

ENVIRONMENTAL MONITORING REPORT FOR EPL 5354

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1. Introduction

1.1 Project Background

The proponent, Bitterwasser Lithium Exploration (Pty) Ltd, was granted an exclusive prospecting licence (EPL) by the Ministry of Mines and Energy. The licence holder has been exploring for lithium clay deposits. The proponent was granted an environmental clearance certificate in 2018.

This environmental performance monitoring report prepared for the EPL 5354 covers the period May 2018 to May 2021. The preparation of this monitoring report is based on the requirements of the Environmental Impact Assessment (EIA) Regulations No. 30 of 2012 gazetted under the Environmental Management Act, (EMA), 2007, (Act No. 7 of 2007 and the Environmental Clearance Certificate (ECC) that was issued.

The monitoring results outlined in this report provide an overview of actions that were implemented by the proponent for minimising and maximising the identified negative and positive impacts, respectively. Figure 1 below shows a satellite image of the licence area.

1.1.1 Mineral Licence Details

The exclusive prospecting number is 14/2/1/4/2/**5354**. The Exclusive Prospecting Licence (EPL 5354) was granted in **February 2014** and will be valid up to **February 2021**, with the possibility of obtaining a renewal from the regulatory authority. The mineral licence is issued to Bitterwasser Lithium Exploration (Pty) Ltd.

The size of the mineral licence is **19,341 Hectares**. It is granted for Industrial minerals commodities.

