

Pre-Qualification Criteria

T / 24 – Tailings dam management and operation

No	Technical Criteria Description	Requirements	Proof / documents to be submitted
1)	<p>Company – Previous Tailings Dam management and operation experience of minimum 5 years and the operation and management of a tailings dam bigger than 500 ha (Footprint) and have a risk classification of High Hazard classification <i>(High Hazard as per SANS 10286: Impact on number of residents > 10, Impact on employees >100, Value of 3rd party property in Zone of Influence >R20M, depth of underground mine workings <50m)</i></p> <p>Scoring: Non-compliant Disqualify Comply Qualify</p> <p>MANDATORY to submit</p>	Mandatory	<p>Give reference list of Tailings facility size and duration of operation for verification.</p> <p><u>Annexure A</u></p>
	<p>*Omission to supply MANDATORY documents will lead to disqualification of tender for further consideration</p>		

Please note that it is to the advantage of the Bidder to supply all documents in a neat and organized format, enabling the evaluators to conduct a thorough evaluation on documents submitted to avoid any frustration and disappointment. Please refer to the Annexure labelling as indicated in the pre-qualification and technical evaluation criteria tables.

SCOPE OF WORK

Tender No.:

Description: MANAGEMENT OF MINE RESIDUE DISPOSAL FACILITIES.

INVITATION TO TENDER

You are hereby invited to submit a quotation for the management of the Foskor Mining Division mine residue disposal facilities (Tailings) for a period of 3 years.

SCOPE DETAILS

Background

Foskor (Pty Ltd) is a company whose primary focus is the production and marketing of Phosphoric Acid and related products, consisting of two divisions situated in Phalaborwa and Richards Bay respectively. Phosphate rock is supplied by Foskor Phalaborwa to Foskor Richards Bay, where Phosphoric Acid and granulated fertilizers are manufactured.

The Phalaborwa division consists of Mining, Comminution & Beneficiation and Tailings management, and the Richards Bay division is divided in Phosphoric Acid, Sulphuric Acid and Granulation production. Phalaborwa Operations produces approximately 2.6 million tons of phosphate annually. As part of the mining process, approximately 50 thousand tons of mine residue need to be disposed daily on mine residue facilities.

The Phalaborwa operations are currently using the Selati and Southern Tailings dams for this purpose. The management function of these facilities is currently outsourced to an external service provider of which the contract needs to be renewed. The purpose of this scope is to request quotes from accredited service providers in the industry for the management of the tailings facilities for a period of 3 years.

Case for change

As part of Foskor's corporate governance process, long-term service contracts need to be reviewed on regular intervals.

REQUEST FOR PROPOSAL

Service providers who ***specialize in the management of Mine residue (Tailings facilities)*** are requested to submit quotes for the management of both the Selati as well as the Southern Tailings facilities at Foskor for a period of 3 years as per detail scope below.

DELIVERABLES

The effective day-to-day management that will ensure that tailings material is deposited according to plan for both the Selati as well as the Southern tailings facilities.

CONTRACT PERIOD

The expected contract period will be for 3 years.

DETAILS OF SCOPE

1. INTRODUCTION

1.1 Background

The purpose of this module is to describe the scope of work for the management of the management of tailings deposition on both the Selati and Southern tailings facilities. Clear parameters must be set in order to understand the scope of work and to tender accordingly.

The Service Provider scope of work will start at the footprint of the dam on the outer side of the perimeter roadway for both Southern and Selati TSFs, respectively. It includes the delivery system for the conveying of tailings material from the battery limits (outer side of perimeter road) to the tailings storage facility.

Tailings are pumped onto the TSF's by using tailings pump stations. – TTPS (Tailings Transfer Pump Station) and the deposition of spillage water from the main plant into Southern Tailings Facility via Southern Drain pump station.

The operation is currently based on the contents of the original design and is a combination of open-ending and Cyclone methodology. The deposition methods will vary depending on the deposition strategy adopted as per deposition plan.

Both the tailings' areas consist of two facilities covering roughly 1400 Ha. Southern TSF is 320 ha dam that is currently used as a water storage facility via the Southern Drainage system. The Selati Tailings Facility has an expected life span, up to the year 2054 and will cater for all tailings produced by both the main plant and Extension 8. The Selati tailings complex has been largely done by single giant cyclones. Recently open ending has been incorporated into the deposition strategy. Selati TSF covers about 1110 ha.

The scope addresses the monitoring requirements of facilities, statutory regulations and environmental aspects associated with the overall tailing's disposal operation.

1.2 Production Rate

The Selati tailings dam receives an average of up to 42,000 tpd. Maximum of THREE tailings pipelines are running at any time on the Selati tailings dam. Water is continuously deposited onto the Southern dam which is used as a water reclaiming facility.

1.3 Code of Practice

The principles in the South African National Standard SANS 10286: 1998 "Code of Practice: Mine Residue" will be considered at all stages of operation of the tailings buttress.

Compliance to this COP is a mandatory benchmark by for all Mine Residue Facilities through the Mine Health and Safety Act (MHSA) framework. Section 9 of the MHSA 29 of 1996 require and employer at a mine to prepare and implement a Mandatory Code of Practice (FSK-MD-PRO-10) to abide by, with the guidelines in SANS 10286 as minimum requirements.

SANS 10286 outlines the minimum requirements for the planning, siting, design, construction,

operation, monitoring, management, review, decommissioning and closure of Mine Residue Deposits, including minimisation of waste and environmental impact, precautionary principles and safety.

Applicable legislation that a TSF must comply to include:

- Mine Health and Safety Act 29 of 1996
- Mineral and Petroleum Resource Development Act 28 of 2002
- National Water Act 36 of 1998
- National Environmental Management: Waste Act 59 of 2008

Non-compliance to FSK-MD-PRO-10 which is based on SANS 10286 constitutes non-compliance with the MHSA framework. TSF operation by the contractor must, always, demonstrate implementation of the Mandatory COP.

