

## **SUMMARY OF THE PROPOSED PROSPECTING OPERATION.**

### **1. List of activities applied for**

All prospecting and prospecting related activities including:

- Geological investigation – NEMA GNR 544
- Percussion drilling – NEMA GNR 544
- Access road – NEMA GNR 544

### **2. Scale and extent of activities**

- Geological investigation – ± 5 264,7496 ha
- Percussion drilling – ± 0.01 ha
- Access road – -
- Mine roads – -

### **3. Typical impacts of activities**

- Vegetation loss – an approximate area of 1 m<sup>2</sup> will be cleared for each percussion hole to be drilled. The impact can be regarded as low, with no long term effects. If rehabilitation of these areas is done correctly full recovery of the environment is possible.
- Noise disturbance – during the percussion drilling activities is noise generated by the machinery. The noise will be much localized and should have no impact on the surrounding environment.
- Air quality loss – dust will be generated during the drilling activities. The dust generated may have an impact on the air quality, but with localized effects and should not have an effect on the surrounding environment. For this the impact can be regarded as low.
- Soil pollution – chemical soil pollution is always a possibility during mechanical prospecting operations. Working machinery bears a risk for chemical spillage and the impact thereof may be very severe.
- Soil compaction – heavy vehicles driving off-road bears a great risk to the trampling of vegetation and the compaction of the soil. If not rehabilitated vegetation re-growth is unforeseen and poses a medium risk to the environment.
- Littering pollution – littering during the prospecting activities can happen and may have a low to medium impact on the environment depending on the type of littering and the remediation thereof.

#### 4. Duration of each activity

All of the listed activities will be occurring concurrently and the time frame applied for at the Department of Mineral Resources is 2 years where after it can be renewed for another year.

#### 5. Details regarding intended operation

- Phase 1 – Geological studies (month 1 to 7)
  - Literature study  
The exploration study will be undertaken by means of reviewing of all information and data gathered by previous exploration studies carried out on the proposed prospecting area. A site investigation of the target areas will be undertaken to identify infrastructure and determine any potential problems that may need to be addressed.

- Imagery Analysis  
The review of the aerial photo maps of the prospecting area will help to indicate possible existence of in situ weathering of existing parent, linear structures, sulphate-enriched precipitation from an oceanic source, indicating the potential presence of gypsum

- Geological Mapping  
Geological mapping will be carried out by means of using the aerial photo maps to plot the field data. The mapping will be focused on outlining features such as linear structures, Aeolian or fluvial input of gypsum or sulphate-rich sediment, and in situ oxidation of sulphide minerals

Geological desktop studies include the gathering of geological data by means of published geological literature, satellite imagery, geological cadastral plans and information available on the surrounding mines.

These data will be modelled and a draft plan drawn which can be narrowed down and detailed as the phases progress till an ultimate localized and accurate geological model is obtained.

- Phase 2 – Soil sampling (month 8-10)
  - Geological investigation  
During this phase the geologist and/or the geological assistant will investigate the target areas by means of field visit to find some samples or indications of gypsum.
  - Field sampling  
Any outcrops or indications of gypsum will be sampled by means of taking a hand sample, mark the position of where the sample has been taken. The position of the sample will be mapped.

- Laboratory analysis
 

The numbered and packed samples will be sending to a registered laboratory, for analysis. The results will be documented and mapped by the geologist.
- Geological report
 

As result of the field sampling and laboratory results the geologist will maps out the areas where indications of the presence of gypsum might occur and a drill programme can be laid on the table.
- Phase 3 -Percussion drilling (month 11-20)
  - Percussion Drilling
 

The most commonly used RC drill bits are 5-8 inches (13-20 cm) in diameter and have round metal 'buttons' that protrude from the bit, which are required to drill shale and abrasive rock.

Percussion drill holes will be positioned at targets identified during geological mapping. 100 boreholes are planned during this phase with an average depth of 15 meter. The position of the drill holes will depend on the outcome of the earlier exploration activities.

All drilling is short term and the equipment is truck-mounted. During this drilling programme samples are collected every metre and logging will be done by a qualified geologist who will record the lithology.
  - Sampling
 

Dust samples (500 g to 1 km) of the required commodity will be taken for laboratory analyses. Each sample will be marked and labelled with the specific hole and sample number.
  - Rehabilitation
 

Once the hole is completely drilled and no need for further core drilling is envisaged the hole will be rehabilitated.

Rehabilitation will be done by means of backfilling the drill hole in the same manner as which the dust samples were extracted. Each drill hole will be rehabilitated before moving to the next to ensure continuous rehabilitation.
  - Sample analyses

Dust samples taken during the sampling process (labelled with the hole and sample number) will be sent for analyses at internationally accredited laboratories. Every tenth sample will be doubled and sent to a second laboratory for evaluation purposes.

All analytical results are digitally recorded for geological modelling and information purposes as well as for record keeping.

- Data input and mapping  
All information and geological information gathered are digitally captured to be used for the updating of geological models and future references.

These data together with the result obtained from the first phase will also be used on decision making on further prospecting methods and activities to be carried out.

- Phase 4 – Final Report writing (month 21-24)

- Analytical Desktop study  
The project geologist monitors the programme, combines and processes the data and amends the programme depending on the results. This is a continuous process throughout the programme and continues even when no prospecting is done on the ground.

Each physical phase of prospecting is followed by desktop studies involving interpretation and modelling of all the data gathered.

These studies will determine the manner in which the work programme is to proceed in terms of activity, quantity, resources, expenditure and duration.

- Data input and mapping  
All information and geological information gathered are digitally captured to be used for the drafting of the final reports necessary to undergo a successful Mining Right application process as well as for future usage and references.

These data together with the results obtained from all the phases will also be used within these reports.

- Geological Reports  
Three major reports will be written to conclude the prospecting operations. These reports are the final Geological Report, Mineral Economic Report and a Mine Feasibility Report.