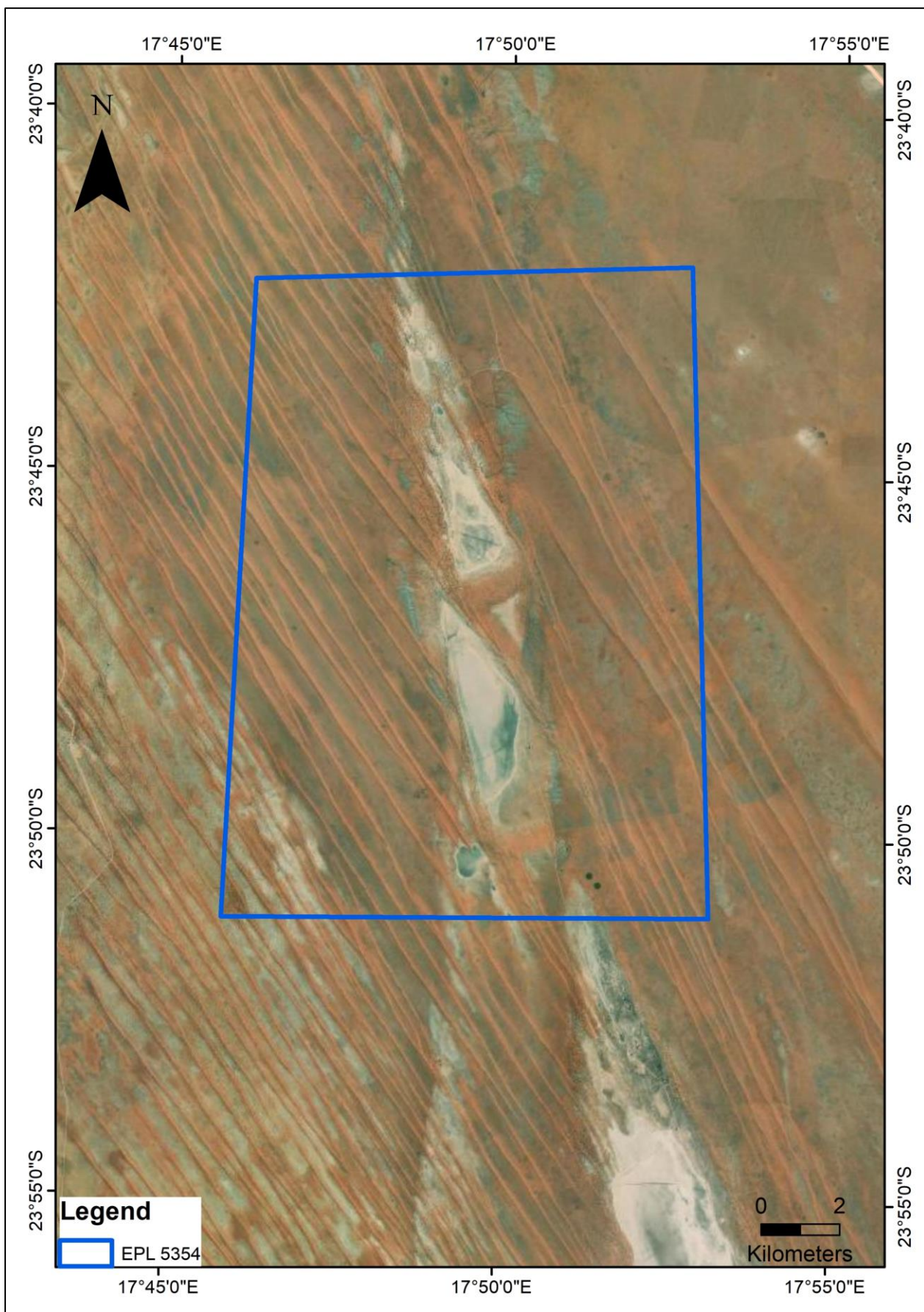