1.4 Legal and liability

The Contractor shall be responsible for the continuous operation, monitoring, inspection and management of the Tailings Storage Facility ("TSF") on a twenty-four (24) hour basis and shall perform all services with the degree of skill, care, diligence and professional competence expected of a suitably qualified contractor experienced in the management of tailings storage facilities of a similar size, complexity and consequence classification. The Contractor shall perform its duties under the oversight of an Engineer of Record ("EoR") who is suitably qualified, professionally registered with the Engineering Council of South Africa ("ECSA"), and demonstrably experienced in tailings engineering and TSF management.

The Contractor and EoR shall at all times comply with all applicable legislation, regulatory requirements, licence conditions, FSK-MD-COP-10, relevant SANS standards, the TSF Management Plan, the Operations, Maintenance and Surveillance (OMS) Manual, and any other standards, procedures or requirements issued by the Company from time to time. All services shall be performed in accordance with recognised international best practice for the safe management, monitoring, operation and governance of Tailings Storage Facilities.

The Contractor shall promptly identify, assess, escalate and report any condition, event, anomaly, exceedance, instability indicator, monitoring alarm, seepage event, operational deviation or other circumstance that may adversely affect the safety, stability, integrity or regulatory compliance of the TSF. The Contractor shall remain accountable for the proper execution of all services within its scope of work and for implementing the recommendations and requirements of the EoR. Where any TSF incident, environmental impact, regulatory non-compliance, loss of containment, instability event or failure is found, through investigation or expert assessment, to have been caused by or materially contributed to by the Contractor's acts, omissions, negligence, misconduct, failure to comply with applicable standards, or failure to discharge its obligations under the Contract, the Contractor shall be held liable for the consequences thereof in accordance with the terms of the Contract and applicable law.

2. THE SITE

2.1 Location

The Foskor facilities are located on either side of the West-to-East flowing Selati River, a tributary of the Oliphant's River. The Selati tailings dam's footprint stretches up to 1 400 HA. Currently the highest wall crest elevation on the Selati tailings facility is 439 m.a.s.m.l. The Southern tailings dams' footprint stretches up to 320 HA. Currently the highest wall crest elevation on the Southern tailing's facility is 451 m.a.s.m.l.

3. DEPOSITION STRATEGY

3.1 Selati Tailings dam

Deposition onto Selati is done by a cyclone methodology using giant cyclones that are positioned on the perimeter wall crest. The cyclones start on a 7-m lift and are moved forward by Front end loaders and track dozers. Currently all five lines are operating on cyclones. The cyclone is positioned according to the design elevation for each lift and will be monitored through preset profiles on the bench elevation behind the cyclone. The profile units will be surveyed regularly to monitor the movement and true elevation. The contractor is responsible for changing the spigots on the cyclone.

Responsibility:

Foskor provides two front end loaders that are used to move / install cyclones and pipes. Foskor will supply diesel for yellow equipment only. The scope will cater for a 24-hour operation with hot seat changeover to maximize dam construction process. Foskor will ensure as far as reasonably practical to maintain a constant feed / supply of material to the deposition points. The contractor must supply the following mobile equipment: One Excavator (equivalent to PC 300), one 30-ton ADT, PAT dozer and a water bowser (minimum capacity 15 000 liter) that will be used for dust suppression on dirt roads in the Tailings facility as well as used for watering of vegetation

Foskor will ensure that spot surveys are carried out by their survey dept to verify the accuracy of contractor data.

Foskor is to ensure that the basic characteristics and fundamental design parameters are being obtained in terms of pressure, pulp densities and feed.

The Operator is to ensure that the cyclones operations are executed according to the design methodology and to raise concerns in the event of poor delivery. Daily targets are to be set to determine cyclone movement and average density received. Any deviation must be recorded and reported to the Tailings Superintendent.

The contractor is responsible for access control leading to the tailings dam walls, this means preventing unauthorized access as well as all road signage on the tailing's dams through the use of effective barriers. The contractor is also responsible to do a daily inspection on all roads on the tailing's dams, identify all risks, make safe and then repair the hazard

3.2 Southern TSF:

Southern TSF is used as a water storage facility. Southern drain pump station deposit mostly water onto the Southern dam at a single deposition point via two lines. The contractor will be required to monitor deposition on a daily ad hoc basis under normal conditions.

Responsibilities:

Tailings deposition on Southern TSF will only be used for the storage of dirty spillage water. On a AD-HOC basis Extension 8 material maybe pumped to the South Da to fill low spots.

Southern Drain will continuously deposit water on to the dam and service provider will need to monitor the water level and the condition of the penstock. The operation of the penstock (lifting or lowering) as well as the cleaning around the penstock is the responsibility of the contractor

The contractor is responsible for access control leading to the tailings dam walls, this means preventing unauthorized access as well as all road signage on the tailing's dams. This includes formalized safe area declarations and the barricading of unsafe areas with daily monitoring of the barricaded areas. The contractor is also responsible to do a daily inspection on all roads on the tailing's dams, identify all risks, make safe and then repair the hazard.

3.3 Legal responsibilities.

The Contractor will ensure the following inspections are being carried out and reported on a formal dash-board report to the tailings Superintendent. Deviations should be addressed in the monthly meetings or daily meetings with the tailings Superintendent:

3.3.1 Monthly inspections on the South dam:

- ✓ Pool control
- ✓ Side slope condition
- ✓ Road condition
- ✓ Berm wall condition
- ✓ Ramps condition
- ✓ Storm water control
- ✓ Piezo conditions
- ✓ Penstock and structure condition
- ✓ Walkway condition (decant)
- ✓ Deposition space and condition including standby
- ✓ Filter drain condition
- ✓ Dust control
- ✓ Beaches – basin condition
- ✓ Pipeline condition
- ✓ Safety concerns and control measures
- ✓ Pool wall condition including wings

3.3.2 Recordings on the following:

- ✓ Piezo readings
- ✓ Freeboard readings. (contractors' responsibility to ensure compliance)
- ✓ Rainfall

3.3.3 2.9.2 Responsibility:

- ✓ Site Manager to ensure that all ad-hoc work carried out are in line with the minimum requirements set out in the MHSA.
- ✓ FOSKOR and the Contractor remain legal responsible for day-to-day activities as mentioned above.

