



BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

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IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a prospecting or mining right if among others the mining “will not result in unacceptable pollution, ecological degradation or damage to the environment”.

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore, please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

It is furthermore an instruction that the Environmental Assessment Practitioner must process and interpret his/her research and analysis and use the findings thereof to compile the information required herein. (Unprocessed supporting information may be attached as appendices). The EAP must ensure that the information required is placed correctly in the relevant sections of the Report, in the order, and under the provided headings as set out below, and ensure that the report is not cluttered with un-interpreted information and that it unambiguously represents the interpretation of the applicant.

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

The objective of the basic assessment process is to, through a consultative process—

- (a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;
- (b) identify the alternatives considered, including the activity, location, and technology alternatives;
- (c) describe the need and desirability of the proposed alternatives,
- (d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:
 - (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and
 - (ii) the degree to which these impacts—
 - (aa) can be reversed;
 - (bb) may cause irreplaceable loss of resources; and
 - (cc) can be managed, avoided or mitigated;
- (e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—
 - (i) identify and motivate a preferred site, activity and technology alternative;
 - (ii) identify suitable measures to manage, avoid or mitigate identified impacts; and
 - (iii) identify residual risks that need to be managed and monitored.

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PART A

SCOPE OF ASSESSMENT AND REPORT

1 Contact Person and correspondence address

1.1 Details of the EAP

Names of Practitioner:	Khuliso V Ramulondi (Pr.Sci.Nat; REG. EAP)
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1.2 Expertise of the EAP.

Mr Khuliso Vincent Ramulondi holds a bachelor of earth sciences in mining and environmental geology Honors Degree obtained from the University of Venda. He is a registered EAP with Environmental Assessment Practitioner Association of South Africa (EAPASA) and registered natural professional scientist “environmental science” with South African Council for Natural Scientific Professions (SACNASP).

Summary of the EAP’s past experience

Khuliso has over eight years of experience in conducting Environmental Impact Assessments (EIAs). He has conducted EIAs for various projects including but not limited to Construction, Agriculture, Prospecting and Mining as well as Waste Management. He has undertaken EIA across all provinces in South Africa. Some of the projects he worked on as an EAP includes: (a) EIA for Waste Management License application for e-waste recovery facility in Hammanskraal, Gauteng province, (b) EIA for mining right application for granite in Madibeng Municipality, Northwest Province, (c) EIA for prospecting rights application in Vryheid, KZN. He has completed other EIA projects for prospecting in Free State, Limpopo and Mpumalanga. He has also worked as an Environmental Control Officer (ECO) monitoring and auditing the implementations of the EA, EMPr, WULA and Specialists’ studies during the construction of the Eskom’s 400 kV powerline in Free State Province. He also served as the ECO for the construction phase of the Tshwane Automotive Special Economic Zone (TASEZ).

2 Project Locality

2.1 Location of the overall activity

Farm Name:	Portion 157, 149 and 480 of Farm Mapochsgronde 500 JS; Farm Mapochsgronde 511 JS; Farm Mapochsgronde 512 JS; Farm Mapochsgronde 527 JS; Farm Mapochsgronde 913 JS; Farm Eiland 956 JS; Farm Platland 959 JS And Watervaal 972 JS			
Application area (Ha)	1,059 Hectares			
Magisterial district:	Sekhukhune			
Distance and direction from nearest town	Approximately 33 km north of Roosenekal			
21 digit Surveyor General Code for each farm portion	Farm Name	Farm No	Portion	SG Code
	Mapochsgronde	500	00480	T0JS00000000050000480
	Mapochsgronde	500	00157	T0JS00000000050000157
	Mapochsgronde	500	00149	T0JS00000000050000149
	Mapochsgronde	511	00000	T0JS00000000051100000
	Mapochsgronde	512	00000	T0JS00000000095120000
	Mapochsgronde	527	00000	T0JS00000000052700000
	Mapochsgronde	913	00000	T0JS00000000091300000
	Eiland	956	00000	T0JS00000000095600000
	Watervaal	972	00000	T0JS00000000097200000
Platland	959	00000	T0JS00000000095900000	

2.2 Locality map

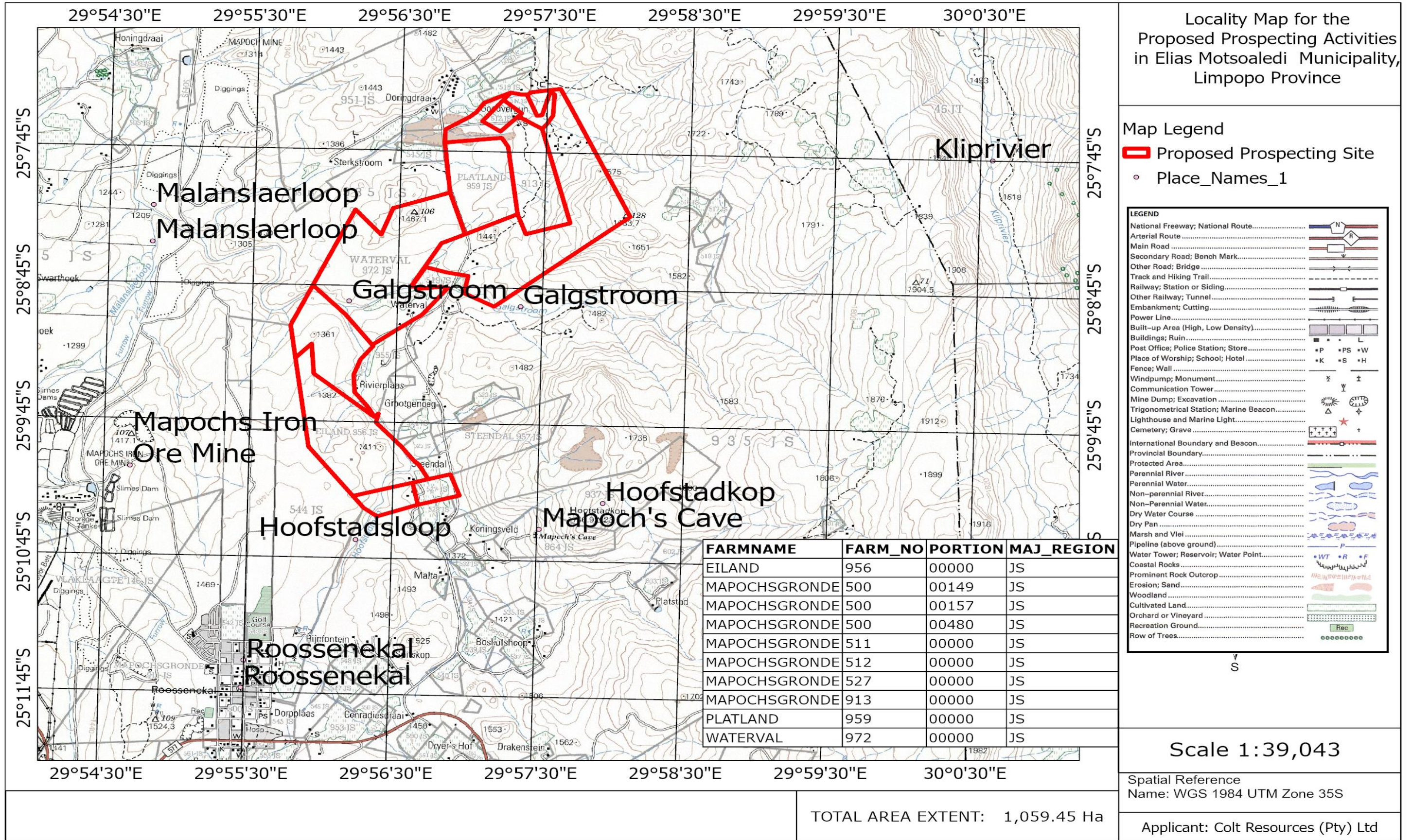


Figure 2-1: Locality Map

3 DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY

3.1 Listed and specified activities

Table 3-1: Listed Activities

Name of Activity	Aerial Extent of the Activity	Listed Activity	Applicable Listing Notice	Waste Management Authorisation
Any activity which requires a prospecting right in terms of section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).	Extent of application area: 1,059.75 Ha	X	GNR 983 – Listing 1: Activity 20	N/A
The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation. The clearance will be to make way for: <u>Drill pad areas and temporary storage area</u>	≤ 5 ha	X	GNR 983 – Listing 1: Activity 27	N/A
The development of a road wider than 4 metres with a reserve less than 13,5 metres in e. Limpopo: i. Areas outside urban areas; (ee) Critical biodiversity areas as identified in systematic biodiversity plans: The established roads will have a width of 4m within a naturally vegetated area, the existing roads will not be sufficient to access all drill areas, therefore more will be required.	Access roads with width of 4m	X	GNR 324 Activity 4 (e) (i) (ee)	NA
Storage of hydrocarbon storage (1 000 litres) this will be in a mobile bowser equipped with open/shut valve				
Temporary campsite: This will be located on already disturbed area.	800 m ²			
Ablution facility (mobile hired toilets closer to each drill site)	100 m ²			

3.1.1 Description of the EIA (BAR) Activities

Below is the EIA Process Conceptualization and Study Plan

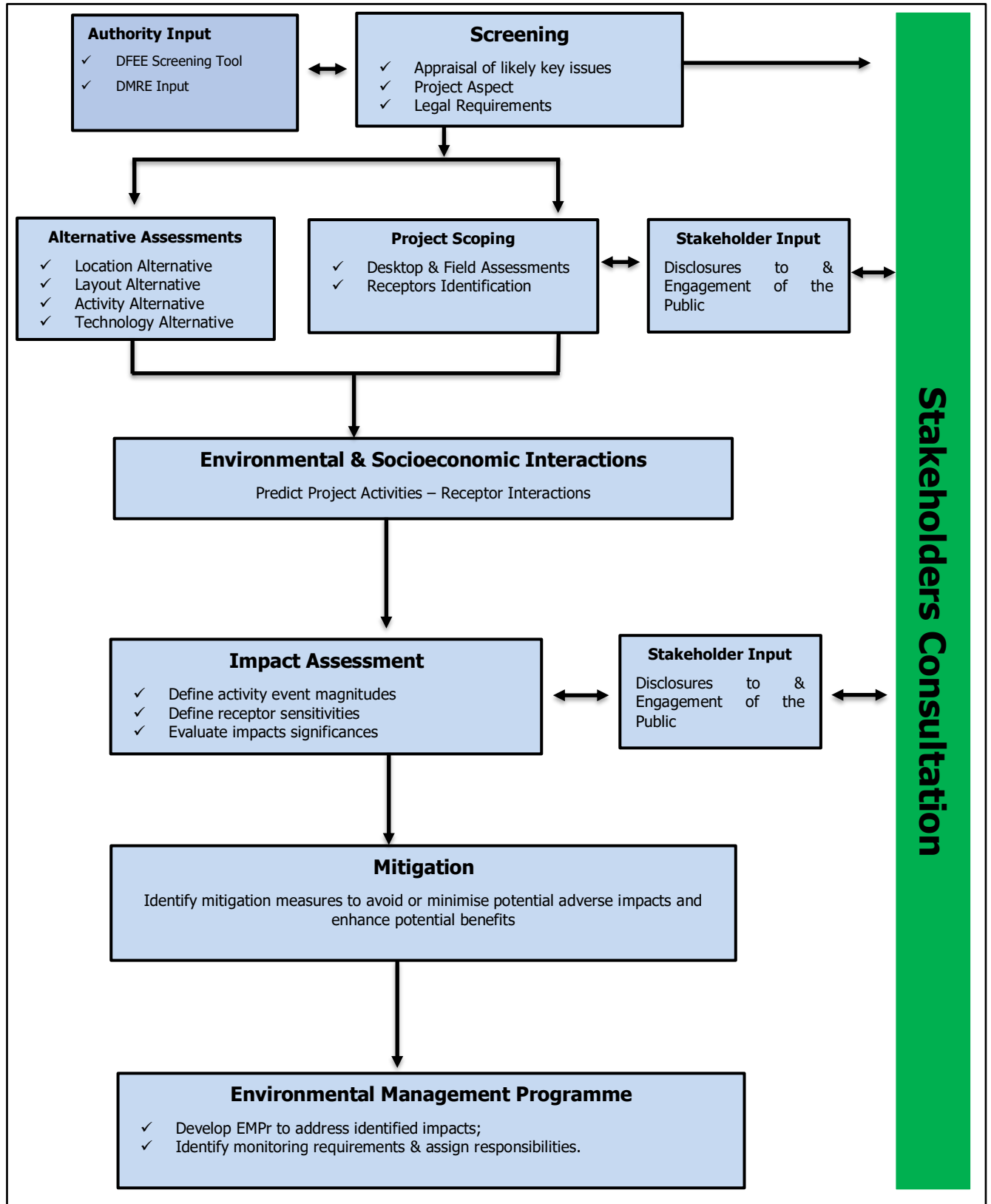


Figure 3-1: EIA Study Plan

3.1.2 EIA Study Terms of Reference

- ✓ Description of the proposed activities;
- ✓ Identification of the EIA Listed Activities;
- ✓ Identification of relevant policies and legislations and description of their project applicability;
- ✓ Description of the receiving environment;
- ✓ Description of the project needs and desirability;
- ✓ Assessment of the project and activities alternatives;
- ✓ Conduct Public Participation Process;
- ✓ Description of Impact identification and assessment methodology;
- ✓ Identification and Assessment of project probable Impacts and Risks;
- ✓ Formulation of impact management strategies;
- ✓ Identification of Monitoring Requirements;
- ✓ Develop a rehabilitation plan;
- ✓ Assessment of rehabilitation costs; &
- ✓ Compile an environmental awareness plan.

3.1.3 Key Questions to be addressed by the EIA Study

Project Description:

- ✓ What are the proposed activities?
- ✓ Where are they to be undertaken?

Legal framework:

- ✓ What are the relevant legislations and policies?
- ✓ Which are the triggered listed activities in terms of all applicable legislations?
- ✓ Are there other required permits and licenses?

Description of the receiving environment:

- ✓ What are the environmental attributes to be affected by the proposed activities?
- ✓ How will the affected parties be identified and notified of the proposed project?

Undertaking of the proposed activities:

- ✓ Are the proposed activities the best practicable environmental options for the area?

- ✓ What are the needs to be addressed by the proposed activities?
- ✓ Are there alternative options to undertake the proposed project and its activities?

Public Participation Process:

- ✓ Who are the project stakeholders?
- ✓ How will the stakeholders be identified and participate in the EIA Process?

Impact identification, assessment and management:

- ✓ What are the probable projects impacts and risks?
- ✓ How the projects impacts will be identified and assessed?
- ✓ How the impacts will be prevented, managed, control and/ or mitigated?
- ✓ What are the monitoring requirements?
- ✓ Which specialists' studies/ input are required?
- ✓ What are the project environmental management objectives?
- ✓ How will the rehabilitation costs be determined?
- ✓ How will the impacts, their management and mitigation options be communicated with the site personnel?

EAP assessment findings:

- ✓ Which assumptions were made during assessment?
- ✓ What are the information gaps?
- ✓ What are the EAP's project recommendation?
- ✓ Which conditions must be attached to the EA Application Outcome?

3.2 Description of the activities to be undertaken

Colt Resources Pty Ltd proposes to undertake prospecting activities for Cobalt, Iron Ore, Limestone, Phosphate and Titanium on Portion 157, 149 and 480 of Farm Mapochsgronde 500 JS; Farm Mapochsgronde 511 JS; Farm Mapochsgronde 512 JS; Farm Mapochsgronde 527 JS; Farm Mapochsgronde 913 JS; Farm Eiland 956 JS; Farm Platland 959 JS And Watervaal 972 JS within the Jurisdiction of The Greater Sekhukhune Municipality. The application was accepted by the Department of Mineral Resources on the 26th July 2023 in terms of the MPRDA, 2002.

What is mineral prospecting?

Prospecting is the search of clues that indicates that there are mineral deposits beneath the surface. It is generally the search of mineral rich ore bodies to determine if they are mineable at a profit. The confidence of mineral deposit is gained through using maps and historical data, geophysics, ground truthing, geochemistry which are considered non-invasive activities.

When the local geology is understood, siting for drilling can then be undertaken. Drilling is done with fairly large machinery that use diamond-tipped, hollow drill 'bits' which produce varying amounts of 'core' depending on the extensiveness of the drill program. Diamond-tipped bits are used because they can go through the hardest of rock, and the core produced is cylindrical and not typically more than a couple inches in diameter. The details of each drill hole (including direction and depth) are recorded in much detail, each meter of core is marked with the depth that it came from and which hole, if there's been multiple drilled.

Once core has been obtained, samples are then sent to a laboratory facility to be 'assayed', which is essentially assessing the ore physical and chemical properties in the rock. Using this data from the assaying, along with the records of where the assayed drill core came from, the data is re-interpreted to determine subsequent phases of follow-up drilling. If drilling continues, different drilling techniques are used to build confidence in the deposit by determining the size and grade of the 'strike' and 'dip'.

The objective will be to produce a 3D resource model of where and how the ore body is located underground. All this information is used to complete an 'official resource estimate', which is a non-biased report that is required to have been developed by a 'Qualified Person' (QP). The 'Official Resource Estimate' will outline the categories of mineral resources (inferred, indicated, and measured) as well as the quantity and grade of each resource category.

Prospecting activities will be undertaken in different phases of which each is dependent on the preceding phase. Each phase will provide information that will determine whether the prospecting activities should be continued or abolished.

3.2.1 The description of the proposed prospecting activities

Prospecting activities will be undertaken in different phases of which each is dependent on the preceding phase. Each phase will provide information that will determine whether the prospecting activities should be continued or abolished.

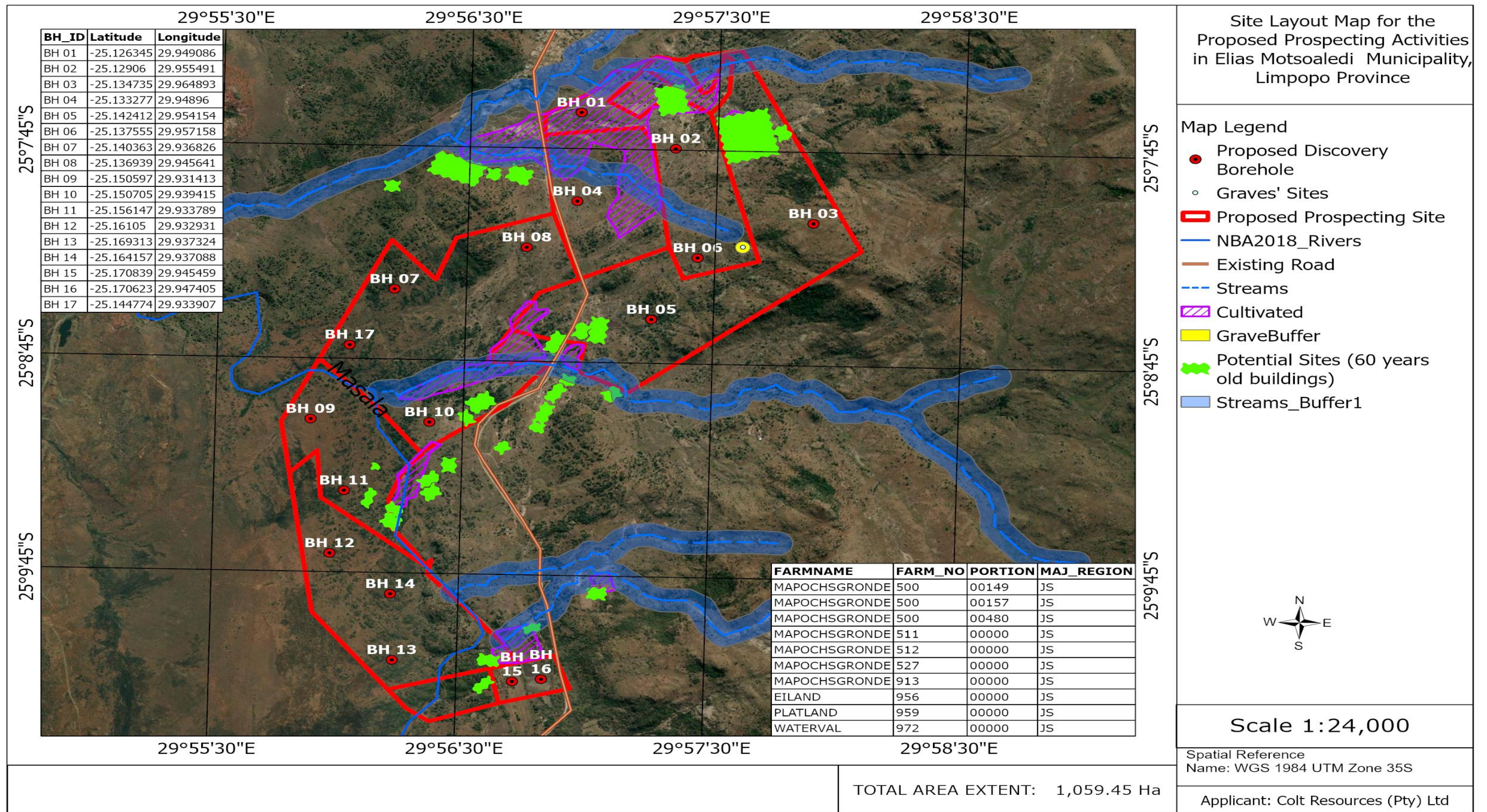


Figure 3-2: Site Layout Plan

3.2.1.1 Phase 1: Literature review and Field Mapping

(a) Literature Review

Phase 1 will include the collection and interpretation of all available data and the compilation of a Geographic Information Systems (GIS) database. The information to be collected will include aerial photos, Orthophoto, Aeromagnetic data, Topo-cadastral maps, and Geological maps, results of historic exploration programmes and any other published literature and maps. The desktop study will aid in compiling a preliminary geological model of the area to be utilized in the planning of site geological mapping and sighting of drill holes. It also includes accruing results from the companies that has already worked on the area. This provides information such as geological setting, biodiversity as well as water management.

(b) Mapping

Generally mapping involves the geologist walking the area and making observations which are then recorded on a map. To enhance the quality and reliability of geological maps data obtained during geophysical surveys will be used. Mapping is completed that meaningful structural and geological data may be derived from it and to confirm that the desktop study is accurate.

3.2.1.2 Phase 2: Geophysical Survey

The applicant will undertake electromagnetic geophysical surveys to map the subsurface lithology without undertaking invasive prospecting activities. Once the position of the deposit is known the drilling sites can then be sited. The geophysical magnetic and radiometric surveys are effective in ore deposits through their electrical and electromagnetic properties. The geophysical surveys will be used to establish geological anomalies at the proposed site.

3.2.1.3 Phase 3: Drilling and Sampling

The targets defined from Phase 1 and 2 will be further investigated through a drilling programme. The location of the drill areas are unknown at this stage (provisionally provided), however they will be established outside the demarcated sensitive areas as identified by the EIA Process, a provisional discovery drilling plan has been developed and included in this report. Approximately 1700 metres will be drilled at reconnaissance scale. The drill holes will be to the depth of 100 metres. Thus a total of seventeen (17) boreholes will be drilled during the discovery phase. The cores will be sampled and prepared for laboratory analysis. No assaying will be conducted on site.

3.2.1.4 Phase 4: Sample analysis/ Assaying

The assaying will be conducted to determine the mineral content for each core at a South African National Accreditation System (SANAS) accredited laboratory. Sample analysis will inform the mineral content of the deposits within the proposed site. The analysis will inform if there are mineral deposits on site. Should minerals under this application be identified from the assaying process, the resource definition drilling programme will then be planned.

3.2.1.5 Phase 5: Preliminary economic assessment

A preliminary economic assessment is a study conducted to determine whether a project has the potential to be viable. At this stage, the mineralization, regardless of its quantity and quality, is always considered to be a mineral resource. This study is generally based on industry standards rather than derived from detailed site-specific data.

3.2.1.6 Phase 6: Pre-feasibility study

The pre-feasibility and feasibility studies are more detailed. By the time a decision is made to proceed with a pre-feasibility study, a preliminary mineral resource report has been finalized and an orebody model demonstrating its shape, tonnes, and grade is available. A resource cannot be converted to a reserve unless it is backed up by at least a pre-feasibility study. Their results will show with more certainty whether the project is viable. At this point, the mineral resource, or a portion thereof, becomes a mineral reserve. The activities associated with the Prospecting Work Programme will be scheduled over a period of five years. The pre-feasibility study will amongst others assess the following:

- Resource definition – estimation of resource quantity on site;
- Geological Modelling – Modelling of the site resource and its distribution;
- Initial conceptual Mine Plan;
- Determination of infrastructure requirements;
- Environmental management requirements;
- Financial modelling;
- Market analysis; and
- Assessment of socio-economic factors.

3.2.2 Activities associated with the proposed prospecting

3.2.2.1 Site Access

The undertaking of prospecting activities will require access into privately owned properties. Access into these properties must be through access agreements contracts signed between property owners and Colt Resources (Pty) Ltd. The access agreements will be a legal document effective from the date of signing until the exit contract is signed off. The access agreement contracts will detail specific conditions relevant to the property owner.

3.2.2.2 Access roads

There is an existing gravel road through the site, the same road will be the primary access road into the prospecting area. There are other existing farm roads which will be used to access drill stations, however the existing roads will not be sufficient and new roads will be required. The establishment of the access roads will be guided by the sensitivity map produced from the conducted assessments, thus the established roads will avoid all sensitive areas. It is unknown at this stage as to where the roads will be created and how many as the drill stations locations will only be known after conducting the aeromagnetic survey.



Figure 3-3: View of the site gravel access road

3.2.2.3 Temporary Camp site

A temporary camp site will be established on site for storage and night parking. The camp site will be established on the least sensitive area within the proposed site and close to the site's main road. A large drip tray with a 110% volume of the diesel container will be used for placement of 1000 litres diesel bowser. All other chemicals will also be stored on a separate drip tray to prevent surface contaminations.

3.2.2.4 Drill station establishment

The drill stations establishment will be informed by preceding phases. The EIA process has however, identified no-go areas in which drill stations and their access roads are completely restricted. Drill stations (Figure 3-5 below) with dimensions: 30m x 25m will be established. Vegetation clearing and removal of topsoil will be limited to the approved drill station. The topsoil will be cleared and stockpiled within the drill pad area for later use during rehabilitation.

A 0.5 m³ drum sump must be connected to the drill system. The sump is a vital component of the drilling process, as it allows cuttings from the borehole to settle neatly into a contained area, as well as saving drilling water by allowing the same water to be circulated through the rod string.

3.2.2.5 Core Drilling

Diamond core drilling uses a diamond bit, which rotates at the end of drill rod. As diamond is the hardest naturally occurring material in the world, it is ideal for creating openings in a range of materials. The opening at the end of the diamond bit allows a solid column of rock to move up into the drill pipe and be recovered at the surface. The diamond bit is rotated slowly with gentle pressure while being lubricated with water to prevent overheating. The bit is mounted onto a core barrel which is attached to the drill stem, which is connected to a rotary drill. The core is brought to the surface in a tube with diameter ranging between 27 – 85 mm.

Diamond drilling is appropriate where more detailed geological information needs to be obtained and for accurate ore sampling. The process involves the use of light and easy to transport equipment and it can be used in just about all locations, including underwater. Another advantage is that diamond drilling produces less noise pollution and no dust.

The drilling of non-coring pilot holes to the depth of the upper soft later will be undertaken and then continuing with a diamond drill hole (through) the targeted hard rock, this will result in considerable savings in time and cost. The Schramm-type rotary drill can reach depths of more than 1000m in less than a week, while a diamond drill hole of the same depth would take approximately three months ((Dukas & Morkel, 1983). For the saving of time and money,

it would be ideal to drill a non-coring pilot hole to the base of the soft rock that has to be cased, and to diamond drill the hard rock.

To extract the core, the drill rod rotates the diamond bit and spins it into the ground. As the drill bit bores through the rock, solid rock is taken into the circular opening at the end of the bit, into the core tube, and can then be recovered at the surface as it piles up. Once the core is recovered at the surface it is broken along natural fractures and stored in core trays to await analysis. Care must be taken that the sample sequence does not get mixed up as samples are taken at the same time as the drilling proceeds. The drill core will be washed and logged by a qualified geologist, and then split in half to provide a sample for geochemical analysis.

Drilling rates with an impregnated diamond bit would be about 0.3 m/hr, under normal operating conditions, abrasive wear limits the bit life of diamond bits to under 30-m in rock types such as granite which have a quartz content greater than about 20%. At the low thrust and rotary speeds a surface-set diamond bit might be capable of drilling 30m. The operation of diamond bits requires high thrust load to ensure that the cutters penetrate the rock.

(a) **Drilling Bit Pressure**

While drilling, the force applied by the drill and the weight of the rods must be as low as possible. It is important to maintain a sufficient speed of penetration in order to prevent the polishing of the diamonds. The consequences of pressure that is too elevated are variable. These include:

- Premature wear of the mechanical components of the drill, the rods and the core barrel;
- Premature wear of the bit; and
- A greater probability of deviation of the hole.

(b) **Water Flow**

The water flow should be as high as possible but must be related to the bit size and the type of rock to be drilled. For example, in soft or fractured rock, the water flow must be high. However in very hard and competent rock, where the speed of penetration is low, the water flow must be reduced to enable the cutting of the rock and diminish the risk of polishing the diamonds.

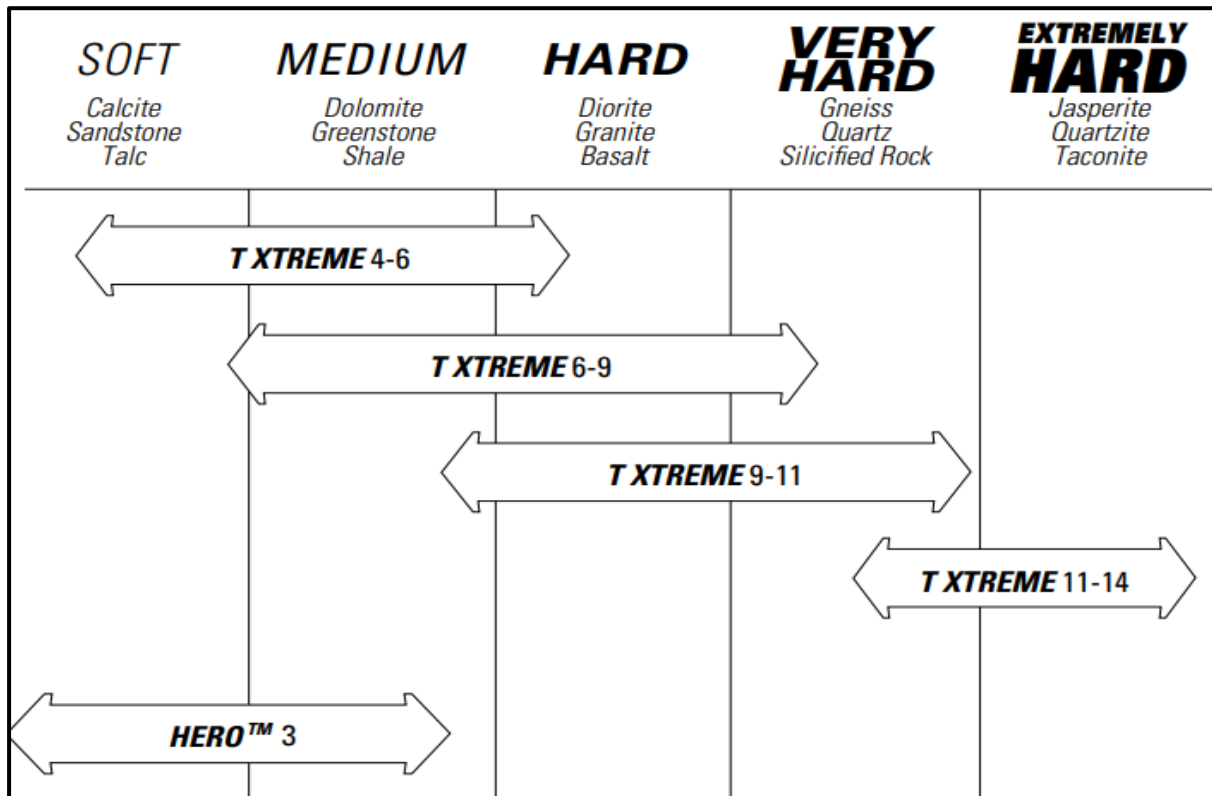


Figure 3-4: Material Strength

The water flow requirement for the proposed site located on Granite Suite which relatively has hard strength will be 23 – 36 litres per minute. The drill will be connected to the 200 litres sump drum. Water will be rotated from the drum to the drill bit.

(c) **Reaming Shells**

The reaming shell is placed directly behind the core bit. It is used to keep the hole open at the right diameter and to stabilize the core barrel. Reaming shells are available in all dimensions.

(d) **Drilling Safety and Emergency Procedures**

The following are basic checklists relating to safety and emergency procedures for drilling operations:

Site access by trained personnel only:

- Only trained personnel on site;
- Barriers to prevent access by unauthorised personnel; and
- Contractors are not to grant ingress to any third party without the consent of the Applicant who is subjected to access conditions of the land owners.

Site layout and housekeeping:

- Good site layout, ground stability, drainage and fire risk;
- Access and turning circles for support trucks and service vehicles;
- Remove any obstructions; (loose rocks, tree stumps) from site; and
- All rigs should ideally be fitted with elevated walkways to create a uniform work platform, irrespective of local site conditions.
- No slippery walkways;
- Good housekeeping; site clean and tidy and free of tripping hazards;
- Tubular items stacked in safe manner; and
- Safety signs must be displayed.

Fire safety

- Fire breaks and firefighting equipment; fire bans include campfires;
- Fire extinguishers; and
- If rig is fitted with an automatic fire suppression system, include familiarisation in safety induction.

Fuel safety

- Fuel stored away from rig and camp in accordance with regulations (thus diesel bowser within a bund tray with 110% volume of the bowser; and
- Spills or leakage of fuel cleaned up as soon as they occur.

Hazardous substances

- Appropriate signage in place;
- Materials Safety Data Sheets for all potentially toxic or hazardous drilling additives;
- Safe disposal of all potentially toxic wastes; and
- Spills or leakage of fuel cleaned up as soon as they occur.

Safety audit and safety meetings

- Site safety audit before spud.

Personal protective equipment (PPE)

- Head: hard hats must be worn within 30 m of the rig. Note that metal hard hats are not permitted, allowable accessories include sun brim, visor-type face shield, earmuff attachments, lampholder. Long hair must be restrained, even when a hard hat is worn;
- Eye: safety glasses tinted or otherwise, must have the appropriate SABS logo;

- Hearing: hearing protection device shall provide protection to a level not exceeding 85 dB. This can be earmuffs, disposable ear plugs or both, such that they do not compromise other safety equipment
- Respiratory: respiratory protection against dust. Breathing apparatus may be carried on some rigs and its use requires formal training;
- Hand: general work gloves;
- Foot: safety boots, with a steel toe cap must be worn by all personnel within 30 m of an operating drill rig; and
- Clothing: safe and adequate clothing, no loose clothing, a UPF (UV) rating of 50+.

Personal health and hygiene

- Any medical condition that may affect Contractor performance must be reported to the site supervisor;
- Be aware of high-risk individuals (eg asthmatics, diabetics, epileptics, angina sufferers);
- Prohibition of drugs and control of alcohol consumption;
- Firearms, bows or similar weapons are prohibited; and
- Domestic animals are prohibited.

3.2.2.6 Waste Management

The proposed prospecting activities are expected to generate both hazardous and general waste which will include domestic waste, sewage waste and contaminated soils and waste rock. Domestic waste will be generated by the site crew which will include food containers and left overs and any general waste generated by day to day site activities. The general waste will be collected into plastic bags to be placed in waste bins at the temporary site camp. The waste will then be disposed at the registered waste management facility.

There is potential for hydrocarbon contaminations which will result in generation of hazardous waste. These will be placed in heavy duty waste bags for placement in waste bins. The waste will be disposed at registered facility. Should the recommendations of the EMPr be implemented the amount of hazardous waste to be generated will be very minimal.

3.2.2.7 Water Usage

Prospecting activities are relatively dry activities requiring minimum input of water into the operation. Water will be required for cooling the drill bit and for human consumption. The water usage will not trigger water uses Listed in terms of Section 21 of the National Water Act No 36 of 1998. It is estimated that 500 litres of water will be used per day per drilling site.

3.2.2.8 Water Supply

The applicant will import water to the site. A 1000 litres water bowser will be used to import water to site sourced from legal connections such as boreholes and municipal connection.

3.2.2.9 Storage of Dangerous Goods (hydrocarbon)

A 1000 litres diesel bowser will be placed at the temporary camp site, the bowser will be equipped with an open shut valve. A large drip tray with a 110% (1100 litres) volume of the diesel container will be used for placement of 1000 litres diesel bowser. Drip trays will be placed under the refuelling points at all times during refuelling of the site drilling machineries.

3.2.2.10 Material Storage

Materials required for the prospecting activities will be stored at the temporary camp site.

3.2.2.11 Accommodation

No accommodation for staff and workers will be provided on-site and all people will be accommodated in nearby Roossenekal Town. Workers will be transported to and from the prospecting site on a daily basis. Night security staff will be employed once equipment has been established on site.

3.2.2.12 Sanitation

The applicant, Colt Resources Pty Ltd will provide chemical toilets for the prospecting crew. Should different genders be on site, two separate toilets will be provided. The toilets will be cleaned weekly by a service provider. The toilets will be placed 100 metres away from water sources including dry ones and will also be placed outside the identified sensitive areas.

3.2.2.13 Rehabilitation

It is proposed that prospecting be undertaken from one drill station to the other. When work is completed at one station, rehabilitation can immediately commence. The rehabilitation will be according to an approved plan which was subjected to a public participation process. Rehabilitation will be overseen by an ECO.

3.3 Project scheduling

The department of Mineral Resources and Energy allows for a maximum of five (5) years to conduct prospecting activities. The five years' period will include project planning and sourcing of the required materials and equipment.

It is recommended to undertake the proposed prospecting activities during the dry periods to reduce impact water resource.

3.4 Equipment and/or Technology to be used

- 1 drill rig mounted on a 10-tonne truck or trailer;
- Support Truck
- 1 X 2 200 Litres water tanker; and
- 2X (4X2) Bakkie.