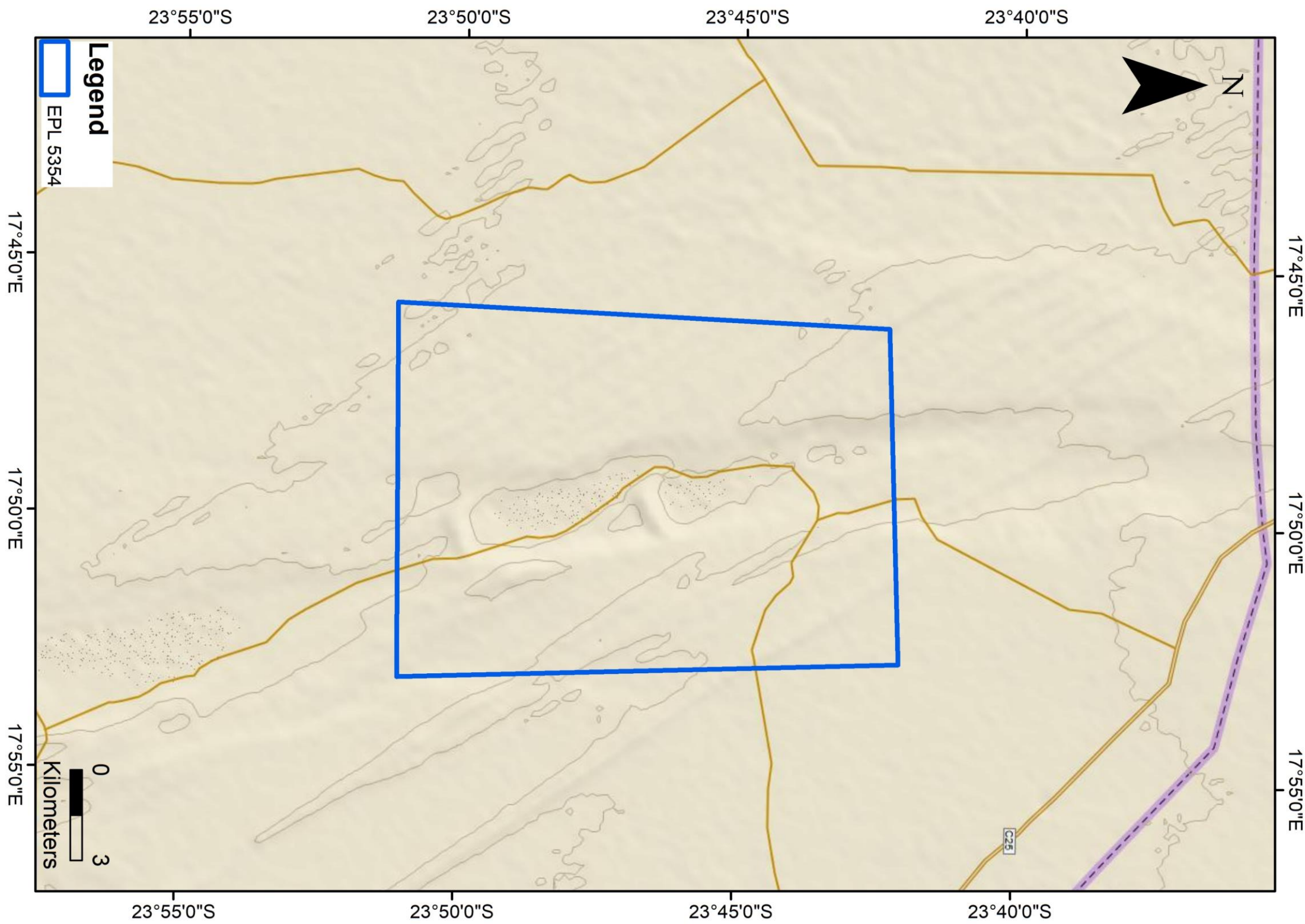