3.3.4 Risk Management:

- ✓ The Contractor 2.6.1, Consultant (Professional Engineer/EOR) and 2.13.1 and 2.6.1 appointee from FOSKOR remains responsible to ensure all hazards are identified as far as reasonably practical by ensuring regular inspections on monthly basis take place.
- ✓ The contractor will be required to establish and implement the following procedures (over and above the procedures done by FOSKOR 2.6.1)
 - Emergency Response plan
 - Annual emergency evacuation drill
 - Dam Breach response procedure
 - Flood events response procedure
 - Seepage response and reporting procedures
 - Safe area declarations
- ✓ Structural and operational risks must be identified and recorded in a risk assessment and a deviation list should be used to address all outstanding matters. These risk assessments and other safe declarations include, but is not limited to:

- Daily Foskor template HIRA before any task commences.
- Monthly reports on all risk and non-conformances.
- Foskor issued pre-use checklists on TMMs, Green Area templates and Lock-out permits
- Safe area declaration (Contractor)
- Risks and hazards to be formally presented at monthly and bi-annual meetings with Engineer of Record to be included in the meeting minutes.

3.3.5 Survey: management

The contractor must include in their pricing schedule the cost of performing the following surveys: (Foskor retains the right to remove any of these items from the scope)

- Annual Bathymetric survey (Selati, van Ryssen and Southern dam)
- Annual Aerial Survey of Tailings facilities with Lidar
- Yearly jet rodding of all filter drains (66)
- Installation/ repair of 5 Piezometer per annum

4. WATER MANAGEMENT

4.1 Principles of Water Management

Water on both the compartments is controlled in the following manner:

- Water is delivered to the facilities as part of the tailings blend. The tailings deposition procedure is selected and operated to ensure that the solids settle on the upper beach, and all excess water is expelled to the centre of the dam.
- The outer wall and beach are constructed to ensure that adequate freeboard is provided.
- All excess water and rainwater are collected in the pool and decanted off both the facilities. The water is decanted in a controlled manner to ensure that only “clear” water is decanted. In rainy conditions, the size of the pool increases, and the rate of decanting must be altered to ensure that the rainwater is removed as rapidly as possible, as not to influence freeboard readings.
- Decanting is by centrally located penstock, which are accessed by a front wing on the Southern dam and fixed steel platform on the Selati tailings dam. The water is then gravitated to the return water dam. Occasionally water is pumped from the Selati dam to the return water dam when the water level is too low to be decanted.
- Storm water falling on the outer face of the wall is controlled by benches. This water is then collected in the paddocks and weirs, allowed to evaporate, and others pumped to the return water dam. Cleaning of paddocks is the contractor's responsibility.
- All water decanted and collected adjacent to the facilities reports to the return water facility where it is stored for use.
- To meet environmental monitoring requirements, water quantities and qualities of both surface and ground water, are regularly monitored by Foskor.

- Main priority must be the stability of both the facilities and therefore to ensure minimum water volumes contained on the tailing's dams.

4.2 Pool Control

The location of the pool is controlled by the rotation- or planned discharge of tailings on the edge of the wall through the required methodology. As the tailings is discharged at a point on the wall, the adjacent beach rises, and the pool moves away from that position. By regular movement of the deposition cycle (cyclone methodology), the pool can, to a certain degree be maintained in the required position around the decant penstock. Due to the beaching characteristics of the cyclone sandy material, the expected beach should be precipitous. Evaporation will play a part in the water balance and the return for the facility.

Responsibility:

The Contractor must ensure regular inspections to determine the pool position. Battery limits set by the design report indicate the level of risk associated with a large pool and point towards the minimum pool to outer wall crest length. This must be recorded monthly and discussed in the meetings.

Foskor must ensure that continuous decanting of water should be allowed to try and maintain the pool volume and to keep it as small as possible.

4.3 Decant System

Water is currently pumped by means of electrical pumps or free flow from the temporary inlet (Free flow) from the dam at a constant rate. This system will be decommissioned as soon as the water level has risen enough to reach the new decant. The following process will be applicable once the new decant system is in operation.

Excess water is decanted from the tailings dams by one centrally located penstock line with four intakes on the Selati decant. The 64m high automated remotely controlled decant tower supports 4 vertical flow channels, each made up of 35 steel tubes 600mm NB and 1.2m long, attached vertically on top of each other. The flow tubes are pegged to guide rails above the operating flow control tube. As the water level rises, pegged flow tubes are lowered in turn to become the next controlled tube. No more than 2 tubes, or at most 3 are in operation at any one time, the others acting as air vents to the base of the tower. Water entering a tube falls to the base of the tower from where it is discharged through a near-horizontal concrete pipe 864 mm ID leading to the return water reservoir approximately 2km distance.

Responsibility:

The flow tubes are controlled by Foskor but can on request be manually opened if an instrumentation problem occurs. If, and when such incidents happen, Foskor is liable to investigate and rectify the concern.

The sleeving of the decant towers are done by the Contractor, following the step-by-step task description. A copy of the task description and sleeving methodology must be obtained and trained to relevant operators on site. The sleeving process is done once the water level rises to such a state where it may enter the tubes from the top. Two-way radio communication will take place between the Contractor and the process control room operator to test the operational functionality of the decant tower. Regular inspections are therefore carried out (weekly) at the decant to determine the pool position. The inspection is done by means of a floating platform walkway. All safety regulations must be followed by the Service Provider to ensure compliance to the MHSA. It is expected that the decant tower will only be in operation at in 2026

5. OUTER WALL CONFIGURATION

5.1 Objectives

Outer wall geometry must be prescribed to satisfy the following objectives:

1. Structural stability
2. Ease of operation
3. Erosion integrity
4. Accessibility for rehabilitation
5. Ergonomics

The overall wall geometry should be planned for the final closure of the residue deposit. Pre-planning is important to ensure that preparatory work and financial provisions are minimized and put in place timorously. The maintenance of roads on the side walls is the responsibility of the contractor, all roads must have a berm of at least 1-meter high by 1 meter wide on the side to prevent erosion and accidental driving of the side of the rode. All roads must be slightly inclined (minimum 3 degree) to the dam side.

