

# Scope of Work

## TAILINGS CAPPING AND VEGETATION RECLAMATION FOR PALABORA COPPER

# 2019

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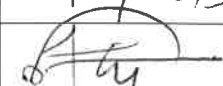
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## INTRODUCTION

Vegetation of the tailings dam forms part of PMC's Land use Management plan to ensure that the operation promotes and obtains a measurable sustainable use of the operational area. It also ensures that the operation complies with its DMR approved Environmental Management Plan and SHEQ Standards. The scope of work covers the work required to establish vegetation on the ETSF, SETSF and SWTSF non active slopes and roads of the Copper tailings dam (ETSF 5ha, SETSF 13ha (3slopes) and SWTSF 3.5ha to be confirmed by successful contractor). The area will require manual seeding, planting of plugs/sprigs, and fertilization. The requirements entail the following:

## SCOPE

The scope of work will include the following aspects:

- Soil preparation or capping of planned areas.
- Fertilisation of the capped areas to ensure start-up vegetation nutrition.
- Seeding of soil/vermiculite capped areas for vegetation reclamation of the planned area.
- Load and haul of capping material from old VO waste rock dump or new Dump 4 VO waste rock area to capping area.

### **The scope of work for the Tailings Capping and Vegetation Reclamation should include the following:**

Except for and inclusive for the above mentioned the following project process deliverables should be included for the Tailings Capping and Vegetation Reclamation Plan:

- Vermiculite material (Soil) needs to be loaded and haul from a Vermiculite waste area to various areas on the Tailings dams. All load and haul equipment shall be supplied by successful contractor. (Trucks, Excavator, Front end loader, Grader, Water cart, Diesel bowser). Vehicles standard should be according to Products and Dams safety specifications
- All load and haul roads and loading area need to be maintained by the contractor and kept dust free at all times of operation through dust suppression methods. Spotters need to be in place at loading and dumping areas for safe operation.
- Loading area walls need to be kept at a 45 degree angle at all times to prevent falling of material on loading equipment.
- Contractor need to construct a break test ramp at the loading area and trucks must test there breaks with each load that exit the loading area.

- In the soil preparation the vermiculite capping are to be placed horizontally and should not be less than **250mm thick** on the slope **when settled**. The benches or roads should have a capping cover of vermiculite material of at least **300mm thick when settled**. A representative composite soil sample should be taken for each area where substrate has been placed and tested for fertility. **The results are to be communicated to the Environmental Department in report form.**
  
- For fertilisation of the vermiculite capped area the following should be spread evenly over the capped area:
  - 700kg/ha of Superphosphate (10,5%)
  - 800kg/ha of KCl (50%)
  - 10t/ha of manure
  
- The prepared area will be manually seeded with the following seed mix, which is to be applied with 300kg/ha lime and is to be followed up with 150kg/ha LAN:
  - 2kg/ha            *Cynodon dactylon*
  - 6 kg/ha        *Chloris gayana*
  - 6 kg/ha        *Anthephora pubescens*
  - 5kg/ha         *Erogrostis teff*
  - 5 kg/ha        *Cenchrus ciliaris*

Seeding should only commence after the seasonal rain started and soil moisture is enough to initiate germination. After seeding, the area is to be raked manually to mix fertilizer and seed into the capping material.

Note that there could be alterations to species composition based on seed availability and technical review. Any deviation is first to be approved by the Environmental department. The contractor who is rewarded the tender should enquire of which grass species is commercially available the year before seeding. This should be communicated to the environmental section for the final decision making in regards to seeding before seed is procured.

## Maintenance

Six weeks after germination, an additional 100 kg/ha LAN must be applied over the entire area. Rainfall is the only form of moisture supply. Should any irrigation be applied, it will be the responsibility of the Contractor to carry out the work at his cost. It will be required from the Contractor to return the next season (2020) to re-seed any area that are not satisfactorily covered, this will be repeated if needed until it is signed-off by an Environmental Specialist.

## Measurement and payment

Soil preparation -	100% payment once completed
Seeding/hand planting -	60% payment once completed (Dec 2019) 20% payment after first growing season (March 2020) 20% payment after growth has been established after second growing season. (March 2021)

The final 20% payment will only be released once the growth has been inspected by the Environmental department and found to be acceptable. Acceptability will be deemed to be "established sustained growth of all grass species"

## Tendering

**Load and Hall and vegetation tender must be separate documents.**

**A proposed contract program is also required from the contractor and must be included in the tender, taking the following into consideration:**

**Seeding may started by November/December 2019 and completed by end January 2020 to fall within the rain season.**

**Load and Haul must start at least two weeks after the successful contractor did receive his order. Completion of Load and haul must be not later than end November 2019.**

*NB! If weather conditions are not conducive for seeding by end January 2020, then the program should be pushed out to the following year.*

**The following documentation should be added to the tender:**

- **Proof of drivers license of all personnel that will be driving on site,**
- **Proof that team leader /and or team members are qualified in first aid.**

**The successful tendered will be expected to submit a list of all personnel with their ID numbers to the Tailings dam Specialist.**

Closing date of tender: TBA on site meeting.

## **Safety**

A zero tolerance policy is to be adapted to unsafe acts and conditions when carrying out this contract.

A permit to work must be obtained daily by the contractor for the duration of the contract and these are obtainable from the Construction Supervisor's office between the hours of 06h00 and 06h30.

Working hours are daylight hours only Monday to Friday No work on Saturdays, Sundays and public holidays.

The contractor will ensure that personnel are confined to pre-agreed areas and the spotter should consistently be on the lookout for wild animals. Contractor personnel not complying with the above will be removed from the site permanently.

The successful contractor and his personnel will be required to attend the following training:

- Induction (3 Hours),
- Medical examination (2 hours)
- and Site specific induction for the tailings dams area (1 hour)
- Drivers of vehicles will also have to attend access to dams training (1 hour).

All of the above could be arranged for the same day.

The successful contractor must supply his personnel with sufficient water to sustain them for a full day's work.

All vehicles must be inspected and approved by the Palabora Contracts Management section prior to use on the property

The team should carry a first aid kit with them at all times.

## **Meetings**

An initial meeting will be held with the successful contractor and to discuss further details. Follow-up meetings between Palabora and the successful contractor shall be scheduled as required.

## **Responsibilities**

Responsibilities entail:

- Supply a venue to use as a lunchroom (Contractor)
- Mobile toilet facilities at loading and dumping points. (Contractor)
- Transport of contractor employees from and to site. (Contractor)
- All load and haul equipment supplied by successful contractor. (Trucks, Excavator, Front end loader, Grader, Water cart, Diesel bowser).
- Diesel for equipment. (Contractor)
- Ensuring contractor adheres to Palabora standards and procedures (Tailings and Dams Operations)
- Ensuring that contractor complies with tender document (Environmental Section). This will entail pre-use inspection of capped slopes and seed mixes.
- All load and haul roads must be kept dust free at all times. (Contractor)
- Maintenance off load and haul roads and loading area. (Contractor)
- Spotter for trucks at tipping area. (Contractor)

**Reviewed and Compiled by:  
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