Figure 1 A satellite imagery showing the orientation of the mineral exploration licence.



1.2 Project Location

The mineral license is located 127 km southeast of Rehoboth. It has a size of 19,343 Hectares and covers farms Mbela, Stryfontein, Madube, Ponjola, Neseier, And Myburgh. Coordinates for the center of the license are 17.822661 and -23.784033.

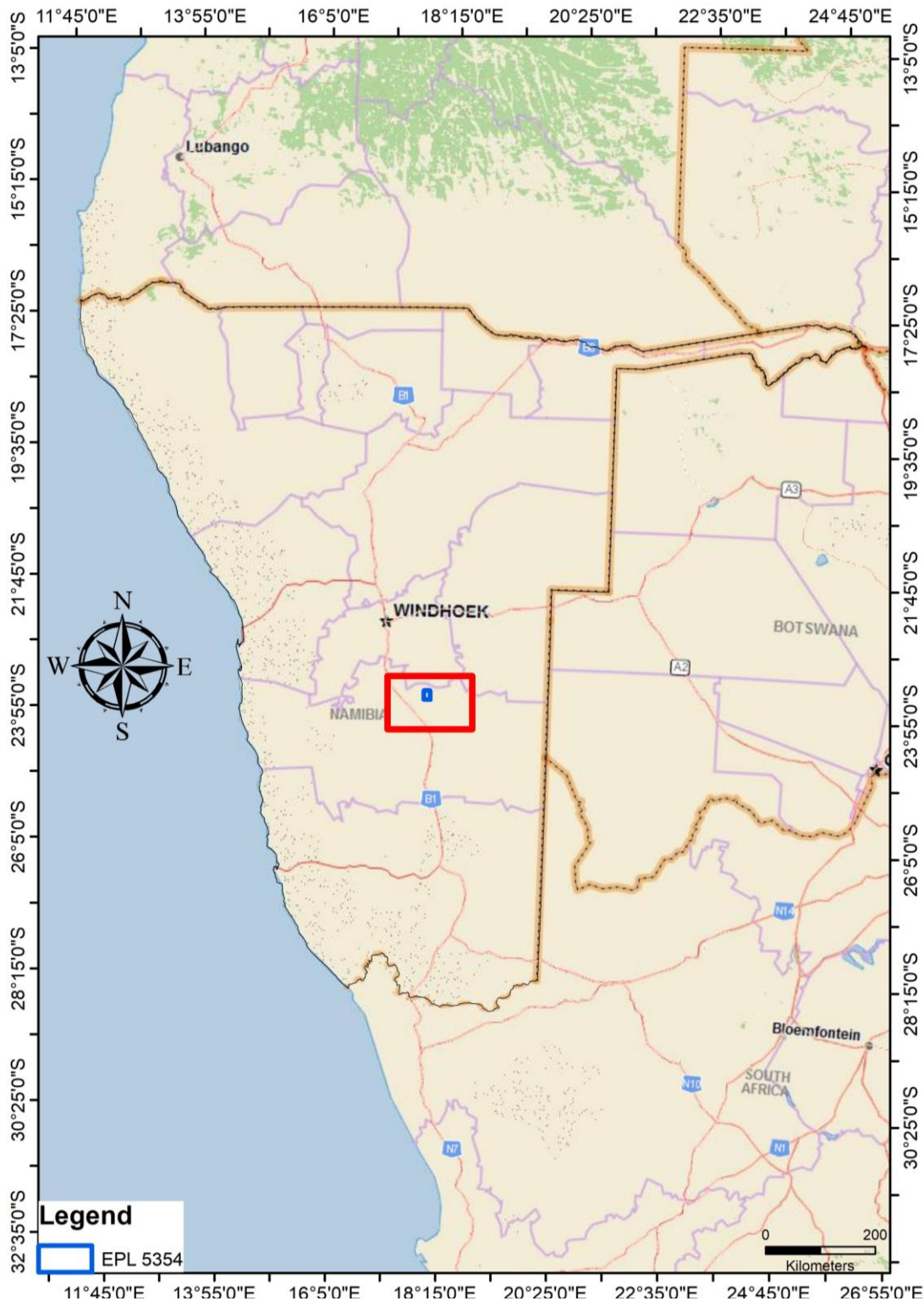


Figure 3 Locality map of the exclusive prospecting licence area

1.3 Purpose of the Monitoring Report

The purpose of this report is to review, summarise and analyse the Environmental Management Plan (EMP) performances with respect to the ongoing exploration activities undertaken for the period under review.

The performance monitoring undertaken involved reviewing, observing, and recording of activities taking place in the EPL 5354 exploration programme. The monitoring process involved routine gathering of information on all aspects of the ongoing minerals exploration activities and reviewing how project activities are progressing against the provisions of the EMP through review, systematic and purposeful observations.

1.4 Infrastructure and Services

1.4.1 Electricity

The electricity requirements for the project are minimal. The bulk of the power supply to the exploration site is being sourced from the proponent's own generator. The power requirements for the proposed project are minimal as power is only required for the following emergency lighting and powering small machinery.

1.4.2 Water Supply

The water requirements for the project are minimal. Water containers were brought on site and utilised whenever necessary. The water was mainly be used for general consumption and cleaning.

1.4.3 Refuse and Waste Removal

Most of the consumables such as grease, oil etc. have been removed from site and disposed of at a suitable dumpsite. The proponent provided adequate temporary sanitary facilities and such facilities were well maintained. The proponent removed most of the refuse pertaining to the proponent's activities, domestic or otherwise, from the property. The Miner will undertake environmental rehabilitation, both during and at the conclusion of the mineral exploration operations.

1.4.4 Security and Fencing

No provision has been made for fencing although strict access to and from the exploration site was facilitated by personnel.

1.4.5 Roads

Access to the mineral exploration sites was limited as there are currently no convenient roads, except for 4x4 tracks as shown in the figure below. The existing road network is shown in figure 6 below.

