Procurement indicating that this request was approved
- Any additional works not defined in the order needs to be approved by Foskor in writing before any work commence.

Description	Condition	Duration
Penalties	2% per week	Late Delivery after promised completion date
Performance Bond	0% of Contract Value	0 Year after completion
Retention	5 % of Contract value	Release after 3 months
Type of Contract	Foskor General condition of contract	
Tender price validity	3 months	
Escalation	None	None

All delays must be immediately brought under the attention of the section engineer and the responsible party agreed upon immediately.

21.2 AFTER SALES SERVICE OR REQUIREMENTS

21.2.1 After sales service requirements are listed below:

- **(Insert relevant text in context with the project – If applicable)**

21.3 INVOICE DUE DATES

The due dates for claim certificate are the 15th of every month. Invoices are due the latest the 23th of every month.

22 TENDER EVALUATION CRITERIA

- As part of the process to assist with the evaluation of the bidder's proposal/quotation and to make an informed decision in the awarding of this tender, the following information is required
- The following tender evaluation criteria will be used for adjudicating the Contractor submitted tender.
- Please provide the required documentation as requested in the "Proof/documents to be submitted" column. Please be specific when submitting documents by ensuring that they answer the item specified.
- Please use the annexure number as indicated to identify the proof submitted.
- Failure to submit the relevant documentation as requested in the Evaluation criteria document may lead to a disregard of the submitted tender.

22.1 MANDATORY REQUIREMENTS

Bid submission not meeting the mandatory requirement will result in the bid being disqualified.

No	Mandatory Requirements	Comments
1	Demonstrate experience of more than 5 years in the medium voltage switchgear manufacturing, installation, and commissioning	Submit documented proof
2	Type tested switchgear	Submit certificate

23 EVALUATION CRITERIA (TECHNICAL)

Evaluation Criteria (Technical)				
T(Insert Tender Number)/24 - Main Sub 1 (MS-1) 11kV Switchboard				
No	Technical Criteria Description	% Contribution	Proof / documents to be submitted	Notes
1	Technical Compliance, Team experience & competence - <i>Section Weight not to be less than 25%</i>			
a)	Proposal meets all the "Switchboard Specification Sheet" requirements. Scoring: Meets all requirements 100% Does not meet all requirements 0%	20%	Submit a signed copy of the Foskor "Switchboard Specification Sheet" (A memo indicating any noncompliance must be attached under Annex A)	<u>Annexure A</u>
b)	Proposed Switchgear specification sheet with GA drawings Scoring: Yes 100% No 0%	20%	Submit a Switchgear specification manuals and data sheet with GA drawings including dimensions	<u>Annexure B</u>
c)	Company - Previous experience in the manufacturing, installation, and commissioning of medium voltage switchgear Scoring: More than 8 years experience 100% 5 years to 8 years experience 50%	15%	Submit a reference list of relevant projects with a description, order date, project values and contact numbers for verification. For each project an award letter must be attached	<u>Annexure C</u>
d)	Quality assurance/control plan, Quality Control Scoring: None provided 0 % One provided 50 % Both provided 100%	15%	Provide 1. a generic QCP for the construction of the medium voltage switchgear 2. the ISO 9001 certification of the manufacturer	<u>Annexure D</u>
2	Company Capacity – <i>Weight not to be less than 25%</i>			
a)	Company - Execute construction according to a pre-approved WBS / Project Schedule Scoring: Project schedule submitted 100 % Project schedule not submitted 0%	10%	Provide one (1) previous WBS/Project Schedule of a medium voltage switchgear manufacturing, installation, and commissioning project	<u>Annexure E</u>
b)	Delivery time – Ability to deliver the switchgear in a quicker/shorter duration Scoring: More than 22 weeks 40 % Between 21 and 22 weeks 80% Less than 20 weeks 100 %;	10%	Provide the medium voltage switchgear delivery lead time	<u>Annexure F</u>
c)	Project team Organogram indicating names, positions, trades for this project Scoring: No Organogram 0 % Organogram submitted 100%	10%	Submit a\ comprehensive organogram with names, position and qualification(s) for the project team	Annexure G

