



ECC-132-389-REP-03-D

ENVIRONMENTAL COMPLIANCE REPORT
EXPLORATION ACTIVITIES ON EPL 6628, OTJOZONDJUPA REGION,
NAMIBIA

ENVIRONMENTAL CLEARANCE CERTIFICATE - RENEWAL APPLICATION



PREPARED FOR
B2GOLD NAMIBIA MINERALS (PTY) LIMITED

FEBRUARY 2022

TITLE AND APPROVAL PAGE

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Definitions and Abbreviations

ECC	Environmental Compliance Consultancy
EMA	Environmental Management Act
EMP	Environmental Management Plan
MEFT	Ministry of Environment, Forestry and Tourism

1 INTRODUCTION

1.1 PROJECT INTRODUCTION

B2Gold Namibia Minerals (Pty) Ltd (herein referred to as the Proponent), is seeking to continue with exploration activities on EPL 6628. The Proponent holds a current and valid environmental clearance certificate for exploration activities on EPL 6628, for which a renewal is being applied. As part of this application, an environmental compliance review has been undertaken to determine the status of compliance with the Environmental Management Plan. EPL 6628 is located west of Otavi.

In terms of the Environmental Management Act, No. 7 of 2007, a renewal application for the EPL's environmental clearance certificate is required. As part of this application an environmental compliance review of the work undertaken on site and status of compliance with the Environmental Management Plan (EMP) is to be submitted to the competent authority, The Ministry of Environment, Forestry and Tourism (MEFT).