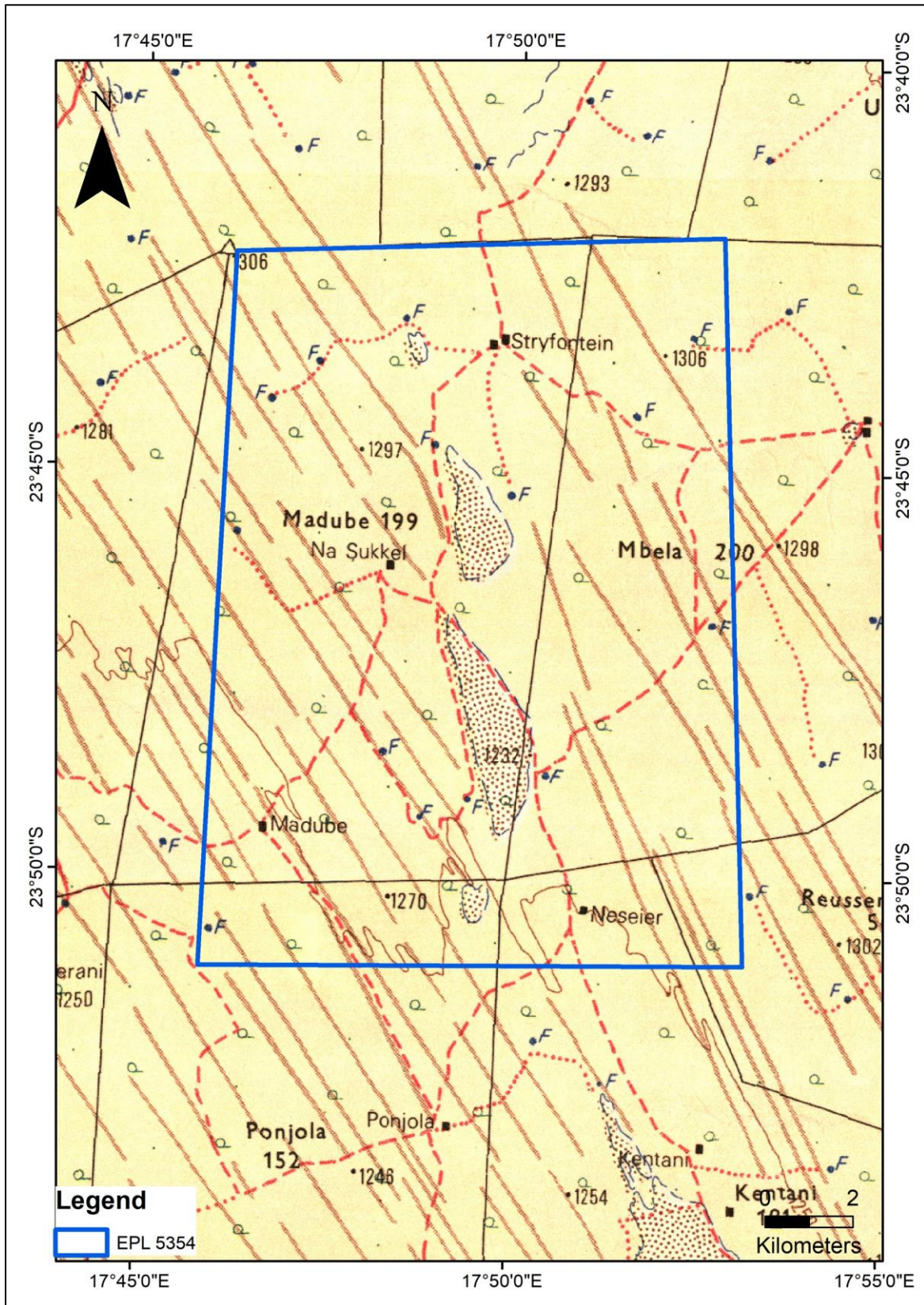


Figure 4 Topographic map showing the existing road network within the licence area.

1.4.6 Fuel Distribution, storage, and supply

During the drilling phase, diesel will be delivered to the site and offloaded into the machinery by offloading pumps.

1.4.7 Storage of Lubrication and consumables

During the drilling phase, consumables and lubricants will be stored in a designated area. These substances were only used for mechanical purposes and were assumed to be non-hazardous.

1.4.8 Fire Fighting Provision

Portable fire-extinguishers were fitted, as required, in vehicles and machinery.

1.5 Legal Requirements

The ongoing mineral exploration works forms part of the activities that are listed in the Environmental Impact Assessment (EIA) Regulations 2012 and cannot not be undertaken without an Environmental Clearance Certificate (ECC). An Environmental Scoping and Environmental Management Plan (EMP) report was prepared and submitted as part of the approval process for the ECC. An ECC valid for a period of three years was issued by the Environmental Commissioner on the 18th of September January 2019. During the ongoing minerals exploration programme, environmental performance monitoring activities were undertaken in accordance with the provisions of the Environmental Clearance Certificate (ECC) and in line with the Environmental Management Pan (EMP) report. The monitoring results outlined in this report provide a detailed plan of actions that were implemented by the proponent for minimising and maximising the identified negative and positive impacts, respectively.

2. Environmental Monitoring Plan

2.1 Overview

The aim and objectives of the Environmental Performance Monitoring Plan are to:

- Establish a monitoring program for the most relevant environmental parameters by identifying the monitoring activities and their frequencies.