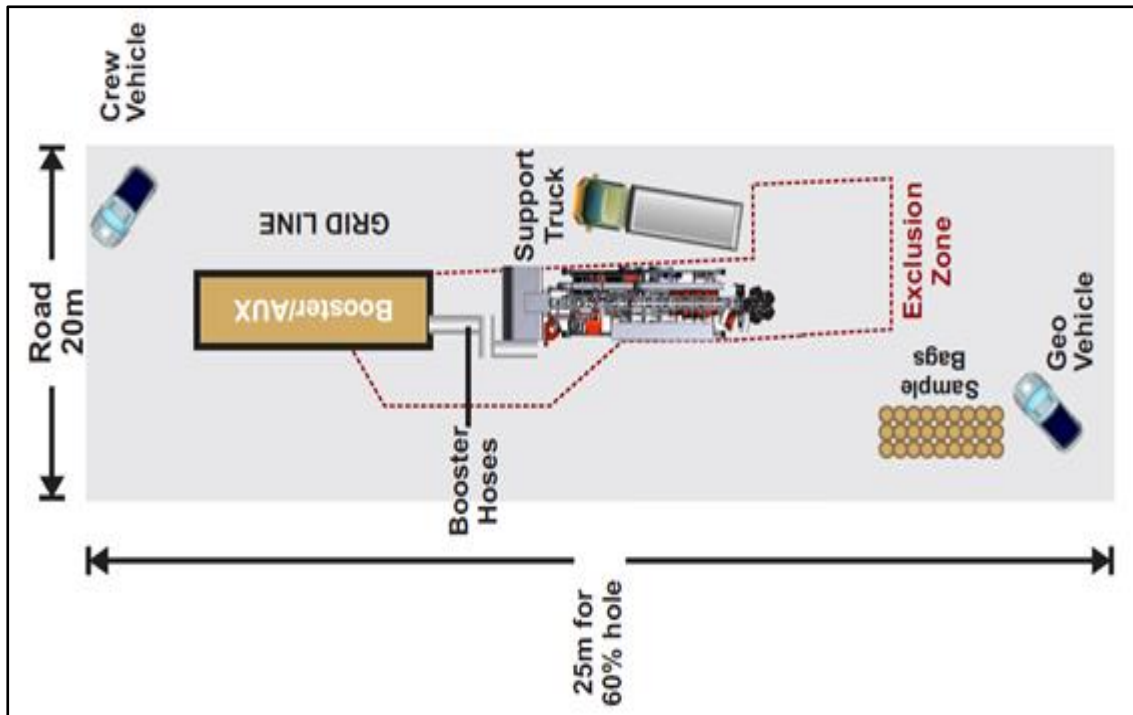


Figure 3-5: Typical drill station layout

4 Policy and Legislative Context

Table 4-1: Policy and Legislative Context

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context.
Constitution of South Africa, specifically section 24(a), (b)(i) – (iii).	Impact assessment and management; and Public Participation Process.	The interested and affected parties were informed through the EIA process how they are affected by the proposed prospecting programme.
Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) section 16(1)(a)-(c).	This EIA is undertaken as a requirement for the granting of the Right.	The application for prospecting right was lodged and all required documents submitted.
National Environmental Management Act (107; 1998) section 23(1) & (2), 24(1); & 24(4)(b)(i) – (vii).	Impact Assessment, Financial Provision, Mitigation Measures and Public Participation.	<ul style="list-style-type: none"> ✓ The receiving environment was assessed; ✓ Probable impacts were identified and their mitigation measures and monitoring mechanisms developed; ✓ Financial Provision for rehabilitation was determined and the applicant will pay the amount before the right is issued; ✓ Affected and Interested Parties will be engaged and given opportunities to get involved in the proposed project.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context.
NEMA Environmental Impact Assessment (EIA) Regulations, 2014 as amended; GNR 326 and GNR 327.	Entire document	<ul style="list-style-type: none"> ✓ All triggered listed activities have been identified and applied for; ✓ The Basic Assessment Report and the Environmental Management Programme were compiled in terms of Appendix 1 and 4 of GNR 326. ✓ The public participation was done as per the said Regulations.
National Environmental Management: Waste Act	Used as guidance for mitigation measures as no listed activities were triggered.	The project activities do not trigger a waste management license but proper waste management measures will be addressed in the EMPr.
Section 38 of the National Heritage Resources Act (Act No. 25 of 1999).	Part A Section 8.7	There are no identified heritage significance site and artefacts on site. However, this does not absolve the client from exercising caution when conducting invasive activities.
The National Environmental Management Biodiversity Act (NEM:BA), 2004 (Act No. 10 of 2004), provides for:	Impact Assessment and Baseline Description	<ul style="list-style-type: none"> ✓ The proposed site is located within the least threatened ecosystem according to the NBA 2018 Assessment; ✓ There are no protected species on site that would require permits to remove and/ or manage; ✓ Alien invasive species will be controlled and monitored;

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context.
		✓ Impacts on the biodiversity have been identified and mitigation has been provided.
Financial Provision Regulations, 2015	Determination of Financial Provision	The applicant will be held liable for all environmental damages. Financial provision was determined for the proposed programme and the applicant will deposit the funds into the DMRE rehabilitation account before execution of the prospecting right.
National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004);	Impact assessment & Management	As part of the EMP dust suppression methods will be used.
The National Water Act (NWA) (Act No. 36 of 1998)	Impact Assessment	<ul style="list-style-type: none"> ✓ No water use license is required for this application; ✓ Impacts on water resource will be prevented; and ✓ Any water required for drilling activities will be obtained from a legal source within the area and brought to site by a tanker.
National Water Act, 1998 (Act No. 36 Of 1998).	Impact Assessment & Management	All water sources have been identified and water usage for prospecting activities will be controlled in line with the NWA and its regulations.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context.
Regulation 704 (GN 704) Regulations on use of water for mining and related activities		
Mine Health and Safety Act, 1996 (Act No. 29 of 1996);	Impact assessment and management	Activity based risk assessment will be conducted prior undertaking the site prospecting activities.
Guideline document for the evaluation of the quantum of closure-related financial provision provided by a mine; 2005.	Financial Provision &	The rehabilitation costs were calculated based on this guideline.
2018 Limpopo Province Map of Critical Biodiversity Areas and Ecological Support Areas	Impact Assessment & Description of receiving environment	The proposed site is largely covered by the CBA2. Ecological disturbance will be limited to the approved drill stations and access roads only
National Freshwater Ecosystems Priority Areas (NFEPAs, Nel et al., 2011);	Impact Assessment & Description of receiving environment	<ul style="list-style-type: none"> ✓ The NFEPAs Masala River flows through the site; ✓ All site watercourses including NON-NFEPAs will be considered a no-go area with 100 metres buffer.
National Development Plan 2030	Baseline environment description	The plan is aimed at reducing poverty and inequality. Should prospecting be successful a mine will be developed that will contribute to the local socio-economy.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context.
		The mining sector is one of the greatest contributor to the South African GDP and labour force.
White Paper on Environmental Management Policy, 1997	Impact management, sustainable development, consultation.	Impact management is provided for all identified impacts
<p>National Climate Change Response White Paper; 2011:</p> <p>Climate change will compound the pressures on already stressed ecosystems that have resulted from the unsustainable use and inadequate management of many of South Africa's ecosystems and so potentially reduce the quantity and quality of the services that ecosystems currently provide.</p>	Baseline environment description and impact assessment	The water resources will be protected to ensure supply to local users is not interrupted due to the proposed prospecting which is already under stress due to various factors including Climate Change and over extraction
	Biodiversity and ecosystems	<p>The proposed site is largely located on "CBA2 and Ecological disturbances will be limited to approved areas and rehabilitated soon after prospecting.</p> <p>The site ecology will be rehabilitated on completion of the proposed prospecting activities.</p>
White Paper On Integrated Pollution waste Management for South Africa; 2000	Impact Assessment and Management	The prospecting activities will minimise generation of wastes on site and waste disposal will be at a registered facility.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context.
White Paper on Environmental Management Policy for South Africa; 1998	Impact Assessment and Management	Sustainable resource usage will be promoted throughout the prospecting duration.
		Ecologically sensitive areas have been identified and mapped and considered a "no-go" areas. This is to ensure Biodiversity is conserved.
		No activity will take place within 100 metres buffer of water sources (rivers and wetlands) to ensure water is available to other users at an acceptable quality.
White Paper on the Conservation and Sustainable Use of South Africa' s Biological Diversity, 1997	Impact Assessment and Management	Ecologically sensitive areas have been identified and mapped and considered a "no-go" areas. This is to ensure Biodiversity is conserved.
World Heritage Convention Act, 1999	Description of Heritage Resources on site	There are no identified world heritage significance sites within the proposed site.
National Environmental Health Policy, 2013 Ensure the right to an "environment that is not harmful to the health and wellbeing of South Africans".	Impact assessment and Management	The prospecting activities will be undertaken taking into cognisance the health and safety of the general public which also include its crew, farm workers and farmers.

Applicable legislation and guidelines used to compile the report	Reference where applied	How does this development comply with and respond to the legislation and policy context.
Elias Motsoaledi Local Municipality Integrated Development Plan 2021 – 2022	The Need and Desirability for the proposed project	The plan note the contribution made by the mining sector to the Municipality GDP. The proposed prospecting activities are a decision making tool for mining industries and have little significance in terms of socioeconomic returns.
Guideline on Need and Desirability, Department of Environmental Affairs; 2017	The Need and Desirability for the proposed project	The Need and Desirability for the proposed project was investigated, assessed and reported in terms of the guideline.
Stakeholder Engagement, Integrated Environmental Management, Information Series 3; 2002	Public Participation Report (Appendix 04)	The public Participation Process is undertaken in terms of this guideline and the 2017 EIA Regulations.
Scoping, Integrated Environmental Management, Information Series 2, Department of Environmental Affairs and Tourism (DEAT), Pretoria; 2002	Baseline environment	The project environmental scoping was undertaken in terms of the guidelines. The scoping process was undertaken to ensure that all key aspects of the proposed activities were understood and investigated.
Guideline 5: Assessment of Alternatives and Impacts in support of the Environmental Impact Assessment Regulations, 2006	Alternative assessment	The impact assessment was undertaken as informed by the guidelines and other relevant materials

5 Need and desirability of the proposed prospecting activities

The need and desirability of the proposed prospecting activities were investigated and assessed based on the DEA (2017), Guideline on Need and Desirability. According to this guideline the concept of “need and desirability” can be explained in terms of the general meaning of its two components in which need primarily refers to time and desirability to place (i.e. is this the right time and is it the right place for locating the type of land-use/activity being proposed?), “need and desirability” are interrelated and the two components collectively can be considered in an integrated and holistic manner. The “need” relates to the interests and needs of the broader public.

Addressing the need and desirability of a development is a way of ensuring sustainable development – in other words, that a development is ecologically sustainable and socially and economically justifiable – and ensuring the simultaneous achievement of the triple bottom-line. The 2017 Need and Desirability Guideline sets out a list of questions which should be addressed when considering need and desirability of a proposed development. These are divided into questions that relate to ecological sustainability and justifiable economic and social development.

The questions that relate to ecological sustainability include how the development may impact ecosystems and biological diversity; pollution; and renewable and non-renewable resources. When considering how the development may affect or promote justifiable economic and social development, the relevant spatial plans must be considered, including Municipal Integrated Development Plans (IDP), Spatial Development Frameworks (SDF) and Environmental Management Frameworks (EMF). The assessment reports will need to provide information as to how the development will address the socio-economic impacts of the development, and whether any socio-economic impact resulting from the development impact on people’s environmental rights. Considering the need and desirability of a development entails the balancing of these factors.

In the National Spatial Development Perspective (NSDP) (2003 and updated in 2006) it is highlighted that, to achieve the goal of stimulating sustainable economic activities and to create long-term employment opportunities, it is required that spending on economic infrastructure is focused in priority areas (“spatial targeting”) with potential for economic development, with development to serve the broader societies’ needs equitably.

The New Growth Path (NGP) (2010) in turn highlights the need to focus on facilitating growth in sectors (“sectorial targeting”) able to create employment on a large scale, while not

neglecting more advanced industries that are crucial for sustained long-run growth, and encouraging stronger investment by the private and public sectors to grow employment-creating activities rapidly while maintaining and incrementally improving South Africa's core strengths in sectors such as capital equipment for construction and mining, metallurgy, heavy chemicals, pharmaceuticals, software, green technologies and biotechnology.

The National Development Plan 2030 (NDP) (2012) stresses that the threat to the "environment and the challenge of poverty alleviation are closely intertwined" and as such environmental policies should not be framed as a choice between the environment and economic growth. The NDP states that: South Africa faces urgent developmental challenges in terms of poverty, unemployment and inequality, and will need to find ways to "decouple" the economy from the environment, to break the links between economic activity, environmental degradation and carbon-intensive energy consumption.

The aspects of need and desirability of the proposed prospecting project are discussed below in subsection (5.1) and (5.2)

5.1 Securing ecological sustainable development and use of natural resources

5.1.1 How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?

In 1999, the BC Parks Legacy Panel determined that an ecosystem has ecological integrity when "*the structure, composition and function of the ecosystem are unimpaired by stresses from human activity; natural ecological processes are intact and self-sustaining, the ecosystem evolves naturally and its capacity for self-renewal is maintained, and the ecosystem's biodiversity is ensured.*"

The site assessment conducted to date has established that there are no protected or threatened ecosystems within the proposed site. According to the 2018 Limpopo Province Map of Critical Biodiversity Areas and Ecological Support Areas and the National Biodiversity Assessment of 2018, the proposed site is located on the **least threatened** Sekhukhune Mountain Bushveld and Sekhukhune Montane Grassland. The local ecology is partially impacted by human settlements and agricultural activities.

There is NFEPA River (Masala) perennially flowing through the site with the river PES according to the NBA of 2018 is **Class C: Moderately Modified**.

According to the 2018 Limpopo Province Map of Critical Biodiversity Areas and Ecological Support Areas, the proposed site is wholly located within the Critical Biodiversity Area 01 and impact on the CBA will be unavoidable.

Prospecting activities are of short duration and conducted over a small area and impacts are highly manageable and reversible. The principle of Prevent, Avoid, Manage and Reverse will be applied to the proposed project. The disturbances will be limited to active areas and sensitive areas will all be marked as a “No-Go”. The proposed prospecting activities will impact the ecological sensitive wetlands, koppies and the least threatened vegetation units. The sensitive areas were identified and buffered to prevent direct impact and demarcated as no-go zones in which all invasive prospecting activities are restricted. The Access roads in cases where they should be created, must also be outside demarcated sensitive areas.

5.1.2 How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity?

The proposed prospecting project will have negative impact on the ecosystem as the natural environment will be disturbed to make way for the establishment of drill stations and access roads. Prospecting activities are chiefly dictated to by the location of mineralised zones and can only be undertaken where a potential for mineral deposits exists. Although the ecosystems will be disturbed, the impact can be greatly reversed as the disturbed area will be limited to creation of access roads and establishment of drill stations (30m X 25m). Full impact assessment is provided in Part A, Section 9 & 11 and Part B, Section 4 of this report.

5.1.3 How will this development pollute and/or degrade the biophysical environment?

There is a potential to pollute underground water resource during drilling, soil contamination, wetlands destruction and loss of flora and fauna. The prospecting activities will be undertaken on a relatively small area affecting minimal biophysical environment. Impact management strategies have been provided in this report to prevent, mitigate and manage probable impacts from the proposed prospecting activities. The potential impacts are discussed in Part A, Section 9 & 11 and Part B, Section 4 of this report.

5.1.4 What waste will be generated by this development?

The prospecting activities are expected to generate general wastes, and small quantities of hazardous and sewage waste. All the waste to be generated will be disposed of at registered waste facilities and disposal certificates will be kept on site. Hazardous waste will result from spills and leakages of hydrocarbons from operating equipment and vehicles.

5.1.5 How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage?

According to the consultation, site assessment and GIS reviews conducted there are graves on site which are considered heritage resources. These graves were located, mapped and buffered. No impact on graves will be allowed.

The site assessment Identified infrastructures older than 60 years, these must be avoided during the undertaking of the prospecting activities.

The proposed site is located 1 km north of the Mapoch Caves which are significant national heritage sites and hugely significant locally to the Ndebele and Bapedi. The caves significance stems from the to the 1882 fight between King Nyabela and Mampuru with the settlers during which the Kings took refuge into the caves for nine months. The proposed prospecting programme will not impact the Mapoch caves located about one kilometre to the south of the proposed site.

5.1.6 How will this development use and/or impact on non-renewable natural resources?

The project is aimed at prospecting for non-renewable mineral resources. The operating machineries and equipment will also make use of non-renewable in the form of hydrocarbons. The project is not expected to excessively use non-renewable in such a way that it can affect other users. The proposed prospecting activities will not promote dependency on non-renewable energy.

5.1.7 How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds?

The utilisation of the site resources will not jeopardise the integrity of the local ecosystem. Prospecting activities are noncomplex requiring limited input of resources.

5.1.7.1 Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of

waste they generate, without compromising their quest to improve their quality of life)

The proposed prospecting activities will not exacerbate increased dependency on any resource. The prospecting activities are of a short duration with a very small footprint. Of the total application area approximately 02 ha will be directly impacted.

The prospecting machinery are largely hydraulic and powered by hydrocarbons, and will not create any energy resource competition with the locals.

The waste to be generated will largely be general waste in the form of domestic waste, the project will also generate sewage waste as well as small quantities of hazardous waste (empty chemical and hydrocarbon containers and contaminated soils).

5.1.7.2 Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this the proposed development alternative?)

The undertaking of the prospecting activities will be over a period of a year to 5 years with reversible impacts. The resulting impacts are largely reversible. Access to natural resources by the locals will not be disrupted.

The alternative development is the agricultural practice which can be undertaken productively at the same time with the proposed prospecting activities.

5.1.7.3 Do the proposed location, type and scale of development promote a reduced dependency on resources?

The proposed prospecting activities does not affect the dependency on any of the site resources.

5.1.8 How were a risk-averse and cautious approach applied in terms of ecological impacts?

5.1.8.1 What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?

- The depth of the drilling programme is unknown at this time;
- Presence of Species of conservation concern (SCC) cannot be completely ruled out.

5.1.8.2 What is the level of risk associated with the limits of current knowledge?

- Groundwater level drawdown;
- Loss of SCC

5.1.8.3 Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?

- Hydrocensus must be undertaken prior undertaking of the drilling programme and baseline data be compiled.
- A botanist must survey all confirmed drilling site prior establishment

5.1.9 How will the ecological impacts resulting from this development impact on people's environmental right?

The ecological impacts will not largely impact on people's right, the impacts will be restricted to approved areas only and a large part of the prospecting site will remain undisturbed providing uninterrupted access to ecological resources by the locals. The impacts on water resources are highly avoidable and will therefore have little significance.

The proposed site is also used for livestock farming, undertaking of the proposed activities will result in loss of grazing pastures although the disturbed areas will be rehabilitated soon after prospecting.

5.1.10 Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?

- The local community is largely comprised of farmers for both livestock and crop farming. These farming activities are dependent on availability of water and arable which can be affected by the proposed prospecting activities.

5.1.11 Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/ targets/ considerations of the area?

- The proposed activities will negatively impact the area to some extent. However the proposed activities will not impact the integrity of the local

ecosystem as described in the above subsection. The resulting impacts can be reversed and the ecological integrity and functionality of the area be restored on all disturbed areas.

5.1.12 Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the “best practicable environmental option” in terms of ecological considerations?

- There are various assessments undertaken at both national, provincial and regional level. The site ecological sensitivity is low – medium being located on Least Concern vegetation units, and the site largely on CBA2 disturbed by crop farming and human settlement.
- The site ecology has been also affected by the crop farming practice with parts of the prospecting area cleared for crops.
- The proposed prospecting activities are therefore best practicable option in terms of ecological consideration based on the following:
 - The disturbance footprint is very small with each drill station about 900 m².
 - The resulting ecological impacts are largely reversible.

5.1.13 Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?

Loss of biodiversity – The site is located on CBA2 characterised by mountainous topography providing suitable habitats for various animal species and also diversified plant species.

Water Contamination – Contaminated surface water flow from active areas into the local streams.

5.2 Promoting justifiable economic and social development

Prospecting programme is a research project with limited economic and social benefits. The primary purpose is to gather to obtain proven knowledge on the local geology specifically concerning minerals under this application. Although prospecting has very limited socioeconomic benefits, it allows for the continuation of current economic and social standards and can be undertaken simultaneously with the current land uses. Because of the small project team, the programme has little influence of the social setup of the local communities.

5.2.1 What is the socio-economic context of the area

The proposed site is located about 2 km north of Roossenekal Town. This is a small town with very few economic activities. The local area is well known for its long standing battles between the voortrekkers and the local Ndebele People. The Mapoch Caves which provided refuge to King Nyabela during the war with the Afrikaners is the major attraction in the area. These caves are located one kilometre to the south of the proposed site.

The IDP of the Elias Motsoaledi Local Municipality acknowledges the poor living conditions in the municipality which includes poor health, access to housing and unemployment. The Mapoch Mine which has recently been purchased by the Chinese Company is the major employer in the area and has committed to keeping a workforce of at least 200 people at a time. The Roossenekal town provides employment opportunities in the tertiary sector which include the Post Office and Police Service. Agricultural activities which includes both the Livestock and the Crop Farming is a major role player in the economic sector in the area.

5.2.2 Considering the socio-economic context, What will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?

5.2.2.1 Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?

- The prospecting activities are of short duration and are not considered an economic activity. The socio-economic input is very limited, the number of employment opportunities to be created for locals is usually less than five and very little support is required from local businesses. Prospecting activities due to their nature of non-complexity and smaller surface area can be undertaken simultaneously with the site agricultural activities.
- The local community is involved in multi economic activities which include mining and agriculture (crop and livestock farming).
- The IDP of the Elias Motsoaledi Local Municipality acknowledges the input of the mining sector of in the local economy.
- No significant economic returns are expected from the proposed prospecting programme.

5.2.3 What will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?

Prospecting activities are of short duration and are not considered an economic activity. The socio-economic input is very limited, the number of employment opportunities to be created for locals is usually less than five and very little support is required from local businesses. It should however be noted that prospecting is a predecessor of mining which on its own have significant social and economic impacts. Prospecting activities due to their nature of non-complexity and smaller surface area can be undertaken simultaneously with the site agricultural activities.

5.2.4 How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?

The proposed activities will not have significant impacts on the local natural and built/human environment. The current site activities can be undertaken concurrently with prospecting activities. Prospecting activities are not economic activities and will have very least to non-beneficial impact on the communities. Prospecting activities are considered are research project whose objective is to inform decision makers about the prospects of mining.

5.2.5 Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?

The proposed prospecting activities are of short term and it is unknown at this stage if mineable ore deposit are present on site. Prospecting activity on its own will not have any benefit for the local communities, benefits will only be realised if the prospecting activities are successful and a mine is established. In such a case, a social and economic impact study will be commissioned and a social labour plan will be drafted which will address the needs of the local communities.

5.2.6 In terms of location, describe how the placement of the proposed development will result in the creation of residential and employment opportunities in close proximity to or integrated with each other and reduce the need for transport of people and goods

Prospecting activities are not labour intensive and will also not attract any other secondary activities. The prospecting activities are aimed only at determining if there are feasibly

mineable ore body on site. No new residential areas will be developed and job opportunities from the prospecting activities will not exceed five which is insignificant considering the dire socio economic state of the Elias Motsoaledi Local Municipality.

5.2.7 How were a risk-averse and cautious approach applied in terms of socio-economic impacts?

5.2.7.1 What are the limits of current knowledge?

It has not been physically proven if there are ore deposit on site as no drilling has been conducted previously. The resource modelling software were used to correlate the ore body from the nearby explored properties. It is therefore possible that ore deposit may be absent on site, and/or be of poor quality.

5.2.7.2 What is the level of risk associated with the limits of current knowledge?

Since the prospecting activities are not an economic activity, targeted on less sensitive areas and affect relatively smaller areas, the risk associated with undertaking the prospecting activities have low – medium significance and highly reversible. The prospecting activities raise expectations of the vulnerable and poor communities and should the prospecting activities be unsuccessful the local communities will be at distraught as the prospect of a mine establishment will be lost.

5.2.7.3 Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?

The probable impacts were identified, assessed and mitigation measures provided.

5.2.8 How will the socio-economic impacts resulting from this development impact on people's environmental rights:

5.2.8.1 Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?

Health – The proposed project will generate dust during driving on gravel access roads and during drilling. Dust particles will be scattered within the immediate area and although to a less significant scale affect the air quality and to people with respiratory diseases. The dust generation must be monitored during operation and controlled through the use of biodegradable dust control chemical agents;

Water contamination: The prospecting activities have the potential to contaminate both the underground and the surface water, through spillage of hydrocarbons, interception of aquifers and driving through streams and/or wetlands. The surface water must be clearly delineated on the project layout plan and marked as “no-go” areas and buffers created around each surface water area. Should the groundwater be intercepted during drilling, a borehole report will be drafted for submission to the Department of Water and Sanitation which will include the depth at which the water was intercepted and the water quality as tested in a controlled laboratory;

Safety: Site access by the prospecting crew may attract opportunist criminals into the private properties. The prospecting crew must at all times carry with them identification cards.

5.2.8.2 Positive impacts. What measures were taken to enhance positive impacts?

Job Creation: Few jobs will be created. The supporting jobs must only be limited to the local population.

Support of Street Vendors: The prospecting workers will require supply of services and products provided by the informal vendors.

Mapping of SA Geology: The outcome of the prospecting programme will be the mapping of the local geology based on ground truthing. The information must be submitted to the CGS to avoid repeated exploration in the same area.

5.2.9 Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development’s socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?

- ✓ The proposed prospecting will not create competition for natural resources with the locals;
- ✓ The proposed activities will not result in net loss of naturally resources such that other land users and members of the public are affected.

5.2.10 What measures were taken to pursue the selection of the “best practicable environmental option” in terms of socio-economic considerations?

The proposed site is located within the CBA₂ and the impacts on the CBA is unavoidable. However all economic active areas within the proposed site and infrastructure were considered as no-go zones to ensure that the local socio-economic well-being continues uninterrupted.

The assessments conducted did not identify any threatened ecosystems. The proposed activities will not create social challenges or use-up available natural resources.

Furthermore, prospecting activities are undertaken on relatively smaller areas (drill stations) allowing for other land uses to continue. The functioning of local ecology will be least impacted by the proposed prospecting activities.

The assessment conducted will be provided to the registered interested and affected parties including land owners.

5.2.11 What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)

The prospecting site is chiefly dictated to by the geological setting of the area, the impacts will not discriminate against anyone on site.

The development is located appropriately as there are no high density communities nearby that may be affected by the proposed activities. The impacts will not discriminate against anyone and will be mainly on the directly affected areas as dictated to by the local geology.

5.2.12 What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?

- The proposed prospecting programme will not block access to any natural resource by anyone. There are no services expected to be rendered as well to anyone.

5.2.13 What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?

- The data will be submitted to the South African Council of Geoscience (CGS) and available to the public through the administration of the CGS.

5.2.14 What measures were taken:

5.2.14.1 Ensure the participation of all interested and affected parties

- An advert was placed in the Sekhukhune Times published on Thursday, 24 August 2023;
- Site notices were placed on local roads leading to the application area and on farm gates, on 21 August 2023.
- Draft Report was made available from Monday, 28 August 2023.

5.2.14.2 Provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation

- The background information was hand delivered around the local communities. During the handing over of the BID, oral presentations were made.

5.2.14.3 Ensure participation by vulnerable and disadvantaged persons

- The notices for invitations to participate in the EIA for the prospecting project was circulated locally and also made through notices and newspaper advert. The Local Ward Councillor was also informed.

5.2.14.4 Promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means

- Due to the temporary nature of the prospecting project and the limited socioeconomic opportunities the EIA scope was limited to the discussions around the proposed prospecting project and how it affect them only.

5.2.14.5 Ensure openness and transparency, and access to information in terms of the process

- Same information was made available to all interested and affected parties.

5.2.14.6 Ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge

- All raised concerns and comments will be addressed with respect and given the same attention.
- Language consideration will be made when addressing various groups of the interested and affected parties.

5.2.14.7 Ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein were promoted?

- The invitation was made public to everyone irrespective of gender.
- Comments were given equal attention regardless of who sent them.

5.2.15 Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g.. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?

- The proposed project have no significant impact on the needs and values of the local communities. The proseed project is a research project and is not an economic project.

5.2.16 What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?

- All the employment contracts will be in compliance with the Basic Conditions of Employment Act.

5.2.17 Describe how the development will impact on job creation

- The proposed project will create very few employment opportunities, likely less than five.

5.2.18 What measures were taken to ensure:

5.2.18.1 That there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and

- The Acts and Regulations in mining, Environmental Management and Water has been amended several times to harmonise the legislations and separation of powers. This EIA cannot influence the intergovernmental coordination but is subjected to regulations, polices and Acts form different government departments.
- Provision is made for the grieving parties to lodge appeals should they be not happy with the outcome of this EA application.

5.2.18.2 That actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?

- There are no conflicts or potential conflicts between organs of state for this application. The current legislations bares clear the roles and responsibilities for all departments affected by this application.
- Should there be an appeal, the DMRE as the decision maker will not assess the appeal but the Department of Forest, Fisheries and Environment will oversee the appeal process.

5.2.19 What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage

- The IAPs will be informed of the application outcome by the DMRE,
- Should prospecting establish a mineable resource, the IAPs will be fully engaged through EIA process and Social Labour Plans through which the public interest will be protected.

5.2.20 Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?

- The proposed mitigation measures are realistic and practical and will ensure that the land will be restored to its original state. This disturbance will be less than 750 m² at each drill station excluding created access roads.

5.2.21 Measures taken to ensure that impact management costs are paid for by those responsible for harming the environment?

- The cost of managing the impacts was determined according to the Financial Provision of 2015 as amended. The calculated rehabilitation fee will be paid to the DMRE before the Environmental Authorization is granted.

5.2.22 Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?

- The site is currently used for crop and livestock farming as well as human settlement. These current land uses can be undertaken simultaneously with the proposed prospecting programme with buffers applied on all infrastructures such as houses, electricity and water connections.
- The proposed activities will not result in net loss of ecological diversity ensuring equitable access by others, rehabilitation will be undertaken to restore pre-prospecting conditions.
- The proposed prospecting activities will not prohibit the use of land in future for other unrelated activities as the site will rehabilitated.

5.2.23 Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area

- The prospecting process is not an economic activity and does not generate any income. It is however necessary to establish whether there is a mineable deposit on site which could then result in a mine development subjected to extensive environmental assessments.
- The obtained geological knowledge will contribute to South African geological data pool and mapping of the South African deposits regardless of whether economic mineralisation exists

6 Motivation for the overall preferred site, activities and technology alternative

6.1 Preferred Site

The choice for the preferred site was based on the following aspects about the site:

Site geology: the site is underlain by ingenious intrusions of the Bushveld Ingenious Complex with high potential for mineral deposit in the area.

Site Sensitivity: the site does not contain any protected areas and located on least threatened ecosystems. The proposed site is arid and dry during most period of the year and the identified watercourses can be easily avoided.

6.2 Preferred Activities

There are various methods of mineral prospecting which can be either intrusive or non-intrusive in nature. For this project both the non-invasive and invasive method will be used. Invasive methods, that is drilling and core sampling provides highly reliable data which would be a true reflection of what is to expect on site. Non-invasive methods (desktop study, site walk & geological mapping) rely only outcrops to model site geology whereas in drilling the cores of the substrata are obtained and analysed. The analysis provide data on the grade of ore deposits and its economic viability. Using the drilling technique, the prospecting will successfully determine how viable the mining for mineral resources is and how long, at what rate the can be mined.

6.3 Full description of the process followed to reach the proposed preferred alternatives within the site.

Alternatives were chosen based on the consideration of intended outcome, environmental and geological attributes as well as the current land uses within the proposed site. Geological attributes were determined with the use of geological maps. The local geology determines the type of technology to be used depending on the rock strength and burial depth. A comparison of cost-benefit of alternatives was done to choose the most cost-effective methods that are environmentally sound. Areas that need protection would be excluded from the targeted sites in the demarcation process. Existing infrastructure that could be of use was also considered such as farm roads to ensure minimal impact on the environment.

6.3.1 The property on which or location where it is proposed to undertake the activity

The proposed site was preferred based on the historical geological data which from the desktop standpoint acknowledges the potential presence of mineral deposits. This EIA assessment was limited to the accepted application area by the DMRE, no other sites were therefore assessed.

6.3.2 The type of activity to be undertaken;

There were three alternatives assessed for this project, geophysical survey, diamond drilling, soil sampling through trenches and a combination of geophysical and any of the other two.

6.3.2.1 Geophysical Survey/ aeromagnetic survey

Airborne magnetic and radiometric surveys are effective in detecting ore deposits through their electromagnetic properties. Airborne magnetic and radiometric survey would allow for a rapid screening of the prospecting area and identify targets for follow-up drilling. An airborne high-resolution magnetic and radiometric survey, will be flown over the entire prospecting right area. The radiometric survey device will be fixed on a drone and will be flown along flight lines at 200m spacing and a survey height of not less than 30m above ground. Approximately 9000-line kilometres will be flown. The survey will generate high resolution magnetic, radiometric data and a Digital Elevation Model.

The short coming of this method is its unreliability on the grade and quantity of the ore body. A mining decision cannot be taken solely based on geophysical method. The method has been used for detection of ore bodies and siting of boreholes.

6.3.2.2 Core Drilling

A solid core is extracted from depth, for examination on the surface. The drill uses a diamond encrusted drill bit to drill through the rock. The bit is mounted onto a core barrel which is attached to the drill stem, which is connected to a rotary drill. Water is injected into the drill pipe, so as to wash out the rock cuttings produced by the bit and also to reduce the heat produced due to friction which causes less wear and tear of the bits. The core is brought to the surface in a tube with diameter ranging between 27 – 85 mm, the thicker the core the more expensive it is.

The obtained core is a true representative of the underground lithology. From the core burial depth and grade can be determined. Multiple cores will establish the thickness of the mineral containing ore body, the dip and strike directions. A full resource estimate and mine feasibility study can be determined through core sampling and laboratory assessments. Core drilling is

highly informative and can reach the depth of 300 metres. The core drilling must be informed by the surveys to determine targeted areas.

6.3.2.3 Trenching and soil sampling

Trenches are dug using electric shovels for sampling and/or exposing ore containing deposit. This method is preferred for near surface deposits and alluvial sampling for minerals such as diamonds. Trench digging have higher significance environmental impact as compared to core drilling as the disturbance area is much extensive.

6.3.2.4 The preferred activities

Only two of the above discussed methods will be used for this project. Geophysical will be used to site drill stations and Core Drilling will be used for site geological modelling. The site is ecologically sensitive and as such trenching will have significant impact and will therefore not be considered for this project.

6.3.3 The design or layout of the activity;

The design of the activity in this project refers to the locations of drilling stations. The intrusive areas are located away from sensitive features, and also determined by the distribution and extent of the ore body. The drilling points will be located such that the mapped sensitive areas are demarcated as "No-Go" Areas. For this application the drilling areas will be based on geology, topography and environmental sensitivity.

6.3.4 The technology to be used in the activity;

Technology was assessed to determine that which would bring reliable and desirable results. The following factors were evaluated when considering technology:

6.3.4.1 Local geological strata

The geological settings (rock types) and depth of burial determines the type of geophysical methods that are most likely to be successful therefore the technology that goes with such methods.

6.3.4.2 Rock Strength

The drilling equipment must be able to cut through site geological strata to reach buried ore deposits, therefore for instance a diamond drilling will be preferred where rock strength is very high.

The diamond drilling is the preferred technology because of its ability to cut through hard rock materials.

6.3.5 The operational aspects of the activity

The prospecting activities are carried out in phases with each subsequent phase dependant on the success predecessor. Therefore, a strict operational scheduling must be adhered to.

6.3.6 Other operational aspects:

Water requirement: A 0.5 m³ (500 litres) drum will be connected with the drill rig to function as a sump to circulate water and lubricate the drill hole. Furthermore a 100 litres drum of portable water will be provided for domestic purposes. The applicant will ship the water to site using a 1000 litres water bowser. No new boreholes will be drilled on site for water sourcing. A consent will be obtained from the municipality for water usage. The water usage onsite is not expected to trigger the NWA Listed activities which would require water use application.

Waste Management: The principle of Reduce, Re-use and Recycle must be implemented at all times. The waste must be separated at source and disposed at an appropriate waste management facility.

Access Roads: The existing access tracks on site will be used to access drilling points, however this will not be sufficient to reach all drill stations and new roads will be established as well.

6.4 The option of not implementing the activity

The option of not implementing the activity also referred to as a “No-Go” option ensures that the current status quo remains i.e. the site activities continue as they are. There will be no disturbances as a result of prospecting activities. The current ecological setting will continue to exist as it is.

However, it should be noted that prospecting activities are of short term duration with a maximum of five years. The impacts created by mineral prospecting can be managed and mitigated, and current site activities can be undertaken simultaneously with the prospecting programme. The aim of the proposed prospecting is to establish the presence, extent and grade of mineral deposits on site and should the activity be not implemented this information will remain unknown.

The literature review indicates that there is potential for ore deposits, this information is readily available to the public and future applications for mineral deposits in the area will always be expected. This proposed application will establish if there are ore deposits on site and establish if the minerals are mineable without economic loss. The geological data obtained through full prospecting process will then be submitted to the council of geoscience for safe keeping and evidence based mapping of South Africa.

7 DETAILS OF THE PUBLIC PARTICIPATION PROCESS (PPP) FOLLOWED

This section of the report provides an overview of the tasks undertaken for the PPP to date. All PPP undertaken is in accordance with the requirements of the EIA Regulations as amended. A full Public Participation Process (PPP) report is attached as **Appendix 04**.

Land owners were identified through a search conducted via online search engines accessing the Title Deed office database. In addition to land owner's other relevant organisations were identified and notified of the application. This includes municipal and State departments with jurisdiction in the area and Non-Governmental Organisations (NGOs) with an interest.

The PPP tasks conducted for the proposed project to date include:

- 1) Identification of Interested and Affected Parties;
- 2) Formal notification of the application to Interested and Affected Parties;
- 3) Consultation and correspondence with I&AP's and Stakeholders and the addressing of their comments; and
- 4) Newspaper advert and site notices.

7.1 IAP and Stakeholder identification, registration and the creation of an electronic database

Public Participation is the involvement of all parties who are either potentially interested and or affected by the proposed development. The principal objective of public participation is to inform and enrich decision-making.

Interested and Affected parties (IAPs) representing the following sectors of society has been identified:

- ✓ National, provincial and local government;
- ✓ Traditional Leaders;
- ✓ Land Owners and Users (Occupants);
- ✓ Community Based Organisations;
- ✓ Non-Governmental Organisations;
- ✓ Industry and mining; and
- ✓ Other stakeholders.

7.2 Formal notification of the application to key Interested and Affected Parties (adjacent landowners) and other stakeholders

The interested and affected parties were informed about the project as follows:

7.2.1 Newspaper advertisement

Newspaper Advert was published in Sekhukhune Times on Thursday, 24 August 2023.



LEBALELO WATER USER ASSOCIATION
Established in terms of Section 92(1) of the National Water Act, 1998
(Act No 36. of 1998) Government Gazette No 89/23053

REQUEST FOR QUOTATION

External Audit Services

NEC3 Professional Services Contract

Date of issue	14 August 2023
Closing date	10:00 on 8 September 2023
Website link	https://lebalelo.co.za/tender-information/
Reference number	LWUA-ABM-GNR-RFQ-0001

INVITATION TO SUBMIT A QUOTATION FOR CONSULTANCY SERVICES FOR THE ANNUAL EXTERNAL AUDIT OF THE ASSOCIATION

Bidders are invited to submit a quotation to provide external audit services. The services are described in more detail in the Scope of Services, which can be obtained from our website at the URL above.

Bidders are required to submit their proposed rates for the resources that will be utilised to render the services together with an estimated cost for the first audit to be completed as well as a proposed method of escalation. The rates must be allocated per hour per resource or type/category of resource that will be allocated for the services.

The Auditor shall comply with the standards of the Independent Regulatory Board for Auditors (IRBA), and must:

- Possess the knowledge, skills and technology essential to perform external audit work;
- Be skilled in dealing with people and communicating effectively;
- Maintain competence through continuous training and education;
- Be registered with IRBA and SAICA; and
- Have the relevant quality assurance review processes in place.