Evaluation Criteria (Technical)				
T(Insert Tender Number)/24 - Main Sub 1 (MS-1) 11kV Switchboard				
No	Technical Criteria Description	% Contribution	Proof / documents to be submitted	Notes
	Total Technical Score	100.00%		
Note: In order for the bid to be considered the bidder needs to score 70% and above, and comply to all mandatory requirements				

24 PRICING SCHEDULE

Tender No.: T(Insert Tender Number)/24

Description: T(Insert Tender Number)/24 Main Sub 1 (MS-1) 11kV Switchboard

24.1 MEASUREMENT AND PAYMENT CLAUSES:

Measurement and payment clauses of the COLTO (1998) Standardised Specifications, as well as the Particular Specifications, shall be deemed to form part of and included in the pricing instructions.

24.2 UNITS OF MEASUREMENT

The units of measurement described in the Bill of Quantities are metric units. Abbreviations used in the Bill of Quantities are as follows:

%	–	Percent	m ³	–	cubic metre
h	–	Hour	m ³ .km	–	cubic metre-kilometre
ha	–	hectare	mm	–	millimetre
kg	–	kilogram	MN	–	meganewton
kℓ	–	kilolitre	MN.m	–	meganewton-metre
km	–	kilometre	MPa	–	megapascal
km-pass	–	kilometre-pass	No.	–	number
kPa	–	kilopascal	P C sum	–	Prime Cost sum
kW	–	kilowatt	Prov. sum.	–	Provisional sum
ℓ	–	litre	sum	–	lump sum
m	–	metre	t	–	ton (1 000 kg)
m ²	–	square metre	W/day	–	Workday
m ² .pass	–	Square Metre-Pass			

24.3 PRICING SCHEDULE

Item No	Description	UOM	Qty	Unit Price	Total Price
1.a.	Option 1 (mandatory): Design, Manufacture, FAT and SAT off an 18 Tier 11kV MV switchgear assembly with 3x Incomers, 2x Bus Section and riser, and 13x Feeder Panels as per the scope. All necessary switchgear accessories and the remote switching pendant to be included.	Each	18		
1.b.	Option 2 (optional): Design, Manufacture, FAT and SAT off an 18 Tier 11kV MV arc resistant switchgear assembly with 3x Incomers, 2x Bus Section and riser, and 13x Feeder Panels with explosion vents . The explosion vents and duct arc flash resistance functionality to be all around the perimeter of the switchgear to carry the high pressures arc flash away from the switchgear enclosure. All necessary switchgear accessories and the remote switching pendant to be included.	Each	18		
2	Delivery, off-loading and placing of the panels inside the Foskor substation.	Each	18		
3	Installation and commissioning of the switchgear assembly and the complete protection scheme with all the wiring between the switchgear assembly and the BTU.	Each	18		
4	Supply and installation of the Battery Tripping Unit (BTU)	Each	1		
5	Supply and installation (on a cable rack) of the 25m cable for BTU power supply	SUM	1		
6	Compile a safety file	SUM	1		
7	Compile work permit	SUM	1		
8	Contractor Induction for at least 3 days	Each			
9	Contractor travel and accommodation	Each			
10	Other (please specify)				
Total Project Value (Excl. Vat)				0.00	

24.4 SCHEDULE SUMMARY:

Description	Amount R
SECTION 1200: GENERAL REQUIREMENTS AND PROVISIONS	
(Insert relevant text in context with the project – If applicable)	
TOTAL excl. VAT	
VAT @ 15%	
TOTAL incl. VAT	

All price alterations must be signed for by the bidder confirming that such changes were made by the Bidder. **PLEASE NOTE THAT PRICE CHANGES WITHOUT A SIGNATURE WILL LEAD TO THE DISQUALIFICATION OF THE BID SUBMITTED.**

NOTE: The onus lies with the tenderer to make sure that all formulas and calculations are correct. Calculation errors discovered during the evaluation process will be logged as a non-conformance and the tender/quotation will therefore be disregarded

25 ACCEPTANCE

The conditions and requirements as stated in this "Scope of Work" are accepted with the following **exceptions/exclusions**: -

The conditions and requirements as stated in this "Scope of Work" are accepted with the following **inclusions**: -

26 SUB-CONTRACTOR (PLEASE PROVIDE LIST AND FUNCTION)

Failure to complete this form will lead to disqualification – Please do not leave blanks!