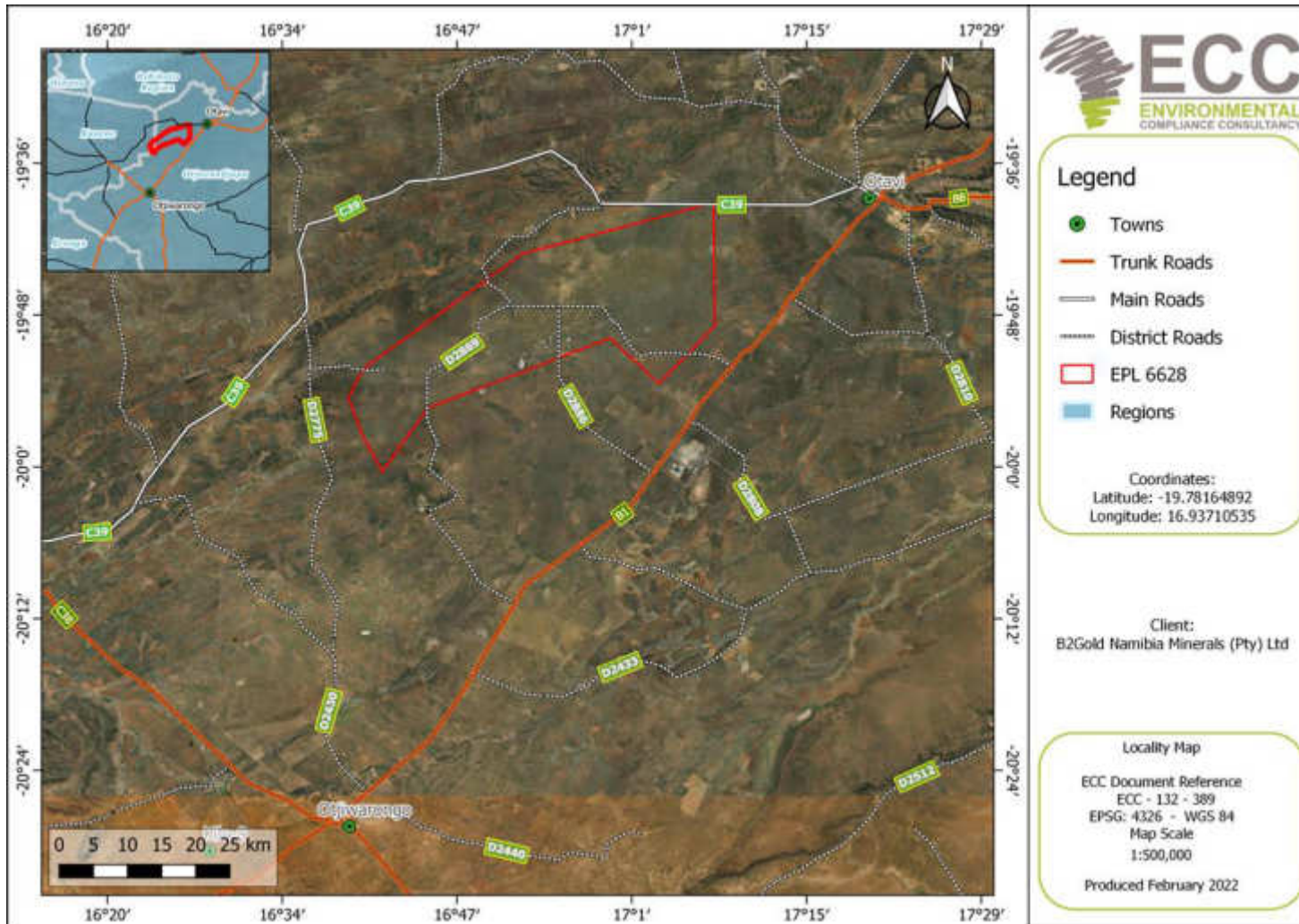


Figure 1 – Locality map of EPL 6628

1.2 THE PROPONENT OF THE PROJECT

TABLE 1 – PROPONENT’S DETAILS

CONTACT	POSTAL ADDRESS	EMAIL ADDRESS	TELEPHONE
B2GOLD Namibia Minerals (PTY) LTD Frits van der Merwe (Technical contact person)	P O Box 80363 Olympia Windhoek Namibia	fvandermerwe@b2gold.com	+264 81 442 3842

1.3 ENVIRONMENTAL CONSULTANCY

Environmental Compliance Consultancy (ECC) is a Namibian registered consultancy and environmental practitioner, registration number CC/2013/11401. ECC has prepared this document on behalf of the proponent. ECC operates exclusively in the environmental, social, health and safety fields for clients across Southern Africa in the public and private sector. The curriculum vitae of the authors of this report are contained in Appendix B. ECC is independent of the proponent and has no vested or financial interests in the proposed project except for fair remuneration for professional services rendered.

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1.4 PURPOSE OF REPORT

The purpose of this report is to document the findings of an environmental compliance audit, which accompanies the renewal application for the environmental clearance certificate for EPL 6628.

This compliance report is subjected to periodical auditing as the project's exploration activities progress. The approved EMP for the existing environmental clearance certificate is audited to monitor the proceeds of the project and ensure that all measures stipulated in the document are met and effectively adhered to, as required by the Department of Environmental Affairs (DEA). In an event where the project activities are altered, the EMP is required to be revised and amended accordingly.

As per the Environmental Management Act, No. 7 of 2007 and its EIA Regulations of 2012, exploration activities on EPL 6628 cannot be undertaken without a valid environmental clearance certificate. The exploration activities at EPL 6682 proposes to assess the viability base and rare and precious minerals, namely gold that can be found in the EPL 6628 area. The proposed methods of exploration have minimal impacts, as they are done on a small scale and rehabilitation of the natural vegetation will be done as per the approved EMP.

2 BACKGROUND TO EPL 6628

B2Gold Namibia (Pty) Ltd operates the Otjikoto Gold Mine near Otjiwarongo. To extend operations in Namibia, B2Gold Namibia proposes to continue with exploration activities on Exclusive Prospecting Licence EPL 6628 for base, rare and precious metals, and industrial minerals in the Otjozondjupa region (referred to as the proposed Project hereinafter).

2.1 PROPOSED RENEWAL AND ACTIVITIES

The exploration methods at the EPL site may involve the following activities once the environmental clearance certificate is renewed: drilling; aerial or remote sensing; geophysical surveys; and mineral sampling. Further detail of these methods are as follows.

- **Rotary Air Blast (RAB) drilling and diamond drilling** shall be undertaken to obtain samples. The collected samples will be temporarily stored in plastic bags on site and transported to Otjiwarongo and/or to the Lab in Swakopmund. Exploration shall be undertaken in programmed segments. Approximately 50 to 200 holes will be made per programme during the RAB drilling and approximately 10 to 20 holes made with diamond drilling, however the number of drill holes may vary depending on the exploration findings. Equipment used during drilling will include two diamond drill rigs and one RAB drill rig.
- **Remote sensing** during mineral exploration enables explorers to find and assess deposits without having to undertake massive exploration operations. Remote sensing may be used to map the geology and existing faults and fractures that localise the ore deposits or may be used to recognise rocks which have been hydrothermally altered. Remote sensing involves using an airborne platform to gather and record spectral data from the surface of the earth. Remote sensing includes several tools and techniques including geographical information systems, radar, geographical information systems and sonar. Typically, a high-flying aircraft is used in the data collection process. It is a useful tool when searching for high value minerals such as gold and diamonds and gives a good indication of where deposits are situated and aids in narrowing down the field survey area. No ground-level environmental impacts are expected.
- **Geophysical ground surveys** may potentially be undertaken to collect basic data and map the rock types, structures, and minerals. Techniques may include electromagnetic surveys, induced polarisation surveys, magnetotelluric (MT) and magnetic surveys. The approach taken will be dependent on the target mineral.