The Association does not undertake to accept the lowest or any quotation. The Association reserves the right not to appoint a service provider, to accept and/or award the whole or any portion of the services required and is also not obliged to provide reasons for the rejection.

The delivery of services will be at the Association's offices in Polokwane, Havercroft and Pretoria.

Search for missing teenage girl

GA-CHUENE – SAPS in Lebokwago is requesting public assistance to reunite the missing 17 year-old teenage girl, Dineo Mogale of Leshikishiki Village in Ga-Chuene, with her family.

Police said it is reported that teenager was last seen by her mother while home at about 19:30 on Friday, 21 July 2023. Dineo left without informing anyone about her departure.

A search operation was launched and investigations were conducted with friends, family members and relatives without success.

Anyone with information that can assist the Police on Dineo's whereabouts should contact the Investigating Officer, Lieutenant Colonel Nyamanyayo Thomas Baloyi at 082 565 8234, alternatively report to the nearest Police Station or to Crime Stop at 08600 10111 and can also share on MySAPSApp.



The 17 year-old missing Dineo Mogale from Leshikishiki Village in Ga-Chuene outside Lebokwago

TRUCK FOR HIRE NATIONWIDE

LET US HELP YOU .MOVE

CONTACT US

065 425 1628 • 0645245442 • 066 579 0572

bogotsadijr@gmail.com

10081 Diphale Village

BID Advertisement for :

A: Invitation to all interested companies to provide the following services to the **South African Police Service:**

1. Towing of Light, medium and heavy duty vehicles.
2. Laundry services
3. Puncture repairs

4. It will be a SIX (06) month contract for the period 01 OCTOBER 2023 to 31 MARCH 2024

5.

Bid Number	1/2023-2024
Name Of institution	South African Police Service
Bid Opening	01 SEPTEMBER 2023
Bid Closing	11:00 on 12 SEPTEMBER 2023
Contact details	MR RAMUSHU KB AND MRS MABUSELA ZK
Physical Address	SAPS Groblersdal, 22 Barlow street, SCM OFFICE
Telephone number	013 262 8339/47.

Bid documents must be collected at the above mentioned address and returned before the closing time and date, office number 10 at supply chain management SAPS GROBLERSDAL.

NOTICE FOR PROSPECTING RIGHT AND ENVIRONMENTAL AUTHORISATION APPLICATION BY COLT RESOURCES PTY LTD

Notice is hereby given in terms of the Environmental Impact Assessment Regulations of 2014 as amended published in terms of the National Environmental Management Act (NEMA) No. 107 of 1998 notifying and inviting the public to register and participate in the EIA process for environmental authorization (EA) application for prospecting right lodged in terms of the MPRDA (Act No. 28 Of 2002).

Nature of Activity: Colt Resources Pty Ltd has applied for Cobalt, Iron Ore, Limestone, Phosphate and Titanium Prospecting Right in the below mentioned properties within the jurisdiction of Sekhukhune District and subsequently lodged EA applications in terms of the EIA Regulations of 2014 as amended.

DMRE REF NO.	Application Area
LP30/5/1/1/2/15102 PR	Portions 157,149, 480 of Mapochsgronde 500 JS, Mapochsgronde 511 JS, Mapochsgronde 512 JS, Mapochsgronde, 913 JS, Eiland 956 JS, Mapochsgronde 527 JS, Platland 959/959 JS and Watervaal 927 JS

Basic Assessment Processes will be undertaken for the above properties. The Environmental Reports will be available for public review from 28 August 2023 to 27 September 2023. The reports will be circulated to all registered interested and affected parties.

In order to register and participate in the EIA process, you are invited to contact us before 27 September 2023 at 17:00 through the following methods: [khuliso@mielelani.co.za/](mailto:khuliso@mielelani.co.za) [mpho@mielelani.co.za/](mailto:mpho@mielelani.co.za) ramufhi@outlook.com or alternatively on Tel: 081 312 3951067 103 2562. Contact Person: Khuliso Ramulondi / Mphephu Mpho

NOTICE OF ENVIRONMENTAL AUTHORIZATION APPLICATION BY: MAFATE BUSINESS ENTERPRISE CC

Notice is hereby given in terms of EIA Regulation 41(2)(c) of the Regulations, under the Environmental Management Act, 1998 (Act No. 107 of 1998)

ATI Trading & Projects (Pty) Ltd applied for a Mining Permit for mineral Aggregate, Andalusite, iron ore, Manganese, Titanium and Vanadium, in terms of Section 27 of the Minerals and Petroleum Resources Development Act 28 of 2002. The project will be following the Basic Assessment Report procedures in terms of regulation 41(3)(b)(i) of the NEMA/EIA Regulation, 2014. The project will trigger Activity 21 of Listing Notice (LN) 1 of the EIA Regulations "Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, as well as any other applicable activity as contained in Listing Notice 3 of 2014, required to exercise the mining permit". The applications cover certain portion of the remaining extent of the following farm:

SPIRTZKOP 333 KT DMRE REF: LP 30/5/1/3/2/12029 MP.

Located in the magisterial district of Sekhukhune. You can be involved in the Public Participation Process by: - sending a fax, email or mail with your name, contact details and concerns/questions relating to the project.

- Providing us with the names of additional people that can be contacted.

All correspondence should be received within 30 days from receipt of these notice will be submitted to the Department of Mineral Resources & Energy (DMRE). All issues raised during the public participation process will responded to in writing to the Interested and Affected Parties (I&APs). I&AP include all parties concerned, who will be affected by the project and interested in the prospecting/exploration project.

CORRESPONDANCE MAY BE DIRECTED TO: MICHAEL MAFANELE

EMAIL: mafanelevm@gmail.com

Postnet Suite 210
Private Bag x 5981
Polokwane North
0750

OFFICE: 26 Thabo Street (AL Smit Building), Polokwane, Limpopo

FAX: 0865 444 911

TEL: 015 590 0393

CEL: 072 395 9511/066 389 1021/078 174 4835

DATE OF NOTICE: 25/08/2023

Figure 7-1: Newspaper Advert

7.2.2 Site notice placement

In order to inform surrounding communities and adjacent landowners of the proposed development, site notices were placed on site and at visible locations close to the site on 21st August 2023.

7.2.3 Written notification

IAPs and other key stakeholders were notified of the project. Background information document (BID) was sent out to the identified and registered I&AP's. The BID and a comment and registration form were sent to all identified and Registered I&APs. This communication was sent electronically via email.

7.2.4 Meetings

A meeting was held with the Mahlangu Tribal Council. Details of the meeting are provided in the appended public participation report (appendix 04).

7.2.5 Review of draft reports

The draft report was released for public review as from Monday, 28 August 2023 to Thursday, 28 September 2023. The report will be shared with all registered interested and affected parties. Comments were received and addressed even after the closure of the public participation process.

7.2.6 Telephonic conversations

Where necessary telephonic conversations were held prior to sending out information. This also included WhatsApp and Text Messages.

7.3 Summary of issues raised by Interested and Affected Parties

This section provides summary of issues and comments received, full details will be appended as Appendix 4 including evidence of correspondences.

Interested and Affected Parties	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph where incorporated.
Kobo P	We have given the land Platland since white people left by South Africa National Government, Us we are under Municipality we don't control by anyone. If we have community services problem we go to municipality for e.g. road maintenance, electricity and water.	This has been noted and all the consultations will be with the affected parties more especially concerning issues of access.	

8 The Environmental attributes associated with the alternatives.

Key aspects of the baseline environment that are likely to impact on the scope of the impact assessment and management measures that are implemented as well as project decisions regarding alternatives are listed below.

8.1 Topography

The topography of the region is a gently undulating to moderately undulating landscape. The altitude ranges between 1304 to 1678 metres above mean sea level (mamsl). The north-south topographical orientation is sloping towards the south at an average slope of 6.6% and an elevation loss of 265 metres. Considering that the site is largely undulating there is rising and lows on the north-south orientation rather than an obvious southerly sloping site.

The western side of the site is low lying whereas the east side is mountainous. The lowest lying points are located on the west and the highest on the east. The site slopes into the Masala River (Hoofstadsloop Rivier).

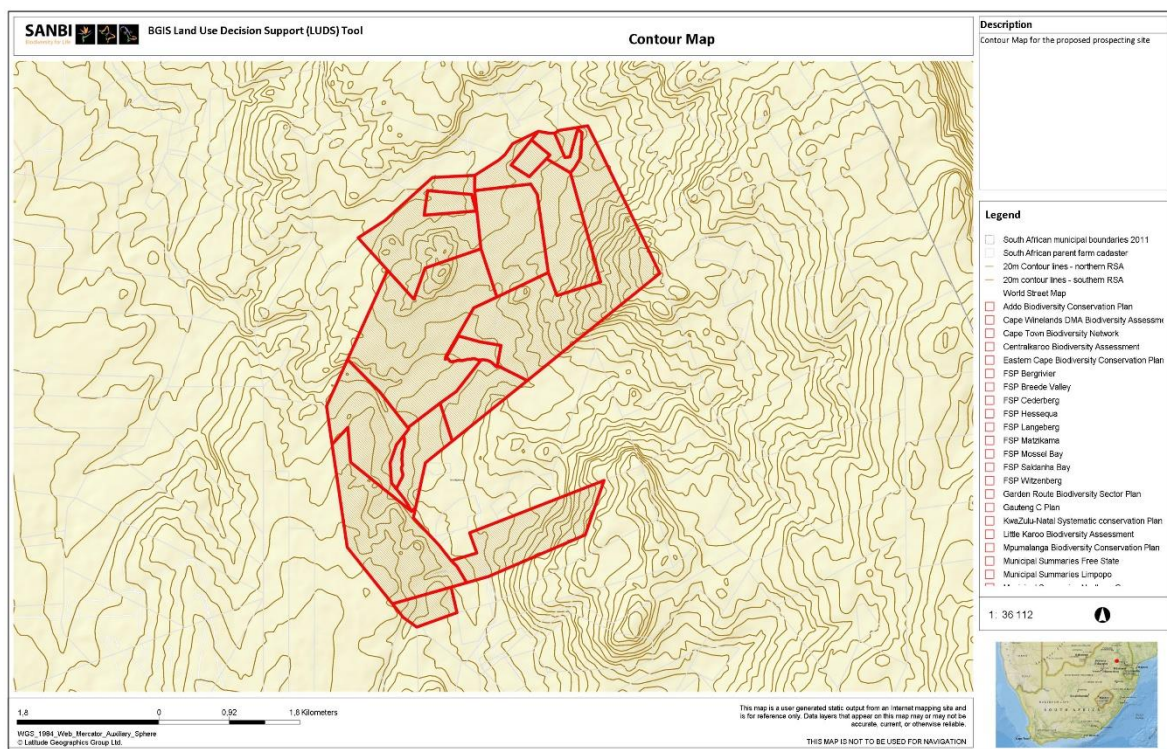


Figure 8-1: Site Elevation Map

8.2 Climate

The prevailing climate at the proposed site is known as a local steppe climate in which during the year, there is little rainfall. The Köppen-Geiger climate classification is BSh. The temperature here averages 19.4 °C and the annual rainfall is 650 mm.

8.2.1 Evaporation

The proposed site is located in Evaporation Zone 4A, the WR12 project recorded the evaporation to range between 1500-1600 mm. The apan mean annual evaporation for the site is 2000-2200 mm. A-pan mean annual evaporation is measured as the average depth of water (in millimetres (mm)) evaporating from the pan.

8.2.2 Precipitation and Temperature

The site climate can best portrayed by wet and hot summers, and dry and cold winters. The proposed site is within the rain zone B4A with mean annual precipitation (MAP) of 650 mm. The wet months (summer) period is from September of the previous year to April of the following year (Figure 8-2). On average the site is wet for more than 15 during the summer period.

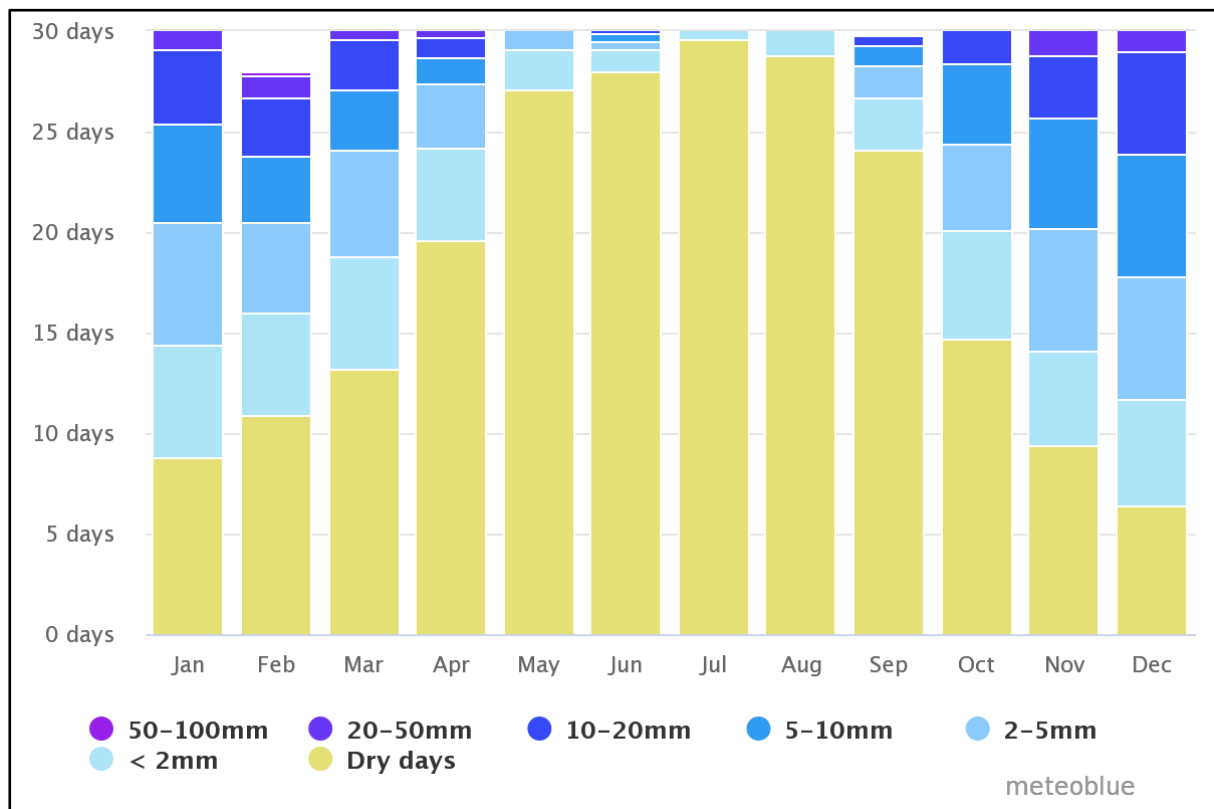


Figure 8-2: Precipitation amounts graph

The proposed site temperature is at its highest from September to February of the following year where in the temperature can reach average maximum of above 30°C. The colder months are June and July during which most days' average maximum temperature was a less than 20°C. The site average temperature and precipitation are provided in the graphs below.

The site temperature is also influenced by the poor cloud cover with an average of 15 days having clear skies.

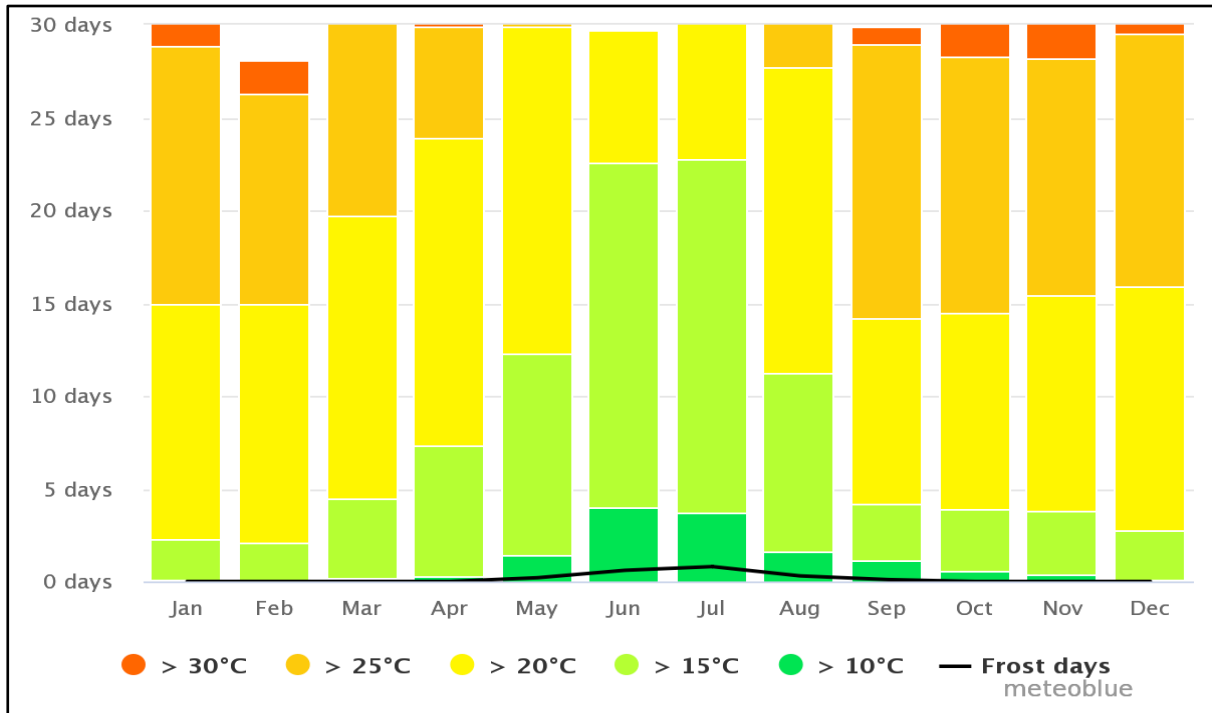


Figure 8-3: Site maximum temperatures

8.2.3 Wind

The most prevalent wind direction at the site is from the north-east. The strong wind season is from June to September (Figure 8-5) with wind speed exceeding a high of 28 km/h.

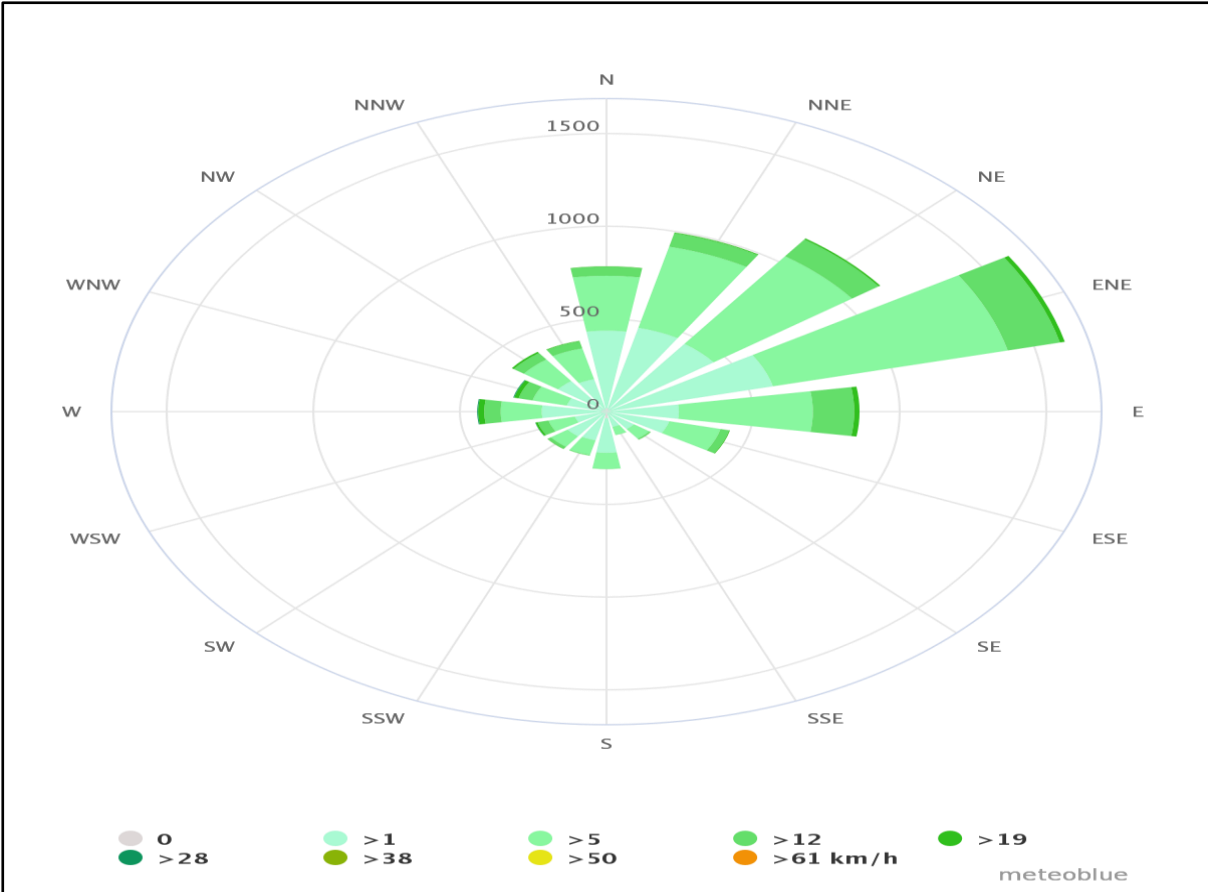


Figure 8-4: Site wind rose

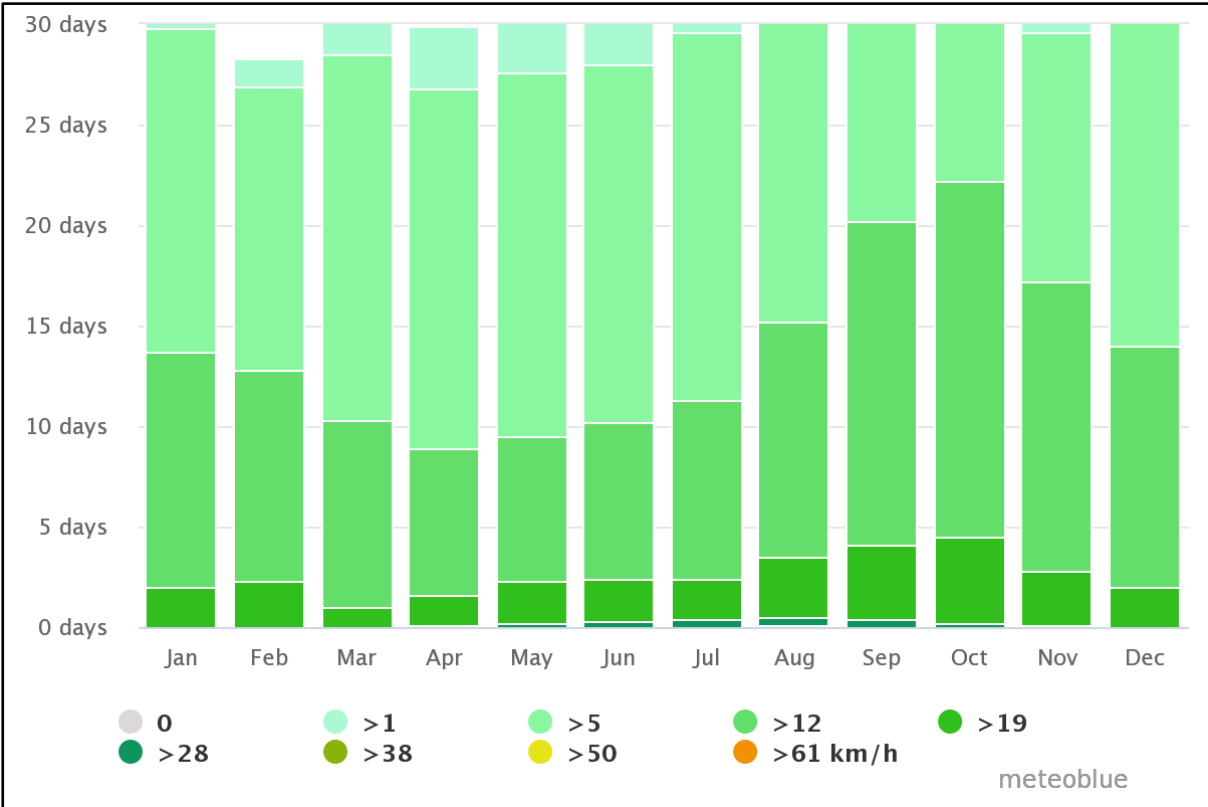


Figure 8-5: Wind Speed

8.3 Air Quality

The main objective of the Air Quality Impact Assessment is to determine the potential impact of emissions from the operational activities associated with the proposed prospecting project on ambient air quality. The proposed project area and surrounding where mainly utilised for Livestock farming and cultivation. Sources identified as possibly impacting the air quality in the region include, but are not limited to:

- ✓ **Fugitive dust:** This includes fugitive dust from paved and unpaved roads, agricultural activities (land preparation and harvesting) and wind erosion from open areas, which generates fugitive dust and PM10;
- ✓ **Stack emissions:** stack emission include the release of Sulphur dioxide (SO₂) and heavy metals from surrounding nearby mining operation;
- ✓ **Biomass burning biomass:** burning emissions include with carbon monoxide (CO), methane (CH₄) and nitrogen dioxide (NO₂) gases;
- ✓ **Household fuel combustion:** It is likely that households within the local utilize wood for cooking and space heating (during winter) purposes. Emissions from domestic burning include PM10, carbon dioxide (CO₂), Sulphur dioxide SO₂ and carbon monoxide (CO).
- ✓ **Vehicle tailpipe emissions:** Significant primary pollutants include carbon dioxide (CO₂), carbon (C), Sulphur dioxide (SO₂), oxides of nitrogen (mainly NO), particulates and lead. Secondary pollutants include NO₂, photochemical oxidants such as ozone, Sulphur acid, sulphates, nitric acid, and nitrate aerosols (particulate matter).

The proposed prospecting project that we are proposing will also contribute to the above mentioned sources. Below are some of the impact prevention, mitigation and control to address air quality concerns:

- ✓ **Household fuel combustion**-regarding this, we can advise people to wear warm clothes during winter than burning of woods to warm the space or using electric heaters.
- ✓ **Fugitive dust** – On this issue we will make sure that the dust is being suppressed all the time -Reduced unnecessary trips; and
 - Vehicles low speed will be implemented

- ✓ **Vehicle tailpipe emissions**-all vehicles should be serviced and always be in a good condition to avoid producing unnecessary smoke.
- ✓ **Biomass burning**-the drilling team will be advised not to start any fire on site to avoid burning of the bush but then if this happens the EAP will be informed and call fire fighters to end the fire.

8.4 Geology

8.4.1 Regional Geology

The project area is underlain by rocks of the Rustenburg Layered Suite ("RLS") of the Bushveld Complex. The Bushveld Complex (BIC) is a layered igneous body that intruded sedimentary and volcanic rocks of the Transvaal Supergroup around 2.06 billion years ago and constitutes one of the world's largest known layered intrusions; it is host to major deposits of Platinum Group Elements, chromite, vanadium and nickel.

The Bushveld Complex can be described as clover shaped, consisting of four limbs:

- ✓ A Western Limb - extending from near Pretoria westward to Rustenburg and northwards around the Pilanesberg alkaline complex (the study site is located within this limb);
- ✓ A Southern Limb - largely covered by Karoo aged sediments around Witbank and Middelburg;
- ✓ An Eastern Limb - that extends northwards through the northeast of South Africa (eastern Mpumalanga) from near Middelburg in the south to the east of Mokopane (previously called Potgietersrus) in the north; and
- ✓ A Northern Limb - that extends northwards from a position approximately 27 km south of the town of Mokopane, over a distance of approximately 115 km to Aurora in the north.

The BIC is a world-class repository for several ore bodies, yielding a range of mineral commodities including chrome, vanadium, titaniferous magnetite and PGMs. The BIC extends approximately 350 km east to the west and 250 km north to the south. The complex is saucer-shaped, with the edges dipping inwards towards the centre. At the rim of the 'saucer', pyroxenites, norites, gabbros and chromitites are found interlayered in a variety of combinations. Unique to the BIC is the presence of two stratiform deposits, known as the Merensky Reef and the UG2 Reef, containing economically exploitable PGM resources.

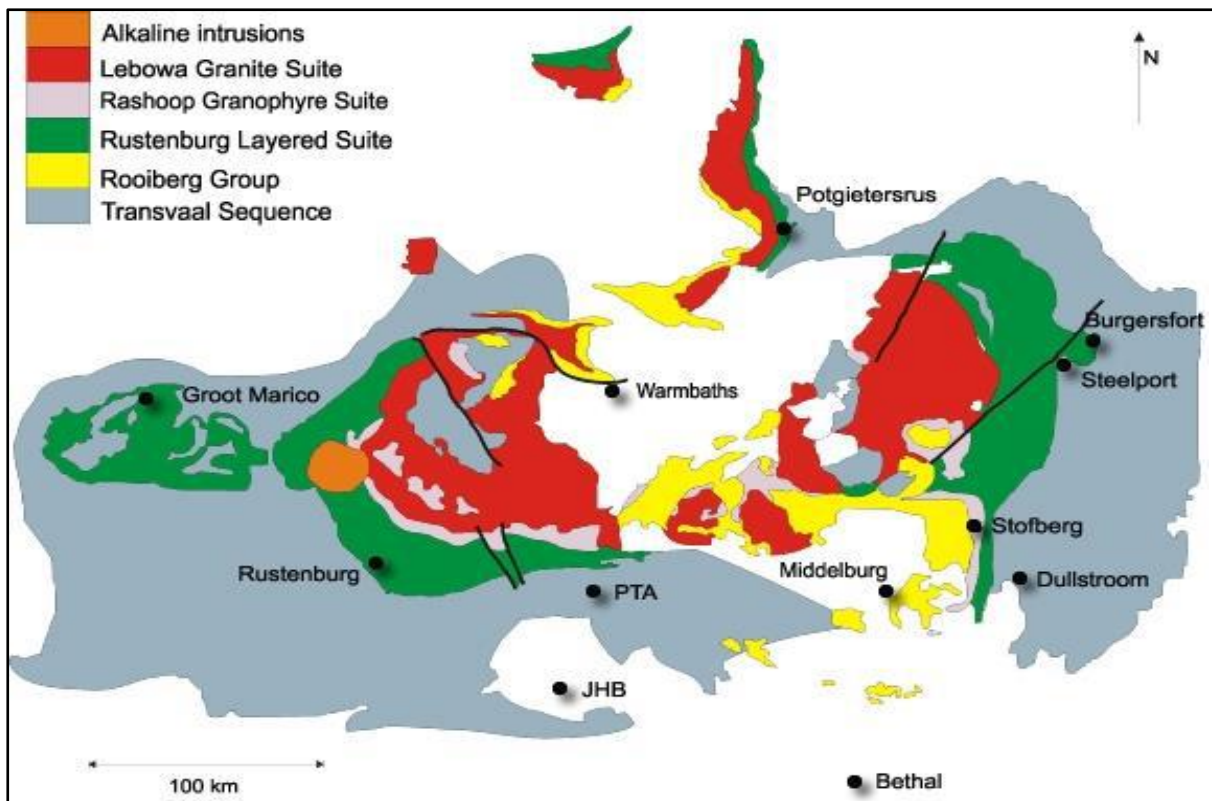


Figure 8-6: The Bushveld Igneous Complex

The mineral resource within the proposed site is vanadiferous Ti-magnetite which occurs as multiple massive to semi-massive layers and in disseminated form in the gabbroic rocks of the Upper Zone of the Eastern Lobe of the Bushveld Complex.

8.4.2 Local Geology

8.4.2.1 Rustenburg Layered Suite

The ultramafic-mafic Rustenburg Layered Suite of the Bushveld Complex occurs in the Eastern, Western and Northern Lobe and varies in thickness from less than 5 km to a maximum of 8 km and is stratigraphically divided into five units:

- Marginal Zone, dominated by norites;
- Lower Zone (LZ), consisting of an alternating series of dunite and harzburgite;
- Critical Zone (CZ), comprising cyclic units of chromitite, pyroxenite, norite and anorthosite. The Lower Group chromitite layer LG6 and the Middle Group chromitite layer MG1 are mined for their chromite content while the Upper Group chromitite layer UG2 and the Merensky Reef are exploited for their platinum group element (PGE) concentrations;

- Main Zone (MZ), containing gabbro norites and anorthosites and minor pyroxenite;
- Upper Zone (UZ), dominated by gabbroic rocks with intercalated anorthosite and magnetite-rich layers.

The Rustenburg layered suite comprises rock types ranging from dunite and pyroxenite through norite, gabbro and anorthosite to magnetite and apatite-rich diorite, and so demonstrates a complete differentiation for a basic magma.

Major Limbs of the Rustenburg Layer Suite

The Rustenburg Layer suite is divisible into five apparently discrete compartments. The western limb extends for 200 km along from an arc near Thabazimbi to near Pretoria. Outcrop is generally poor. The 200 km along eastern limb, extending from Stoffberg to Chuniespoort, underlies more rugged terrain where exposure is better, though still far from complete. Drilling has revealed extensions at the northern end of the western limb beneath granite, east of the Crocodile River Fault Zone at Rhenosterhoekspruit, and in the eastern limb beneath Karoo sedimentary cover, west of the Wonderkop Fault. The far western limb is an eroded remnant extending to the Botswana border. The northern or Potgietersrus limb is partially hidden beneath a cover of younger rocks of the Waterberg Plateau, with exposures confined to the eastern edge of the limb and near Villa Nora. The limb constituting the southeastern or Bethal limb was identified on the basis of a gravity high and is known only from borehole information.

Within the eastern and western limbs, the succession from lower Zone to Upper Zone is often incomplete at outcrop. The full sequence is developed north of Steelpoort, but further south the Lower, Critical and Main Zone successively abut and terminate against the Marginal Zone and sedimentary floor rock. A similar geometry is recorded in the northern limb. The Lower and Critical Zones of the western limb also wedge out eastwards between Rustenburg and Pretoria. Unlike these gradual on-lap relations, the Upper Zone cuts steeply across underlying cumulates in what are called "gap" areas north of the Pilanesberg Complex, until Upper zone rocks come into direct contact with the sedimentary floor. A third variation has been recorded in the northern in the Bethal limb where the Upper Zone appears to lie upon a thinned Lower Zones (Buchanan, 1977).

8.5 Ground and Surface Water

8.5.1 Groundwater

Groundwater resources in the area can be divided into two distinct aquifers, namely a shallow perched aquifer in the weathered zone followed by a deeper fractured hard rock aquifer. The fractured rock aquifer occurs as transmissive fractures of basic / mafic and ultramafic intrusives. A third, deeper aquifer in the underlying basement granite can also occur.

It is further estimated that the long term recharge of the aquifers in the Region is estimated at between 1.25 and 5 % of the mean annual precipitation. Surface water features like dams (tailings, slurry, process water, storm water, return water etc.) will also usually increase the recharge to the aquifer but compacted or concrete surfaces and roads will decrease the recharge.

The proposed site is located within region 15: Eastern Bushveld Complex of the Vegter's Groundwater Region. The site is underlain by basic / mafic and ultramafic intrusives and groundwater, therefore will be located in fractures, with borehole yield ranging between 0.5 – 2.0 l/s. The site groundwater electrical conductivity as determined by Vegter ranges between 0 – 70 mS/m (Murray R., Baker K., Revenscroft P., Musekiwa C. and Dennis R. (2012).

According to the aquifer classification map (2013), the proposed site is within the **minor** aquifer region. The site aquifers are **least** vulnerable according to the Aquifer Vulnerability Map of South Africa which indicates the likelihood for contamination to reach a specified position in the groundwater system after introduction at some location above the uppermost aquifer.

The site aquifer susceptibility is considered **Low** according to the SA Aquifer Susceptibility Map of South Africa which indicates the qualitative measure of the relative ease with which a groundwater body can be potentially contaminated by anthropogenic activities and includes both aquifer vulnerability and the relative importance of the aquifer in terms of its classification.

Table 8-1: Summary of site geohydrological data

Vegeter's Groundwater Region	15: : Eastern Bushveld Complex
Electrical Conductivity	0 – 70 mS/m
Average Depth to Groundwater	17.30 m
Exploitation Factor	0.375000
Mean Recharge	43.64 mm/a
Transmissivity	100 m ² /day
Transmissivity Average	175 m ² /day
Relative Transmissivity	Moderate
Thickness of Fractured zone	132.5 m
Thickness of Saturated Fractured zone	95 m
Storage Volume in the Fractured Zone	4870.60 m ³ /km ²
Thickness of Weathered Zone	19.08 m
Thickness of Saturated Weathered Zone	21.66 m
Storage Volume in the Weathered Zone	20578.84 m ³ /km ²
Storage Volume in the Aquifer	24661.65 m ³ /km ²
Average Groundwater Resource Potential (AGRP)	280.82 m ³ /km ² /a
Average Groundwater Exploitation Potential (AGEP)	11844.08 m ³ /km ² /a
Utilisable Groundwater Exploitation Potential (UGEP)	7468.16 m ³ /km ² /a
Yield	0.5 – 2.0. l/s
EWR Management	Class C: Moderately Modified

Source: WRC; 2012

8.6 Surface Water

The site falls within quaternary catchment B41C, and is within the Olifants Water Management area in which the main rivers draining the area are Elands, Wilge, Steelpoort and Olifants.

8.6.1 Watercourses and Wetlands

There is a network of seasonal streams flowing within and adjacent of the proposed site. The proposed site is located upstream of most of this streams. The main watercourse flowing through the site is the Galgstream river flowing from the east through the site into the Masala flowing in a northerly direction. The Masala (Hoofstadsloop) is the only NFEPA watercourse within the site according to the National Biodiversity Assessment of 2018. Other periodic stream flows form the north through the site to the Masala (Hoofstadsloop). There are no wetlands identified.