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- Identify the impacts foreseen by the project and any unforeseen deviations by ensuring that corrective measures are implemented as needed.
 - Verify of the correct application of the monitoring measures as presented in the Environmental Management Plan (EMP).
 - Compare actual impacts with those predicted in the EIA.
 - Provide assurance to stakeholder's requirements with respect to environmental and social performances.
 - Comply with HSE regulations. standards and the ECC conditions, and
 - Check the overall effectiveness of the EMP procedures in protecting the receiving environment.

Generally, most of these objectives have been achieved during the Environmental Performance Monitoring programme undertaken for the ongoing mineral exploration activities on EPL 5354 for the period under review.

2.2 Roles

2.2.1 Project Leader/Site Supervisor

During the ongoing exploration programme, the proponent had appointed a project leader with EMP implementation responsibilities, namely to:

- Ensure that all the necessary environmental authorizations and permits have been obtained.
- Act as the site project manager and implementing agent.
- Ensure that the proponent's responsibilities are executed in compliance with the relevant legislation.
- Assist the exploration contractors in implementing environmentally responsible solutions to challenges that may arise.
- Maintain open and direct lines of communication between the community leaders and the proponent, as well as any other identified Interested and Affected Parties (I&APs).

- Attend regular site meetings and inspections as may be required for the proposed exploration programme.

2.2.2 Designated Safety Officer

In line with provisions of the EMP, the proponent appointed a designated safety officer with the following responsibilities:

- Assisting the project leader in ensuring that the necessary environmental authorizations and permits have been obtained.
- Assisting the project leader and Contractor in finding environmentally responsible solutions to challenges that may arise.
- Carrying out regular site inspections to ensure that provisions of the EMP are complied with and to report any non-compliances to the proponent.
- Monitoring the Contractor's environmental awareness training for all new personnel.
- Keeping records of all environmental control and monitoring activities including a photographic record of the exploration activities, rehabilitation process, and a register of all major incidents.
- Attend regular site meetings.

3. Environmental Monitoring Results

3.1 Performance Monitoring Strategy

The monitoring programme was developed to allow maximum flexibility in both the timing and site conditions, to allow adaptation to the conditions encountered and to allow decisions to be made in the field, based on all available data.

The review of the environmental performance monitoring activities implemented by the proponent for the period under review took into consideration a hierarchy of methods for mitigating significant adverse effects adopted during the exploration process in order of preference and as follows:

1. Enhancement, such as provision of new habitats.
2. Avoidance, such as sensitive design to avoid effects on ecological receptors.

3. Reduction, such as limiting the effects on receptors through design changes.
4. Compensation, such as compensating community members for losses incurred.

3.2 Compliance Audit

During the period under review, there have been significant exploration activities such as drilling and geochemical sampling. The EMP compiled in 2018, set of feasible and cost-effective mitigation, monitoring and institutional measures to avoid adverse environmental and social impacts, reduce them to acceptable levels or to compensate for them.



Figure 5 Illustration of the type of drill rig and vehicles used by the exploration team.

Furthermore, the EMP covers all adverse environmental impacts, including any that may result from the exploration activities at EPL 5354. The EMP provided the technical details for each mitigation, monitoring and institutional measure, including the impact(s) to which it relates and the conditions when it is required, together with designs, equipment descriptions and operating procedures in compliance with the approved EMP granted in terms of the Environmental Management Act, No. 7 of 2007. In addition to the compliance audit, the EMP will be revised during the lifecycle of the

project, to identify gaps to recommend additional best practice measures that were not captured in the previous EMP.

3.3 Compliance Audit Findings

The section outlines the findings of the environmental audit completed for the project. It addresses obligations in terms of the key acts that govern the activities on the site, the commitments made in the EMP, and presents the findings and recommended corrective actions where applicable.