5.2 Principles

The outer wall geometry is adapted to the site-specific conditions provided that the following principles are not violated:

- Long-term stability and sustainability should not be compromised in exchange for short-term expediency.
- Experimental approaches are acceptable provided that a sustainable solution is not precluded and that the approach has been approved by the EOR
- Geometry should be so designed as to preclude significant tailings facility damage from the 1:200 years storm occurrence over a 24-hour period.

5.3 Minimum Requirements

5.3.1 Overall Slope

The overall slope geometry is calculated by Knights Pièsold and is noted in the original design as being 1 vertical to 4.5 horizontally for the Selati tailings dam.

Batter boards (provided by contractor) are therefore necessary to indicate slope progress. The geometry has been selected to ensure that the risk to the health and safety of all parties is maintained, and that the final wall height can be achieved without compromising on the stability requirements, while at the same time ensuring ease of operations. It is the responsibility of the contractor to do slope angle surveys every 6 months and place batter boards indicating the current slope, batter boards to be placed every 200 meters around the circumference of the dam.

5.3.2 Local Slopes

The outer slope may be steepened locally. This will typically occur between benches. The local slope should however be designed to provide an acceptable factor of safety against failure, and to facilitate sufficient working area during the operation.

6. **RUN-OFF PADDOCKS & FILTER DRAINS**

Run-off paddocks are primarily required around the perimeter to prevent the release of solids eroded from side slopes by rainwater, into the environment. In addition, paddocks serve as a last line of defence to prevent accidental spillages from being discharged into the environment.

Filter drains are essential in the stability of the complex and therefore needs regular inspections carried out to identify sub-standard conditions. All filter drains need to be clear of vegetation or any form of build-up that can cause the drain water to be minimized. To maintain quality inspections, it is imperative to have a well-managed filter outlet so that clear readings can take place.

Responsibility:

Regular maintenance and ongoing clearing of silt and vegetation is necessary to ensure the integrity of the paddocks. Siltation and vegetation in the paddocks should be minimal during the initial operation period. Should they however fill, or overgrow the paddocks, it is the Contractor responsibility to clean, clear silt and vegetation at the filter drain, paddocks and trenches.

Any damage caused by storm water run-off or burst pipes must be repaired by the contractor. In the case where filter drain outlets are not on standard, it must be recorded and repaired as soon as possible by the Contractor. All Filter drains must be clearly marked and numbered by the contractor

7. **DUST SUPPRESSION**

The contractor will supply a water bowser to do dust suppression on all dirt roads from Southern drain, Southern dam and Selati Tailings dam.

8. **CLOSURE AND REHABILITATION**

Once the construction and operation are complete, the tailings facility residue deposit needs to be de-commissioned and closed. It is implied by closure that the deposit can be kept without extensive maintenance requirements, and no nuisance contaminants will be created. Storm water runoff will be managed through the yet to be designed installation of engineered structures, and slope shaping. It is also envisaged that biodiverse vegetative planting will occur to ensure acceptability with respect to final closure solutions. It is the responsibility of Foskor to plan and maintain rehabilitation programs on the side slopes, or basin of the dormant areas. The Contractor may offer to take over the responsibility to maintain and give solutions.

9. **NURSERY**

For the purposes of mitigating dust (Section 7) and accelerate rehabilitation (Section 8), vetiver grass cultivation and planting is to be introduced on the TSF dam walls. The nursery is to be constructed by the contractor according to the following specifications to accommodate 25 000 vetiver grass plants:

- *Location: RWPS pipe yard with a 220v and potable water connection point at the boiler shop in pipe yard.* (It is the responsibility of the bidder to do a site study and to evaluate the suitability of nurseries offered to the Foskor site and actual working conditions. A site visit can be arranged.)
- Typical dimensions 30 meters long, 10 meters wide, 4 meters high consisting of galvanized steel structure and netting (80% shade cloth – SABS approved)
- Life expectancy at least 15 years
- Weed guard to be installed as a layer of geotextile fabric placed under soil to block weeds. SABS

approved.

- Installation of suitable automated overhead mist irrigation system with a programable timer from the Foskor supplied potable water point. Must be able to supply 3-4mm of water per hour and must reach the whole area of the nursery
- 25 000 vetiver plants planted in growth bags provided by contractor to establish nursery, and a stock level of 25 000 must be maintained at all times by replenishing plants.
- Nursery to be fenced off to protect it from wildlife (mechanical deterrent). Fence must have a lockable entrance gate to allow people and TMMS access (access controlled).

10. CONSTRUCTION PROCEDURE

10.1 Delivery System

10.1.1 Main lines

Selati Tailings Dam: The phosphate tailings are transferred on to the TSF through five 400mm rubber lined steel pipelines of which no more than three are operated at any one time.

Responsibility:

The pipes are supplied by Foskor and replaced by the Service Provider on a wear and tear basis.

10.1.2 Transporting of new equipment from storage to tailings dam

All new equipment is to be safely transported by the Contractor from the main storage yard to tailings dam stacking area. From there, pipes will be carried by means of the Track dozer or front-end loader to the required working area.

10.1.3 Removal of damaged equipment from tailings dam to storage yard

All damaged equipment is to be safely transported by the Contractor from the tailings dam / working area to the main storage yard where arrangements for maintenance and repair can commence (responsibility of Foskor to repair).

10.1.4 Flushing of delivery system

In order to maintain the continued operation, the delivery lines will need to be flushed before and after line changes, to ensure that silt build-up and blockages do not occur. Flushing water will be extracted from the return water dam utilizing a pumping system with enough pressure, specifically developed for this operation. The operation of the flushing of the lines will be controlled through proper communication and liaison with Foskor operators. The system will ensure the ability to flush the entire ring main in the defined sections, as well as the spigots.