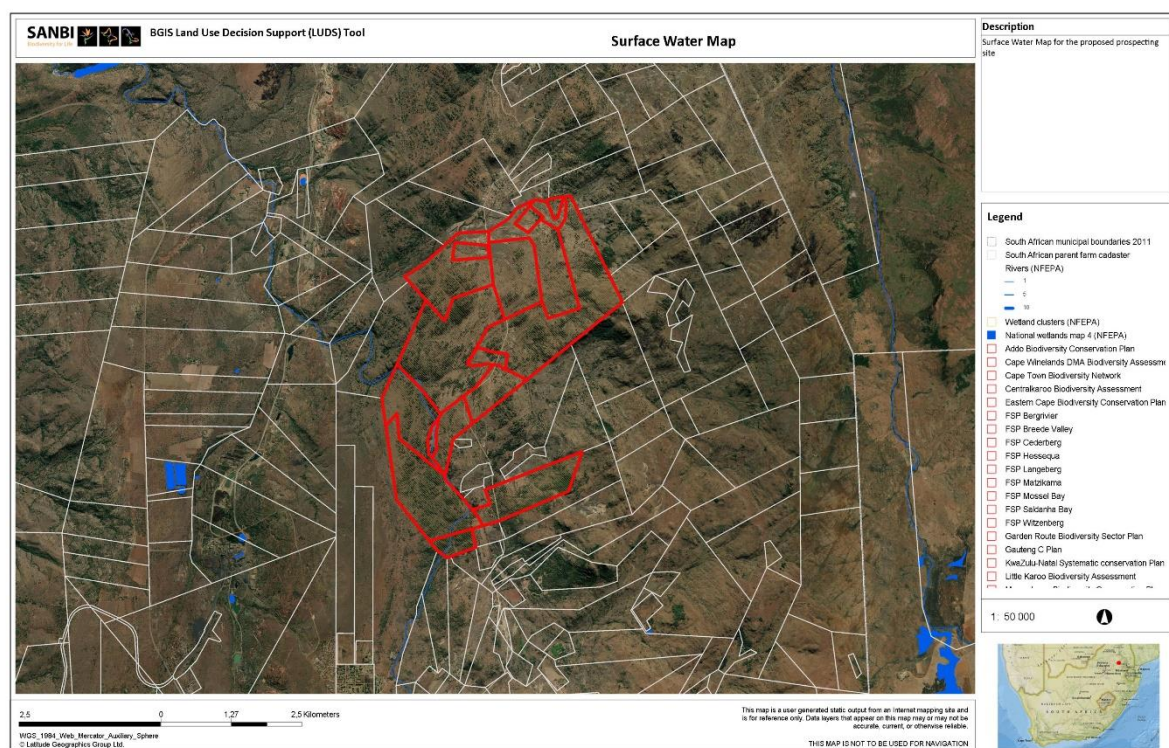


Figure 8-7: NFEPA Wetlands Map

8.6.2 Water Resource Management

- The drilling positions will be located such that sensitive areas (streams and their buffers) are avoided;
- A 100 metres buffer zone must be applied to all water features on site;

- Water extraction from site sources will not be permitted, this includes rivers and boreholes without consent from the owners in case of private water sources and consent will be sought from the Municipality where water will be sourced from municipal connections;
- Stream crossings must be through existing crossings;
- The applicant will appoint an independent environmental officer to preside over the prospecting activities protecting the integrity of the natural environment which includes biodiversity and water resource;
- The applicant must make available site notices during operation communicating the boundaries of the buffer zones of the water sources;
- The management and control of probable impacts is further discussed in section 9 and 11 of this report.

8.7 Biodiversity

The proposed site is within the **Savanna Biome**. The savanna vegetation of South Africa and Swaziland constitutes the southernmost extension of the most widespread biome in Africa. It represents 32.8% of South Africa (399 600 km²) and 74.2% of Swaziland (12 900 km²). It extends beyond the tropics to meet the Nama-Karoo Biome on the central plateau, the Grassland Biome at higher altitudes towards the east and extends down the eastern seaboard interior and valleys where it grades into Albany Thicket in the Eastern Cape. More specifically, savanna occupies most of the far-northern part of the Northern Cape, the western and north-eastern parts of North-West Province, extreme western parts of the Free State Province, northern Gauteng with more isolated occurrences in the south of this province, almost the entire Limpopo Province, north western and north-eastern Mpumalanga, most of central and eastern Swaziland, low-altitude parts of the eastern seaboard, inland of the Indian Ocean Coastal Belt in KwaZulu-Natal and the Eastern Cape Provinces, and with the southernmost extension abutting Albany Thicket of the Komga to Albany Districts.



Figure 8-8: Site Vegetation

8.7.1 Regional Vegetation and Habitats

The proposed prospecting site is within the Central Bushveld Bioregion, and specifically within the the SVcb 28 Sekhukhune Mountain Bushveld and partly within the Gm 19 Sekhukhune Montane Grassland thus according to Mucina and Rutherford, 2006. The vegetation units are described below as adopted from Mucina and Rutherford; 2006: vegetation of South Africa, Lesotho and Swaziland.

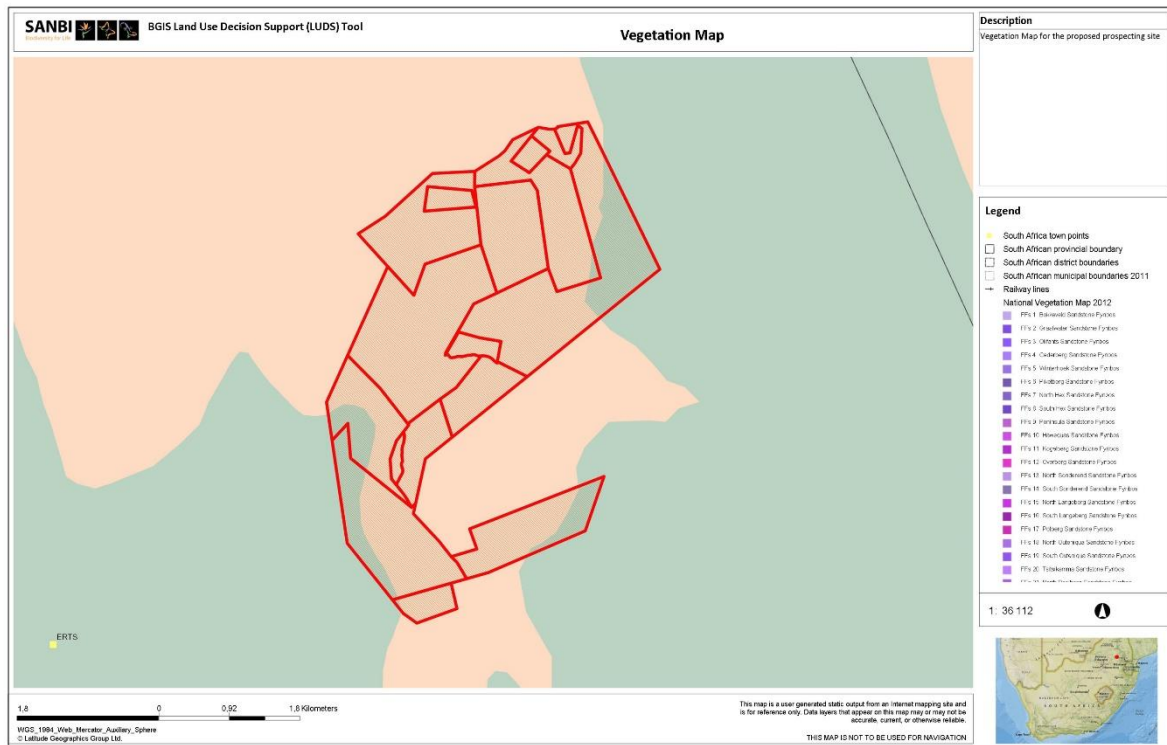


Figure 8-9: Site Vegetation Map

8.7.1.1 SVcb 28 Sekhukhune Mountain Bushveld

Distribution: Limpopo and Mpumalanga Provinces: Mountains and undulating hills above the lowlands of the SVcb 27 Sekhukhune Plains Bushveld, including the steep slopes of the Leolo Mountains (except areas of Gm 20 Leolo Summit Sourveld), Dwars River Mountains (except areas of Gm 19 Sekhukhune Montane Grassland) and Thaba Sekhukhune, and a number of isolated smaller mountains (e.g. Phepane and Morone). Also the undulating small hills in the valley of the Steelpoort River up to and along the Klip River flowing past Roosenekal. Altitude about 900–1 600 m.

Vegetation & Landscape Features: Dry, open to closed microphyllous and broad-leaved savanna on hills and mountain slopes that form concentric belts parallel to the northeastern escarpment. Open bushveld often associated with ultramafic soils on southern aspects. Bushveld on ultramafic soils contain a high diversity of edaphic specialists. Bushveld of mountain slopes generally taller than in the valleys, with a well-developed herb layer. Bushveld of valleys and dry northern aspects usually dense, like thicket, with a herb layer comprising many shortlived perennials. Dry habitats contain a number of species with xerophytic adaptations, such as succulence and underground storage organs. Both man-made and natural erosion dongas occur on footslopes of clays rich in heavy metals.

The Important Taxa of the SVcb 28 Sekhukhune Mountain Bushveld are as follows:

Tall Tree: *Acacia nigrescens*. Small Trees: *Acacia senegal* var. *leiorhachis* (d), *Combretum apiculatum* (d), *Kirkia wilmsii* (d), *Terminalia prunioides* (d), *Vitex obovate* subsp. *wilmsii* (d), *Ziziphus mucronata* (d), *Bolusanthus speciosus*, *Boscia albitrunca*, *Brachylaena ilicifolia*, *Combretum molle*, *Commiphora mollis*, *Croton gratissimus*, *Cussonia transvaalensis*, *Hippobromus pauciflorus*, *Ozoroa sphaerocarpa*, *Pappea capensis*, *Schotia latifolia*, *Sterculia rogersii*.

Succulent Tree: *Aloe marlothii* subsp. *marlothii*.

Tall Shrubs: *Dichrostachys cinerea* (d), *Euclea crispa* subsp. *crispa* (d), *Combretum hereroense*, *Euclea linearis*, *Pavetta zeyheri*, *Tinnea rhodesiana*, *Triaspis glaucophylla*.

Low Shrubs: *Elephantorrhiza praetermissa* (d), *Grewia vernicosa* (d), *Asparagus intricatus*, *Barleria saxatilis*, *B. senensis*, *Clerodendrum ternatum*, *Commiphora africana*, *Hermannia glanduligera*, *Indigofera lydenburgensis*, *Jatropha latifolia* var. *angustata*, *Melhania prostrata*, *Phyllanthus glaucophyllus*, *Psiadia punctulata*, *Rhus keetii*, *Rhynchosia komatiensis*.

Succulent Shrubs: *Aloe castanea* (d), *A. cryptopoda* (d).

Woody Climbers: *Clematis brachiata* (d), *Rhoicissus tridentata* (d), *Acacia ataxacantha*.

Woody Succulent Climber: *Sarcostemma viminale*.

Graminoids: *Aristida canescens* (d), *Heteropogon contortus* (d), *Panicum maximum* (d), *Setaria lindenbergiana* (d), *Themeda triandra* (d), *Aristida transvaalensis*, *Cymbopogon pospischilii*, *Diheteropogon amplexans*, *Enneapogon scoparius*, *Loudetia simplex*, *Panicum deustum*, *Setaria sphacelata*.

Herbs: *Berkheya insignis* (d), *Commelina africana* (d), *Cyphostemma woodii*, *Kyphocarpa angustifolia*, *Senecio latifolius*.

Geophytic Herbs: *Hypoxis rigidula*, *Sansevieria hyacinthoides*.

Succulent Herb: *Huernia stapelioides*.

Biogeographically Important Taxa

(NNorthern Sourveld endemic, CBCentral, Bushveld endemic, SKSekhukhune endemic, ZLink to Zimbabwe)

Small Tree: *Lydenburgia cassinoides*SK.

Tall Shrub: *Rhus sekhukhuniensis*SK.

Low Shrubs: *Euclea sekhukhuniensis*SK, *Petalidium oblongifolium*CB, *Plectranthus venteri*Z, *Rhus batophylla*SK.

Woody Climbers: *Asparagus sekukuniensis*SK, *Rhoicissus sekhukhuniensis*SK.

Geophytic Herbs: *Chlorophytum cyperaceum*SK, *Raphionacme chimanimaniana*Z.

ENDEMIC TAXA: **Small Tree:** *Acacia ormocarpoides*. **Succulent Tree:** *Euphorbia sekukuniensis*. **Soft Shrub:** *Plectranthus porcatus*.

CONSERVATION: Least threatened

8.7.1.2 Gm 19 Sekhukhune Montane Grassland

Distribution: Mpumalanga Province: continuous undulating norite hills in the Roosenekal region, from Stoffberg in the south, northwards through Mapochs Gronde to Schurinksberg in the north, with the Steelpoort River in the west. Altitude 1 300–1 960 m.

Vegetation & Landscape Features: Major chains of hills transect the area and have a north-south orientation, creating moderately steep slopes with predominantly eastern and western aspects. Large norite boulders and stones cover the shallow soils on the hillsides. Dense, sour grassland occur on slopes of mountains and undulating hills, with scattered clumps of trees and shrubs in sheltered habitats. Turf and clay soils characterise the open plains between the chains of hills and culminate in a open plain in the Stoffberg area. Dense, tall grassland is found on the plains and encroachment by indigenous or invasion by alien microphyllous tree species is common in places..

The Important Taxa of the Gm 19 Sekhukhune Montane Grassland are as follows:

Small Trees: *Protea caffra* subsp. *caffra* (d), *Acacia caffra*, *Apodytes dimidiata* subsp. *dimidiata*, *Canthium suberosum*, *Cussonia transvaalensis*, *Seemannaralia gerrardii*.

Woody Climbers: *Rhoicissus tridentata* (d), *Jasminum quinatum*, *Triaspis glaucophylla*. **Tall**

Shrubs: *Euclea crispa* subsp. *crispa* (d), *Brachylaena ilicifolia*, *Diospyros austro-africana*, *Euclea linearis*, *Pavetta zeyheri*.

Low Shrubs: *Gnidia caffra* (d), *Senecio microglossus* (d), *Dyschoriste rogersii*, *Elephantorrhiza praetermissa*, *Leonotis leonurus*, *Polygala uncinata*, *Rhus discolor*, *R. tumulicola* var. *meeuseana*, *R. wilmsii*. Geoxylic Suffrutex: *Elephantorrhiza elephantina*.

Graminoids: *Aristida junciformis* subsp. *galpinii* (d), *Diheteropogon amplexans* (d), *Elionurus muticus* (d), *Eragrostis chloromelas* (d), *E. racemosa* (d), *Heteropogon contortus*

(d), *Microchloa caffra* (d), *Monocymbium ceresiiforme* (d), *Setaria sphacelata* (d), *Themeda triandra* (d), *Tristachya leucothrix* (d), *Andropogon schirensis*, *Aristida aequiglumis*, *Brachiaria serrata*, *Cymbopogon caesius*, *Digitaria diagonalis*, *D. monodactyla*, *Ehrharta capensis*, *Eragrostis capensis*, *E. nindensis*, *E. plana*, *Hyparrhenia hirta*, *Loudetia simplex*, *Panicum natalense*, *Setaria nigrirostris*, *Trachypogon spicatus*, *Triraphis andropogonoides*.

Herbs: *Acalypha punctata* (d), *Berkheya setifera* (d), *Rothea hirsuta* (d), *Senecio latifolius* (d), *Tephrosia purpurea* subsp. *leptostachya* (d), *Berkheya insignis*, *Gerbera jamesonii*, *Helichrysum nudifolium* var. *nudifolium*, *Ipomoea crassipes*, *Jamesbrittenia silenoides*, *Macleodium zeyheri* subsp. *argyrophyllum*, *Pegolettia lanceolata*, *Pentanisia prunelloides* subsp. *prunelloides*, *Senecio coronatus*, *Vernonia galpinii*, *V. natalensis*, *V. oligocephala*, *Xerophyta retinervis*.

Geophytic Herbs: *Hypoxis rigidula* var. *pilosissima* (d), *Cheilanthes hirta*, *Eucomis montana*, *Hypoxis hemerocallidea*, *Pachycarpus transvaalensis*.

Succulent Herb: *Kleinia stapeliiformis*.

Biogeographically Important Taxa (NNorthern Sourveld endemic, SKSekhukhune endemic)

Small Trees: *Euclea sekhukhuniensis*SK, *Lydenburgia cassinoides*SK, *Rhus sekhukhuniensis*SK.

Woody Climber: *Rhoicissus sekhukhuniensis*SK.

Tall Shrub: *Vitex obovata* subsp. *wilmsii*N.

Low Shrubs: *Dyschoriste perrottetii*SK, *Grewia vernicosa*N, *Helichrysum uninervium*N, *Jamesbrittenia macrantha*SK, *Melhania randii*N.

Succulent Shrub: *Aloe castanea*N, Herbs: *Berkheya densifolia*N, *Cyanotis pachyrrhiza*N, *Graderia linearifolia*N, *Ipomoea bathycolpos* var. *sinuatodentata*SK *Rhynchosia rudolfii*N, *Tetraselago wilmsii*N.

Geophytic Herbs: *Gladiolus sekukuniensis*SK, *Zantedeschia pentlandii*SK.

Succulent Herb: *Huernia insigniflora*N.

ENDEMIC TAXA Succulent Shrubs: *Aloe reitzii* var. *reitzii*, *Delosperma deilanthoides*.

Geophytic Herbs: *Resnova* sp. nov. (*megaphylla*), *Zantedeschia pentlandii*.

CONSERVATION Vulnerable.

8.7.2 The POSA Search

Family	Genus	Sp1	Ecology	Conservation
Anacardiaceae	Searsia	pyroides	Indigenous	Least Concern
Scrophulariaceae	Hebenstretia	dura	Indigenous	Least Concern
Crassulaceae	Crassula	compacta	Indigenous; Endemic	Least Concern
Poaceae	Imperata	cylindrica	Indigenous	Least Concern
Polygalaceae	Polygala	producta	Indigenous	Least Concern
Orobanchaceae	Striga	elegans	Indigenous	Least Concern
Verbenaceae	Verbena	bonariensis	Naturalised; Invasive	Invasive
Polygalaceae	Polygala	krumanina	Indigenous; Endemic	Least Concern

8.7.3 Site Ecological Sensitivity

8.7.3.1 2018 Limpopo Province Map of Critical Biodiversity Areas and Ecological Support Areas

The LP BSP includes a map of biodiversity importance for the entire province, covering both the terrestrial and freshwater realms. The product is referred to as the Biodiversity Spatial Plan (BSP) Map.

A BSP Map is the product of a systematic biodiversity plan that delineates, on a map, Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), which require safeguarding to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services.

According to the Limpopo Department of Economic Development & Tourism. 2018 Limpopo Province Map of Critical Biodiversity Areas and Ecological Support Areas [Vector] 2018, Available from the Biodiversity GIS website, downloaded on 10 April 2022, the site is wholly located within a CBA2 (Figure 8-10).

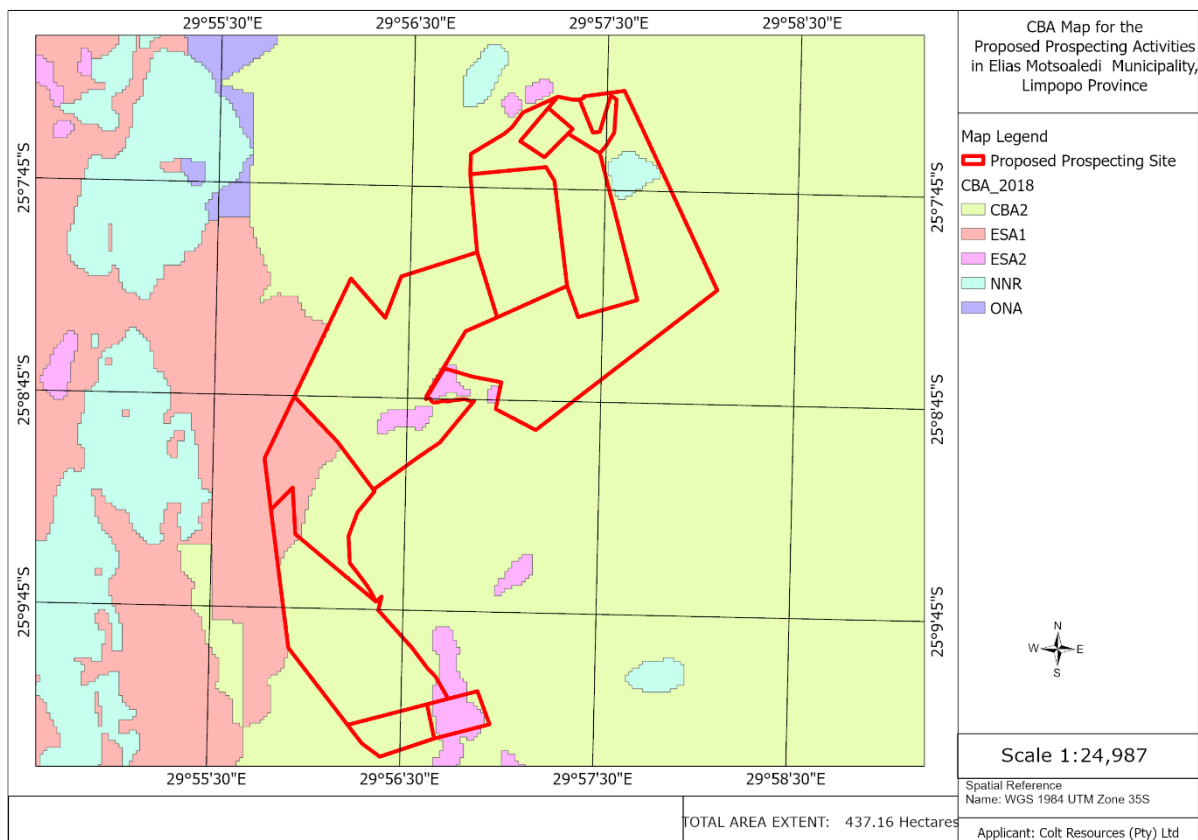


Figure 8-10: The site sensitivity map according to the 2018 LP CBA

(a) **Description and management objectives of site BSP Categories**

BSP Categories on Site	Management Objectives	Compliance with objectives
<p>Critical Biodiversity Area (CBA):</p> <p>Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.</p>	<p>Maintain in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.</p>	<p>The Critical Biodiversity Areas are along the site watercourses. The area will be demarcated as no-go zone for the duration of the project. No degradation of the CBA will occur due to the proposed prospecting activities.</p>
<p>Ecological Support Area (ESA) 01:</p> <p>Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of</p>	<p>Maintain in a functional, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological</p>	<p>The ESAs are avoidable and drill stations will be established outside the ESAs. The proposed drill layout plan locates the drill positions outside the ESA</p>

BSP Categories on Site	Management Objectives	Compliance with objectives
PAs or CBAs, and are often vital for delivering ecosystem services.	functioning are not compromised.	
<p>Other Natural Areas:</p> <p>Areas not currently identified as a priority, but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions. Although not prioritised, they are still an important part of the natural ecosystem.</p>	<p>Minimize habitat and species loss and ensure ecosystem functionality through strategic landscape planning. Offers flexibility in permissible land-uses, but some authorisation may still be required for high-impact land-uses.</p>	<p>The proposed invasive activities will be undertaken within these ONAs. An Ecologist will conduct a site walk and recommends the best suitable borehole positions within the ONA.</p>

8.7.3.2 National Freshwater Ecosystem Priority Areas, 2011

The purpose of the National Freshwater Ecosystem Priority Areas, 2011 is to model river integrity, river types and delineate new sub-quaternary catchments (planning units) and free-flowing rivers. The river types are used by NFEPA to represent river ecosystem types across the country.

According to NFEPA there is one FEPA watercourse identified on site, which is the Masala (Hoofstadsloop) River. The watercourses will be marked as No Go area and a 100 metres buffer zone will be created.

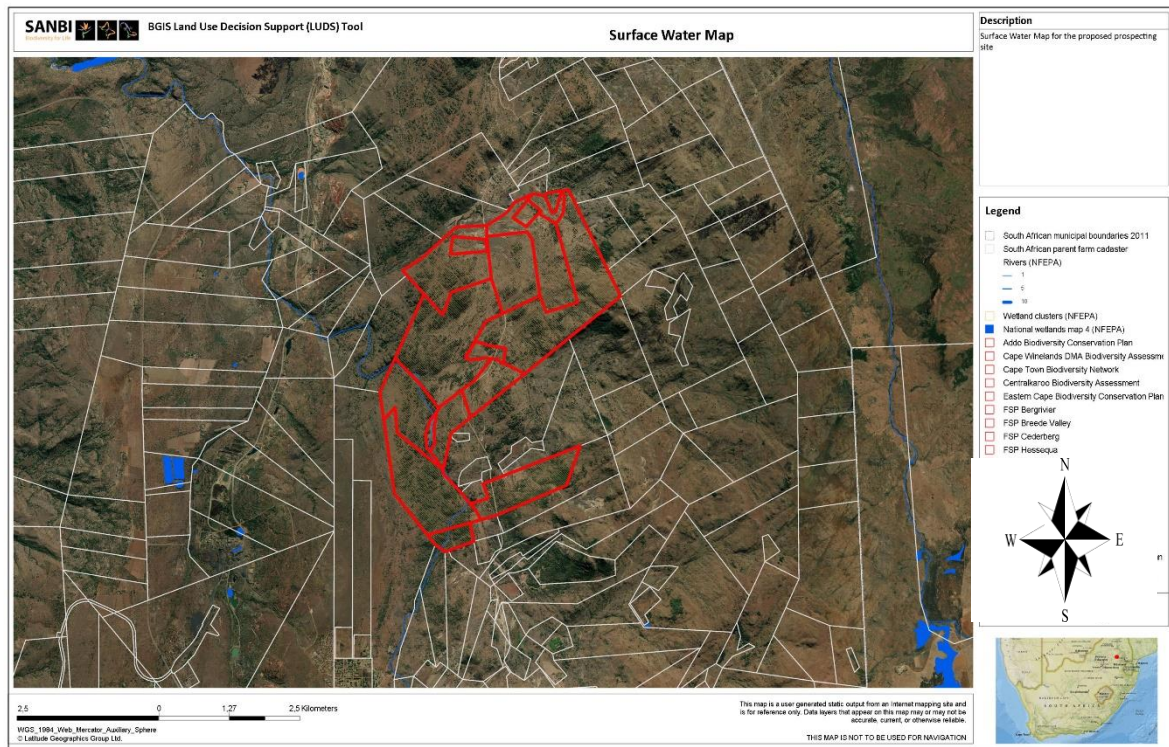


Figure 8-11: Site NFEPA Streams Map.

8.8 Social Characteristics of the Study Area and Surrounds

The proposed site is within Elias Motsoaledi Local Municipality of the Sekhukhune District Municipality in the Limpopo Province.

8.8.1 The Elias Motsoaledi Local Municipality

The Elias Motsoaledi Local Municipality (formerly Greater Groblersdal Local Municipality) is located in the Sekhukhune District Municipality of Limpopo province, South Africa and the seat of Elias Motsoaledi Local Municipality.

It is situated about 180 kms from Polokwane, 135 km from Pretoria and 150 kms from Nelspruit. Greater Tubatse Local Municipality and Mpumalanga's Dr JS Moroka, Thembisile Hani, Steve Tshwete, Emakhazeni and Thaba Chweu local municipalities. It is situated about 180 kms from Polokwane, 135 km from Pretoria and 150 kms from Nelspruit. The municipality is the third smallest of the five (5) local municipalities in Sekhukhune District, constituting 27, 7% of the area with 3,668,334 square kilometers of the district's 13,264 square kilometers. Land ownership is mostly traditional and the municipality is predominantly rural with about sixty two settlements, most of which are villages.

The population of the municipality is 268 256 which shows population increase of about 7, 58% as compared to the 2011 population figures. The growth of the population from 249 363 in 2011 could be attributed to natural growth and job opportunities and the overall growth in economic activities in the municipal area.

The population growth between 2011 and 2016 means 0.9% of the people are aged 0-14 years old and 3.2% of people are aged 15-65 years old. The sex ratio indicates that for every 100 females there are 87 males. The growth in population is more prevalent in males.

The most prevalent language spoken is Sepedi (59,9%), spoken by more than half the population, followed by Isindebele (15%) and Isizulu (8, 4%). The largest variety of spoken languages occurs in the non-urban area.

The average household size of 4:1 persons has been influenced by the fact that approximately (38, 7%) of households have two (2) or less occupants. This phenomenon could be as a result of several factors including incorrect baseline data or that younger people have set up their own homes but this is contrary to the statistics with respect to Age which reflects that there is a large segment of youth (under 19 years) which comprises 47.9% of the total population.

8.8.2 Employment

The Mapoch Mine which has recently been purchased by the Chinese Company is the major employer in the area and has committed to keeping a workforce of at least 200 people at a time. The Roosenekal town provides employment opportunities in the tertiary sector which include the Post Office and Police Service. Agricultural activities which includes both the Livestock and the Crop Farming is a major role player in the economic sector locally.

8.9 Heritage Resources

There are graves identified within the prospecting site. These graves must be buffered with at least 30 metres and no activity can be undertaken within the buffer. The screening tool also identifies the site to have a low heritage and cultural theme sensitivity.

8.9.1 Old Buildings

The Screening Tool has identified a Grade IIIa Heritage site within the proposed on the north. Grade IIIa Heritage site are buildings that are older than 60 years, but have been altered to such an extent that their heritage value has been greatly diminished. The site assessment established that there are buildings older than 60 years as also identified by the Screening Report.

8.9.2 Graves

Graves were identified by the conducted site walks. The location of the old building areas and the graves have been identified.



Figure 8-12: Site Heritage Significance Resources

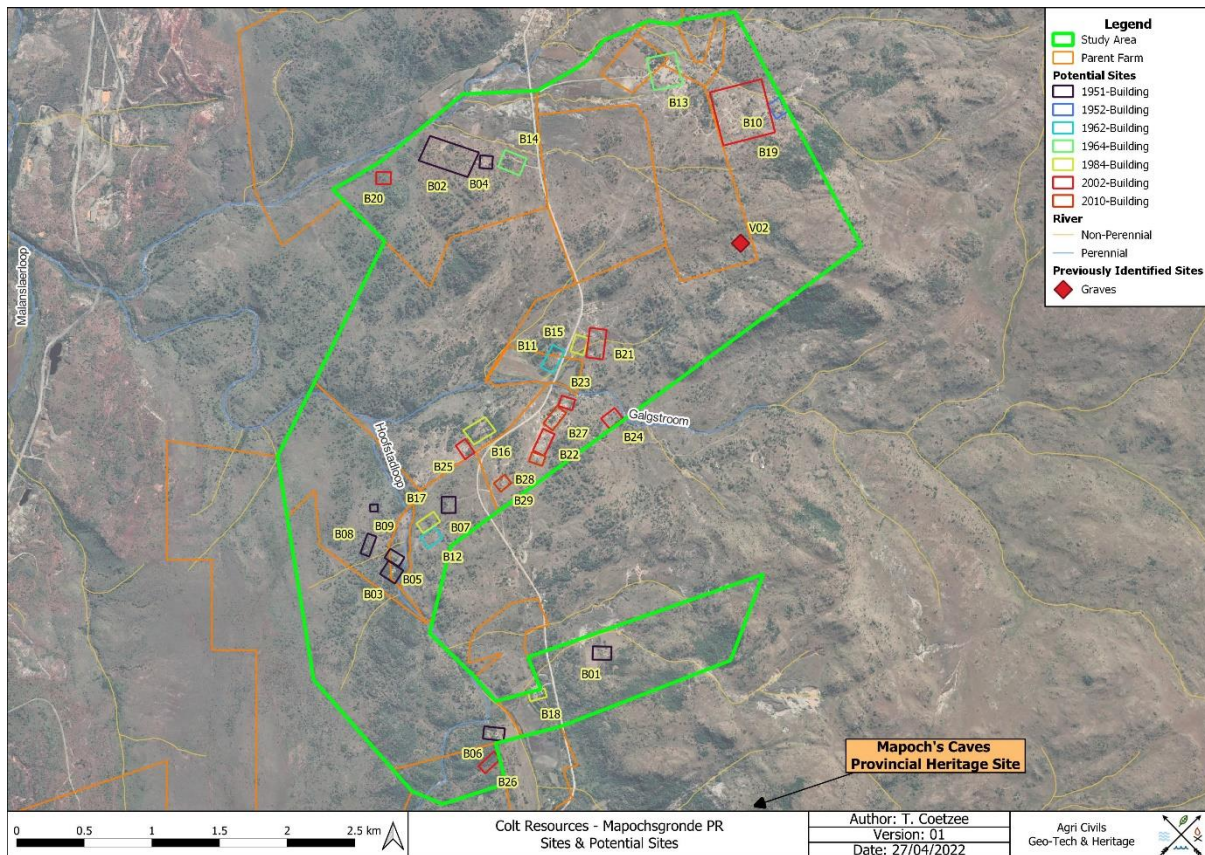


Figure 8-13: Site Archaeological Map

8.9.3 The Mapoch Caves

The Mapoch caves are provincial heritage site. these caves are located one kilometre to the south of the proposed site. The significance of the caves stems from the following:

In 1879 Sekhukhune, the Chief of a neighbouring Bapedi tribe, revolted against the British authority which then governed the Transvaal. He was defeated and taken prisoner, and his half-brother, Mampuru, was appointed to the chieftainship in his place. When the Zuid-Afrikaans Republiek had regained its independence, Paul Kruger set Sekhukhune free and reinstated him as Chief of the Bapedi; but he was murdered by his half-brother, Mampuru, who then took refuge with Nyabela in the Mapoch's Caves.

Relations between the Republic and the Mapoch people were already strained because Nyabela refused to pay double taxes to both the British and the Republican authorities and to have his territory defined. When, in addition, he refused to hand over the murderer, Mampuru, war became inevitable. The Republican Government entered the war with great reluctance because it was in dire financial straits, the battlefield was the most difficult terrain in the Transvaal and the enemy were armed with guns.

In November, 1882, Commandant-General Piet Joubert, with a commando of about 1 500 men, advanced against Nyabela. A detachment penetrated to the hills east of the 'Hoofstat' where its commander, Commandant Senekal, was killed in an attempt to blow up some of the caverns with dynamite. The Mapoch stronghold was gradually surrounded; earth forts were constructed round it as far as possible and the circumference of the encirclement was reduced step by step by building forts successively nearer to the stronghold. These were highly dangerous tactics and resulted in the death, amongst others, of Stephanus Roos, a man who had shown remarkable heroism at Majuba.

It became clear to Piet Joubert that he would only be able to capture the stronghold by besieging it and starving out the defenders. The crops of the Mapoch people were destroyed. Constant efforts were also made to take Spitskoppie which had been fortified from top to bottom; the Boers eventually succeeded in this by approaching under cover of an armoured wagon.

After the war had lasted for ten months, during which Senekal, Roos and 23 other burghers were killed, Nyabela surrendered and delivered up Mampuru. Both Nyabela and Mampuru were tried in the Supreme Court in Pretoria and sentenced to death by Judge Kotze. Mampuru was executed but Paul Kruger remitted Nyabela's sentence to one of life imprisonment. Nyabela eventually died in prison in Pretoria

8.9.4 Other Heritage Significances

Apart from their interesting and dramatic history, the Hoofstat and Spitskoppie contain extensive stone walling of great importance to scientists interested in studying Bantu building techniques and particularly Ndebele building methods. The walling shows considerable variation, but two main kinds can be recognised : domestic building and defensive works. Two main techniques of building were employed. In the first, known as cyclopean building, huge natural boulders were piled upon one another without the use of mortar ; this technique was used mainly for retaining walls of hut platforms against the steep hillside and for ramparts in front of the entrance to the caves. The other technique had much in common with other Bantu settlements in the Northern Transvaal: walls were built of smaller flat stones trimmed square and bonded with mortar. This technique was used for the most part for building huts and kraals. The said area contains valuable ethnological relics and also featured prominently in the war against Nyabela in 1882-1883.

8.10 Description of the current land uses and infrastructures on site

8.10.1 Agricultural activities – the site is largely used for crop farming;

The local community made up mainly of land owners are proud agricultural practitioners. The main practice is crop farming (maize and sunflower), and livestock farming and it is estimated that there are about 2000 livestock in the area (including unaffected properties).

8.10.2 Mapoch Primary School

The primary school is located within the remainder portion of Farm Mapochsgronde 511 JS. This is the main primary school for the Mapoch Community.

8.10.3 Residential area within the site;

There are well established households within the prospecting area. These are mostly located on the north of the proposed site which is closer to the primary school and the Mapoch Community.



Figure 8-14: Houses within the site

8.10.4 Mapoch Community

The Mapoch community is located 500 metres to the north west of the proposed site.



Figure 8-15: Small community located north west of the site

8.10.5 Eco-Tourism

There are a number of game lodges, and bed and breakfast within the local vicinity. The attraction into the area would be the few environmentally undisturbed areas and the mining activities.

8.10.6 Mining

The Mapochs Mine is located 3 kilometres west of the proposed site. The mine, which was originally part of Anglo American, has its own rail network, train station and train store and formerly operated at a rate of 2.2-million tonnes a year. The mine was sold by Anglo to the Russian group Evraz several years ago, Mapochs supplied ore for the production of both steel and vanadium to Evraz Highveld Steel and Vanadium.

The mine has both the surface and underground operations but mainly operates from the surface. The Mine's Right includes extraction of the magnetite ore that includes vanadium and iron-ore, and many other metals and minerals.

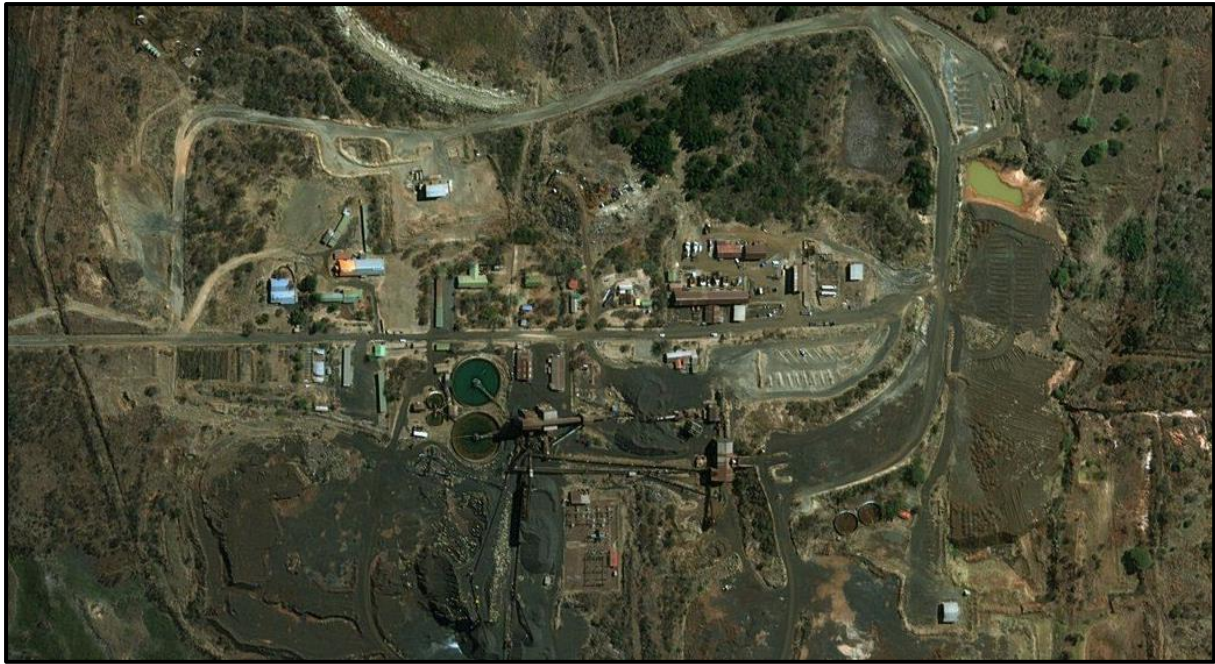


Figure 8-16: Mapoch Mine

8.11 Description of Infrastructures and Environmental Features on site

The key infrastructures on site has been identified on the above land uses.