Table 1 Compliance Table for Exploration Activities on EPL 5354

Aspect	Management Objectives	Management Actions	Compliance	Comments
Biotic Environment	Impact to ecological resources would be minimal and localized during exploration because of the limited nature of activities.	The proponent shall take adequate steps to educate all members of his workforce as well as his supervisory staff on the relevant environmental laws and protection requirements.	Compliant	All activities were undertaken in accordance with the EMP.
Environmental awareness	To ensure that all employees and Sub-	The Environmental, Health, and Safety Induction Course should be conducted by the ECO and appointed Health and Safety officer.	Compliant	Transfer of skills by induction course.
Safety to the public	To reduce the risks posed by the project to the public.	Where the public could be exposed to danger by any of the exploration or site activities, the project manager shall provide flagmen, barriers, and/or warning signs in English.	Compliant	No evidence of non – compliance.
Human resource and opportunities management	Preliminary assessment indicated activities conducted during exploration phase are temporary and limited in scope, they would not result in significant socioeconomic impacts on employment, local services, or property values. Exploration activities	To enhance the benefits of employment creation for these communities, it is recommended that the Project manager shall establish a formal and organized recruitment process in line with this EMP. Ensure that local people are employed for semi-skilled labour where possible during exploration and after the mining activities commerce.	Compliant	Activities were undertaken in accordance with the EMP.

	shall be restricted to specified hours to limit disturbance to the public.			
Dust	Impacts on air quality during exploration activities such as emissions and dust from earth moving equipment, vehicles, geophysical surveys, bore hole completion and testing and drill rig exhaust.	Dust suppression method should be done to minimise any dust emission from exploration activities.	Compliant	Activities were undertaken in accordance with the EMP.
Noise	Acoustics or noise associated with	Install and maintain silencers on machinery	Compliant	Activities were undertaken in accordance with the EMP.
Visual Impacts	Visual impacts could be adverse if the landscape were substantially degraded or modified. However, exploration activities would have only temporary and minor visual effects, resulting from the presence of drills rigs, workers, vehicles, and other equipment	Ensure effective and formal communication between the Project Management Team and the project manager on exploration issues	Compliant	No evidence of non – compliance.

Impacts on soil and vegetation	<p>Uncontrolled off-road driving may have an impact on the grasses and succulents that are found on the soils in the project area that stabilizes the surface and protect the underlying soil from erosion.</p> <p>Disturbance of organic and inorganic protective layers can lead to increased wind and water erosion, reduced infiltration rates, reduced soil moisture content and inhabitation of plant germination.</p>	<p>The exploration team should guide the vehicles for exploration on which route should be used.</p>	Compliant	<p>No evidence of non – compliance.</p>
Health Safety	<p>Potential impacts on human health and safety resulting from exploration activities such as occupational accidents and injuries, vehicle accidents, exposure to weather extremes, wildlife encounters, trips and falls on uneven terrain, adverse health effects from dust generation and emissions and contact hazardous materials</p>	<p>All employees working on exploration should be inducted on human health and safety and should be provided with PPE</p>	Compliant	<p>Activities were undertaken in accordance with the EMP.</p>

Site demarcation	The site manager shall restrict all his activities, materials, equipment, and personnel to the designated Site.	The site manager shall ensure that the clearance of vegetation is restricted only to that required to facilitate the execution of the works.	Compliant	
Access, traffic, and haul roads	Access traffic shall be controlled to ensure minimal disruption to normal road users.	The contractor shall be held responsible for the control of all project related traffic, including that of his suppliers, in ensuring that vehicles associated with the project remain on designated routes and within the designated working times.	Compliant	No evidence of non – compliance.
Solid waste management	Geophysical and exploratory drill crews may generate waste i.e. drilling fluid and muds, used oil and filters, spilled fuel, drill cuttings, spent and unused solvents, scrap metal, solid waste and garbage	Ensure that waste generated during the exploration on site is disposed of at an appropriate site.	Compliant	Activities were undertaken in accordance with the EMP.
Fuel and oil	To ensure that all liquid fuels are stored appropriately, and adequate firefighting equipment is stored on site.	The project manager shall ensure that all liquid fuels are stored in tanks or mobile bowsers with lids that are kept firmly shut.	Compliant	All management actions have been adhered to as practically possible.
Equipment maintenance and storage	All vehicles and equipment are kept in good working order.	Leaking or damaged equipment shall be repaired immediately or removed from the site.	Compliant	Activities were undertaken in accordance with the EMP.
Materials handling, use and storage	All delivery drivers are informed of the on-site procedures and restrictions.	The site manager shall ensure that any delivery drivers are informed of all procedures and restrictions, including	Compliant	All management actions and have been adhered to as practically possible.