Choked lines should be reported before the end of the shift and must be flushed prior to use. Excessive silting should be flushed mechanically with the assistance of machinery. The opening of choked lines from the outer side of the perimeter road is the responsibility of the contractor

11. CONFORMANCE MONITORING

The objective of conformance monitoring is to provide management with information to assess whether the facility is being managed in accordance with the prescribed objectives. Conformance monitoring involves gathering relevant information, recording and presenting the information in a format that facilitates easy assessment and interpretation. This includes formalized safe area declarations and the barricading of unsafe areas with daily monitoring of the barricaded areas. The information needs to be processed in a systematic manner that ensures that the responsible persons review the information, that their assessment is placed on record and that follow-up action is initiated accordingly.

11.1 Inspection

Five levels of inspection should be conducted.

10.1.1 Daily

The Service Provider site manager (TSM) should conduct daily visual inspections of the facility and record the status of the designated components in a daily logbook. The components that must be inspected include the following:

- The slurry delivery pipelines (Selati from TTPS outer side of the ring road)
- Availability of pipe needs and other spares
- Spillages on side slopes,
- Toe and the perimeter infrastructure of the facilities
- The drain outlets
- The areas where deposition is taking place and where areas are being prepared for deposition.

The following information must be recorded daily:

- Location of deposition
- Slurry density
- Visitors
- Weather conditions
- Incidents
- Safety topic
- Pipe records
- Condition of paddocks and filter drains

10.1.2 Weekly

The **Contractor's** Contracts Manager and Site Manager must conduct a weekly visual inspection, using a standard checklist and review the reporting in the daily logbook. The inspection must include the following:

- Decant and its stability
- Pool position
- Pool depth
- Deposition area
- Housekeeping
- Access roads
- Spillages
- Over deposition
- Deposition planning

- Pipe needs
- Quality
- Outer wall slopes and conditions
- Rehab needs
- General safety conditions around tailings facility
- Any potential unsafe condition

10.1.3 Monthly

The appointed 2.9.2 on site must conduct a formal monthly inspection of the facility, using a standard checklist. This inspection must include the pipeline route, the perimeter of the return water facility as well as around the base and top of both facilities.

10.1.4 Bi-Annual

The TSM, Contractor's senior representative (Contracts Manager & Area Manager), Consulting Engineers representative and must conduct a formal bi-annual inspection of the facility, using a standard checklist. This inspection must include the pipeline route, the perimeter of the return water facility as well as around the base and top of both facilities

10.1.5 Annual

The TSM, **Contractors** senior representative (Contracts Manager & Area Manager), Consulting Engineers representative and must conduct a formal annual inspection of the facility, using a standard checklist. This inspection must include the pipeline route, the perimeter of the return water facility as well as around the base and top of both facilities.

10.1.6 Hourly

The **Contractors shift supervisor** must conduct hourly inspections on the running pipes and cyclones on the dam, any deviation must be rectified and reported immediately. Records of the inspections to be kept and handed in weekly to the Foskor Tailings Superintendent. The contractor must also inspect roads on the Tailings dam for any damage; the contractor is responsible to immediately close of any road where damage such as wash aways occurred. Barricading of the roads must be done with visible movable handrail closure accompanied with temporary signage that indicates road closure.

11 PERFORMANCE ANALYSIS

The following aspects must be considered during the analysis of performance of the tailing's facilities:

11.1 Parameters

To assess the performance of the facility, the following parameters must be reviewed:

- Monthly tonnage
- Cyclone movements
- Return water volumes
- Pulp densities

- Freeboard Piezometer levels
- Weather
- Slope angles
- Beach configuration and length
- Pipe needs
- Risk Matrix
- Standard Critical Controls
- Action Tracker

For each of the parameters, target values or critical levels must be set by appointed engineer in consultation with the Contractor. Conformance relative to target values should be assessed by appointed engineer and a conformance report compiled.

11.2 **Performance Parameter Measurement/ Key performance indicators**

Procedures must be implemented to measure the performance parameters on a regular basis. The measurement interval must be appropriate for the parameter.

- *Monthly Tonnages* - The tonnage placed on the facility must be measured monthly. By-pass tonnages should be recorded and reviewed monthly.
- *Water Delivered* - The volume of water delivered by the Plant must be determined from the volume of tailings delivered and the pulp density. The volume shall be recorded monthly and verified by the mine.
- *Return Water* - The volume of water returned from the facility return water dam to the Plant, must be measured by FOSKOR monthly. If a meter is not installed, this can be recorded as pumped hours and the volume determined from pump capacity, if this is calibrated regularly.
- *Densities* - Densities must be measured at the plant. The daily average density must be recorded in the logbook and a note made of any significant variations from the target.
- *Unplanned Shut Down Hours* - The number of hours for which tailings were not pumped to the tailing's facility operations shall be recorded daily. A monthly total shall be determined.
- *Freeboard* - The freeboard must be measured monthly. Freeboard monitoring must be done in accordance with the prescribed EOR procedures. Free board data, Freeboard trends (Total and Vertical) as well as Free board analysis.
- *Piezometer Levels* - The piezometers must be read monthly, including standpipe and vibrating piezometers. The reading of piezometers, recording of results will be carried out by the Contractor, and the results made available to FOSKOR. The following must be available: Piezometer Cross sections, Piezometer data, Piezometer Graphs
- *Drain flows* - Under drain flow measurements must be recorded and measured monthly by the contractor
- *Cyclone movements* – Monthly and accumulative movement of the cyclones should be recorded monthly and deviations on targets not achieved

- *Weather* - Weather must be recorded daily
- *Slope angle report*
- *Nursery staff* - The contractor will be required effectively manage the nursery of 25 000 vetiver plants and to populate an area 200m² on the tailings dam walls per month (or 0.1 ha) with vetiver grass.

11.3 Non-Conformance Identification and Response

The identification of and response to a non-conformance, occurs at several stages.

Penalties for non-conformances will be outlined in the contract.