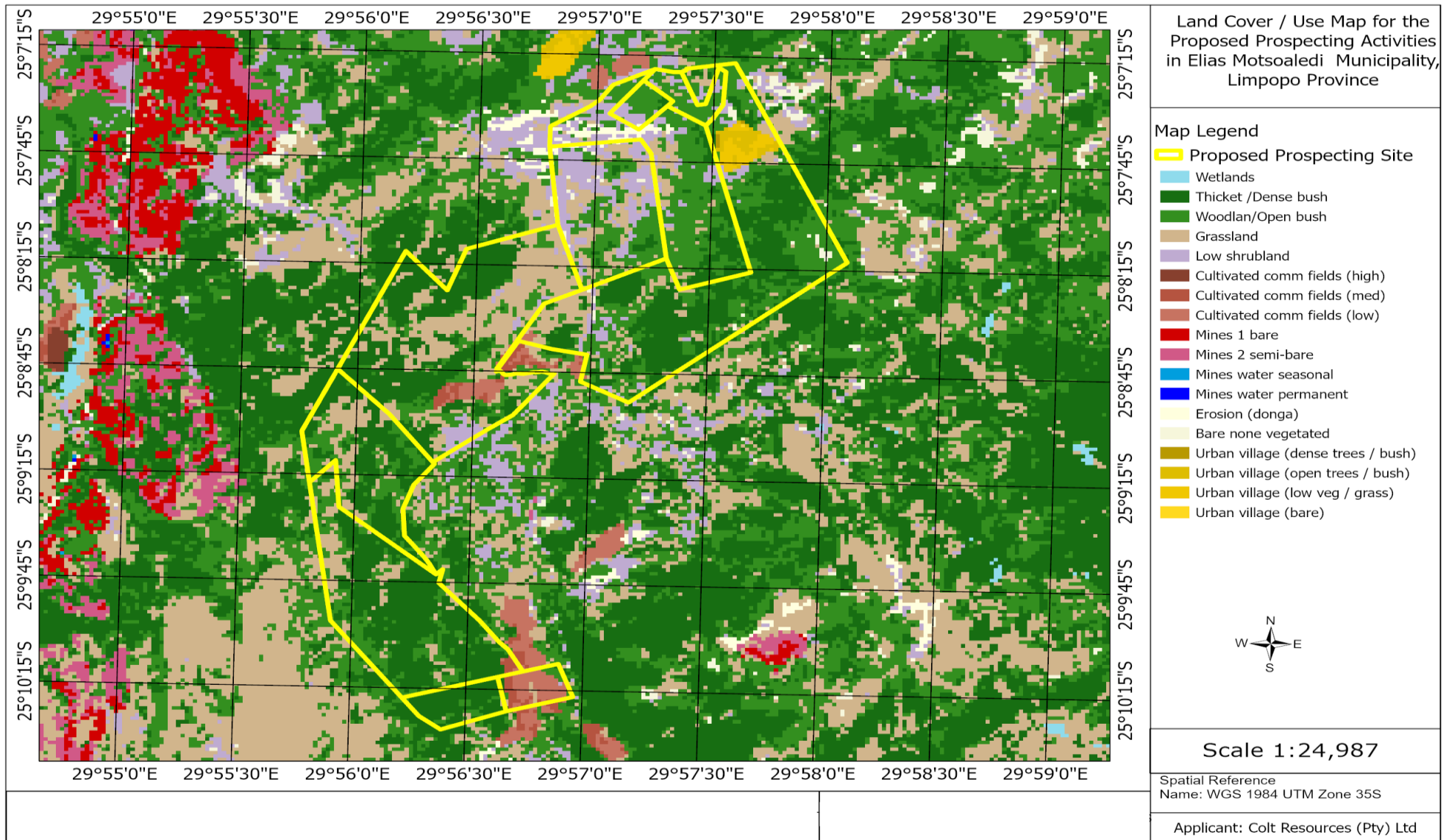
8.11.1 The Mapoch Gravesites

The grave sites of the local community are located on the north of the proposed site. This is a strictly no-go area for the duration of the project.

8.11.2 Watercourses

As identified above in the surface water assessment section, there are multiple watercourses on site. The watercourses are generally flowing in a north-easterly direction. The main watercourses which are the Hoofstadsloop and the Galgstroom flows throughout the year.

8.12 Environmental and current land use map



9 Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts can be reversed.

Here a list of possible impacts will be provided, a full impact analysis which includes the significance of the impacts, their nature, extent, duration and probability of the impacts, the degree impacts reversibility and irreplaceable loss of resources has been provided in section 11 of Part A on page 102 as per the assessment criteria provided in section 9.2 of Part A on page 87.

9.1 Identified project impacts

9.1.1 Identified impacts for various project phases

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence									
Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation
			E	D	I	R	L	P	
Legal requirements									
Delayed and/or disrupted prospecting operations	Site Establishment & Construction	<ul style="list-style-type: none"> ✓ Disregarding Environmental Authorisation conditions; ✓ Disregarding access agreement conditions; ✓ Disregarding mining & prospecting legislative requirements; ✓ Partial compliance to EMPr. 	2	3	4	4	4	4	-68 Catastrophic
Legal liabilities	Site Establishment & Operational	<ul style="list-style-type: none"> ✓ Property owners suing for damages and /or unapproved access into their properties; ✓ Legal penalties for failing to comply with site operational licenses/ authorisations/ permit. 	1	3	2	3	3	3	-36 Critical
Loss of Private Properties									
Loss of privately owned properties	Site Establishment & Operational	<ul style="list-style-type: none"> ✓ There are residential areas located within the proposed introducing drilling rigs could potentially impact the housing infrastructures. 	2	3	3	3	4	3	-45 Critical

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence										
Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation	
			E	D	I	R	L	P		
Impact on local infrastructure										
Degradation of local roads and disruption of local services servitudes	Site Establishment & Operational	<ul style="list-style-type: none"> ✓ The local road traversing through the site is gravel and regular driving will degrade the roads; and ✓ Driving of heavy trucks has the potential to disrupt local service servitude. 	2	3	3	2	1	4	-44 Critical	
Soil										
Soil Contaminations	Site Establishment & construction	Leakages of hydrocarbons from site vehicles and operating equipment and during refuelling at the diesel bowser	1	3	1	2	2	3	-27 Moderate	
Soil Compaction & Loss of fertility	Site Establishment & Construction	Compaction of soil during off-road driving and drill stations setup reducing vegetation growing capabilities;	1	2	2	2	2	4	-36 Critical	
Loss and degradation of topsoil	Site Establishment & Construction	Removal of topsoil to establish drilling stations and access roads;	1	2	1	2	2	4	-32 Critical	
		Loss of topsoil through erosion and contamination resulting in reduced vegetation rehabilitation potential;	1	3	2	2	2	4	-40 Critical	
Soil Erosion	Site Establishment, Construction and Post Closure	The soil disturbance to establish access roads and drill stations will enhance soil erosion. Erosion dongas have been identified on site along the site watercourses.	1	4	2	1	1	3	-27 Moderate	
Biodiversity										
Loss of vegetation	Site Establishment & construction	Clearing and Trampling of vegetation during drill station establishment.	3	3	2	3	3	4	-56 Catastrophic	

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence

Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation
			E	D	I	R	L	P	
		Trampling and clearing of vegetation during off road driving, the impact will affect more than the local area should SCC be lost;	3	3	2	3	3	4	-56 Catastrophic
		Illegal harvesting of plants species within the prospecting site and adjacent areas	2	3	2	3	3	3	-39 Catastrophic
		Clearing of Vegetation to establish stockpiling area;	1	3	1	2	2	4	-36 Critical
		Possible fire breakout from the drilling activities resulting in massive losses of vegetation	2	3	2	3	2	3	-36 Critical
Loss of fauna	Site Establishment, Construction and Post Closure	There are sensitive habitats identified on site which includes Koppies and watercourse areas, Activities within these areas will result in loss of habitats and forced relocation of species;	2	2	1	2	2	4	-36 Critical
		Restricted fauna movement and increased health and safety risks to wildlife due to deep excavations and barricades;	2	3	1	1	1	2	-16 Low
		Noise nuisance affecting the wild life often causing panic attacks resulting in loss of life and injuries	2	3	2	2	2	3	-33 Critical
		Driving over micro and small wild animals during off road driving	2	3	2	3	3	3	-39 Critical
		Accidents/ collision with wild animals resulting in injuries and loss of life;	2	3	1	3	3	3	-36 Critical
		Wild life hunting by the prospecting crews which may include red listed species	3	3	2	2	2	3	-36 Critical

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence

Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation
			E	D	I	R	L	P	
Invasion by invasive alien plants	Site Establishment, Operational & Post Closure	Introduction of invasive alien plants – these are opportunistic plants that takes advantage of vegetation disturbance and slowly replacing the local indigenous vegetation.	2	3	2	2	2	4	-44 Critical
Water Resource									
High usage of water	Site Establishment, and Operational	Demand for water for machinery and dust suppression during prospecting activities.	2	3	2	1	1	3	-30 Moderate
Destruction of site wetlands	Site Establishment, Construction & Post-prospecting	There is a network of watercourses identified within the site, invasive prospecting activities have the greatest potential to impact these watercourses	2	3	2	2	3	3	-36 Critical
Surface water contamination	Site Establishment, Construction & Post-prospecting	Surface water getting into contact with contaminated soils;	2	3	1	1	2	3	-27 Moderate
		Flow of storm water from contaminated areas into surface water drainages	2	3	2	1	1	3	-27 Moderate
Interception of the subsurface (underground) flow Introducing contaminants to the subsurface water	Drilling Phase	According to the <i>Water Resources of South Africa 2012 Study</i> the average depth to the ground water is 17 metres. The proposed drill programme will reach as deep as 100 metres below the surface. The drill will be expected to intercept the groundwater introducing contaminants to the subsurface	2	4	2	2	2	3	-36 Critical
Lowered groundwater level	Drilling Phase	Reduced level of the groundwater affecting the adjacent boreholes due to the created depression cone around the drill holes	2	3	1	2	2	3	-30 Moderate
Excessive water demand to meet prospecting activities demand	Construction & Post-prospecting	Excessive abstraction of the groundwater to meet the prospecting activities water demand.	2	3	2	3	2	3	-36 Critical

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence									
Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation
			E	D	I	R	L	P	
Groundwater contamination	Construction & Post-prospecting	Contaminants from the surface will potentially go down the drill holes, these includes hydrocarbon contaminated waste and general waste.	2	3	1	2	2	3	-30 Moderate
Groundwater contamination	Construction & Post-prospecting	The site soils are highly saline and should they go down the drill holes, they'll impact the ground water quality	2	3	1	1	1	3	-24 Moderate
Enviro-Socioeconomic									
Job creation	Site Establishment & construction	Prospecting activities are not labour intensive and as such less than five supporting workers will be required for the duration of the prospecting activities. The job opportunities are limited in the local Kliprand Town and even one created opportunity is significant.	2	3	1	0	0	4	24 Moderate
Land owner conflicts	Site Establishment, Construction & Post-prospecting	Property owner reluctant to grant access into their properties;	1	3	4	0	0	3	-24 Moderate
		Compromised safety and security of the land owners residing on site as criminals may gain access into the private properties disguised as the prospecting team.	1	3	2	3	3	3	-36 Critical
		Property theft – the land owners resides within the site and have various valuable belongings including livestock. Criminals may also gain access into the site with the prospecting team	1	3	2	2	4	3	-36 Critical
		Highly degraded properties after prospecting activities cease failing to meet the grazing standards and other land uses.	1	4	2	3	2	3	-33 Critical
Noise Pollution	Site Establishment & construction	Introduction of noisy heavy machinery and vehicles on site to a relatively quiet neighbourhood which includes Mapoch Primary School.	1	3	2	1	1	4	-36 Critical

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence									
Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation
			E	D	I	R	L	P	
Land Pollution	Site Establishment & Construction	General waste littering by site team and hydrocarbon contamination from the operating machinery and refuelling. The contaminations and scattered waste may also result in loss of livestock	2	3	2	2	2	3	-33 Critical
Heritage Resources									
Destruction of Heritage, Cultural and paleontology Resources	Site Establishment & Construction	✓ It has been established that there are graves on site, there is potential to disturb the site graves	1	3	2	3	3	3	-36 Critical
		✓ Unearthing of fossils deposits at unknown/ unassessed sites during drilling cannot be ruled out	1	3	1	3	3	2	-22 Moderate
Health and Safety									
Bodily injuries	Site Establishment & Operational	✓ Injuries arising from erratic operations or mechanical failures of site machinery and vehicles;	1	3	1	2	2	3	-27 Moderate
		✓ Fall into excavations either by personnel or general public;	1	3	1	2	2	1	-9 Negligible
		✓ Chipping of outcrops to obtain outcrop samples;	1	3	2	2	2	2	-20 Low
		✓ Encounter with dangerous wild animals during site survey;	1	3	1	2	2	2	-18 Low

9.1.2 Cumulative Impacts

Existing site activities with significant impacts to which the proposed prospecting activities' impacts will compound to:

- There is a Mapoch Mine operation located at 3km to the east of the proposed site, the mining activities are for magnetite ore. The mine has the potential to impact the surface and groundwater as well as the air quality;
- The crop farming activities are expected to largely contribute to the surface water quality, the contaminants includes suspended solids and dissolved solids – these are mainly the applied fertilisers, pesticides and herbicides;
- The ploughed fields are dusty especially during the dry months, which is also the recommended period to undertake the prospecting activities when the water levels in watercourses are at their lowest;

9.2 Methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks

The potential environmental impacts associated with the project will be evaluated according to its nature, extent, duration, intensity, probability and significance of the impacts, whereby:

Extent: The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;

Duration (D): Indicates what the lifetime of the impact will be;

Intensity (I): Describes whether an impact is destructive or benign;

Impact Reversal (R): The probability and the degree of reversing the activity impact;

Irreplaceable Loss (L): Loss of resources that cannot be replaced; and

Probability (P): Describes the likelihood of an impact actually occurring;

Cumulative: In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

The significance of each risk/impact will be identified as follows:

Impact Significance = Probability (P) X Consequence (C), where

$$C = E + I + D + R + L$$

Table 9-1: Criteria Used for Rating of Impacts

CRITERIA	DESCRIPTION			
Extent	National (4) The whole of South Africa	Regional (3) Provincial and parts of neighbouring provinces	Local (2) Within a radius of 2 km of the construction site	Site (1) Within the construction site
Duration	Permanent (4) Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient	Long-term (3) The impact will continue or last for the entire operational life of the development, but will be mitigated by direct human action or by natural processes thereafter. The only class of impact which will be non-transitory	Medium-term (2) The impact will last for the period of the construction phase, where after it will be entirely negated	Short-term (1) The impact will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase
Intensity	Very High (4) Natural, cultural and social functions and processes are altered to extent that they permanently cease	High (3) Natural, cultural and social functions and processes are altered to extent that they temporarily cease	Moderate (2) Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way	Low (1) Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected

CRITERIA	DESCRIPTION			
Impact Reversal	<p>Highly Impossible (4)</p> <p>Impact reversal will certainly be impossible</p>	<p>Moderate (3)</p> <p>Impact can be reversed to some extent with loss of natural resources</p>	<p>Possible (2)</p> <p>High possibility of impact reversal</p>	<p>Definite (1)</p> <p>Impact can be totally reversed</p>
Loss of irreplaceable resources	<p>Definite (4)</p> <p>Resources definitely be lost</p>	<p>Highly Probable (3)</p> <p>Most likely that resources will be lost</p>	<p>Possible (2)</p> <p>Resources may be lost</p>	<p>Improbable (1)</p> <p>Loss of resources is highly unlikely</p>
Probability Of Occurrence	<p>Definite (4)</p> <p>Impact will certainly occur</p>	<p>Highly Probable (3)</p> <p>Most likely that the impact will occur</p>	<p>Possible (2)</p> <p>The impact may occur</p>	<p>Improbable (1)</p> <p>Likelihood of the impact materialising is very low</p>

Significance is determined through a synthesis of impact characteristics. Significance is also an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. The total number of points scored for each impact indicates the level of significance of the impact.

Table 9-2: Criteria for Rating of Classified Impacts

		Impact Significance (Consequence * Probability)															
Probability ↑	4	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80
	3	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60
	2	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40
	1	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
		Consequence (Extent + Intensity + Duration + Reversibility + Irreplaceable Loss) →															

Table 9-3: Impact consequence class description

Score	Description	Colour Code
Negligible (0 -10 points)	A negligible impact that can be easily managed and avoided.	
Low impact/ Minor (11 -20 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.	
Medium impact/ Moderate (21 - 30 points)	Mitigation is possible with additional design and construction inputs.	
Critical (31 – 50 Points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.	
Catastrophic (51 - 80 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a “very high impact” is likely to be a fatal flaw.	
Status	Denotes the perceived effect of the impact on the affected area.	
Positive (+)	Beneficial impact.	
Negative (-)	Deleterious or adverse impact.	

The suitability and feasibility of all proposed mitigation measures is included in the assessment of significant impacts. This was achieved through the comparison of the significance of the impact before and after the proposed mitigation measure is implemented.

9.3 The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected

9.3.1 Positive Impacts

Prospecting activities are precursor activities to mining, they evaluate the possibilities of mine establishment. There are very limited returns from prospecting activities. The returns from prospecting activities can only be realised after a successful prospecting project. It has not been proven that mineral bearing ore body are presence on site and if presence whether they can be sustainable be mined. The very limited benefits from the proposed activities are:

9.3.1.1 Ore Reserve quantification

The presence of ore deposits on site will be verified and thereafter the economic value of the ore will be determined which could ultimately lead to the establishment of a mine. The mine itself have significant socioeconomic value. In the event that a viable reserve is confirmed, there would be high degree of positive impacts such as employment of large number of local residents, socio-economic balance of the local community and on the National and Provincial scale mining contribute highly to the Gross Domestic Product (GDP).

9.3.1.2 Contribution to South African geological data

The practical geological results obtained through this prospecting will be submitted to the South African Council of Geoscience for comprehensive mapping of South Africa based on proven data.

9.3.1.3 SMME and Street Vendor Support

The prospecting team will require basic services from the local community which would mainly be provided by the small businesses and street vendors.

9.3.2 Negative Impacts

9.3.2.1 Commencement of listed activities in terms of NEMA, NWA and other Legislations without authorisation

A potential always exist that unauthorised undertaking of listed activities may take place on site in the form of project scope expansion and disregard of Authorisations' conditions. This could for example be increasing the number of authorised boreholes and impacting watercourses without water use license;

9.3.2.2 Alternative land use conflicts

The proposed site is owned by private owners primarily using the site for different activities, the proposed prospecting activities conflicts with the current site land uses.

9.3.2.3 Degradation of local roads

The site can be accessed using one local gravel road from the R577 on the South. Driving continuously on the local gravel roads will degrade the roads. Drill rigs and heavy vehicles will impact the road quality. The internal existing roads will also be degraded during the site establishment and drilling.

9.3.2.4 Loss, contamination and compaction of fertile soil

Access roads and drill station establishment will result in removal/compaction of topsoil resulting in reduced fertility. The driving and parking of vehicles also create potential for hydrocarbon contaminations.

9.3.2.5 Soil erosion

Establishment of access roads and drill station disturbs soil cohesion increasing the potential for soil erosion. The site have dongas along the watercourses which is indicative of poor soil cohesion on site.

9.3.2.6 Loss of biodiversity, natural corridors and habitats

There are areas identified with medium to very high sensitivities within the proposed site and a potential exists for disturbances of this areas, with the loss of vegetation, habitats are also lost. These areas include the sensitive habitats at the site koppies and the watercourses.

9.3.2.7 Loss of species of concern

Although no species of conservation concern has been identified on site their potential on site cannot be ruled out due to the natural state of the local biodiversity;

9.3.2.8 Introduction of alien invasive plants

Invasive plants flourish where there is disturbances and ecological imbalances. The disturbance of vegetation to establish drill stations and access roads has the potential to introduce and facilitate spread of invasive alien plants;

9.3.2.9 Degradation of Wetlands, streams and other water sources

There is a network of watercourses within the proposed site, the Galgstream flows from the east through the site into the Hoofstadsloop (Masala) flowing from the south, Another network

is located on the northern part of the site flowing in a southerly direction into the same Hoofstadsloop Rivier. There is high potential for impacting these watercourses when crossing to access drilling points and undertaking of invasive drilling activities be conducted within the watercourses.

9.3.2.10 Contamination of ground water resource

- Some site activities are dependent on the underground water resource, the site underground recharge is estimated to be 43.64 mm/a should surface be contaminated the infiltration has the potential to introduce contaminants to the groundwater; and
- Should the drilling intercept an aquifer, a depression cone will be created resulting in lowered water level affecting adjacent boreholes until the balance is restored. .

9.3.2.11 Contamination of surface water

Flow of stormwater from contaminated areas into the local watercourses and undertaking of the invasive activities within the watercourses.

9.3.2.12 Generation of waste

- The prospecting activities will generate both the general and hazardous wastes. The general waste will mostly be domestic waste.
- There will be a requirement for chemical toilets to accommodate the site prospecting team, this will have sewage waste that must be effectively managed to prevent spills onto the surfaces.
- The use of open areas to relieve themselves by the site team will contaminate the area and the livestock as well.
- The waste will be managed using the "triple R" principle, Reduce, Reuse and Recycle;

9.3.2.13 Dust Generation:

The vehicles and machinery movement on gravel roads will generate dust. The dust generation potential is considered high since the site is located on loose sandy soils;

9.3.2.14 Fire breakout

There are potentials for fire breakout from the activities sites, smoking is a significant contributor to fire breakouts. A fire breakout will have huge implications in the area burning the CBAs including the species of conservation concern should they be present, the breakout can result in a total loss of habitats and also resulting in loss of site crops;

9.3.2.15 Health and safety risks

The operating machinery, equipment and vehicles, and excavations and undertaking activities in the wild create health and safety risks to the prospecting crew and the local community;

9.3.2.16 Criminal activities

Crime in South Africa is a social challenge faced by almost everyone, the presence of prospecting machinery and equipment on site will attract criminals who would seek to steal and sell such equipment;

There has been numerous reported cases of farm murders in South Africa.

9.3.2.17 Poor housekeeping

The site activities will generate wastes and proper waste management and site cleaning will be required to prevent the "dirty" site visuals;

9.3.2.18 Disturbance and/or destruction of cultural and heritage resources:

The EIA Process identified graves on site which are considered as heritage resources in terms of the National Heritage Resources Act 25 of 1999; field assessment identified structures that are more than 60 years old.

9.3.2.19 Noise Generation:

The proposed activities will generate noise that will disturb the local environments, which include the Mapochs Primary School.

9.4 The possible mitigation measures that could be applied and the level of risk

The mitigation measures have been thoroughly discussed in Part A section 11 and Part B section 4. Below a summative impact/risk management is provided.

9.4.1 Commencement of listed activities in terms of NEMA, NWA and other Legislations without authorisation:

- It must be ensured that all activities undertaken are authorised in terms of the relevant legislations and the conditions of the authorisations must be upheld at all times; and
- All the site personnel must be made aware of the site's environmental requirements.

9.4.2 Alternative land use conflicts

The land owners must be fully engaged including outside the EIA process to outline the land access agreements and prospecting programme.

9.4.3 Loss of private property

The applicant must ensure no unauthorised personnel gains access into privately owned property. A designated access control person must be designated for the duration of the prospecting activities. Access control method statement must be developed and communicated with affected land owners before access is granted. Access gates must remain locked at all times or as per the access agreement contract.

9.4.4 Loss, contamination and compaction of fertile soil

- The invasive activities must strictly be undertaken on approved areas only;
- The topsoil at the direct drill hole must be removed at stockpiled within the drill pad area to be later used for rehabilitation;
- A net carpet like an Agro-shade net must be used to cover the topsoil stockpile to prevent wind effect and erosion;
- No multiple roads must be established to access the same station thus disturbance must be limited to approved areas only.
- The compacted access roads and drill stations must be ripped to loosen the soil to enable vegetation growth;

9.4.5 Soil erosion

- Prospecting activities must be scheduled during the dry season, and storm water must be controlled;

- A net carpet like an Agro-shade net must be used to cover the topsoil stockpile to prevent wind effect. The disturbances must be limited to approved areas only; &
- No invasive activities must be undertaken within drainage lines.

9.4.6 Loss of biodiversity, natural corridors and habitats

- The sensitive areas as identified by the EIA process must remain no-go areas for the duration of the project;
- No resource harvesting and hunting must be allowed on site;
- The disturbance must be limited to active areas and the site be rehabilitated as soon as the prospecting activities are completed at each drill station.

9.4.7 Loss of species of concern

- A botanist must conduct another walk down before undertaking of the prospecting activities to identify plant species to be directly disturbed.

9.4.8 Introduction of alien invasive plants

An alien invasive plants control and management programme must be developed and adhered to. The invaders must be removed as soon as they are noticed. The common invaders are the *Solanum Mauritianum* (Bugweed), *Nicandra physalodes* (Apple of Peru) and the *Lantana Camara*.

9.4.9 Degradation of watercourses

All surface water areas are no-go areas and no activity must take place within these areas and their buffers;

Stream crossings must be through existing crossings and no new crossings must be created as this will require Water Use License.

9.4.10 Contamination of ground water resource

- Hydrocensus must be undertaken prior undertaking of the drilling programme;
- The hydrocensus must be conducted quarterly and must form part of the ECO duties (this may also be carried out by different personnel but ECO must monitor compliance);
- The drill holes must not be used as source of water for the prospecting activities;
- A thick layer of plastic bunding must be placed over the area that the machine will stand on, this is to catch any spills that may occur while drilling;
- A drip tray must be set up under the drill rig to catch any fluids that might fall from the Machine;

- The drilling fluid used must be vegetable polymer and non-toxic, non-harmful substance that is biodegradable. Despite this fact, every care must be taken to minimise spills of drilling muds;
- The vehicles will be checked daily, prior to leaving the camp, for oil leaks and contamination. Any such leaks are to be reported immediately;
- A 0.5 m³ drum sump must be connected to the drill system. The sump is a vital component of the drilling process, as it allows cuttings from the borehole to settle neatly into a contained area, as well as saving drilling water by allowing the same water to be circulated through the rod string.
- The drill holes must be covered when not in use, and as soon as the drill activities are completed at that particular drill pad the hole must be filled and capped.
- No foreign materials must be forced down the drill holes.
- The drill holes must be filled with local materials to establish similar conditions with the subsurface.

9.4.11 Contamination of surface water

- Drip trays must be placed beneath parked machineries to prevent surface contamination by collecting the leaking hydrocarbons;
- A thick layer of plastic bunding must be placed over the area that the machine will stand on, this is to catch any spills that may occur while drilling;
- A drip tray must be set up under the drill rig to catch any fluids that might fall from the Machine;
- The drilling fluid used must be a vegetable polymer and which is a non-toxic, non-harmful substance that is biodegradable. Despite this fact, every care will be taken to minimise spills of drilling muds;
- The vehicles must be checked daily, prior to leaving the camp, for oil leaks and contamination. Any such leaks are to be reported immediately;
- Contaminated surfaces must be cleaned immediately, the source of contamination will most likely be hydrocarbons;
- No activities must be allowed within the site watercourses and their 100 metres buffers;
- The contaminated soil must be placed in heavy duty plastic bags for placement in waste bins and disposal at registered hazardous waste facilities;
- The prospecting activities must be conducted during the dry periods.

9.4.12 Generation of waste

- The generated waste must be managed effectively using the “triple R” principle, Reduce, Reuse and Recycle. Waste bins must be provided for storage of wastes separately.
- Waste must be placed in waste bins, the hazardous and general waste must be separated and disposed appropriately.

9.4.13 Dust Generation

- A minimum speed limit of 40 km/h must be maintained on all internal gravel roads.
- The biodegradable dust suppressant must be used to control dust.
- Portable water must not be used for dust suppression, a biodegradable dust suppressant must be used.

9.4.14 Fire breakout

- A trained firefighter must be hired and always on site during all operational times;
- Designated smoking areas must be provided, and firefighting equipment must be provided at all drill stations;
- There are no fire stations nearby, and as such the readiness to quell fire must always be on one hundred percent.

9.4.15 Health and safety risks:

All operators must have operating competence certificates, handling of wild life must be done by trained personnel, and all openings must be barricaded.

9.4.16 Criminal activities

Access into the properties must be controlled, no hiring must be done on site and the land owners must be informed of the prospecting schedule and the crew.

9.4.17 Poor housekeeping

- The site must be kept clean at all times. Clean-up must be conducted at the end of each day.
- No open veld can be used as toilets, the crew must make use of the provided chemical toilets;
- The toilets must be cleaned weekly to promote hygiene and user friendliness.

9.4.18 Disturbance and/or destruction of cultural and heritage resources

The graves identified on site must be buffered with at least 30 metres and no disturbance must be allowed.

The identified structures older than 60 years must also be preserved and buffered with at least 20 metres.

A chance find protocol must be implemented, and should heritage resources be unearthed on site the a heritage specialist must be appointed to assess the resources, should human remains be unearthed the provincial heritage agency and the SAPS must be informed immediately and work at that particular area be stopped immediately.

9.4.19 Noise Generation

The operating machinery and vehicles must be kept in good working conditions and the affected communities must be kept abreast of any activity with high noise generation potential.

9.5 Motivation where no alternative sites were considered

- The proposed prospecting area is targeted as the desktop studies as conducted by Colt Resources (Pty) Ltd, suggest that there is high potential for ore deposits.
- The EIA process only considered the areas as accepted by the DMRE;
- The sensitive areas have been identified and demarcated;
- There is sufficient open area with no human settlements that could possibly create conflicts with the land owners;
- Although there are watercourses identified, these can be avoided and prospecting be undertaken on dry areas with 100 metres buffer zones to all surface water areas applied; and
- There were no historical sites identified within the proposed site.

9.6 Statement motivating the alternative development location within the overall site

The site layout is mainly influenced by the distribution of the targeted geological stratum, however the drilling site is also influenced by the accessibility and environmental sensitivity. Thus, the drilling sites will avoid all sensitive areas in terms of the conducted assessment, provincial plans and the heritage assessment.

The drill pads layout out will largely be dependent on the outcome of the aeromagnetic survey which will determine the possible locations of the ore deposits.

10 Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site

In order to identify the potential impacts associated with the proposed prospecting activities the following steps were undertaken:

10.1 Stakeholder consultation

The stakeholder consultation process will be undertaken in a manner to be interactive, providing landowners and identified stakeholders with the opportunity to provide input into the project. This was a key focus, as the locals are aware of their environment and can provide site specific information, which may not be available in desktop research material. Stakeholders were requested to provide their views on the project and any potential concerns which they had. All comments and concerns will be captured and formulated into the impact assessment.

10.2 Desktop study

A detailed desktop investigation was undertaken to determine the environmental setting in which the project is located. Based on the desktop investigations various resources were used to determine the significance and sensitivity of the various environmental considerations. The desktop investigation involved the use of:

- South African National Biodiversity Institute (SANBI) Biodiversity Geographic Database LUDS system; SANBI Plants of South Africa; and SANBI Important Birds Area;
- Geographic Information System base maps, NGI Portal and Google Earth;
- Department of Water Affairs and Sanitation's information documents such as the ground water vulnerability report;
- Department of Forestry, Fisheries and Environment (DFFE) land use map;
- Mining and Biodiversity Guidelines, 2013;
- Review of Journals, Books and unpublished papers;
- 2018 Limpopo Province Map of Critical Biodiversity Areas and Ecological Support Areas;
- Local and District Municipality Integrated Development Plan;
- Local and District Municipality Strategic Development Framework;
- Relevant Provincial, National and International Policies, Regulations & Acts.

10.3 Site Visit

A site visit was conducted to ensure that the information gathered as part of the Desktop investigation reflects the current status of the land. The site visit was conducted on 21 – 22 August 2023.

10.4 Impacts assessment, rating and management

The ratings of the identified impacts were undertaken in a quantitative manner as provided in Impact Assessment Section. The ratings were undertaken in a manner to calculate the significance of each of the impacts. The EAP also assesses and rate the outcomes of the calculation to determine whether the outcome reflects the perceived and the actual views; The identification of management measures is done based on the significance of the impacts and measures that have been considered appropriate and successful, specifically as Best Practical and Economical Options.

11 Assessment of each identified potentially significant impact and risk

11.1 Assessment of all identified impacts and risks

E = Extent, D = Duration, I = Intensity, R = Impact Reversibility, L = Irreplaceable Loss of Resources, P = Probability of occurrence							Where (E + D + I + R + L) X P = Significance				
Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
			E	D	I	R	L	P			
Legal requirements											
Delayed and/or disrupted prospecting operations	Site Establishment & Construction	<ul style="list-style-type: none"> Disregarding Environmental Authorisation conditions; Disregarding access agreement conditions; Disregarding mining & prospecting legislative requirements; Partial compliance to EMPr. 	2	3	4	4	4	4	-68 Catasrophic	<ul style="list-style-type: none"> A copy of each operational license/permit must be kept on site; All site personnel must be inducted on all legislative requirements pertaining to site activities; The site personnel must be informed and provided with copies of access agreements between Colt Resources and land owners; and In cases where amendments are required the existing conditions are binding until legally amended. 	0 Negligible
Legal liabilities	Site Establishment & Operational	<ul style="list-style-type: none"> Property owners suing for damages and /or unapproved access into their properties; Legal penalties for failing to comply with site operational licenses/authorisations/permit. 	1	3	2	3	3	3	-36 Critical	<ul style="list-style-type: none"> All permits/ authorisations /licenses must be fully reviewed before work can be undertaken to ensure that required resources are made available; The site personnel must be informed and provided with copies of access agreements between Colt Resources and land owners; A complaint register must be established to record all complaints from land owners and other affected parties also reflected measures taken to address the complaints and dates. 	-6 Negligible
Loss of Private Properties											
Destruction and/or Loss of privately owned properties	Site Establishment & Operational	<ul style="list-style-type: none"> There are residential areas located within the proposed introducing drilling rigs could potentially impact the housing infrastructures. 	1	3	2	3	3	3	-36 Critical	<ul style="list-style-type: none"> No drilling will be undertaken within the 50 metres of the farm house; All site infrastructure must be mapped and marked as no-go areas. 	-8 Negligible
Impact on local infrastructure											
Degradation of local roads and disruption of local services servitudes	Site Establishment & Operational	<ul style="list-style-type: none"> The local road traversing through the site is gravel and regular driving will degrade the roads; and Driving of heavy trucks has the potential to disrupt local service servitude. 	2	3	3	2	1	4	-44 Critical	<ul style="list-style-type: none"> The trips must be properly planned and scheduled for morning and evenings; The before, during and after road conditions must be captured and filed by the ECO; Road degradation monitoring must form part of the ECO responsibilities; Road damages due to the prospecting vehicles and machineries must be maintained. 	-22 Moderate
Soil											
Soil contaminations	Site Establishment & construction	<ul style="list-style-type: none"> Leakages of hydrocarbons from site vehicles and operating equipment 	1	3	1	2	2	3	-27 Moderate	<ul style="list-style-type: none"> All site vehicles and equipment must be properly maintained regularly and daily inspection sheet be kept with each truck; The 1000 litres diesel bowser must be placed within a steel drip tray with 110% volume of the bowser; Drip trays must be placed under refuelling points at all times during refuelling; A drip tray must be placed under stationery machineries; Servicing of vehicles and machinery must be done off site; Leakages and Spillages must be attended to as soon as they are noticed and the contaminated soil must be placed in designated plastic bags/bins to be cleaned or disposed of at registered appropriate waste site. 	-6 Negligible

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Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
			E	D	I	R	L	P			
Soil Compaction & Loss of fertility	Site Establishment & Construction	Compaction of soil by site moving vehicles reducing vegetation growing capabilities;	1	2	2	2	2	4	-36 Critical	<ul style="list-style-type: none"> ✓ Vehicle and machinery movements must be restricted to approved corridors; ✓ No new access roads must be developed without the approval of site ECO and the consent of land owners; ✓ Access plan must be provided to all affected land owners; ✓ Topsoil must be handled as fewer times as possible; ✓ Created access roads no longer in use must be ripped and rehabilitated according to the site rehabilitation plan. 	-10 Negligible
Loss and degradation of topsoil	Site Establishment & Construction	✓ Removal of topsoil to establish drilling area;	1	2	1	2	2	4	-32 Critical	<ul style="list-style-type: none"> ✓ Topsoil must be stockpiled separately from any other site materials; ✓ The topsoil must be stockpiled away from the drainage lines and outside the 1:100 year floodline but within the drill station; 	-10 Negligible
		✓ Loss of topsoil through erosion and contamination resulting in reduced vegetation rehabilitation potential;	1	3	2	2	2	4	-40 Critical	<ul style="list-style-type: none"> ✓ Contaminated topsoil must be treated as soon as possible and where treatment is not possible, the soil must be separated and stored in contaminated materials bin; ✓ Storm water diversion channels must be developed around topsoil stockpiles; ✓ Topsoil must not be used for any other activity besides rehabilitation unless there is justifiable excess. 	-14 Low
Soil Erosion	Site Establishment, Construction and Post Closure	✓ The site located on soils which are prone to erosion when disturbed.	1	4	2	1	1	3	-27 Moderate	<ul style="list-style-type: none"> ✓ Storm water must be diverted away from stockpiling area; ✓ The prospecting activities must be undertaken during the dry periods; & ✓ Soil disturbance must be limited to working area. 	-12 Low
Biodiversity											
Loss of vegetation	Site Establishment & construction	✓ Clearing and trampling of vegetation during drill station establishment, the impact will affect more than the local area should SCC be lost	3	3	2	3	3	4	-56 Catastrophic	<ul style="list-style-type: none"> ✓ The site sensitive areas as must be considered as no-go areas; ✓ Vegetation clearing and disturbance must be limited to active areas only; 	-8 Negligible
		✓ Trampling of vegetation during off road driving, the impact will affect more than the local area should SCC be lost;	3	3	2	3	3	4	-56 Catastrophic	<ul style="list-style-type: none"> ✓ In order to reduce trampling of indigenous vegetation, off road tracks must be established within the least vegetated areas; ✓ A botanist must conduct a site walk prior roads and drill station establishment to rule out presence of species of conservation concern; 	
		✓ Illegal harvesting of plants species within the prospecting site and adjacent areas	3	3	3	4	4	3	-51 Catastrophic	<ul style="list-style-type: none"> ✓ Disturbances must be limited to approved areas, activities must not haphazardly undertaken; ✓ Vegetation clearing must be limited to the direct drill hole position only not the entire drill station; 	