		"no-go" areas and designated haul routes.		
Hazardous substances	Any hazardous substances are stored appropriately.	Hazardous chemical substances used during exploration activities shall be stored in secondary containers.	Compliant	All management actions have been adhered to as practically possible in accordance with the EMP.
Trenching	Trenches are appropriately demarcated and secured.	Trenches shall be demarcated appropriately and securely and regularly monitored to ensure that pedestrian (and vehicular) access to these areas is strictly prohibited.	Compliant	Activities were undertaken in accordance with the EMP.
Fire control	To reduce the risk of fires	Fires are only permitted in designated area and shall not be left unattended.	Compliant	All actions and mitigation measures have been adhered to as practically possible in accordance with the EMP.
Emergency procedures	All employees are aware of emergency procedures.	The site manager shall ensure that his employees are aware of the procedure to be followed for dealing with leaks and spills.	Compliant	Activities were undertaken in accordance with the EMP.
Erosion, water quality, and	Minimal impact to water resources (water quality, water flows and	The project manager shall take all reasonable steps to prevent or remediate damage to the environment resulting from the exploration activities in the form of erosion and sedimentation.	Compliant	All management actions have been adhered to as practically possible in accordance with the EMP.

Surface water management	surface/groundwater interactions) would be anticipated from the exploration activities.	The project manager shall immediately remedy any situation that is or has the potential to result in soil erosion, water pollution and sedimentation.		
Wildlife	Temporary and localized impact to land use would result from exploration	Exploration activity needs to be conducted in such way that disturbance to wildlife is minimized	Compliant	No evidence of non – compliance.
Protection of natural systems,	Impacts to natural systems are kept to a minimum.	Disturbance of vegetation and faunal communities and their habitats is kept to a minimum.	Compliant	All management actions have been adhered to as practically possible in accordance with the EMP.
archaeological	Paleontological resources could be disturbed by vehicular traffic, ground clearing and pedestrian	Heavy vehicles should be kept out of the seasonal and ephemeral stream channels and the movement of exploration vehicles should be limited where possible to the existing roads.		
sites and	vehicle activities	All earthworks equipment operators shall be informed to cease operating immediately if any artefact is unearthed and to report the finding immediately to Project manager, who in turn shall notify the National Heritage Council.		
Paleontological resources.		Exploration activity needs to be conducted in such way that disturbance to paleontology is minimized		

4. Conclusions and Recommendations

The implementation of the ongoing minerals exploration activities in the EPL 5354 followed all the provisions and conditions of the EMP, Environmental Clearance Certificate (ECC) and all other applicable regulations and legislations with minimal deviations from the site policies, protocols, procedures, and standards. In summary, the following observations are noted with respect to the implementation of the ongoing exploration activities:

- The implementation of the activities was only undertaken after all the required authorisations, such as the Environmental Clearance Certificate (ECC) were granted.
- All the onsite teams were constantly always reminded of good environmental management and commitments through daily briefings, awareness raising and corrective actions where an onsite mistakes or unacceptable conducts were identified.
- The onsite teams reduced any likely cumulative impacts through coordinating their activities with each other and adhered to the recommendations contained in the EMP as well as all other relevant operational standards, procedures, manuals, and company Environmental Policy concerning conservation and preservation of natural environment.
- All activities have been undertaken to the highest safety standard. Personal Protective Equipment (PPE) and gears were always used. Safety and fire drills were regularly undertaken.
- No waste was buried or burned onsite and no litter was left after the completion of activities around the exploration sites.

Based on the overall Health, Safety and Environment (HSE) performance monitoring undertaken for this project, no diversions from the environmental commitments as outlined the Environmental Management Plan (EMP) and the Environmental Clearance Certificate (ECC) provisions have been observed or recorded for the ongoing minerals explorations for the EPL 5354. The ongoing minerals exploration operations and all the associated activities have been undertaken with the highest

Health, Safety and Environment (HSE) commitment as outlined in the Health, Safety and Environment (HSE) standards.