11.3.1 Inspections

- *Daily / Weekly Inspections* - Obvious non-conformance must be noted during the inspections.
- *Monthly Inspections* - TSM conducting monthly inspections must, as part of the inspection, determine remedial actions for non-conformances and initiate action. Non-critical items can be held over to the quarterly meetings. Serious deviations and those beyond the understanding and resolution of the inspection team must be reported to the Contract Manager.

The following performance-related data should be reported on a quarterly basis:

- *Capacity* - The actual performance relative to the design predictions should be reviewed.
- *Critical Levels* - The relative position and status of the phreatic levels should be reviewed.
- *Condition of the delivery systems* – spares, new capital requirements etc.

A review report on the performance of the facilities (observational method) should be discussed in monthly meetings including comparisons of the actual- and predicted parameters and any recommendations to modify the operating procedures to correct any variations.

12 COMMUNICATION STRATEGY

On site communication will be by handheld two-way radios (contractor to provide own radio's that is compatible with Foskor systems). All TMM's to be fitted with two-way radio's
Communication meetings will also take place daily between the representatives of the contractor and the mine. The meeting will ensure a free flow of ideas, problems, solutions and instructions between the parties.

13 SAFETY SYSTEMS

- 13.1 The Contractor must always observe the Foskor's safety standards. Where adequate safety precautions are not being observed, Foskor may order the Contractor to comply with minimum safety requirements at the Contractor's expense, and compliance with such an order will not absolve the Contractor from any of his responsibilities and obligations under the Contract. In the event Foskor amends the minimum safety requirement, the Contractor will submit variance rate for approval, in lieu of compensation for any additional cost incurred by Contractor. It is the contractor's responsibility to

develop and implement Safe work procedures, planned task observations for all task, as well as do a total risk assessment on all tasks. The contractor will be responsible for all road signage in their area of responsibility.

13.2 **PPE minimum requirements:**

Guideline

<u>Description</u>	<u>Qty / Annum</u>	<u>Specification</u>
Socks	3 Pairs	
Overalls	2 Per Annum	Reflector strip top and bottom.
Gumboots	1 Pair	
Safety Shoes	1 Pair	Steel Toe Cap
Gloves	Based on Consumption	Leather Gloves
Eye Protection	1 Per Month	
Hat	Based on Usage	Material
Dust Masks	Based on Usage	Based on DMPR requirement

13.2.1 **Tools and equipment – minimum requirements:**

Purpose:

- To be used at pipe fitment and cyclone movement

Requirement:

- Slings,
- Spanners sizes - 14, 16, 17, 18, 19, 24, 30, 34,
- Flogging spanner sizes 30, 36, 46 and 50 – 2 sizes of each per team
- 4-pound hammers- two for each maintenance team (Only copper hammer allowed)

Responsibility:

General tools such as spanners hammers, slings and shovels to be supplied by the contractor. The slings must be load tested or changed with new, every six months as per Safety requirement

Bolts and nuts (as per operational needs) will be supplied by Foskor and budgeted for every year.

The daily inspection of those slings will be the responsibility of the contractor. Certification of slings will be the responsibility of the contractor

13.2.2 **LDV / transport and yellow fleet minimum requirements:**

- All TMMs must have a minimum of 85% availability, with suitable alternatives provided if the TMMs do not meet this availability requirement.
- A minimum of three 4x4 double cab vehicles is required, and one taxi/sedan for transporting employees
- All LDV's must be 4 x 4 double cab with ROPS certification when intended to drive on the dam walls, All LVD's must be CAS level 8 compliant, approved supplier is FavorSea. All LDV's must be fitted with off road tyres. All LDV's must be equipment with ROPS and certificate by authorised installer must be supplied.

- The LDV's must be fitted with reflector tape and rotating lights. Stop blocks and reverse alarms must be included, with fire extinguishers. (FSK-MD-COP-14) See attached documents for requirements.
- The service provider will be required to transport its employees from the gate to the workplace.
- The Site manager should have a separate appropriate vehicle.
- The shift supervisors will have to inspect the lines regularly (every hour) and need a vehicle to cater for equipment delivery and transportation.
- All drivers of LDVs on the dam will be required to have 4x4, Defensive or Advanced driving training (contractor's responsibility) and have a green Tailings license to enter the tailings area.
- Yellow fleet will consist of Two Front end loaders (Foskor supplied), Contractor to supply drivers.

The contractor will supply the following yellow fleet with drivers on a dry rate basis:

One Excavator – equivalent to Komatsu PC 300 (Dry Rates)

One 30-ton ADT (Dry Rates)

One PAT Dozer – (Similar to CAT D5/D6 (VPAT) (18t -22ton) (Dry Rates)

One Water bowser (min water capacity – 15 000 litre) to do dust suppression on all dirt roads and to water vetiver grass (Dry Rates)

NB, the above-mentioned wheeled “yellow fleet” equipment must be fitted with CAS level 9 system (approved installer is FavorSea) with ROPS. All track machines must be fitted with a transponder.

It is the contractor's responsibility to provide proof of a service agreement with FavorSea for maintenance of the CAS systems as and when required (STOP-item on TMMs).

All TMM's and yellow fleet must have an illumination certificate (bi-annual renewal) and brake test certificate (annual renewal **or** after brake maintenance) before entering the site and during the duration of the contract and keep proof in their safety files. Vehicles illumination must comply to the applicable SANS standards

13.2.3 Operation of nurse and planting of vegetation on Tailings dam walls for rehabilitation:

- Contractor to construct a nursery with a total of 25 000 individual vetiver grass plants as per section 9.
- It is the contractor's responsibility to supply the following service:
- 1 x Driver/Supervisor & 2 general workers
- Tools and equipment to operate the nurse for example but not limited to, growth bags, spades rakes, growth medium
- Propagation of Vetiver grass and other locally indigenous plants shrubs and trees for future rehabilitation on the Selati and Southern tailings facilities and other disturbed areas. It is the

responsibility of the contractor to plant the plants on the tailings dam walls and water the plants

- Monthly monitoring and reporting on progress of planting and stock availability of plants
- Ldv for transportation (Wet rate)

NB, the above-mentioned equipment must be fitted with CAS level 8 system (approved installer is FavourSea) with ROPS

All TMM's and yellow fleet must have an illumination certificate (bi-annual renewal) and brake test certificate (annual renewal **or** after brake maintenance) before entering the site and during the duration of the contract and keep proof in their safety files

Note: Where the safety standards on the mine change in terms of new requirements, a rate adjustment as an amendment to the current contract will be made to cater for the change in this clause. It will be referred to as "Amendment in current contract"

Tailings Transport requirements:

Hourly delivery line inspections per shift

Transporting of people to and from the gate - per shift (No passengers may be transported on the back of a bakkie)

Daily activities – (meetings, site inspections, collecting and delivery).