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Potential Impact	Phase	Impact Description	Rating Before Mitigation					Significance Before Mitigation	Mitigation Measures	Significance After Mitigation	
			E	D	I	R	L				P
		✓ Clearing of Vegetation to establish stockpiling area;	1	3	1	2	2	4	-36 Critical	<ul style="list-style-type: none"> ✓ The identified drill areas must not be cleared all at once but progressively with prospecting activity; ✓ The spread of alien invasive plant species must be controlled and monitored; ✓ Plant harvesting for any other purpose is prohibited; ✓ Seedbank for indigenous vegetation may be established to aid during site rehabilitation; ✓ No fires must be allowed on site; ✓ The disturbed areas must be rehabilitated as soon as they are out of use. 	
		✓ Possible fire breakout from the drilling activities resulting in massive losses of vegetation.	4	3	2	4	4	3	-51 Catastrophic		
Loss of fauna	Site Establishment, Construction and Post Closure	✓ There are sensitive habitats identified on site which includes Koppies and watercourse areas, Activities within these areas will result in loss of habitats and forced relocation of species;	2	2	1	2	2	4	-36 Critical	<ul style="list-style-type: none"> ✓ The mapped sensitive habitats must be demarcated as no-go zones for the duration of the project; ✓ No hunting must be allowed on site; ✓ The site must be kept neat at all times to avoid attraction of scavengers; ✓ Where animals are spotted within working areas they must be rescued and moved to adjacent undisturbed areas; ✓ Excavations must be barricaded to prevent animal fall-in; ✓ All excavations must be re-filled once the prospecting at that specific area ceases; ✓ Driving speed limit of 40 km/h must be maintained on all internal roads; ✓ Intentional killing of animals including dangerous animals such as snakes and spiders is prohibited; ✓ Only qualified handlers must be used to rescue and relocate animals; ✓ No pets must be brought to site; ✓ Site activities must be restricted to day time. 	-22 Medium
		✓ Restricted fauna movement and increased health and safety risks to wildlife due to deep excavations and barricades;	2	3	1	1	1	2	-16 Low		
		✓ Noise nuisance affecting the wild life often causing panic attacks resulting in loss of life and injuries	2	3	2	2	2	3	-33 Critical		
		✓ Driving over micro and small wild animals during off road driving	2	3	2	3	3	3	-39 Critical		
		✓ Accidents/ collision with wild animals resulting in injuries and loss of life;	2	3	1	3	3	3	-36 Critical		
		✓ Wild life hunting by the prospecting crews which may include red listed species	3	3	2	2	2	3	-36 Critical		
Invasion by invasive alien plants	Site Establishment, Operational & Post Closure	Introduction of invasive alien plants – these are opportunistic plants that takes advantage of vegetation disturbance and slowly replacing the local indigenous vegetation.	2	3	2	2	2	4	-44 Critical	<ul style="list-style-type: none"> ✓ A poster of all common invasive plants for the area must be developed and employees be inducted on the subject; ✓ All invasive plants must be removed as soon as they are spotted; ✓ No chemicals can be used for control of invasive plants; and ✓ An invasive plants monitoring programme must be developed for both operational and post operational phases. 	-16 Low

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Potential Impact	Phase	Impact Description	Rating Before Mitigation					Significance Before Mitigation	Mitigation Measures	Significance After Mitigation	
			E	D	I	R	L				P
Surface and Ground water											
High usage of water	Construction and operational	Demand for water for machinery and dust suppression during prospecting activities.	2	4	2	2	2	3	-36 Critical	<ul style="list-style-type: none"> ✓ Water must not be used for dust suppression; ✓ No new water boreholes must be drilled onsite for meeting operational water requirements; ✓ Water must be obtained from existing sources and a usage consent must be obtained from the municipality/owner; ✓ The water usage bylaws for the Elias Motswaledi Municipality must be adhered to; ✓ Water usage must be recorded by the site Environmental officer on a daily basis. 	-8 Negligible
Destruction of site wetlands	Site Establishment, Construction & Post-prospecting	There are watercourses identified within the site, invasive prospecting activities have the greatest potential to impact these watercourses	2	3	2	2	3	3	-36 Critical	<ul style="list-style-type: none"> ✓ All wetlands must be demarcated as a No-go areas; ✓ No activity is to be allowed within the watercourse; ✓ Driving through wetlands is prohibited; and ✓ Wetlands must be buffered with at least 100 metres from the edge. 	-18 Low
Surface water contamination	Site Establishment, Construction & Post-prospecting	Surface water getting into contact with contaminated soils;	2	3	1	1	2	3	-27 Moderate	<ul style="list-style-type: none"> ✓ All drill holes must be capped once the prospecting is done at such drill area; ✓ Storm water must be diverted away from the drill areas; ✓ Contaminated water must be contained, treated and/or disposed of appropriately; ✓ All contaminated surfaces must be cleaned as soon as they are noticed; ✓ Temporary chemical toilets must be provided, these toilets must be made available for all site staff. The construction of "long drop toilets is forbidden; 	-10 Negligible
		Flow of storm water from contaminated areas into surface water drainages	2	3	2	1	1	3	-27 Moderate	<ul style="list-style-type: none"> ✓ The chemical toilets must be placed outside the site drainage lines; ✓ The water sources such as rivers, dams and ponds must be buffered as per this report and marked as a no-go area; ✓ Under no circumstances may open areas or the surrounding bush be used as a toilet facility; 	-14 Low
Interception of the subsurface (underground) flow Introducing contaminants to the subsurface water	Drilling Phase	According to the <i>Water Resources of South Africa 2012 Study</i> the average depth to the ground water is 17 metres. The proposed drill programme will reach as deep as 100 metres below the surface. The drill will be expected to intercept the groundwater introducing contaminants to the subsurface	2	4	2	2	2	3	-36 Critical	<ul style="list-style-type: none"> ✓ Hydrocensus must be conducted prior drilling activities; ✓ Water interception must be reported to the DWS, (depth, location and quality); ✓ No chemicals must be forced down the drill hole; ✓ The drill hole must be covered overnight to prevent foreign materials from entering the drill hole; 	-27 Moderate
Lowered groundwater level	Drilling Phase	Reduced level of the groundwater affecting the adjacent boreholes due to the created depression cone around the drill holes	2	3	1	2	2	3	-30 Moderate	<ul style="list-style-type: none"> ✓ Hydrocensus must be conducted prior drilling activities; ✓ Borehole monitoring must be undertaken quarterly during the prospecting programme and biannually for a period of two years post prospecting; ✓ No abstraction of water must be allowed from the drilled boreholes; ✓ The boreholes must be filled and capped as soon as they are out of use; 	-18 Low

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Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
			E	D	I	R	L	P			
Excessive water demand to meeting prospecting activities demand	Construction & Post-prospecting	Excessive abstraction of the groundwater to meet the prospecting activities water demand.	2	3	2	3	2	3	-36 Critical	<ul style="list-style-type: none"> ✓ Abstraction of water from unlicensed/unregistered borehole is prohibited; ✓ Groundwater interceptions must be reported to the DWS. 	-20 Low
Groundwater contamination	Construction & Post-prospecting	Contaminants from the surface will potentially go down the drill holes, these includes hydrocarbon contaminated waste and general waste.	2	3	1	2	2	3	-30 Moderate	<ul style="list-style-type: none"> ✓ The borehole area must be kept free of litter; ✓ The boreholes must be covered overnight and when not in use; ✓ The boreholes must be capped as soon as they are out of use; 	-22 Moderate
Groundwater contamination	Construction & Post-prospecting	The site soils are highly saline and should they go down the drill holes, they'll impact the ground water quality	2	3	1	1	1	3	-24 Moderate	<ul style="list-style-type: none"> ✓ The drilling equipment must be kept in good working condition to prevent hydrocarbon contamination; 	-18 Low
Enviro-Socioeconomic											
Job creation	Site Establishment & construction	Prospecting activities are not labour intensive and as such less than five supporting workers will be required for the duration of the prospecting activities. The job opportunities are limited in the local Kliprand Town and even one created opportunity is significant.	2	3	1	0	0	4	24 Moderate	<ul style="list-style-type: none"> ✓ The employees should be sourced from the local human resource pool; ✓ No hiring must be done at the proposed site to avoid influx of jobseekers into private properties; ✓ The number of employees required and the employment methods should be communicated. 	24 Moderate
Land owner conflicts	Site Establishment, Construction & Post-prospecting	Property owner reluctant to grant access into their properties	1	3	4	0	0	3	-24 Moderate	<ul style="list-style-type: none"> ✓ The land owners must be able to claim for compensation against loss of crops and other private properties; ✓ Access into the site must be controlled as agreed with the land owners; 	-3 Negligible
		Compromised safety and security of the land owners residing on site as criminals may gain access into the private properties disguised as the prospecting team.	1	3	2	3	3	3	-36 Critical	<ul style="list-style-type: none"> ✓ Land access agreement must be reached between the applicant and the property owners; ✓ Operational times must be communicated with the property owners; ✓ All prospecting activities must be limited to approved areas; 	
		Property theft – the land owners resides within the site and have various valuable belongings including livestock. Criminals may also gain access into the site with the prospecting team	1	3	2	2	4	3	-36 Critical	<ul style="list-style-type: none"> ✓ No hunting must be allowed on site; ✓ No camping areas must be established on site; ✓ Access roads establishment must be done in consultation with property owners. 	-6 Negligible
		Highly degraded properties after prospecting activities cease failing to meet the grazing standards and other land uses. It has been established that it is difficult to restore the vegetation at the succulent karoo due to aridity	1	4	2	3	2	3	-33 Critical	<ul style="list-style-type: none"> ✓ The site must be fully restored on completion of invasive at each drill station; ✓ The financial provision as required by the NEMA must be paid in advance. 	-6 Negligible

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Potential Impact	Phase	Impact Description	Rating Before Mitigation						Significance Before Mitigation	Mitigation Measures	Significance After Mitigation
			E	D	I	R	L	P			
Visual alterations	Site Establishment & construction	The presence of machineries in an open area	1	3	1	1	1	3	-21 Moderate	<ul style="list-style-type: none"> ✓ All site activities must be limited to approved area; ✓ The property owners must be made aware of prospecting scheduling; ✓ All site personnel must be fully aware of property owners' access conditions. 	-10 Negligible
Noise Pollution		Introduction of noisy heavy machinery and vehicles on site to a relatively farm lands.	1	3	2	1	1	4	-36 Critical	<ul style="list-style-type: none"> ✓ The property owners and other affected parties must be made aware of activity scheduling; ✓ The activities must be conducted during the day i.e. from 07:00 to 18:00. 	-12 Low
Land Pollution	Site Establishment & Construction	General waste littering by site team and hydrocarbon contamination form the operating machinery and refuelling. The contaminations and scattered waste may also result in loss of livestock	2	3	2	2	2	3	-33 Critical	<ul style="list-style-type: none"> ✓ All site personnel will be inducted on reduce, reuse and recycle concept; ✓ Temporary chemical toilets must be provided. These toilets must be made available for all site staff. The construction of "long drop" toilets is forbidden; ✓ Under no circumstances may open areas or the surrounding bush be used as a toilet facility. ✓ Waste must be separated and stored in marked bins; ✓ Waste disposal certificates must be kept on-site; ✓ A clean-up campaign must be undertaken every second Friday; 	-7 Negligible
Heritage Resources											
Destruction of Heritage, Cultural and paleontology Resources	Site Establishment & Construction	It has been established that there are graves on site, there is potential to disturb the site graves	1	3	2	3	3	3	-36 Critical	<ul style="list-style-type: none"> ✓ The graves identified on site must be buffered with at least 30 metres and no disturbance must be allowed. ✓ The identified structures older than 60 years must also be preserved and buffered with at least 20 metres. 	-24 Moderate
		Unearthing of fossils deposits at unknown/ unassessed sites during drilling cannot be ruled out	1	3	1	3	3	2	-22 Moderate	<ul style="list-style-type: none"> ✓ A chance find protocol must be implemented, and should heritage resources be unearthed on site the a heritage specialist must be appointed to assess the resources, should human remains be unearthed the provincial heritage agency and the SAPS must be informed immediately and work at that particular area be stopped immediately. ✓ There are graves with known locations on site, these graves must be buffered with at least 50 metres; ✓ No disturbance of the graves must be allowed; ✓ Should any other paleontological or cultural artefacts be discovered work at the point of discovery must stop, the location be clearly demarcated and SAHRA contacted immediately. Work at the discovery site may only be recommenced on instruction from SAHRA. 	-10 Negligible
Health and Safety											
Bodily injuries	Site Establishment & Operational	✓ Injuries arising from erratic operations or mechanical failures of site machinery and vehicles;	1	3	1	2	2	3	-27 Moderate	<ul style="list-style-type: none"> ✓ The site machinery must be kept in good working conditions; ✓ All machinery operators must have permit/license to operate; ✓ Excavations must be demarcated and marked with visible tape; 	-12 Low

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Potential Impact	Phase	Impact Description	Rating Before Mitigation					Significance Before Mitigation	Mitigation Measures	Significance After Mitigation	
			E	D	I	R	L				P
		✓ Fall into excavations either by personnel or general public;	1	3	1	2	2	1	-9 Negligible	✓ First aid kits must be made available on site and a trained Safety, Health and Environment Representatives be assigned for each team; ✓ Each chemical on site must have material storage and handling sheet (MSDS); ✓ During prospecting activities all employees must be provided with Protective clothing; ✓ All site personnel must have a working cell phone to communicate in case of emergency during survey phase.	-3 Negligible
		✓ Chipping of outcrops to obtain outcrop samples;	1	3	2	2	2	2	-20 Low		-5 Negligible
		✓ Encounter with dangerous wild animals during site survey;	1	3	1	2	2	2	-18 Low		-10 Low
		✓ Injuries arising from erratic operations or mechanical failures of site machinery and vehicles;	1	3	1	2	2	3	-27 Moderate		-6 Negligible

11.1.1 Cumulative Impacts

Existing site activities with significant impacts to which the proposed prospecting activities' impacts will compound to:

- There is a Mapoch Mine operation located at 3km to the east of the proposed site, the mining activities are for magnetite ore. The mine has the potential to impact the surface and groundwater as well as the air quality;
- The crop farming activities are expected to largely contribute to the surface water quality, the contaminants includes suspended solids and dissolved solids – these are mainly the applied fertilisers, pesticides and herbicides;
- The ploughed fields are dusty especially during the dry months, which is also the recommended period to undertake the prospecting activities when the water levels in watercourses are at their lowest;

No mitigation measures can be provided for cumulative impacts as the responsible parties are third parties who have no affiliations with the applicant. The applicant will conduct the prospecting activities according to the approved EMPr to reduce the significance of impacts arising from their prospecting operation.

11.2 Specialists Studies

11.2.1 Studies identified by the Screening Tool

Specialist Study	Theme Sensitivity	Exclusion Motivation
1. Agriculture Theme	<p>Medium</p> <p><i>Annual Crop Cultivation</i></p> <p><i>Planted Pastures Rotation</i></p>	<p>The crop farming area has been identified on site. The two activities can be undertaken simultaneously with the proposed prospecting activities;</p> <p>The invasive activities (drilling and establishment of drill station) will disturb only targeted areas and each drill station will be approximately 500 m², of the proposed extensive development footprint less than a hectare will be disturbed for establishment of drill pads.</p> <p>The existing internal access roads will be used as far as practicably, this will largely restrict disturbances to already disturbed areas conserving the agricultural areas. On cessation of the prospecting activities the drill holes will be backfilled and rehabilitated according to an approved method statement, re-establishing pre-existing agricultural conditions. <i>No specialist study will be commissioned.</i></p>
2. Animal Species Theme	High	An ecological study has been commissioned to assess impacts on animal species.
3. Aquatic Biodiversity Theme	Low	There are two main watercourses on site rendering the site high sensitivity, the streams have been delineated and marked as a no go area. The prospecting activities will be undertaken during the dry period during which the two watercourses are dry. A 100 m buffer will be implemented on all water all surface water resources. The EIA process have identified the site water resources, and created a 100 m buffer around them which will be implemented during the prospecting phase. <i>No specialist study will be commissioned.</i>
4. Archaeological, Paleontology and Cultural Heritage Theme	High	The theme is low, however there are graves identified on site. Within 150m of a Grade IIIa Heritage site <i>The Heritage Impact Assessment study was commissioned.</i>

Specialist Study	Theme Sensitivity	Exclusion Motivation
5. Civil Aviation Theme	Medium	The proposed activities will not impact civil aviation. <i>No specialist study will be commissioned.</i>
6. Defence Theme	Low	There are no base for the Department of Defence or any of their resources to be disturbed by the proposed activities. <i>No specialist study will be commissioned.</i>
7. Plant Species Theme	Medium	The theme has low sensitivity. This will however, be assessed by the ecological study to be undertaken.
8. Terrestrial Biodiversity Theme	Very High	<p>The site in terms of the Provincial Spatial Plan is located within the least threatened ecosystem. However prospecting activities are undertaken on relatively small area (20 x 25 m) and at such a small area biodiversity can be conserved by search and rescue and avoidance of vegetated areas.</p> <p><i>A specialist was undertaken the assessment which will include the Animal and the Plant Species Themes.</i></p>

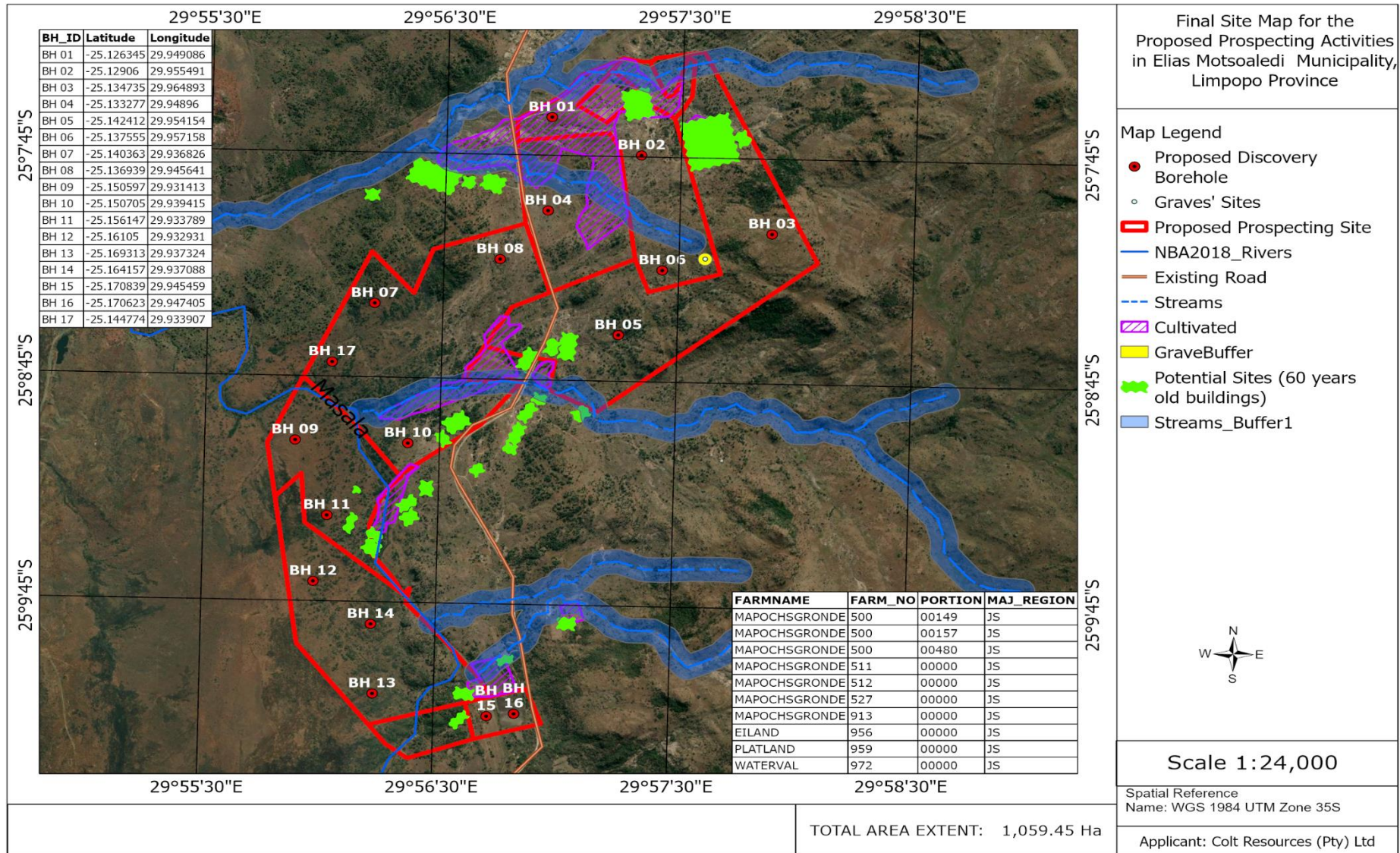
11.3 Environmental impact statement

- The site lies within the Savanna Biome, specifically, SVcb 28 Sekhukhune Mountain Bushveld which is considered least threatened according to the National Biodiversity Assessment of 2018;
- The 2018 Limpopo Province Map of Critical Biodiversity Areas and Ecological Support Areas locates the proposed site on a Critical Biodiversity Area2;
- There are no protected areas within the proposed site and no red listed species were identified;
- There are multiple watercourses within the site with the main rivers being the Hoofstadsloop (Masala) and Galgstroom. The Hoofstadsloop is considered NFEPA with a PES of class C: Moderately Modified according to the NFEPA, 2011;
- There are graves located within the proposed site identified during the site survey, these can be protected by a buffer of 50 metres, furthermore the site is located one kilometre north of the Mapoch Graves, a proclaimed provincial heritage site;
- The main land use on site is agriculture and human settlements;
- The proposed prospecting activities are of short duration and can be completed in a period of a year to a maximum of 5 years;
- The prospecting activities are non-complex and mostly mechanised requiring skilled professionals, as such less than four people will be hired to provide support to the project team, the proposed project will not have significant impact on the local socioeconomic conditions;
- The driving and drilling activities are expected to generate noise nuisance affecting the wild life. The Noise nuisance cannot be prevented and will only be managed through limiting the activities to day time;
- Driving gravel roads and drilling activities will generate dust pollution which can be managed by controlling limiting vehicle speed on gravel road;
- Accidents may happen between site vehicles and wild life resulting in loss of life and/or mobility of the fauna, the noise generated will also create stress for the local fauna;
- The proposed activities will have minimal impact on water resource as they will be located on dry lands and water usage is expected to be low at a rate and the applicant will provide the water using a 1000 litres tank;

- Prospecting activities are not labour intensive and will therefore not have any significant impact on the socioeconomic status of the local community;
- The Mapoch Mine is located 03 km to the east of the proposed site.

Prospecting activities will affect relatively small area in relation to the application area, approximately less than 5 ha of the application area will be disturbed. The disturbances will be of short duration as the project will not exceed 5 years. The sensitive ecological areas will be avoided and drill stations and access roads will be located on less sensitive areas. The wet areas (Wetlands and streams) are considered a no-go area and no activity will take place within their 100 metres buffer. Overall the proposed project will not have major significant impacts should the EMPr be implemented.

11.4 Final Site Map



11.5 Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives

11.5.1 Positive Impacts

Prospecting activities are precursor activities to mining, they evaluate the possibilities of mine establishment. There are very limited returns from prospecting activities. The returns from prospecting activities can only be realised after a successful prospecting project. It has not been proven that mineral bearing ore body are presence on site and if presence whether they can be sustainable be mined. The very limited benefits from the proposed activities are:

Ore Reserve quantification: The presence of ore deposits on site will be verified and thereafter the economic value of the ore will be determined which could ultimately lead to the establishment of a mine. The mine itself have significant socioeconomic value. In the event that a viable reserve is confirmed, there would be high degree of positive impacts such as employment of large number of local residents, socio-economic balance of the local community and on the National and Provincial scale mining contribute highly to the Gross Domestic Product (GDP).

Contribution to South African geological data: The practical geological results obtained through this prospecting will be submitted to the South African Council of Geoscience for comprehensive mapping of South Africa based on proven data.

SMME and Street Vendor Support: The prospecting team will require basic services from the local community which would mainly be provided by the small businesses and street vendors.

11.5.2 Negative Impacts

Commencement of listed activities in terms of NEMA, NWA and other Legislations without authorisation: A potential always exist that unauthorised undertaking of listed activities may take place on site in the form of project scope expansion and disregard of Authorisations' conditions. This could for example be increasing the number of authorised boreholes and impacting watercourses without water use license;

Alternative land use conflicts: The proposed site is owned by private owners primarily using the site for different activities, the proposed prospecting activities conflicts with the current site land uses.

Degradation of local roads: The site can be accessed using one local gravel road from the R577 on the South. Driving continuously on the local gravel roads will degrade the roads. Drill

rigs and heavy vehicles will impact the road quality. The internal existing roads will also be degraded during the site establishment and drilling.

Loss, contamination and compaction of fertile soil: Access roads and drill station establishment will result in removal/compaction of topsoil resulting in reduced fertility. The driving and parking of vehicles also create potential for hydrocarbon contaminations.

Soil erosion: Establishment of access roads and drill station disturbs soil cohesion increasing the potential for soil erosion. The site have dongas along the watercourses which is indicative of poor soil cohesion on site.

Loss of biodiversity, natural corridors and habitats: There are areas identified with medium to very high sensitivities within the proposed site and a potential exists for disturbances of this areas, with the loss of vegetation, habitats are also lost. These areas include the sensitive habitats at the site koppies and the watercourses.

Loss of species of concern: Although no species of conservation concern has been identified on site their potential on site cannot be ruled out due to the natural state of the local biodiversity;

Introduction of alien invasive plants: Invasive plants flourish where there is disturbances and ecological imbalances. The disturbance of vegetation to establish drill stations and access roads has the potential to introduce and facilitate spread of invasive alien plants;

Degradation of Wetlands, streams and other water sources: There is a network of watercourses within the proposed site, the Galgstroom flows from the east through the site into the Hoofstadsloop (Masala) flowing from the south, Another network is located on the northern part of the site flowing in a southerly direction into the same Hoofstadsloop Rivier. There is high potential for impacting these watercourses when crossing to access drilling points and undertaking of invasive drilling activities be conducted within the watercourses.

Contamination of ground water resource: Some site activities are dependent on the underground water resource, the site underground recharge is estimated to be 43.64 mm/a should surface be contaminated the infiltration has the potential to introduce contaminants to the groundwater; and Should the drilling intercept an aquifer, a depression cone will be created resulting in lowered water level affecting adjacent boreholes until the balance is restored. .

Contamination of surface water: Flow of stormwater from contaminated areas into the local watercourses and undertaking of the invasive activities within the watercourses.

Generation of waste: The prospecting activities will generate both the general and hazardous wastes. The general waste will mostly be domestic waste.

- The will be requirement for chemical toilets to accommodate the site prospecting team, this will have sewage waste that must be effectively managed to prevent spills onto the surfaces.
- The use of open areas to relief themselves by the site team will contaminate the area and the livestock as well.
- The waste will be managed using the “triple R” principle, Reduce, Reuse and Recycle;

Dust Generation: The vehicles and machinery movement on gravel roads will generate dust. The dust generation potential is considered high since the site is located on loose sandy soils;

Fire breakout: There are potentials for fire breakout from the activities sites, smoking is a significant contributor to fire breakouts. A fire breakout will have huge implications in the area burning the CBAs including the species of conservation concern should they be present, the breakout can result in a total loss of habitats and also resulting in loss of site crops;

Health and safety risks: The operating machinery, equipment and vehicles, and excavations and undertaking activities in the wild create health and safety risks to the prospecting crew and the local community;

Criminal activities: Crime in South Africa is a social challenge faced by almost everyone, the presence of prospecting machinery and equipment on site will attract criminals who would seek to steal and sell such equipment; and There has been numerous reported cases of farm murders in South Africa.

Poor housekeeping: The site activities will generate wastes and proper waste management and site cleaning will be required to prevent the “dirty” site visuals;

Disturbance and/or destruction of cultural and heritage resources: The EIA Process identified graves on site which are considered as heritage resources in terms of the National Heritage Resources Act 25 of 1999; conducted assessment identified structures that are more than 60 years old.

Noise Generation: The proposed activities will generate noise that will disturb the local environments, which include the Mapochs Primary School.

11.6 Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

Impact management objectives are described in terms of the Mitigation Hierarchy of the ERM Impact Assessment Standard. The mitigation hierarchy is as follows:

Avoid at Source: Reduce at Source: avoiding or reducing at source through the design of the Project (e.g., avoiding by siting or re-routing activity away from sensitive areas or reducing by restricting the working area or changing the time of the activity).

Abate on Site: add something to the design to abate the impact (e.g. pollution control equipment, traffic controls, perimeter screening and landscaping).

Abate at Receptor: if an impact cannot be abated on-site then control measures can be implemented off-site (e.g., noise barriers to reduce noise impact at a nearby residence or fencing to prevent animals straying onto the site).

Repair or Remedy: some impacts involve unavoidable damage to a resource (e.g. agricultural land and forestry due to creating access, work camps or materials storage areas) and these impacts can be addressed through repair, restoration or reinstatement measures.

Compensate in Kind; Compensate Through Other Means: where other mitigation approaches are not possible or fully effective, then compensation for loss, damage and disturbance might be appropriate (e.g., planting to replace damaged vegetation, financial compensation for damaged crops or providing community facilities for loss of fisheries access, recreation and amenity space).

11.6.1 Impact management objectives:

- Provide sufficient information to strategically plan the prospecting activities as to avoid unnecessary social and environmental impacts;
- Provide sufficient information and guidance to plan the prospecting activities in a manner that would reduce impacts (both social and Environmental) as far as practicable;
- Ensure an approach that will provide the necessary confidence in terms of environmental compliance; and
- Provide a management plan that is effective and practical for implementation.

11.6.2 Impact management Outcome

- Risk assessment must be conducted before any site activity is undertaken and management measures are available and understood by everyone involved;

- Site access agreements between the affected parties and Colt Resources (Pty) Ltd must be signed before any work is conducted;
- No invasive activity must be undertaken within 100 metres buffer of surface water (Streams and water bodies);
- Invasive activities restricted to least sensitive areas as determined by the EIA process and the conducted studies;
- The activities are restricted to approved area;
- Soil erosion must be prevented and monitored;
- Vegetation clearance must be restricted to active areas;
- Invasion by alien invasive plants must controlled and monitored;
- Wastes must be disposed at registered facilities and disposal certificates be kept on site;
- The site activities must be restricted to day time;
- No new stream crossing must be created and water contamination must be prevented

11.7 Aspects for inclusion as conditions of Authorisation

- EA final site layout map detailing the drilling locations should be submitted to the relevant landowners to prior to the commencement of these activities;
- The land owners must be notified about the project scheduling;
- Environmental Control Officer appointment,
- Storm water management;
- Provision of PPE;
- Total number of boreholes to be drilled;
- Opening and maintenance of complaints register;
- Access control into the prospecting property;
- Activity based environmental risk assessment;
- Daily toolbox talks;
- Emergency preparedness plan
- Impact monitoring programme;
- Project environmental auditing;

- Annual review of financial provision; and
- Closure certificate.

11.8 Description of any assumptions, uncertainties and gaps in knowledge

- The confidence for presence of ore deposits is based on desktop studies;
- There are portions of the site that are largely natural, the presence of species of conservation concern cannot be completely ruled out. A botanist must conduct a site walk prior to establishment of access roads and drill pads to identify species to be impacted.

11.9 Reasoned opinion as to whether the proposed activity should or should not be authorised

It is the opinion of the EAP that the activity be authorised.

- Based on the desktop studies the site lies within the mineralised zone of Bushveld Ingenious Complex (BIC) on the eastern limb within the Rustenburg Layered Suite. The BIC has been mined for over a century for various economic minerals;
- The disturbance on water resources will be very minimal as prospecting activities will be undertaken on dry lands;
- The sensitive areas have been identified and demarcated and will be considered as no-go areas for the duration of the prospecting programme;
- There are no threatened ecosystems within the proposed site, or any protected areas;
- The available literature in the absence of proven data (through prospecting) will always attract mining interest companies, should this prospecting be approved, the evidence based geological data will become available in support or against mining establishment in the area; and
- The acquired geological knowledge will contribute significantly to the academic world towards mapping of South African geology based on drilling results.

11.10 Conditions that must be included in the authorisation

- The applicant (Colt Resources) must engage with the affected parties upon issuing of the Prospecting Right, the two parties must develop a legally binding resolute and exhaustive access agreement contracts which will detail the following (inter alia):

- The duration of the prospecting crew on site and operation times;
 - The number of personnel to access the site at any given time;
 - Compensation for losses resulting from prospecting;
 - Activity scheduling in respect to site activities harvesting; and
 - Any matter deemed necessary during the access consultation process.
- No activities can take place within the 100 metre buffers of any water source;
 - All wastes generated must be disposed of at an appropriate registered landfill and disposal certificate be kept on site; the site temporary storage skips and bins must be closed at all times to prevent scavenging and smell nuisance;
 - An annual performance must be undertaken throughout the duration of the prospecting activities;
 - The financial provision must be reviewed annually to determine if it's still appropriate to site activities;
 - Ground water monitoring must be conducted using existing boreholes on site;
 - A complaints register must be kept on site, recording each complaint and how it was addressed;
 - The EA does not negate the responsibility of the holder to comply with any other statutory requirements that may be applicable to undertaking of the prospecting activities;
 - The EA does not grant authorisation to National Water Act Section 21, any water listed water use in terms of this Act must be applied for with the Department of Water Affairs and Sanitation (DWS);
 - The EA will only be effective in the event that the corresponding prospecting right is issued in terms of the MPRDA and none of the listed activities commence without the corresponding prospecting right;
 - The impact management and mitigation measures as described in this report are mandatory.
 - A person is guilty if that person fails to comply or contravene a condition of the EA;
 - A copy of the EA must be kept on site where the activity will be undertaken;

- The conditions of the EA and the EMPr must be made known to all personnel to be directly involved in the prospecting activities;
- The applicant must provide site personnel with personal protective equipment (PPE);
- The applicant must appoint an independent Environmental Control Officer who will also conduct annual environmental audits for submission to the department;
- Activity based environmental risks must be conducted before any site activity is undertaken;
- A monitoring programme must be budget for and implemented for the duration of the impact as directed by the EMPr;
- Storm water must be effectively managed to prevent contamination and erosion;
- A closure certificate must be applied for in terms of the MPRDA within 180 days of the occurrence of lapsing, cancellation, cessation, relinquishment and completion of prospecting activities; and
- Only indigenous plants can be used for rehabilitation.

11.11 Period for which the Environmental Authorisation is required

The Prospecting Right has been applied for a period of five years. The Environmental Authorisation should therefore allow for the five years of prospecting and one year for decommissioning and rehabilitation.

12 Undertaking

An undertaken by the EAP and the client is provided for in Section 2 of the EMPr.

13 Financial Provision

A rehabilitation was calculated to be **R 97,866.50**

13.1 Explain how the aforesaid amount was derived.

The rehabilitation fee was calculated using the Department of Mineral Resource and Energy guideline document for the evaluation of the quantum of closure-related financial provision provided by a mine.

13.2 Confirm that this amount can be provided for from operating expenditure

It is hereby undertaken that the calculated amount will be provided to DMRE in the form of a bank guarantee for rehabilitation purposes as required in terms of section 24P (1) of the NEMA, will be provided to the DMR upon granting of the requested prospecting right.

14 Specific Information required by the competent Authority

14.1 Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998). The EIA report must include the:-

14.1.1 Impact on the socio-economic conditions of any directly affected person.

The directly impacted person are the land owners and/or occupiers within the proposed site. There are small scale crop farming and livestock farming on site. The proposed Activities will not prohibit the undertaking of the current site activities.

14.1.2 Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.

There are graves identified within the proposed prospecting site. There are possibilities to impact these heritage resources. A 50 metres buffer will be applied to all site graves.

14.2 Other matters required in terms of sections 24(4) (a) and (b) of the Act.

The requirements of the Act in terms of section 24(4) (b) (i) – (vii) as guided by section 24(4A) are provided below with sections in which they have been addressed:

- (i) Investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity:
 - ✓ **Part A section 9:** *impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts;*
 - ✓ **Part A section 9.3:** *The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected;*
 - ✓ **Part A section 11:** *Assessment of each identified potentially significant impact and risk;*
 - ✓ **Part B section 4:** *Impacts to be mitigated in their respective phases.*
- (ii) Investigation of mitigation measures to keep adverse consequences or impacts to a minimum:
 - ✓ **Part A section 11:** *Assessment of each identified potentially significant impact and risk;*

- ✓ **Part A section 11.5:** Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;
 - ✓ **Part B section 4:** Impacts to be mitigated in their respective phases.
- (iii) Investigation, assessment and evaluation of the impact of any proposed listed or specified activity on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act;
- ✓ **Part A section 8.9:** *Heritage Resources.*
- (iv) Reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and uncertainties encountered in compiling the required information:
- ✓ **Part A section 11.8:** Description of any assumptions, uncertainties and gaps in knowledge
- (v) Investigation and formulation of arrangements for the monitoring and management of consequences for or impacts on the environment, and the assessment of the effectiveness of such arrangements after their implementation;
- ✓ **Part B section 5.2:** *Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including, Monitoring of Impact Management Actions, Monitoring and reporting frequency, Responsible persons, Time period for implementing impact management actions, Mechanism for monitoring compliance.*
- (vi) Consideration of environmental attributes identified in the compilation of information and maps contemplated in subsection (3);
- ✓ **Part A section 8:** *The Environmental attributes associated with the alternatives.*

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1 Details of the EAP

Names of Practitioner:	Khuliso V Ramulondi (Pr.Sci.Nat; REG. EAP)
Qualifications	Bachelor of Earth Sciences in Mining and Environmental Geology
Professional Registrations	EAPASA Registered EAP – 2019/1097 SACNASP – Professional Environmental Scientist – 115769
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Fax No. :	086 560 5316
e-mail address:	khuliso@mielelani.co.za/ ramufhi@outlook.com

1.1 Expertise of the EAP.

Mr Khuliso Vincent Ramulondi holds a bachelor of earth sciences in mining and environmental geology Honors Degree obtained from the University of Venda. He is a registered EAP with Environmental Assessment Practitioner Association of South Africa (EAPASA) and registered natural professional scientist “environmental science” with South African Council for Natural Scientific Professions (SACNASP).

Summary of the EAP’s past experience

Khuliso has over eight years of experience in conducting Environmental Impact Assessments (EIAs). He has conducted EIAs for various projects including but not limited to Construction, Agriculture, Prospecting and Mining as well as Waste Management. He has undertaken EIA across all provinces in South Africa. Some of the projects he worked on as an EAP includes: (a) EIA for Waste Management License application for e-waste recovery facility in Hammanskraal, Gauteng province, (b) EIA for mining right application for granite in Madibeng Municipality, Northwest Province, (c) EIA for prospecting rights application in Vryheid, KZN. He has completed other EIA projects for prospecting in Free State, Limpopo and Mpumalanga. He has also worked as an Environmental Control Officer (ECO) monitoring and auditing the implementations of the EA, EMPr, WULA and Specialists’ studies during the construction of the Eskom’s 400 kV powerline in Free State Province. He also served as the ECO for the construction phase of the Tshwane Automotive Special Economic Zone (TASEZ).