BBBEE Level		Black Ownership	%	Black Woman Ownership	%
Tender Validity	Days	Manufacturing Period	Days	Installation Period	Days
Guarantee	Months	Commencement after receipt of official purchase order			Days
Payment terms					

Price Basis for the duration of the contract/till supply of goods (Please tick):

Fixed	☐	Duration of fixed price	12 Months ☐	24 Months ☐
Variable	☐	Price Base Date		

If variable provides price variation factors, percentages and formula in the cover letter. (Please specify indices to be used)

Price variation factors & percentages (e.g. material, labour, fuel, overheads, admin etc)

Factor	%	Factor	%	Factor	%	Factor	%	Factor	%

Where prices include a foreign currency rate please provide:

% of price, subject R O E	%	ROE	= ZAR
ROE Base Date			

Note: If the above fields are not completed, it is confirmed that the quoted price/s are valid for the entire contract period mentioned and no escalation in the price is allowed under any circumstances.

I, _____ in my capacity as _____ for and on behalf of _____ hereby acknowledge that I have read and understand the Instruction to Tender and the Scope of Work as detailed in this document and accept all the Terms and Conditions of Tender **Txxx-24**.

Signed at _____ on this the _____ day of _____ 2024

Signature: _____

Witnesses:

1. _____ Name: _____

2. _____ Name: _____

For and on behalf of Foskor (Pty) Limited

Name: _____ Signature: _____

Designation: _____ Date: _____

Note: It is imperative to complete this schedule in full where applicable, marked "N/A" where not applicable and signed off in full, **unsigned bids will not be accepted**. All the supporting documentation requested with the tender document, scope of work and evaluation criteria need to be submitted with the tender. Tenders received without supporting documentation requested for the tender evaluation **will not be considered**.

27 SCOPE APPROVAL

Signature (BSC Chairperson)

Name: J Mathebula

Date: 25 September 2024



Signature Request

Signature Request ID:	ac087ecf-dddc-4bdc-bafc-0a93e57b24a4	Timestamp:	2024-09-25 12:23:22 GMT
Signee Name:	Joseph J. Mathebula	Sender Name:	Ntwanano Mabulani
Request Type:	WebSigning	Request Status:	WEBVIEWER SIGNED

Original Document

Document Name:	Scope of Works Main Sub 1 MS1 11kV Switchboard_BSC rv 002.pdf	Document Size:	659.0 KB
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Email Evidence

Signee Email:	josephjm@foskor.co.za	Email Subject:	A document from Ntwanano Mabulani is ready for signature
Email Sent Timestamp:	2024-09-25T09:56:43.299285	Email Opened Timestamp:	Not available in Silent Mode

Web Evidence

Signee IP Address:	41.21.226.206	Request Timestamp:	2024-09-25 12:22:10 GMT
Signee GPS (if shared):	ZA: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/128.0.0.0 Safari/537.36 Edg/128.0.0.0	Terms Accepted Timestamp:	2024-09-25 12:22:15 GMT

Annotations and Modifications

Signature Count:	1	Form Fields Filled Count:	0
Text Annotation Count:	2	Initial All Pages Count:	0
Single Initial Count:	0		

Signing Evidence

Signee Mobile:	+27768618785	Sign Type:	WebSigning
Security Challenge:	NONE	Part of Workflow:	886c51ae-7ecd-4f93-a8cb-452010876e3c

Chain Of Custody Generation

Attached Document Name:	20240925T122322.268045Z Scope of Works Main Sub 1 MS1 11kV Switchboard_BSC rv 002.pdf	Attached Timestamp:	2024-09-25 12:23:22 GMT
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