The table below serves as a *guideline* for travelling distances applicable to the operation:

Category
Shift Change Travelling 2 Shifts
Attending Morning Meetings per day – (Site Office to 300 Ft)
Tailings Line Inspections per day- (Perimeter 14km x 24)
Pipe Maintenance
Supervisor Inspection and Control- 2 Shifts / Day
Site Manager Inspection and Control (6 Days per week)
(Note: Min of 3 D/Cab Vehicle Required)
(Fuel consumption of above mentioned TMM is contractor's responsibility)

13.2.4 Hide outs:

The contractor must maintain the hide outs on site, as per DMPR requirements. The purpose of this hide out is to facilitate the cyclone guard for day-to-day paper exercises and safeguard him/her from the wildlife. The contractor will cater for every active line to have a hide out to comply with DMPR requirements. Every hide out to be fitted with enough lighting equipment.

The transport or moving of these hide out trailers will be the contractor's responsibility. The hide outs must be supplied at each active cyclone or open end and must be fitted with a lightning earth peg.

13.2.5 Storm Shelters

Unless otherwise instructed by DRME, the current storm shelter is at TTPS. Whenever a heavy rainstorm is present the workers will be required to go down to the storm shelter and wait until the storm pass.

13.2.6 **Health needs:**

- The issuing of Tabard – Contractor responsibility
- Quantity: only in summer (November to April) one unit per person per month
- The issuing of Vitamin C tablets – Contractor responsibility and discretion
- Quantity: only in summer (November to April) one month's supply for every per person per month
- Washing of overalls – Contractor responsibility

13.2.7 **Training minimum requirements:**

Foskor will be responsible to give the following training to the Service provider:

- 2.9.2 and 2.6.1 Training material – only appointed personnel
- LDV, VTS testing – to all drivers (Orange + to green)
- SHE Rep – only to appointed persons

Other compulsory training not mentioned, will be provided by the service provider, including but not limited to:

- Basic rigging and lifting
- Operating a cutting torch
- Fire Fighting
- Basic Health and Safety
- HIRA
- First Aid
- Drivers' licences
- Animal Awareness

Note: Where Foskor fails to offer the training requirements in time, the Contractor will have to outsource the training with additional costing to Foskor.

Note: The contractor will be given 2 months to achieve legal appointment qualifications (2.6.1 and 2.9.2). This training is offered by Foskor free of charge.

14 **CONTRACT STAFFING**

The proposed methodology is to:

- 14.1 Operate the tailings dam with 5 delivery lines of which 3 will be active lines. Each active line is to be supervised by a cyclone guard with two-way radio communication which is supplied by the contractor.

- 14.2 The non-operational lines (those standing) will then be moved forward and will be commonly known as cyclone movement. The deposition strategy will determine what the cyclone movement target rate will be per month. A record must be maintained from the Contractor to measure progress and raise levels of concern. The cyclone movement team (pipe crew) consists of 3 persons per team and there will be one team per shift.
- 14.3 The operation will be done on a 24-hour period 7 day per week on a shift basis only
- 14.4 Each shift (4 shift system- 12-hour shifts) must cater for the following:
- (i) One 2.9.2 Appointed Supervisor who will also transport the people to and from site
 - (ii) One Cyclone guard per active line (3 cyclone guards)
 - (iii) 3 Maintenance / pipe team workers per shift to move cyclones
 - (iv) The service provider should make provision for:
 - Relief team to cater for the following Health and Safety requirements and Labour law:
 - Medicals and Inductions Annually – team of 39 people
 - Contractor Inductions
 - She Rep and First aid training
 - Policies internal and external
 - Risk assessments on project awareness
 - Emergency preparedness trainings including Drills
 - Firefighting training
 - Rigging training
 - LDV licensing
 - Taking annual leave
- 14.5 Headcount Summary (**indicative only**)
- | | |
|---|------------------|
| - Site Manager (2.6.1) | 01 |
| - Safety Officer | 01 |
| - Drivers' day shift (ADT, Exc, Bowser and Dozer) | 04 |
| - Driver / Supervisor (Rehab /Nursery) | 01 |
| - General worker (Rehab /Nursery) | 02 |
| - Supervisor (2.9.2) | 04 – excl relief |
| - Shift Drivers (FEL) | 08 – excl relief |
| - Cyclone guards | 12 – excl relief |
| - Maintenance crew | 12 – excl relief |
| - <u>TOTAL</u> | <u>45</u> |

Relief – For every 12 people on shift you need one relief to cater for leave days and training during the year.

The identified Contractor will be required to provide a fulltime Day Shift Site Manager to who will manage and control the site-specific needs.

Note: All employees should be able to read and write English for safety reasons.

15 **PENALTIES**

The service provider will be expected to take a good care of Foskor's properties and premises. All the incidents of damage to properties or loss of value will be investigated by both parties. Where the service provider found to be at fault the cost associated with the incident thereof will be of the service provider. Should the damage be dam wash away or spillages where loading and transportation is required, Foskor will assist if possible, using its own machinery and charge the service provider at a cost of R750 per hour of a machine. This rate will be adjusted annually in line with inflation rates.

16

PRICING SCHEDULE

Foskor reserve the right to remove below mentioned tasks, to ensure compliance to budgetary requirements.