2 Description of the Aspects of the Activity

2.1 Project Locality

2.1.1 Location of the overall activity

Farm Name:	Portion 157, 149 and 480 of Farm Mapochsgronde 500 JS; Farm Mapochsgronde 511 JS; Farm Mapochsgronde 512 JS; Farm Mapochsgronde 527 JS; Farm Mapochsgronde 913 JS; Farm Eiland 956 JS; Farm Platland 959 JS And Watervaal 972 JS			
Application area (Ha)	1,059 Hectares			
Magisterial district:	Sekhukhune			
Distance and direction from nearest town	Approximately 33 km north of Roosenekal			
21 digit Surveyor General Code for each farm portion	Farm Name	Farm No	Portion	SG Code
	Mapochsgronde	500	00480	T0JS00000000050000480
	Mapochsgronde	500	00157	T0JS00000000050000157
	Mapochsgronde	500	00149	T0JS00000000050000149
	Mapochsgronde	511	00000	T0JS00000000051100000
	Mapochsgronde	512	00000	T0JS00000000095120000
	Mapochsgronde	527	00000	T0JS00000000052700000
	Mapochsgronde	913	00000	T0JS00000000091300000
	Eiland	956	00000	T0JS00000000095600000
	Watervaal	972	00000	T0JS00000000097200000
	Platland	959	00000	T0JS00000000095900000

2.2 Locality map

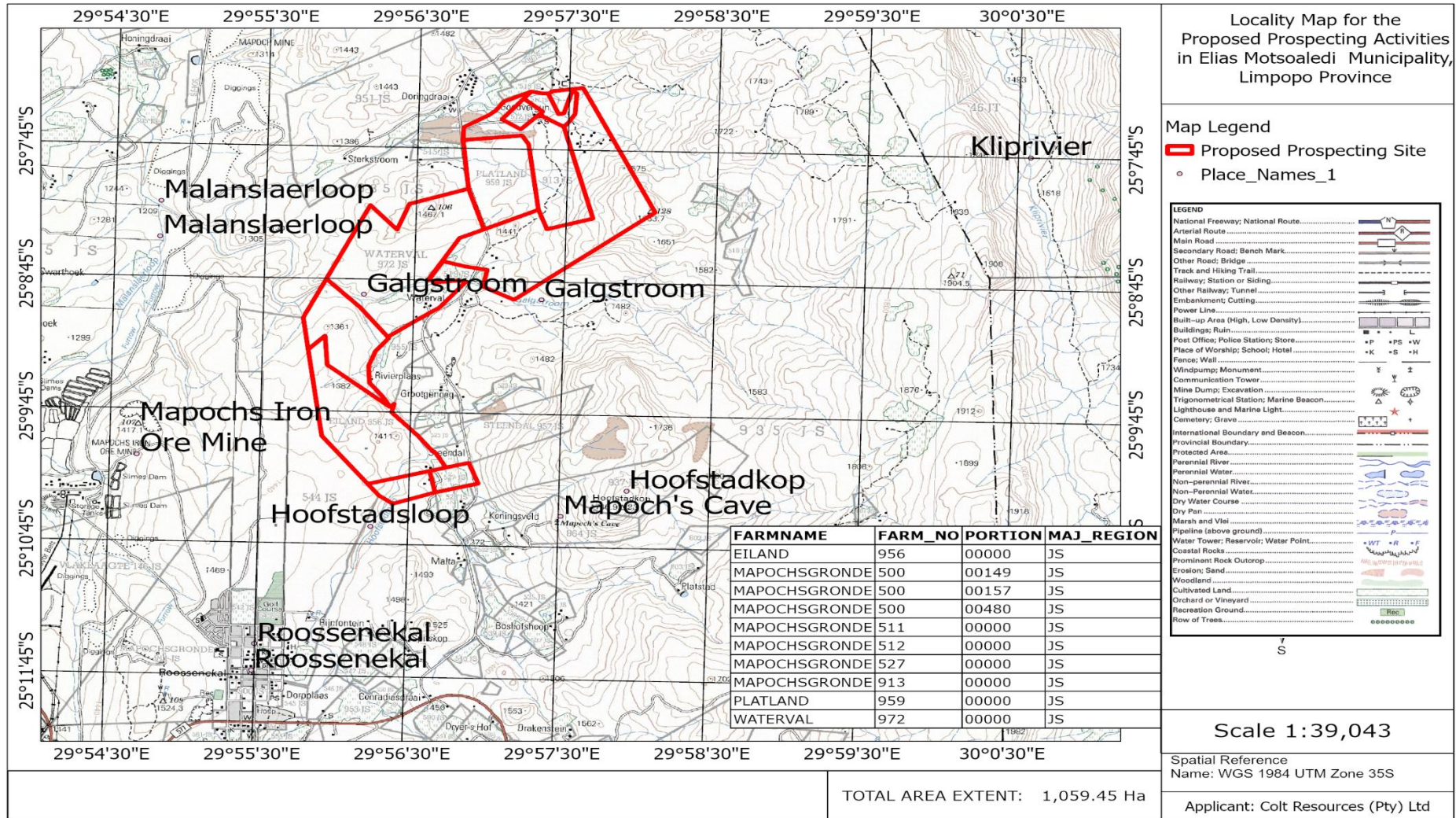


Figure 2-1: Locality Map

2.3 Description of the activities to be undertaken

Colt Resources Pty Ltd proposes to undertake prospecting activities for Cobalt, Iron Ore, Limestone, Phosphate and Titanium on Portion 157, 149 and 480 of Farm Mapochsgronde 500 JS; Farm Mapochsgronde 511 JS; Farm Mapochsgronde 512 JS; Farm Mapochsgronde 527 JS; Farm Mapochsgronde 913 JS; Farm Eiland 956 JS; Farm Platland 959 JS And Watervaal 972 JS within the Jurisdiction of The Greater Sekhukhune Municipality. The application was accepted by the Department of Mineral Resources on the 26th July 2023 in terms of the MPRDA, 2002.

What is mineral prospecting?

Prospecting is the search of clues that indicates that there are mineral deposits beneath the surface. It is generally the search of mineral rich ore bodies to determine if they are mineable at a profit. The confidence of mineral deposit is gained through using maps and historical data, geophysics, ground truthing, geochemistry which are considered non-invasive activities.

When the local geology is understood, siting for drilling can then be undertaken. Drilling is done with fairly large machinery that use diamond-tipped, hollow drill 'bits' which produce varying amounts of 'core' depending on the extensiveness of the drill program. Diamond-tipped bits are used because they can go through the hardest of rock, and the core produced is cylindrical and not typically more than a couple inches in diameter. The details of each drill hole (including direction and depth) are recorded in much detail, each meter of core is marked with the depth that it came from and which hole, if there's been multiple drilled.

Once core has been obtained, samples are then sent to a laboratory facility to be 'assayed', which is essentially assessing the ore physical and chemical properties in the rock. Using this data from the assaying, along with the records of where the assayed drill core came from, the data is re-interpreted to determine subsequent phases of follow-up drilling. If drilling continues, different drilling techniques are used to build confidence in the deposit by determining the size and grade of the 'strike' and 'dip'.

The objective will be to produce a 3D resource model of where and how the ore body is located underground. All this information is used to complete an 'official resource estimate', which is a non-biased report that is required to have been developed by a 'Qualified Person' (QP). The 'Official Resource Estimate' will outline the categories of mineral resources (inferred, indicated, and measured) as well as the quantity and grade of each resource category.

Prospecting activities will be undertaken in different phases of which each is dependent on the preceding phase. Each phase will provide information that will determine whether the prospecting activities should be continued or abolished.

2.3.1 The description of the proposed prospecting activities

Prospecting activities will be undertaken in different phases of which each is dependent on the preceding phase. Each phase will provide information that will determine whether the prospecting activities should be continued or abolished.

2.3.1.1 Phase 1: Literature review and Field Mapping

(a) Literature Review

Phase 1 will include the collection and interpretation of all available data and the compilation of a Geographic Information Systems (GIS) database. The information to be collected will include aerial photos, Orthophoto, Aeromagnetic data, Topo-cadastral maps, and Geological maps, results of historic exploration programmes and any other published literature and maps. The desktop study will aid in compiling a preliminary geological model of the area to be utilized in the planning of site geological mapping and sighting of drill holes. It also includes accruing results from the companies that has already worked on the area. This provides information such as geological setting, biodiversity as well as water management.

(b) Mapping

Generally mapping involves the geologist walking the area and making observations which are then recorded on a map. To enhance the quality and reliability of geological maps data obtained during geophysical surveys will be used. Mapping is completed that meaningful structural and geological data may be derived from it and to confirm that the desktop study is accurate.

2.3.1.2 Phase 2: Geophysical Survey

The applicant will undertake electromagnetic geophysical surveys to map the subsurface lithology without undertaking invasive prospecting activities. Once the position of the deposit is known the drilling sites can then be sited. The geophysical magnetic and radiometric surveys are effective in ore deposits through their electrical and electromagnetic properties. The geophysical surveys will be used to establish geological anomalies at the proposed site.

2.3.1.3 Phase 3: Drilling and Sampling

The targets defined from Phase 1 and 2 will be further investigated through a drilling programme. The location of the drill areas are unknown at this stage (provisionally provided), however they will be established outside the demarcated sensitive areas as identified by the EIA Process, a provisional discovery drilling plan has been developed and included in this report. Approximately 1700 metres will be drilled at reconnaissance scale. The drill holes will

be to the depth of 100 metres. Thus a total of seventeen (17) boreholes will be drilled during the discovery phase. The cores will be sampled and prepared for laboratory analysis. No assaying will be conducted on site.

2.3.1.4 Phase 4: Sample analysis/ Assaying

The assaying will be conducted to determine the mineral content for each core at a South African National Accreditation System (SANAS) accredited laboratory. Sample analysis will inform the mineral content of the deposits within the proposed site. The analysis will inform if there are mineral deposits on site. Should minerals under this application be identified from the assaying process, the resource definition drilling programme will then be planned.

2.3.1.5 Phase 5: Preliminary economic assessment

A preliminary economic assessment is a study conducted to determine whether a project has the potential to be viable. At this stage, the mineralization, regardless of its quantity and quality, is always considered to be a mineral resource. This study is generally based on industry standards rather than derived from detailed site-specific data.

2.3.1.6 Phase 6: Pre-feasibility study

The pre-feasibility and feasibility studies are more detailed. By the time a decision is made to proceed with a pre-feasibility study, a preliminary mineral resource report has been finalized and an orebody model demonstrating its shape, tonnes, and grade is available. A resource cannot be converted to a reserve unless it is backed up by at least a pre-feasibility study. Their results will show with more certainty whether the project is viable. At this point, the mineral resource, or a portion thereof, becomes a mineral reserve. The activities associated with the Prospecting Work Programme will be scheduled over a period of five years. The pre-feasibility study will amongst others assess the following:

- Resource definition – estimation of resource quantity on site;
- Geological Modelling – Modelling of the site resource and its distribution;
- Initial conceptual Mine Plan;
- Determination of infrastructure requirements;
- Environmental management requirements;
- Financial modelling;
- Market analysis; and
- Assessment of socio-economic factors.

2.3.2 Activities associated with the proposed prospecting

2.3.2.1 Site Access

The undertaking of prospecting activities will require access into privately owned properties. Access into these properties must be through access agreements contracts signed between property owners and Colt Resources (Pty) Ltd. The access agreements will be a legal document effective from the date of signing until the exit contract is signed off. The access agreement contracts will detail specific conditions relevant to the property owner.

2.3.2.2 Access roads

There is an existing gravel road through the site, the same road will be the primary access road into the prospecting area. There are other existing farm roads which will be used to access drill stations, however the existing roads will not be sufficient and new roads will be required. The establishment of the access roads will be guided by the sensitivity map produced from the conducted assessments, thus the established roads will avoid all sensitive areas. It is unknown at this stage as to where the roads will be created and how many as the drill stations locations will only be known after conducting the aeromagnetic survey.

2.3.2.3 Temporary Camp site

A temporary camp site will be established on site for storage and night parking. The camp site will be established on the least sensitive area within the proposed site and close to the site's main road. A large drip tray with a 110% volume of the diesel container will be used for placement of 1000 litres diesel bowser. All other chemicals will also be stored on a separate drip tray to prevent surface contaminations.

2.3.2.4 Drill station establishment

The drill stations establishment will be informed by preceding phases. The EIA process has however, identified no-go areas in which drill stations and their access roads are completely restricted. Drill stations (Figure 3-5 above) with dimensions: 20m x 25m will be established. Vegetation clearing and removal of topsoil will be limited to the approved drill station. The topsoil will be cleared and stockpiled within the drill pad area for later use during rehabilitation.

A 0.5 m³ drum sump must be connected to the drill system. The sump is a vital component of the drilling process, as it allows cuttings from the borehole to settle neatly into a contained area, as well as saving drilling water by allowing the same water to be circulated through the rod string.

2.3.2.5 Core Drilling

Diamond core drilling uses a diamond bit, which rotates at the end of drill rod. As diamond is the hardest naturally occurring material in the world, it is ideal for creating openings in a range of materials. The opening at the end of the diamond bit allows a solid column of rock to move up into the drill pipe and be recovered at the surface. The diamond bit is rotated slowly with gentle pressure while being lubricated with water to prevent overheating. The bit is mounted onto a core barrel which is attached to the drill stem, which is connected to a rotary drill. The core is brought to the surface in a tube with diameter ranging between 27 – 85 mm.

Diamond drilling is appropriate where more detailed geological information needs to be obtained and for accurate ore sampling. The process involves the use of light and easy to transport equipment and it can be used in just about all locations, including underwater. Another advantage is that diamond drilling produces less noise pollution and no dust.

The drilling of non-coring pilot holes to the depth of the upper soft later will be undertaken and then continuing with a diamond drill hole (through) the targeted hard rock, this will result in considerable savings in time and cost. The Schramm-type rotary drill can reach depths of more than 1000m in less than a week, while a diamond drill hole of the same depth would take approximately three months ((Dukas & Morkel, 1983). For the saving of time and money, it would be ideal to drill a non-coring pilot hole to the base of the soft rock that has to be cased, and to diamond drill the hard rock.

To extract the core, the drill rod rotates the diamond bit and spins it into the ground. As the drill bit bores through the rock, solid rock is taken into the circular opening at the end of the bit, into the core tube, and can then be recovered at the surface as it piles up. Once the core is recovered at the surface it is broken along natural fractures and stored in core trays to await analysis. Care must be taken that the sample sequence does not get mixed up as samples are taken at the same time as the drilling proceeds. The drill core will be washed and logged by a qualified geologist, and then split in half to provide a sample for geochemical analysis.

Drilling rates with an impregnated diamond bit would be about 0.3 m/hr, under normal operating conditions, abrasive wear limits the bit life of diamond bits to under 30-m in rock types such as granite which have a quartz content greater than about 20%. At the low thrust and rotary speeds a surface-set diamond bit might be capable of drilling 30m. The operation of diamond bits requires high thrust load to ensure that the cutters penetrate the rock.

(a) **Drilling Bit Pressure**

While drilling, the force applied by the drill and the weight of the rods must be as low as possible. It is important to maintain a sufficient speed of penetration in order to prevent the polishing of the diamonds. The consequences of pressure that is too elevated are variable. These include:

- Premature wear of the mechanical components of the drill, the rods and the core barrel;
- Premature wear of the bit; and
- A greater probability of deviation of the hole.

(b) **Water Flow**

The water flow should be as high as possible but must be related to the bit size and the type of rock to be drilled. For example, in soft or fractured rock, the water flow must be high. However in very hard and competent rock, where the speed of penetration is low, the water flow must be reduced to enable the cutting of the rock and diminish the risk of polishing the diamonds.

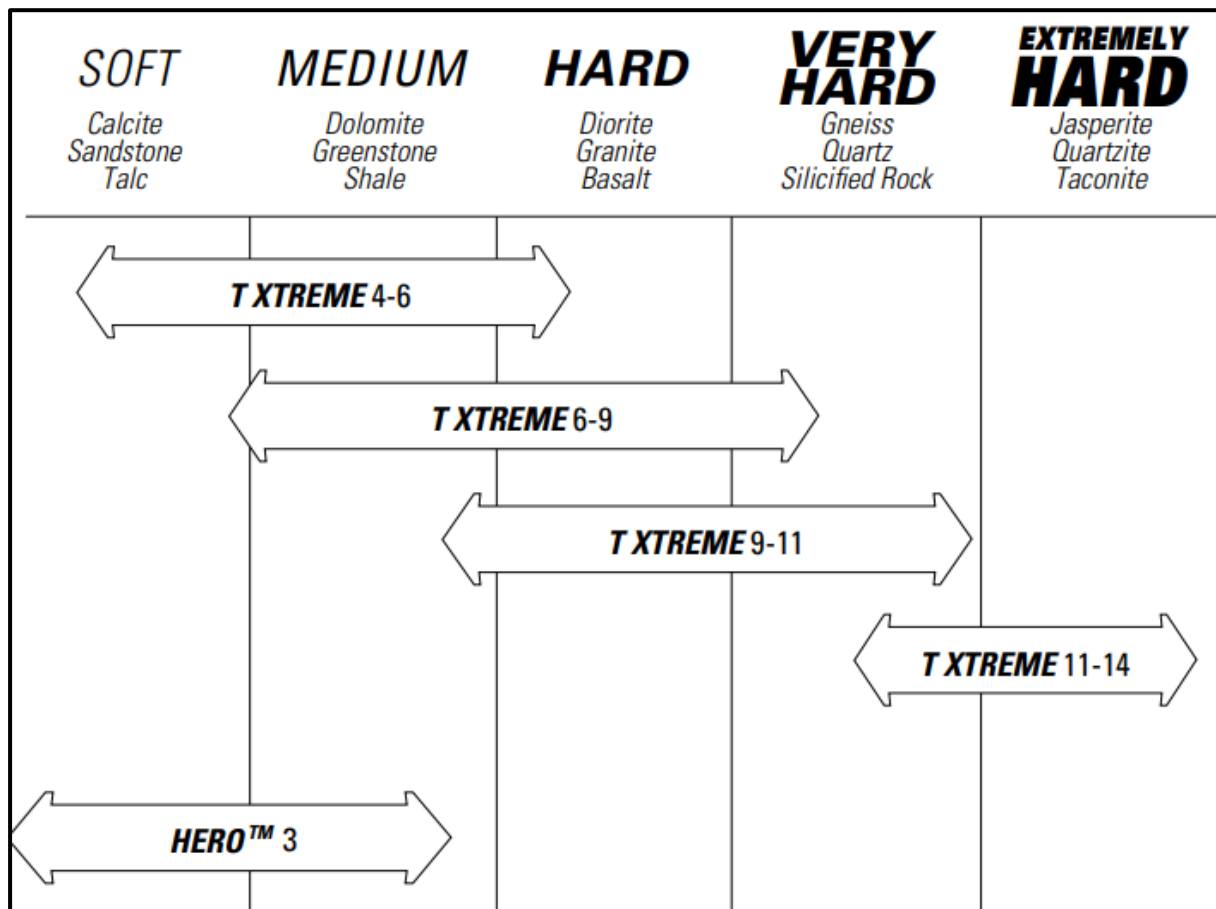


Figure 2-2: Material Strength

The water flow requirement for the proposed site located on Granite Suite which relatively has hard strength will be 23 – 36 litres per minute. The drill will be connected to the 200 litres sump drum. Water will be rotated from the drum to the drill bit.

(c) **Reaming Shells**

The reaming shell is placed directly behind the core bit. It is used to keep the hole open at the right diameter and to stabilize the core barrel. Reaming shells are available in all dimensions.

(d) **Drilling Safety and Emergency Procedures**

The following are basic checklists relating to safety and emergency procedures for drilling operations:

Site access by trained personnel only:

- Only trained personnel on site;
- Barriers to prevent access by unauthorised personnel; and
- Contractors are not to grant ingress to any third party without the consent of the Applicant who is subjected to access conditions of the land owners.

Site layout and housekeeping:

- Good site layout, ground stability, drainage and fire risk;
- Access and turning circles for support trucks and service vehicles;
- Remove any obstructions; (loose rocks, tree stumps) from site; and
- All rigs should ideally be fitted with elevated walkways to create a uniform work platform, irrespective of local site conditions.
- No slippery walkways;
- Good housekeeping; site clean and tidy and free of tripping hazards;
- Tubular items stacked in safe manner; and
- Safety signs must be displayed.

Fire safety

- Fire breaks and firefighting equipment; fire bans include campfires;
- Fire extinguishers; and
- If rig is fitted with an automatic fire suppression system, include familiarisation in safety induction.

Fuel safety

- Fuel stored away from rig and camp in accordance with regulations (thus diesel bowser within a bund tray with 110% volume of the bowser; and
- Spills or leakage of fuel cleaned up as soon as they occur.

Hazardous substances

- Appropriate signage in place;
- Materials Safety Data Sheets for all potentially toxic or hazardous drilling additives;
- Safe disposal of all potentially toxic wastes; and
- Spills or leakage of fuel cleaned up as soon as they occur.

Safety audit and safety meetings

- Site safety audit before spud.

Personal protective equipment (PPE)

- Head: hard hats must be worn within 30 m of the rig. Note that metal hard hats are not permitted, allowable accessories include sun brim, visor-type face shield, earmuff attachments, lampholder. Long hair must be restrained, even when a hard hat is worn;
- Eye: safety glasses tinted or otherwise, must have the appropriate SABS logo;
- Hearing: hearing protection device shall provide protection to a level not exceeding 85 dB. This can be earmuffs, disposable ear plugs or both, such that they do not compromise other safety equipment
- Respiratory: respiratory protection against dust. Breathing apparatus may be carried on some rigs and its use requires formal training;
- Hand: general work gloves;
- Foot: safety boots, with a steel toe cap must be worn by all personnel within 30 m of an operating drill rig; and
- Clothing: safe and adequate clothing, no loose clothing, a UPF (UV) rating of 50+.

Personal health and hygiene

- Any medical condition that may affect Contractor performance must be reported to the site supervisor;
- Be aware of high-risk individuals (eg asthmatics, diabetics, epileptics, angina sufferers);
- Prohibition of drugs and control of alcohol consumption;
- Firearms, bows or similar weapons are prohibited; and
- Domestic animals are prohibited.

2.3.2.6 Waste Management

The proposed prospecting activities are expected to generate both hazardous and general waste which will include domestic waste, sewage waste and contaminated soils and waste rock. Domestic waste will be generated by the site crew which will include food containers and left overs and any general waste generated by day to day site activities. The general waste will be collected into plastic bags to be placed in waste bins at the temporary site camp. The waste will then be disposed at the registered waste management facility.

There is potential for hydrocarbon contaminations which will result in generation of hazardous waste. These will be placed in heavy duty waste bags for placement in waste bins. The waste will be disposed at registered facility. Should the recommendations of the EMPr be implemented the amount of hazardous waste to be generated will be very minimal.

2.3.2.7 Water Usage

Prospecting activities are relatively dry activities requiring minimum input of water into the operation. Water will be required for cooling the drill bit and for human consumption. The water usage will not trigger water uses Listed in terms of Section 21 of the National Water Act No 36 of 1998. It is estimated that 500 litres of water will be used per day per drilling site.

2.3.2.8 Water Supply

The applicant will import water to the site. A 1000 litres water bowser will be used to import water to site sourced from legal connections such as boreholes and municipal connection.

2.3.2.9 Storage of Dangerous Goods (hydrocarbon)

A 1000 litres diesel bowser will be placed at the temporary camp site, the bowser will be equipped with an open shut valve. A large drip tray with a 110% (1100 litres) volume of the diesel container will be used for placement of 1000 litres diesel bowser. Drip trays will be placed under the refuelling points at all times during refuelling of the site drilling machineries.

2.3.2.10 Material Storage

Materials required for the prospecting activities will be stored at the temporary camp site.

2.3.2.11 Accommodation

No accommodation for staff and workers will be provided on-site and all people will be accommodated in nearby Roosenekal Town. Workers will be transported to and from the prospecting site on a daily basis. Night security staff will be employed once equipment has been established on site.

2.3.2.12 Sanitation

The applicant, Colt Resources Pty Ltd will provide chemical toilets for the prospecting crew. Should different genders be on site, two separate toilets will be provided. The toilets will be cleaned weekly by a service provider. The toilets will be placed 100 metres away from water sources including dry ones and will also be placed outside the identified sensitive areas.

2.3.2.13 Rehabilitation

It is proposed that prospecting be undertaken from one drill station to the other. When work is completed at one station, rehabilitation can immediately commence. The rehabilitation will be according to an approved plan which was subjected to a public participation process. Rehabilitation will be overseen by an ECO.

2.3.3 Project scheduling

The department of Mineral Resources and Energy allows for a maximum of five (5) years to conduct prospecting activities. The five years' period will include project planning and sourcing of the required materials and equipment.

It is recommended to undertake the proposed prospecting activities during the dry periods to reduce impact water resource.

2.3.4 Equipment and/or Technology to be used

- ✓ 1 drill rig mounted on a 10-tonne truck or trailer;
- ✓ Support Truck
- ✓ 1 X 2 200 Litres water tanker; and
- ✓ 2X (4X2) Bakkie.

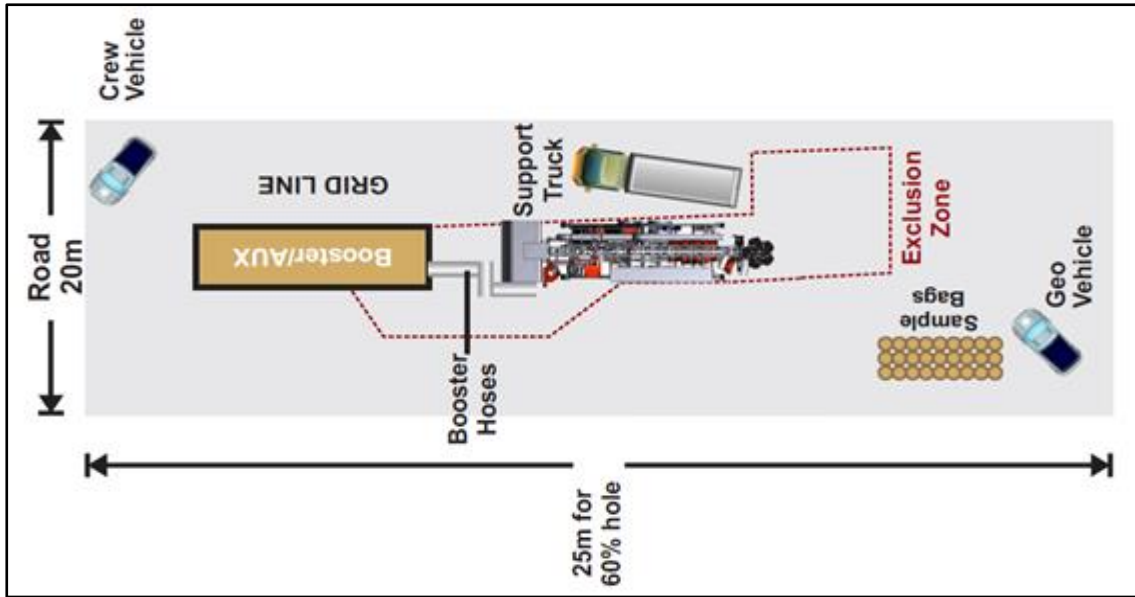
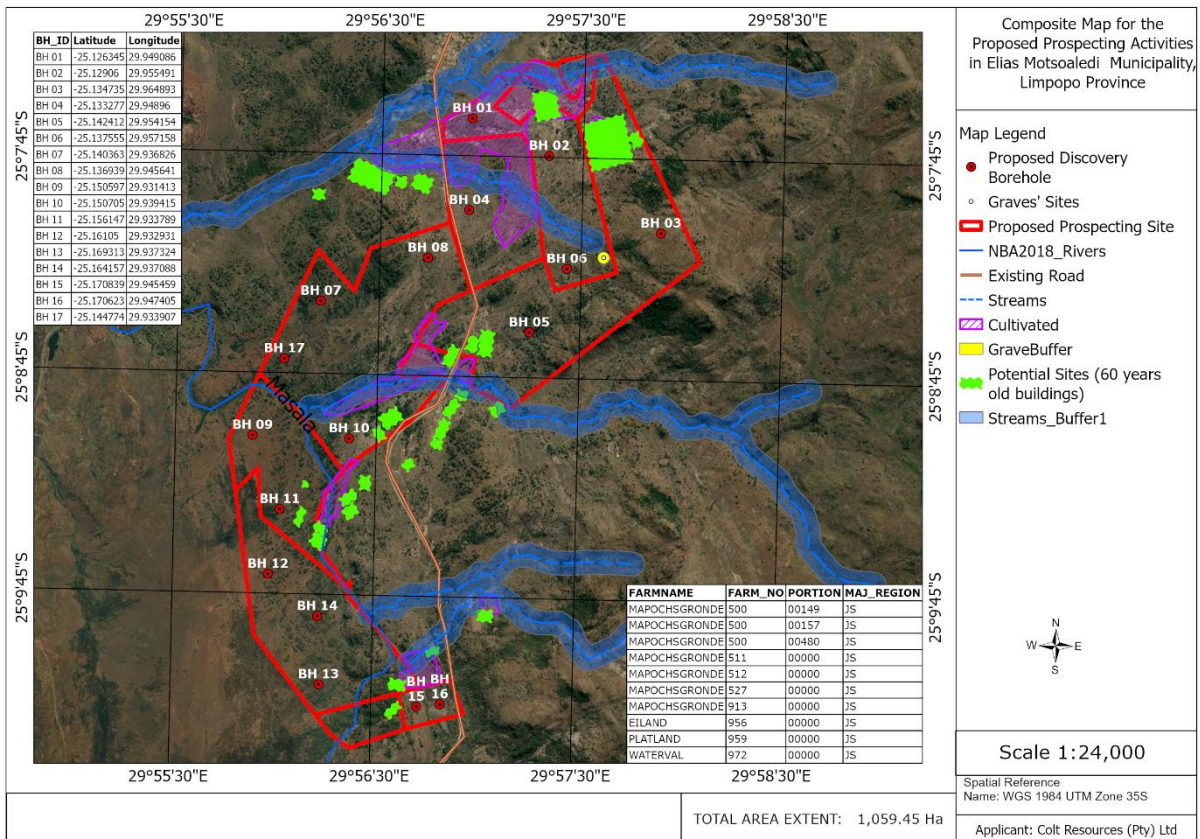


Figure 2-3: Typical drill station layout

2.4 Composite Map



3 Description of Impact management objectives including management statements

3.1 Determination of closure objectives

The closure objectives thus are as follows:

- ❖ Eliminate any safety risk associated with drill holes and sumps through adequate drill hole capping and backfilling.
- ❖ Remove and / or rehabilitate all pollution and pollution sources such as waste materials and spills;
- ❖ To loosen the hardened surfaces which were used temporary site camp or access roads and re-vegetate with indigenous species.
- ❖ Establish rehabilitated area which is not subjected to soil erosion which may result in the loss of soil, degradation of the environment and cause pollution of surface water resources;
- ❖ Restore disturbed area and re-vegetate these areas with indigenous vegetation to restore the ecological function of such areas as far as is practicable.

3.2 Volumes and rate of water use required for the operation.

The operational machinery and equipment is expected to use less than 500 litres of water per day for cooling and dust control. The water usage will not trigger the National Water Act (36;1998) listed water uses. Water for the human consumption will also be supplied to site by the applicant or the prospecting contractor.

3.2.1 Has a water use licence has been applied for?

A water use licence is not required for this project but should any NWA water uses be triggered a water use license will be applied for. The Government Notice (GN) 704 will be adhered to throughout the prospecting duration.

4 Impacts to be mitigated in their respective phases, the Impact Management Outcomes and Management Actions

Measures to rehabilitate the environment affected by the undertaking of any listed activity and the description of impact management outcomes, identifying the standard of impact management required for the aspects, and description of impact management actions, identifying the manner in which the impact management objectives and outcomes will be achieved.

Table 4-1: Probable Impacts & Mitigation

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
Desktop Study								
No Impact	Planning	None	None	None	None	Protect sensitive site	Locate sensitive and protected areas such as rivers)	N/A
Creation of access roads (Access to drill points)								
Creation of access roads within streams/ rivers and alteration of river beds	Construction	1 ha	Water Supply	Control through planning and design; Control through avoidance	<ul style="list-style-type: none"> ✓ Stream crossings must be through existing tracks; ✓ The altered river beds must be rehabilitated and alien invasive plants be monitored and all foreign materials be removed from the stream courses. 	Protect water resources;	Access roads created in dry lands;	Through the project
Introduction of Alien invasive species	Construction	1 ha	Biodiversity	Control through rehabilitation; Control through monitoring;	<ul style="list-style-type: none"> ✓ All possible alien invasive plants must be identified and be communicated with site management team for control; ✓ Alien invasive plants must be removed as soon as they are identified; ✓ A post closure monitoring programme must be established. 	Control listed invasive plants	Alien invasive plants will be identified, removed and regrowth monitored.	Through the project
Loss of grazing land	Construction	1 ha	Socioeconomic	Control through consultation with property owners.	<ul style="list-style-type: none"> ✓ The disturbance area must be limited to drill pads and access roads only; ✓ No multiple tracks may be established to access the same drill stations; ✓ All affected property owners must be fully consulted and access agreement be established and signed by both parties. 	Preserve economic agricultural area	Land owners will be consulted and compensated for loss of developed agricultural land.	Through the project
Loss of vegetation and associated habitats	Construction	±3 ha	Biodiversity	Prevent through planning; Manage by limiting impact area; Control through remediation	<ul style="list-style-type: none"> ✓ All the areas to be impacted must be clearly indicated on the site plan. No activities (access roads, parking area, drill stations) must be allowed outside the approved site plan. ✓ The demarcated sensitive areas must remain no-go areas for the duration of the project; ✓ Vegetation clearing will not be required, but rather off-road tracks must be established without clearing to access drill stations; ✓ No plant harvesting must be allowed on site for any purposed other than clearing for approved site activities; 	Conservation of red listed Plants (Species of Conservation Concern);	An ecological specialist must be appointed to assess the site ecology and impact assessment.	Through the project

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
					<ul style="list-style-type: none"> ✓ Where feasible access roads must be created from one drill station to the other to prevent creation of multiple roads; ✓ Only approved activities must be undertaken on site and limited to approved areas only; ✓ The recommendations of the specialists are binding; ✓ A record of site species must be kept; ✓ A site walk must be conducted before any clearing/ disturbances or driving is undertaken in order to identify any possible species of conservation concern that may have been missed during the EIA process; ✓ No fires must be allowed on site; ✓ Disturbed areas must be rehabilitated as soon as they are out of use. 			
Degradation of existing gravel access roads	Construction & Operational	± 3 ha	Infrastructure	Control through planning; & Manage through rehabilitation	<ul style="list-style-type: none"> ✓ Driving must be restricted to approved access roads; ✓ Trips must be planned accordingly to reduce number of trips (preferably two trips a day); ✓ Before pictures must be taken and filed for all the roads to be used; ✓ Consent must be given where private roads are to be used; ✓ The access roads must be rehabilitated as soon as the prospecting activities are concluded. 	Protection of local infrastructure	Local roads will be rehabilitated soon after prospecting	Project Duration
Disturbance of site graves and infrastructures older than 60 years, and Unearthing of heritage significance artefacts	Construction	500 m ²	Heritage Artefacts	Buffer the site graves; Report resources unearthed; Conduct site walks	<ul style="list-style-type: none"> ✓ A 30 metres buffer must be applied to the site graves; ✓ The identified structures older than 60 years must also be preserved and buffered with at least 20 metres. ✓ No activity can be undertaken within the buffer; and ✓ The graves identified on site must be buffered with at least 30 metres and no disturbance must be allowed. ✓ A chance find protocol must be implemented, and should heritage resources be unearthed on site the a heritage specialist must be appointed to assess the resources, should human remains be unearthed the provincial heritage agency and the SAPS must be informed immediately and work at that particular area be stopped immediately. 	Preservation of heritage sites and objects	Site assessment was done	The site team must remain alert throughout the prospecting period
Establishment and preparation of drill pads/area								
Unauthorised access into private property	Construction	14490.9 ha	Private Property	Control through consultation with property owners.	<ul style="list-style-type: none"> ✓ Access agreements must be signed by the land owners; and ✓ All site personnel must have identification cards. 	Protection of private properties.	Consult all land owners	Before and after accessing site.

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
Trampling and clearing of vegetation to establish drill pads area, this will be within the CBA.	Construction Phase	1 ha	<ul style="list-style-type: none"> ✓ Biodiversity; ✓ Soil; ✓ Humans; and ✓ Water. 	<ul style="list-style-type: none"> ✓ Remedy through rehabilitation; ✓ Conduct site walks; ✓ Limiting disturbance areas; and ✓ Control through implementing activity methods statement. 	<ul style="list-style-type: none"> ✓ Site walk must be done before roads and drill pads are undertaken and should there be sensitive species, they must be marked and must not be removed without permit; ✓ All the areas to be impacted must be clearly indicated on the site plan. No activities (access roads, parking area, drill stations) must be allowed outside the approved site plan. ✓ No plant harvesting must be allowed on site for any purposed other than clearing for approved site activities; ✓ Clearing /trampling of vegetation must be limited to drill areas and access roads only; ✓ No fires are allowed on site; and ✓ All disturbed areas must be rehabilitated as soon as they are out of use; ✓ The site must be monitored for invasion by invasive alien plants and they must be removed as soon as they are identified. 	Biodiversity conservation	<ul style="list-style-type: none"> ✓ Species will be identified before clearing; ✓ Disturbance will be limited 	Throughput the Prospecting Period
Destruction of habitats when clearing vegetation	Construction	1 ha	Fauna	<ul style="list-style-type: none"> ✓ Control through search and rescue; and ✓ Limiting disturbance area. 	<ul style="list-style-type: none"> ✓ The sensitive areas identified by the EIA process must be demarcated as no-go areas for the duration of the project; ✓ Disturbances must be limited to active areas only; ✓ Where fauna are present they must be moved to undisturbed adjacent areas; 	Biodiversity conservation	Search and rescue	Throughput the Prospecting Period
Contamination and erosion of topsoil and stockpiles before, during removal and stockpiling	Construction	500 m ²	Soil	<ul style="list-style-type: none"> ✓ Control through storm water diversion berms; ✓ Control through implementing activity methods statement; 	<ul style="list-style-type: none"> ✓ Contamination of soil from any leaks, spillages of hydrocarbons and any other hazardous substances must be cleaned as soon as they occur; ✓ Topsoil stockpiles must be located away from any chemical substance storage; ✓ Site vehicles, machinery and equipment must always be in good working conditions and daily inspections be conducted before they are used and a checklist be kept onsite; ✓ The site vehicles and hydraulic equipment must each have drip trays to be placed under stationery vehicle. ✓ Faulty vehicles and equipment must be removed from site immediately; 	Rehabilitation standard	Topsoil will be preserved and protected from contamination and erosion for later use during rehabilitation	Throughput the Prospecting Period

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
					<ul style="list-style-type: none"> ✓ No vehicles and equipment maintenance must be done on site and faulty equipment must be taken off site. ✓ Topsoil stockpiles must be located away from drainage lines to prevent erosion; 			
Disturbance of site graves and infrastructures older than 60 years, and Unearthing of heritage significance artefacts	Construction	500 m ²	Heritage Artefacts	Buffer the site graves; Report resources unearthed; Conduct site walks	<ul style="list-style-type: none"> ✓ A 30 metres buffer must be applied to the site graves; ✓ The identified structures older than 60 years must also be preserved and buffered with at least 20 metres. ✓ No activity can be undertaken within the buffer; and ✓ The graves identified on site must be buffered with at least 30 metres and no disturbance must be allowed. ✓ A chance find protocol must be implemented, and should heritage resources be unearthed on site the a heritage specialist must be appointed to assess the resources, should human remains be unearthed the provincial heritage agency and the SAPS must be informed immediately and work at that particular area be stopped immediately. 	Preservation of heritage sites and objects	Site assessment was done	The site team must remain alert throughout the prospecting period
Core drilling								
Water contamination emanating from site soil contaminations, and drainage lines crossings.	Construction	150 m ²	Water; and soil	<ul style="list-style-type: none"> ✓ Control through environmental awareness training; ✓ Control through implementing activity methods statement; ✓ Control through daily inspection of site machinery and equipment; 	<ul style="list-style-type: none"> ✓ Littering must be controlled on site; ✓ Soil contamination from hazardous substances must be attended to as soon as they occur; ✓ All major water contamination must be reported to the Department of Water Affairs; ✓ Site vehicles, machinery and equipment must always be in good working conditions and daily inspections be conducted before they are used and a checklist be kept onsite; ✓ No vehicles and equipment maintenance must be done on site and faulty equipment must be taken off site. 	Protection of water sources and water quality	<ul style="list-style-type: none"> ✓ Contaminations will be prevented and when they occur they will be reported to DWS; ✓ Daily inspections will be conducted. 	Throughput the Prospecting Period
Disturbance, contamination of aquifers' in both quality and quantity	Construction	2 ha	Water	<ul style="list-style-type: none"> ✓ Control through implementing activity methods statement; ✓ Control through daily inspection of site machinery 	<ul style="list-style-type: none"> ✓ Hydrocensus must be undertaken for existing site boreholes prior drilling; ✓ Before drilling is undertaken ground water detection must be done to avoid water bearing lithologies; and ✓ Drilling holes must be capped overnight to prevent dirt and any impurities to get underground; 	Protection of water sources and water quality	Presence of aquifers will be tested before drilling.	Before drilling at each drilling station.

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
					<ul style="list-style-type: none"> ✓ The drilling machineries must be kept in good working conditions to prevent leakages of hydrocarbons; 			
Disturbance of site graves and infrastructures older than 60 years, and Unearthing of heritage significance artefacts	Construction	500 m ²	Heritage Artefacts	Buffer the site graves; Report resources unearthed; Conduct site walks	<ul style="list-style-type: none"> ✓ A 30 metres buffer must be applied to the site graves; ✓ The identified structures older than 60 years must also be preserved and buffered with at least 20 metres. ✓ No activity can be undertaken within the buffer; and ✓ The graves identified on site must be buffered with at least 30 metres and no disturbance must be allowed. ✓ A chance find protocol must be implemented, and should heritage resources be unearthed on site the a heritage specialist must be appointed to assess the resources, should human remains be unearthed the provincial heritage agency and the SAPS must be informed immediately and work at that particular area be stopped immediately. 	Preservation of heritage sites and objects	Site assessment was done	The site team must remain alert throughout the prospecting period
Generation of dust	Construction	1 ha	Air Quality	Control through dust suppression	<ul style="list-style-type: none"> ✓ Should the activities create significant, the biodegradable dust suppressant must be applied to prevent generation of dust; ✓ Portable water must not be used for dust suppression; ✓ Dust fall must be monitored for the duration of the project 	<ul style="list-style-type: none"> ✓ Air Quality standards; ✓ Health and Safety 	Dust suppression	During prospecting activities
Generation of noise as the site is located at less than 6 km from the town.	Construction	1 Ha	Noise	<ul style="list-style-type: none"> ✓ Maintain through servicing of site equipment; and ✓ Consultation with affected parties. 	<ul style="list-style-type: none"> ✓ All site machineries must be kept in good working conditions; ✓ Faulty machineries must be taken off site for service 	Noise standards	Consult affected parties	During prospecting activities
Health and safety risks arising from machinery operations and human errors.	Construction	50 m ²	Health and safety	Control through implementation of activity based methods statements;	<ul style="list-style-type: none"> ✓ Each machine operator must have a certificate of competence for that specific machinery; ✓ All site machineries must be kept in good working conditions; ✓ All excavations must be clearly marked with a reflective tape and barricaded overnight; 	Health and safety standards	Machinery kept in good working conditions;	Throughout the Prospecting Period
Site Rehabilitation								
Soil Erosion	Post Closure	500 m ²	Soil; Water; and	Control through storm water control berms;	<ul style="list-style-type: none"> ✓ Where necessary storm water control berms must be used to control erosion along rehabilitated access roads; 	Erosion prevention	Control erosion	During and after prospecting period

IMPACT ASSESSMENT AND MANAGEMENT								
Potential Impact	Phase	Disturbance Scale	Aspects Affected	Mitigation Type	Mitigation Measures	Standard to be Achieved	Compliance with Standards	Time Period for Implementation
			Biodiversity		<ul style="list-style-type: none"> ✓ Rehabilitation materials including topsoil must be free of contaminants such as hydrocarbons; ✓ Topsoil must not be compacted but care should be given to prevent erosion; ✓ Rehabilitation must be undertaken according to an approved plan. 			
Invasion by Alien invasive plants	Post Closure	1 ha	Biodiversity	Control through monitoring and removal.	<ul style="list-style-type: none"> ✓ Invasive alien plants must be monitored during and after prospecting activities; ✓ All invasive plants must be removed once identified and a follow-up be developed. 	Preserving biodiversity	Invasive species will be monitored and cleared.	During and after prospecting period
Other Impacts								
Failing to meet local community expectations especially job creation	Construction	-	Social	Control through consultation	<ul style="list-style-type: none"> ✓ Consultations must be done with local leaders and the number of people to be employed and how they will be employed be communicated; ✓ No unauthorised personnel must be allowed into prospecting site 	Engage local community	Community will be engaged through its elected leaders	Before undertaking prospecting activities
Property theft for both the land owners/users and applicant	Planning and Construction	-	Social and Security	Implement a working security system to control site access and personnel identification.	<ul style="list-style-type: none"> ✓ All authorised personnel must have identification card; ✓ No unauthorised personnel must be allowed on site. 	Safety and Security	Ensure safety of site personnel	During prospecting activities.

5 Financial Provision

5.1 Determination of the amount of Financial Provision

5.1.1 Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

The baseline environment as described in Section 8 of Part A of this report is largely natural, with crop farming activities and characterised by numerous watercourses. The closure objectives will ensure that the disturbed natural environment (which was established to be sensitive) is restored. The objectives will also ensure that the soil erosion is prevented and soil fertility in disturbed agricultural areas is restored. The closure objectives are as follows:

- a) The facilitation of the re-establishment of agricultural activities and soil capability in disturbed areas;
- b) Removal of all infrastructure and material introduced to site;
- c) Removal of all wastes and their disposal;
- d) Promotion of the rapid re-establishment of the natural vegetation and the restoration of the site ecology. The disturbed areas shall be rehabilitated to ensure that:
 - The biodiversity habitat restored after prospecting;
 - Eliminate any safety risk associated with drill holes and sumps through adequate drill hole plugging and backfilling;
 - Environment and resources are not subjected to physical and chemical deterioration;
 - The site is reversed to almost its original state;
 - The after-use of the site is beneficial and sustainable in a long term;
- e) Removal, control and monitoring of alien invasive plants; and
- f) Monitoring of rehabilitation progress

5.1.2 Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.

This Basic Assessment Report and Environmental Management Programme will be made available to each registered stakeholder for review and comment from the 28th of August 2023. This included the closure objectives as outlined in this report.

5.1.3 Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main prospecting activities

Due to the nature of the activities, the impacts will be very limited and of short duration. Prospecting is conducted in phases and the continuation to the next phase depends on the success of the preceding phase and as such the disturbance scale is unknown at this stage. The following prospecting programme aspects will require rehabilitation:

- Access track roads – will not exceed 4m in width, the length unknown as drill stations has not been defined;
- Maintenance of the existing roads (the main road and internal roads);
- Storage area – this will be located close to the existing road on already disturbed area, on decommissioning all the materials must be removed from site;
- Drill Stations – A drill station will be 30 x 25m (750m²) inclusive of material laydown area (pipes, parking, core box).
- Boreholes – 75mm diameter boreholes will be drilled to the depth of 100m.

Rehabilitation will be aimed at restoring the disturbed areas to pre-prospecting environmental condition. The will include restoration of ecological functionality and removal of all foreign materials, Photographs of the site before

The drill stations and access roads will be the main area experiencing impacts. The project activities will be temporary in nature, and a detailed management plan has been provided to address potential impacts associated with these activities.

5.1.3.1 Borehole filling and capping

Open holes, collared or uncollared, particularly if eroded and cratered, are a danger to wildlife and livestock. Drill holes must be backfilled and permanently capped as soon as prospecting activities are completed at that particular borehole. The area around the borehole must be cleaned and be free of litter. The borehole will be backfilled with cement as per the industry

standard. The borehole will have a 75mm diameter with the depth as deep as 100 metres, thus requiring an input of 0.44 m³ of backfill material.

It will be crucial to ensure that the boreholes are free from all obstructions that may interfere with the sealing of the hole. All foreign materials must be removed, together with any other infrastructure (dip tubes etc.). The condition of any borehole casing and grout must be examined to ascertain whether its retention in the hole would prejudice any of the objectives

5.1.3.2 Rehabilitation of disturbed areas (Track roads and drill stations)

On cessation of prospecting activities at a particular drill station, the established access roads must be rehabilitated. Access roads establishment will result in clearing and trampling the indigenous vegetation, and the tracks will be hardened (compacted) by repetitive driving to and from the drill station. The compacted tracks must be ripped using a semi mechanized hand operated ripper. The ripping is undertaken to facilitate vegetation regrowth. The ripping must not exceed 300 mm after which non-desirable soil layer is located.

The establishment of the drill stations (30 x 25m) will also not involve vegetation clearing and trampling of indigenous vegetation species. The activities at the drill station will compact the surface reducing vegetation re-growth capabilities. The compacted areas must be ripped using a semi-mechanised hand ripper and mulch be introduced at the ripped areas.

5.1.3.3 Re-vegetation

It has been established by other scientific studies that that applying fertiliser is not often leads to invasion by alien invasive plants. Mulch will be applied to the ripped surface to improve water retention capacity. All rescued plants should be bagged and kept on a designated on-site nursery located at the temporary camp site. The rescued plants must be reintroduced to the disturbed areas on completion of soil preparation. Seeding with the local indigenous plants species will then be undertaken. Seed banks must be established and assistive growth in a controlled environment (nursery) be undertaken and will later be planted on site after mulch has been applied. After seeding the areas will be watered to promote sprouting and growth of re-introduced plants from the nursery.

Re-vegetation efforts will be monitored every second month for a period of six months after initial seeding. An effective vegetation cover of 45% must be achieved. Re-seeding will be undertaken if this cover has not been achieved after six months.

Concurrent rehabilitation must be undertaken, thus as soon as rehabilitation is completed at a particular drill station rehabilitation must commence immediately.

5.1.4 Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives

The closure objectives aim at restoring the site to its original state, i.e. conditions that were existing before the prospecting activities were undertaken. The site is currently used for crop farming and human settlements. The settlement area will not be disturbed, the objective will therefore be to restore ecological functionality of the CBA and crop farming potential where crop fields have been impacted. The rehabilitation measures will achieve the objective, the created access roads will be ripped, boreholes capped and vegetation regrowth will be facilitated where necessary. Once all the rehabilitation activities are completed the site will be fully restored to its original state thus the closure objectives will be met.

5.1.5 Calculate and state the quantum of the financial provision required to manage and rehabilitate the environment in accordance with the applicable guideline.

Applicant: **Colt Resources Pty Ltd** Ref No.: **FS 30/5/1/1/2/ 10623 PR**
 Evaluators: **Khuliso V Ramulondi** Date: **27/05/2022**

No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master Rate	Multiplication factor	Weighting factor 1	Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	17.4	1	1	R0.00
2 (A)	Demolition of steel buildings and structures	m2	0	238.71	1	1	R0.00
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	351.79	1	1	R0.00
3	Rehabilitation of access roads	m2	150	42.72	1	1	R6,408.00
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	414.61	1	1	R0.00
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	226.15	1	1	R0.00
5	Demolition of housing and/or administration facilities	m2	0	477.42	1	1	R0.00
6	Opencast rehabilitation including final voids and ramps	ha	0	242984.15	1	1	R0.00
7	Sealing of shafts adits and inclines	m3	0	128.15	1	1	R0.00
8 (A)	Rehabilitation of overburden and spoils	ha	0.05	166847.44	1	1	R8,342.37
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	207805.47	1	1	R0.00
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	603565.59	1	1	R0.00
9	Rehabilitation of subsided areas	ha	0	139709.6	1	1	R0.00
10	General surface rehabilitation	ha	0.15	132171.31	1	1	R19,825.70
11	River diversions	ha	0	132171.31	1	1	R0.00
12	Fencing	m	100	150.77	1	1	R15,077.00
13	Water management	ha	0.05	50255.25	1	1	R2,512.76
14	2 to 3 years of maintenance and aftercare	ha	1	17589.34	1	1	R17,589.34
15 (A)	Specialist study	Sum	0	0	1	1	R0.00
15 (B)	Specialist study	Sum	0	0	1	1	R0.00
					Sub Total 1		R69,755.17
1	Preliminary and General			8370.62052	weighting factor 2		R8,370.62
					1		
2	Contingencies				6975.5171		R6,975.52
					Subtotal 2		R85,101.31
					VAT (15%)		R12,765.20
					Grand Total		R97,866.50

5.1.6 Confirm that the financial provision will be provided as determined.

It is hereby undertaken that the amount of **R 97,866.50** will be paid to DMRE in the form of a bank guarantee for rehabilitation purposes as required in terms of section 24P (1) of the NEMA, will be provided to the DMRE upon granting of the requested prospecting right.

5.2 Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including, Monitoring of Impact Management Actions, Monitoring and reporting frequency, Responsible persons, Time period for implementing impact management actions, Mechanism for monitoring compliance

Table 5-1: Compliance Monitoring and Frequency

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements For Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
Site establishment	Legal transgression; Accidents and Incidents	<ul style="list-style-type: none"> ✓ Prospecting Right; ✓ Environmental Authorisation ✓ Acts, Regulations and any other site permits; ✓ No-go zones demarcated; ✓ Access agreements; and ✓ Emergency Preparedness and Response Plan 	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMRE

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements For Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
Establishment of access roads	Soil Erosion; Vegetation Clearing; Introduction of alien invasive plants.	<ul style="list-style-type: none"> ✓ Existing roads are used as far as practicable; ✓ No activities within no-go zones; ✓ No multiple tracks are created; ✓ Erosion control berms effectiveness; ✓ Vegetation clearing limited to working area; ✓ Site walk to identify absence/ presence of threatened and/or protected species; ✓ Control of alien invasive plants; 	Applicant/ Site EO/ ECO	After establishment of each access road; Monitoring reports must be submitted quarterly.
Drill pads establishment and Core drilling	Clearing of vegetation; Contamination of ground water; House keeping	<ul style="list-style-type: none"> ✓ Vegetation clearing limited to working area; ✓ Site walk to identify absence/ presence of threatened and/or protected species; ✓ Control of alien invasive plants; ✓ Borehole hydrocensus; ✓ Reducing and reusing of waste on site; ✓ Waste separation and disposal; and ✓ Openings barricades and drill hole capping. 	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMRE

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements For Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
Topsoil stockpiling	Stockpiling erosion; Stockpiling contamination;	Erosion & contamination prevention.	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMRE
Operation of site machinery	<ul style="list-style-type: none"> ✓ Noise generation; ✓ Soil contamination; ✓ Dust generation 	<ul style="list-style-type: none"> ✓ Dust suppression and dust fall monitoring; ✓ Machinery operational standards; ✓ IAPs consultation. 	Applicant/ Site EO/ ECO	Daily inspection of equipment; Monitoring reports must be submitted quarterly to DMRE
Site Personnel	Security breach	<ul style="list-style-type: none"> ✓ Site employees' identification; ✓ Land owners' complaints; ✓ Access restriction to private properties (beyond prospecting area). 	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMRE
Ablution facility	Soil and water contamination	<ul style="list-style-type: none"> ✓ Provision of portable chemical toilets; ✓ Disposal of sewage wastes 	Applicant/ Site EO/ ECO	Weekly monitoring; Monitoring reports must be submitted quarterly to DMRE
Water requirements	Over extraction of water	<ul style="list-style-type: none"> ✓ Water usage 	Applicant/ Site EO/ ECO	Water usage must be recorded on a daily basis and monthly

Source Activity	Impacts Requiring Monitoring Programmes	Functional Requirements For Monitoring	Roles and Responsibilities	Monitoring and Reporting Frequency and Time Periods for Implementing Impact Management Actions
				reports must be submitted quarterly to DMRE
Rehabilitation	Erosion;	<ul style="list-style-type: none"> ✓ Rehabilitation rate and success ✓ Removal of foreign materials. 	Applicant/ Site EO/ ECO	Post closure and findings submitted to DMRE

5.2.1 Indicate the frequency of the submission of the performance assessment/environmental audit report.

Annual performance assessments must be undertaken on the EMPr. These reports must also include the assessment of the financial provision. The reports should be submitted to the DMRE as per the requirement of section 24P(3) of NEMA (107;1998).

5.3 Environmental Awareness Plan

5.3.1 Manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work

All the employees including visitors will undergo an environmental induction to ensure that all potential impacts, best practice guidelines and policies are communicated. The induction process will be conducted as per the attached Awareness Program (**Appendix 02**). The induction will cover amongst others the following:

- ❖ Legal requirements for the site i.e. EA and EMPr;
- ❖ Waste management;
- ❖ Incident and accident Management; and
- ❖ Emergency Response Procedure.

5.3.2 Manner in which risks will be dealt with in order to avoid pollution or the degradation of the environment

The following steps will be undertaken to ensure that risks are identified at the earliest and ensure that they are avoided:

5.3.2.1 Delegation of a Project Environmental Officer

An Environmental Officer (EO) must be appointed before any activity can be undertaken on site. The officer must be a qualified environmental Practitioner.

5.3.2.2 Notice of Commencement

Department of Mineral Resource and Energy must be notified in writing 2 weeks before the prospecting activities are undertaken.

5.3.2.3 Environmental Documents

Prior to commencement of work on site, the EO is to ensure that the following documents are available on site:

- ❖ The Environmental Authorisation;

- ❖ The final approved Environmental Management Programme (EMPr); and
- ❖ Method statements for different site activities

5.3.2.4 Environmental Monitoring

The EO is to undertake monthly internal environmental compliance audits and prepare monthly environmental audit reports during the construction period. The internal environmental audit must include the following information:

- (i) An assessment of the Contractor's compliance with:
 - ❖ The relevant conditions of all permits: EA, WUL, etc.;
 - ❖ The approved Environmental Management Programme;
 - ❖ The approved Construction Site Plan.
 - ❖ The approved Construction Method Statements.
- (ii) Provide feedback on:
 - ❖ Environmental training undertaken;
 - ❖ Any environmental incidents or complaints;
 - ❖ Waste type quantities recycled and disposed;
 - ❖ Any environmental issues identified;
 - ❖ The results of any environmental investigations;
 - ❖ Actions undertaken from previous audits; and
 - ❖ Recommended actions to be undertaken.

5.3.2.5 Environmental Training

Prior to working on site, every person that will be undertaking any retrofit activities must receive training on the relevant environmental management requirements. The EO is to ensure that the environmental training includes the relevant requirements from:

- ❖ All site authorisations; and
- ❖ The final approved Environmental Management Programme.

5.3.2.6 Development of procedures and checklists

The following procedures will be developed and all staff and workers will be adequately trained on the content and implementation thereof.

Emergency Preparedness and Response: The procedure will be developed to specifically include risk identification, preparedness, response measures and reporting. The procedure will specifically include spill and fire risk, preparedness and response measures. The appropriate emergency control centres (fire department, hospitals) will be identified and the contact

numbers obtained and made available on site. The procedure must be developed in consultation with all potentially affected land owners. In the event that risks are identified which may affect adjacent landowners (or other persons), the procedure will include the appropriate communication strategy to inform such persons and provide response measures to minimize the impact.

Incident Reporting Procedure: Incident reporting will be undertaken in accordance with an established incident reporting procedure to (including but not limited to):

- ✓ Provide details of the responsible person including any person who: (i) is responsible for the incident; (ii) owns any hazardous substance involved in the incident; or (iii) was in control when the incident occurred;
- ✓ Provide details of the incident (time, date, location);
- ✓ The details of the cause of the incident;
- ✓ Identify the aspects of the environment impacted;
- ✓ The details corrective action taken, and
- ✓ The identification of any potential residual or secondary risks that must be monitored and corrected or managed.

Environmental and Social Audit Checklist: An environmental audit checklist will be established to include the environmental and social mitigation and management measures as developed and approved as part of the Environmental Management Plan. Non-conformances will be identified and corrective action taken where required.

6 Addressing Emergency Events

Emergency event	Mitigation	Responsible parties
<p>Spillage of oil, fuel or solvents on concrete slabs or on soil surfaces or other hydrocarbons. This also includes the leaking and/or spillage of the contents of chemical toilet systems. It includes spill events causing pollution of any surface water.</p>	<ul style="list-style-type: none"> ✓ Prompt placement of suitable absorbent material e.g. wood shavings or fine sand. Mopping up of the surface. In case of significant spillage on open soil surface of grassy areas, the contaminated soil cover must be removed to a depth of 20 cm and disposed of at the nearest hazardous waste disposal site. ✓ In the unlikely event of any type of spillage or soil contamination within 20 m from the drainage courses or lines, sandbags must be placed between the stream course and the area of spill while cleaning up is taking place. ✓ If a spill event occur and pollutes surface drainage, such contaminated surface water must be pumped into containers and removed from the site to be disposed of at the nearest hazardous waste disposal site. The name and contact details of such a contractor must be kept in the site office at all times. ✓ Major contamination incidents must be reported to the Elias Motsoaledi Municipality emergency services and the Limpopo Government Department of Environmental Affairs and Development Planning Directorate: Pollution and Chemicals Management. ✓ Incident management and reporting must be thoroughly discussed during Induction. 	<p>The project manager and the contractor responsible of that particular part of the site actions.</p>
<p>Fire occurrences</p>	<ul style="list-style-type: none"> ✓ In the event of fire of the open veldt or at any other place on the terrain, the Fire Department must be called in. It is also important that local firefighting equipment be ready and available at the site office. Such equipment includes a water cart and booster pipe and hose to fight minor veldt fires of fires at equipment or buildings. The contact details of the local fire brigade and emergency services will be kept available at the site office at all times. 	<p>Project manager and Site manager</p>

Emergency event	Mitigation	Responsible parties
<p>Spillage events of sewage</p>	<ul style="list-style-type: none"> ✓ Spill events will be cleaned-up by pumping sewage into bin or drum containers, preferably plastic containers to be removed from the site to the closest municipal water treatment works, The Health Department of the local authority must be notified of the event. ✓ Arrangement must be made for the use of emergency clean up equipment and assistance in the disposal of spill at their facility. The necessary technical steps such as the closing of valves must be conducted in an event of a spill. 	<p>Project manager and site manager.</p>

During the undertaking of the prospecting activities more incidents may be identified. The activity based risk assessment must be undertaken prior undertaking of any activity.

6.1 Heritage Resources Chance Find Protocol

6.1.1 Purpose

Potential impacts on heritage resources can occur during construction as a result of unearthing during construction. This protocol outlines the procedures to be followed in the event that a heritage resource is uncovered.

6.1.2 Palaeontological finds

Monitoring Programme for Palaeontology is to commence once the invasive activities for the proposed prospecting begins. The following procedure is only required if fossils are seen on the surface and when site establishment and drilling commence.

1. When excavations begin the rocks must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (silicified wood, plants, insects, bone, shells) should be put aside in a suitably protected place. This way the prospecting activities will not be interrupted.
2. Where possible, photographs of similar fossils must be provided to the contractor to assist in recognizing the fossil plants and bones that might be encountered on site. This information must be built into the EMP's training and awareness plan and procedures.
3. Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment.
4. If there is any possible fossil material found by the Contractor/environmental officer then a qualified palaeontologist should visit the site to inspect the selected material and check the excavations where feasible.
5. Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site, a South African Heritage Resources Agency (SAHRA) permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits.
6. If no good fossil material is recovered, then any site inspections by the palaeontologist will not be necessary.
7. If no fossils are found and prospecting have finished, then no further monitoring is required.

6.1.3 Archaeological finds

If you believe that you may have encountered any archaeological materials, stop work in the area and follow the procedure below:

1. The heritage resource must be avoided and all activities in the immediate vicinity temporarily ceased.
2. A suitably qualified specialist must be informed and commissioned to consider the heritage resource, either via communicating with the Environmental Officer via telephone or email, or based on a site visit.
3. Appropriate measures are to be provided by a qualified specialist towards immediate management of the heritage resource.
4. Should the specialist conclude that the find is a heritage resource protected in terms of the NRHA (1999) Sections 34, 36, 37 and NHRA (1999) Regulations (Regulation 38, 39, 40), the specialist must notify SAHRA on behalf of the Developer.
5. If required by SAHRA, the specialist must conduct a HIA in terms of NHRA Section 38 that must include rescue actions/excavations.

6.1.4 Graves

Should any unmarked human burials/remains be found during the course of construction:

1. Work in the immediate vicinity should cease and the find must immediately be reported to the archaeologist, or the South African Heritage Resources Agency (SAHRA).
2. Under no circumstances may burials be disturbed or removed until such time as necessary statutory procedures required for grave relocation have been met.

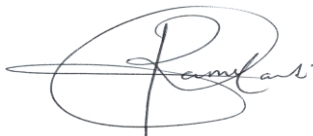
7 Specific information required by the Competent Authority

No specific information was required by the Competent Authority.

8 UNDERTAKING

The EAP herewith confirms

- a. The correctness of the information provided in the reports
- b. The inclusion of comments and inputs from stakeholders and I&APs;
- c. The inclusion of inputs and recommendations from the specialist reports where relevant; and
- d. That the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties are correctly reflected herein.

A handwritten signature in black ink, appearing to read 'Ramlani', written over a horizontal line.

Signature of the environmental assessment practitioner:

Mielelani Consultancy

Name of company:

24 August 2023

Date:

-END-

APPENDICES

APPENDIX 01: EAP CV

PERSONAL INFORMATION

Surname: Ramulondi
First Names: Khuliso Vincent
Race: African
Languages: Tshivenda, English, Sepedi, Sotho, and Xitsonga

EDUCATIONAL BACKGROUND

Institution: University of Venda

Qualification: Bachelor of Earth Sciences in Mining and Environmental Geology (Honours Degree).

Year Obtained: 2015

Major Subject: Research Methods, Principles of Resource Management, Rural Water Supply, Pollution & Environmental Quality, Water Law & Institutions, Resource Evaluation & Info Systems, Geo-Environment & Health, Environmental Impact Assessment & Modelling, GIS & Map Production, Hydrogeology, Small Scale Mining, Mine Water Generation, Exploration Geophysics.

PROFESSIONAL REGISTRATIONS AND AFFILIATIONS

EAPASA – Registered Environmental Assessment Practitioner – 2019/1097

SACNASP – Professional Natural Scientist (Environmental Science) – 115769.

Geological Society of South Africa – Registered Professional Member

International Association Impact Assessment South Africa – Affiliated Member

WORK EXPERIENCE

2016 – Current: Mieelani Consultancy

Position: Senior Environmental Consultant

Projects involvement highlight:

- EIA process for construction of E-Waste and I-Waste Management Facility in Babelegi Industrial Park, Hammanskraal, City of Tshwane, Gauteng;
- Environmental Control Officer for Vierfontein Colliery, Idwala Coal (Pty) Ltd in RE of Portion 31 & Portion 44 of the Farm Vierfontein 61 IS;

- EIA for Mining Right Application by Oikonomia Granite in Brits, North-West Province;
- Basic Assessment Process for Prospecting Right Application in the Magisterial Z. F. Mgcawu, Northern Cape;
- BA Process for Prospecting Right Application in Hopetown District, Northern Cape Region;
- BA Process for Coal Prospecting Right Application on Farm Amalinda 463 JR in City of Tshwane Metropolitan Municipality, Gauteng Province;
- Scoping report compilation for the upgrade and construction of road K16 from K139 to K54 for 15 km into a dual carriage way in Mamelodi, City Of Tshwane Metropolitan Municipality, Gauteng Province;
- BA Process for three Diamond Prospecting Right Applications Situated in Namaqualand District, Northern Cape.

October 2020 – Current: Environmental Control Officer for Tshwane Automobile Special Economic Zone

April 2016 – Sept 2018: Environmental Control Officer for Eskom’s 400 kV Powerline Construction in Free State Province.

Jan 2015 – Mar 2016: Tshikovha Environmental & Communication Consulting

Position: Environmental Assessment Practitioner

Responsibilities: EIA Reports Compilation, Coordination of Public Participation Process, Environmental Monitoring and Auditing.

Some of Completed Projects

- BA Process for the Closure of four (4) landfill sites (Onderstepoort, Garstkloof, Temba and Kwaggasrand) under the jurisdiction of the City of Tshwane, Gauteng Province;
- Environmental Monitoring and Auditing for road construction and two low level bridge construction in Kgantata, Limpopo Province;
- Environmental Impact Assessment for the sewer pipeline in Mkondo Municipality, Mpumalanga Province;
- BA Process for development of Zithobeni Housing Development in City of Tshwane;

- BA Process for the bulk water pipeline (12km) in Nkomazi Local Municipality, Mpumalanga Province;

PROFESSIONAL SKILLS

Skill	Competency	Duration
Environmental Impact Assessment	Advanced	7 Years
Environmental Monitoring and Auditing	Advanced	7 Years
Environmental Screening	Advanced	7 Years
Public Participation Process Coordination	Advanced	7 Years
Geographical Information System (GIS)	Advanced	5 Years
Project Management	Advanced	4 Years

University of Venda



This is to Certify that the Degree of
*Bachelor of Earth Sciences in Mining
and Environmental Geology*
was Awarded to

RAMULONDI KHULISO VINCENT

8707125569089

at a Ceremony held on the

14-MAY-2015

in Accordance with the Provisions of the
Act and Statute

Vice Chancellor

1005151696



University Registrar

Dean

APPENDIX 02: ENVIRONMENTAL AWARENESS PLAN

1. Introduction

Legislation requires that a prospecting company who prepares an environmental management program must develop an environmental awareness plan describing the manner in which the company intends to inform his or her employees of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment. In recognition of the need to protect our environment, environmental management should not only be seen as a legal obligation but also as a moral obligation.

1.1. The Environmental Awareness Plan (EAP)

The EAP forms part of the EMPr and is intended to create the required awareness and culture with personnel and contractors/service providers on environmental safety and health issues associated with the prospecting activities.

1.2. The applicant's policy on environmental awareness

This Environmental Awareness Plan (EAP) will serve as the basis for the induction of all new employees (as well as contractors pending the nature of their work on site) on matters as described herein and read in conjunction with the EMPr. The Plan will also be used to hone awareness of all employees on a continuous basis. Specific environmental awareness performance criteria will also form part of the job descriptions of employees, to ensure diligence and full responsibility at all levels of the organisational work force.

1.3. Fostering environmental awareness

General environmental awareness will be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. This will ensure that environmental accidents are minimized and environmental compliance maximized.

Environmental awareness will be fostered in the following manner:

- a) Induction course for all workers on site, before commencing work on site.
- b) Refresher courses as and when required
- c) Daily toolbox talks at the start of each day with all workers coming on site, where workers can be alerted to particular environmental concerns associated with their tasks for that day or the area/habitat in which they are working.
- d) Taking part in national and international environmental campaigns like National Marine Week, National harbour day, International Wetlands day exacta.

- e) Displaying of information posters and other environmental awareness material in the general assembly points.

1.4. Training and environmental awareness

The company accepts that environmental awareness training is critical for the workforce to understand how they can play a role in achieving the objectives specified in the EMPr and ensure that the actions specified in the EMPr are implemented effectively and efficiently. It is vital that all personnel are adequately trained to perform their designated tasks to an acceptable standard.

2. The environmental awareness training course

All employees should attend the course, regardless of position, status or level of responsibility. With a background of basic environmental awareness and an understanding of basic environmental issues and sensitivities, personnel may be motivated and empowered to do their share in helping to maintain the integrity of the environment on the prospecting site through environmental impact management.

The goal of this course is therefore to enable a shared understanding and common vision of the environment, the impact of a prospecting operation on the environment (and why this is important) and the role of prospecting personnel in terms of environmental management and compliance.

The induction course will compose of the following steps:

- The first step will include background discussion of the environment concept: of what it comprises and how we interact with it.
- The second step will be a description of the components and phases of the specific Prospecting operation.
- The third step will be a general account of how the Prospecting operation and its associated activities can affect the environment, giving rise to what we call Environmental Impacts.
- The fourth and most important step will be a discussion of what staff can do in order to help prevent the negative environmental impacts from degrading our environment. This is known as Environmental Impact Management.

3. Course content

The following can be seen as draft course content as it will be building on as specific needs arrases and will be supplemented with the handout of reading material and extracts of the EMPr on which the course will be based.

3.1. The environment

The environment consists essentially of the living environment, the non-living environment and the man-made environment. The living environment consists of our plant and animal resources. The non-living environment includes the soil, water and geological resources. The man-made environment comprises our infrastructure, social, cultural and archaeological resources.

These environments depend on one another, and man depends on them all for his survival. Damage to one will be felt by so we must fry to protect the as well as their interactions with one another as they occur in nature.

When undertaking a Prospecting operation or any other form of development this concept must be kept in mind. Development must be implemented in such a way that we benefit today without compromising the ability of future generations to benefit as well. Employees should understand this concept of sustainability and sustainable development.

3.2. Description of the components and phases of the operation

The project description should be explained as part of induction together with the main components or activities that can affect the environment, giving rise to what we call environmental impacts. The Prospecting operation consists of a number of different components

3.3. Description of Environmental Impacts

A general account of how the Prospecting operation and associated activities can affect the environment must be explained. This is basically a description of concept of environmental impacts.

a) What is an Environmental Impact?

An environmental impact is the result, either good or bad, of man's actions on the natural environment This results in one or many changes in the environment may also affect the availability of resources and the environment's capacity to function.

Impacts can occur either as a result of:

- The use of a resource;
- Or the pollution of a resource.

In addition, impacts can be categorised as the following:

- Foreseen, such as the necessary clearing of the vegetation before Prospecting begins, or Unforeseen, such as the flooding of an area following heavy rains;
- **Avoidable**, such as the unnecessary spillage of diesel during refuelling- or **Unavoidable**, such as the disturbance created during drilling; **Simple**- such as litter untidying the prospecting site, or **Cumulative** which is a collective impact from different existing activities.

b) Environmental Impacts

Typical environmental impacts anticipated on a Prospecting site include the following:

The loss of plants; The loss of animals; Soil pollution; Dust liberation; Soil compaction and erosion; and Water pollution;

c) Causes of environmental impacts

These environmental are caused primarily by inadequate planning & not adhering to the EMPr Specifications'.

- The inadequate planning & preparation of the Prospecting site;
- The uncontrolled expansion of the Prospecting site footprint;
- The uncontrolled activity of Prospecting staff;
- The injudicious removal / disturbance of vegetation and habitat;
- The unnecessary loss of soil;
- Uncontrolled vehicular movement & circulation;
- The haphazard storage of vehicles, equipment and material;
- The uncontrolled servicing, repair and refuelling of vehicles;
- Unclear policy on solid waste management;
- Unclear policy on waste water;
- The uninformed use, storage and disposal of hazardous material;
- The erosive power of storm water and runoff;
- Unintentional fires;

3.4. Description of Environmental Impacts Mitigation

The fourth and most important step of an induction course will be a discussion of what staff can do in order to help prevent the negative environmental impacts from degrading their environment. This is known as Environmental Impact Management and is also described in the Environmental Management Programme. The course discussion should also include general environmental code of conduct practices such as:

Impact management: Prospecting site establishment (general):

- Do not cross any site fences;
- Do not walk, drive or store material in rehabilitating areas;
- Report any access into fenced off areas to the foreman environmental manager;
- Use only areas designated for certain construction activities;
- Do not access any stream or water body without permission;
- Report any headstones, graves or human remains you may find to the foreman environmental manager;

Impact management: Construction phase (general):

- Only eat, cook, sleep and recreate in the areas designated on site;
- Do not bathe anywhere except in the designated areas on site;
- Always use the toilet facilities provided;
- Only use the water provided on site- do not collect water from or dispose water into a natural water course;
- Always make use of the specified Prospecting site safety measures;
- Do not hunt, kill or injure any animals anywhere on site;
- Inform the foreman environmental of any dangerous or problem
- Do not leave any food or rubbish where scavengers can get at it. Impact management: Health and safety (general):
- Always use the toilet & hand washing facilities provided.
- Only use the water provided on site - do not collect water from or dispose water into a natural water course.
- Make use of the specified protective gear for noisy and dusty conditions.
- Always wear proper protective head and foot gear while on site.
- Know where to find a list of emergency numbers in the event of one.
- Report accidents, injuries and unsafe site conditions to the Safety Officer.

Impact management: Vegetation clearing (general):

- Do not damage, destroy or remove any significant tree that has been marked;
- No firewood may be harvested without permission;
- Newly planted trees may not be disturbed in any way;
- Do not excavate beneath the crown of any tree that has been marked;
- No conserved tree may be used to support or hang anything in;
- Report to the foreman environmental manager any damage to any significant tree that has been marked.

Impact management: Top Soil removal and storage (general):

- Only excavate soil, gravel, rock etc. from designated areas;
- Stockpile soil only as instructed and at the time it is instructed;
- Do not make new stockpiles without permission;
- Do not use soil or remove soil from any stockpile without permission;
- Do not walk, drive or store any equipment, machinery or material on any stockpile.

Impact management: Access and transport (general):

- Only drive on designated roads and tracks;
- Move obstacles out of the way rather than drive around them;
- Only cross drainage lines at designated points;
- Always drive within the specified speed limit.

Impact management: Storage of vehicles, equipment and material (general):

- Do not leave machinery and equipment standing around if not in use;
- Only park vehicles in designated areas;
- Do not park heavy vehicles or store equipment under or near trees
- Do not store machinery, vehicles or materials in undisturbed or rehabilitating areas.

Impact management Servicing, repair and refuelling of vehicles (general):

- Only service machinery and vehicles in designated areas;
- Regularly check your vehicle for fuel and oil leaks;
- Inform the foreman environmental manager of leaking vehicles and machinery so that he can schedule repairs;
- Only refuel by means of a pump and on the bund created for that purpose;
- Immediately clean any accidental fuel and oil spills - do not hose spills into the natural environment;
- Dispose of contaminated soil as hazardous waste in the correct location on site.

Impact management: Solid waste management (general):

- Do not litter - make use of refuse bins provided;
- Concrete may only be mixed in designated areas and not directly on the ground;
- Do not hose spills into the natural environment - inform the foreman environmental manager of spills you are unable to clean yourself;
- Dispose of construction rubble only in specified storage areas - if in doubt, ask;
- Do not bury, hide or burn any waste of any nature;
- Inform the foreman of any illegal litter or dumping site that you encounter.
- Impact management: Waste water management (general):
- Do not use any natural water course to wash machinery, vehicles or equipment;
- Only wash machinery, vehicles or equipment in designated areas;
- Conserve water and report any leaks and overflow to the foreman,

Impact management: Management of hazardous material (General):

- Make sure that you know how to handle all hazardous substances;
- Do not access stores for hazardous substances without permission;
- Immediately clean any minor accidental spills and leaks;
- Do not hose any leaks or spills into the natural environment;
- Dispose of all hazardous waste in specified storage areas - if in doubt, ask;
- Immediately report any major leaks and spills to the foreman environmental manager.

Impact management: Fire management (General)

- Do not make open fires except in permitted areas and at permitted times;
- Do not leave any fires unattended. Extinguish these before you leave the area;
- All cooking is to be done on gas / electric stoves and only in the areas provided;
- Ensure that you know where firefighting equipment is located.

APPENDIX 03: SCREENING REPORT

APPENDIX 04: PUBLIC PARTICIPATION PROCESS