N o	ITEM	Unit of Measure	Estimate d Quantity		
1	Selati and Southern Tailings Facility The operating cost for the Selati tailings Facility and Southern Tailings facility will be summarised as a monthly fixed fee with a detailed breakdown of all services and activity mentioned in the scope from point 3 to point 15 all costs must be included in the monthly fee broken down into the following categories: <ul style="list-style-type: none"> • Site Establishment • Management • Administration • SHEQ • Personnel cost 	Rand /Month	36		
2	TMMs <ol style="list-style-type: none"> 1. 3 x 4x4 double cabs (wet rate) 2. 1 x taxi/sedan for transport (wet rate) 3. 1 x Water bowser minimum 15 000 litres (Dry rate) 4. 1 x excavator in size to Komatsu PC300 (Dry rate) 5. 1 x Pat Dozer (18-22 ton) (Dry rate) 6. 1 x 30t ADT (Dry rate) 	Rand/month	36		
3	Fitment of <ol style="list-style-type: none"> 1. 4 x CAS level 8 2. 2 x CAS level 9 3. 2 x CAS level 9 compliant transponder systems of TMMs 4. Service level agreement 	Each	7		
4	Construction of Vetiver grass nursery for 25 000 vetiver plants Refer to section 9 for specifications	Each	1		
5	Operating of nursery and planting of vegetation	Rand / Month	36		
6	Survey <ul style="list-style-type: none"> • Annual Bathymetric Survey – Selati, Southern tailings dam and 	Task per anum	3		

N o	ITEM	Unit of Measure	Estimate d Quantity		
i S i n c e t h i	van Ryssen dam • Annual aerial survey – Selati and Southern tailings dam (Lidar) Above mentioned data to be provided in hard copy and in electronic format (on portable disk) Cost to include site establishment if required and all cost associated with surveys				
7s t e p r i c e	Filter drains Yearly jet rodding and repair of rock walls at all filter drains 66 in total on the Selati and Southern Tailings dams, cost to include numbering of filter drains Cost to include site establishment if required and all cost associated with jet rodding and repair of rock walls	Task per anum	3		

Es

Price escalation

Since this tender run over a 3-year period, the contractor is requested to submit price escalation formula, base date, indices to be used.

17 Technical Evaluation Criteria

Only Bidders who achieve a score of 70 or above will pass the technical evaluation.

Note: Failure in submitting documentary proof of the above criteria will lead to the disqualification of your bid.

18 CONTACT PERSON

Technical

Megan Sauer
 Superintendent Tailings
 Tel: (015) 789 2428
 Email: riaanva@foskor.co.za

Commercial

Commercial Specialist
 Tel: (015) 789 2291
 Email:

All price alterations must be signed by the bidder confirming that such changes were made by the bidder. **PLEASE NOTE THAT PRICE CHANGES WITHOUT 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.

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**: -

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

BBBEE Level	<input type="text"/>	Black Ownership	<input style="width: 50px;" type="text" value="%"/>	Black Ownership	Woman	<input style="width: 50px;" type="text" value="%"/>
Tender Validity	<input style="width: 80px;" type="text" value="Days"/>	Delivery Period	<input style="width: 80px;" type="text" value="Days"/>	Completion Period	<input style="width: 80px;" type="text" value="Days"/>	
Guarantee	<input style="width: 80px;" type="text" value="Months"/>	Commencement after receipt of official purchase order				<input style="width: 80px;" type="text" value="Days"/>
Payment terms	<input style="width: 600px;" type="text"/>					

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

Fixed	☐	Duration of fixed price	<input style="width: 80px;" type="text" value="12 Months"/>	☐	<input style="width: 80px;" type="text" value="24 Months"/>	☐
Variable	☐	Price Base Date	<input style="width: 150px;" type="text"/>			

If variable provide price variation factors, percentages and formula in 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	<input style="width: 80px;" type="text" value="%"/>	ROE	= ZAR
ROE Base Date	<input style="width: 250px;" type="text"/>		

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**

Signed at _____ on this the _____ day of _____ 2021

Signature: _____

Witness:

1. _____ Name: _____

2. _____ Name: _____

For and on behalf of Foskor (Pry) 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.**

		Evaluation Criteria (Technical)							
Annexure 2		Tailings Facility management							
No	Technical Criteria Description	% Contribution					Proof / documents to be submitted	Notes	
a)	Proof of ownership or hire agreement for TMM's and Yellow fleet. Scoring: Complies to minimum requirements = 100%, do not comply = 0%	15%					Proof of ownership or proof of hire in equipment must be attached as: <u>Annexure A</u>		
b)	Company – Management experience tailings dam management. (2.9.2, 2.6.1 appointees) Scoring: >=10 year =100%; <=5 years 50%; less than 5 years = 0	30%					Give reference list of management years' experience and attached proof marked as: <u>Annexure B</u>		
c)	Company Safety record per Tailings job site for the previous year. Scoring: two or less incident =100%; two to three incidents per year 50%; more than three incidents per year = 0%	10%					Safety records for past year, all SHEQ incidents to be listed, proof to be attached as <u>Annexure C:</u>		
D	Company – Tailings dam under management size Scoring: >=800 ha =100%; <=500 ha 50%; less than 500 ha = 0%	35%					Give reference list of dam sizes attached as <u>Annexure D:</u>		
F	Experience with operating of nursey and planting of vegetation Scoring: Experience in operating nursey = 50% Experience in planting of vegetation = 50% No experience = 0%	5%					Attach proof of operating of nursery and planting of vegetation as: <u>Annexure: F</u>		
G)	Company ISO accreditation Scoring: Company is ISO accredited = 100%, Company no ISO accreditation = 0%	5%					ISO accreditation Certificate attached as: <u>Annexure G</u>		

		Evaluation Criteria (Technical)							
	Annexure 2	Tailings Facility management							
No	Technical Criteria Description	% Contribution					Proof / documents to be submitted	Notes	
	Total Technical Score	100%							
	Note: For the bid to be considered the bidder needs to score 70% and above, and comply to all mandatory requirements (Mandatory – Must have Tailings dam management experience)								