Pitting and trenching are unlikely at this stage and therefore have not been included in this Scoping Report.

Existing roads will be used to access the site and existing tracks across the EPL will be utilized. Additional tracks may be created to access areas that have no tracks. New tracks shall be

minimised and created using a chainsaw or a wheeled dozer. Whilst vegetation shall be cleared to allow access (rather than to convert the land), the area to be cleared shall not be more than 15 ha, therefore would not trigger the Forest Act, 2001 (Section 23). In addition, any established or larger trees shall not be removed, and effects are likely to be low.

To facilitate exploration, additional equipment shall include four pick-up trucks and two support trucks. Fuel, oils, and chemicals shall be also used during activities, including soft soap, Poly Plus, Rod Grease, Cap-21, Wonder-cut and diesel. Adequate fire protection and MSDS will be available where these materials are stored and used. All workers will be trained on the use of fire protection equipment and MSDS.

Exploration methods undertaken may include drilling; aerial or remote sensing; geophysical surveys; and mineral sampling. To allow these methods to be undertaken vegetation clearance for the creation of tracks and the creation of exploration boreholes shall be undertaken.

3 ENVIRONMENTAL COMPLIANCE AUDIT

3.1 SITE INSPECTION

3.1.1 BI – ANNUAL MONITORING

An environmental report is submitted to the Ministry of Environment, Forestry and Tourism biannually reporting on periods from January to June and July to December. These reports report on compliance with regards to the activities taking place on site, roads or tracks made or used, house and infrastructure erected, any rehabilitation done and any incidents of conflict reported.

3.1.2 ACTIVITIES FOR THE MONITORING PERIOD

- Drilling (RC and Diamond drilling programme).
- Rock Chip Sampling
- Field Surveys

The proponent conducted field mapping, rock chip sampling and Rotary Air Blast (RAB) drilling on Farm Kleinhuis. Twenty-four rock chip samples were collected during the mapping exercise. A total of 61 RAB drill holes were drilled, with depth range from five (5) m to 20 m. The RAB drill holes were drilled on five lines cleared with a front-end loader. The proponent also cleared access roads and drill sites using a front-loader. The proponent also drilled a total of eight (8) diamond drill holes.



Figure 2 - Lines were cleared with a front-end loader to access the drill sites, only invasive bushes were cleared, large trees were not



Figure 3 - Plates 1 (a): Access road cleared avoid damaging trees where limited, (b): Clearing drill site on the access road

3.1.3 PROPOSED AMENDMENTS TO THE EMP

There are no proposed amendments to the environmental management plan to date.

3.1.4 NON – CONFORMANCE/ INCIDENT REPORTING

There are no incidents or matters of non-conformance reported to date.

3.1.5 ISSUES AND COMPLAINTS

There were no issues or complaints reported to date.

3.2 ANNUAL COMPLIANCE AUDIT

Furthermore, the approved EMP covers all adverse environmental impacts, including any additional potential impacts that may result from the exploration activities at EPL 6628. The EMP provides the technical details for each mitigation, monitoring and institutional measure, including the impact(s) to which it relates and the conditions when required, together with designs, equipment descriptions and operating procedures as granted.

3.3 COMPLIANCE AUDIT FINDINGS

This 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 site, the commitments made in the EMP, and present the findings and recommended corrective actions where applicable (Table 2).

The EMP:

- Identifies all mineral exploration activities that could cause environmental damage (risks and potential impacts) and provides a summary of actions required;
- Identifies institutions responsible for ensuring compliance with the EMP and provides their contact information;
- Provides standard procedures to avoid, minimise and mitigate the identified negative environmental impacts and to enhance the positive impact of the proposed activities on the environment;
- Provides for site and exploration rules and actions required;
- Forms a written record of procedures, responsibilities, requirements and rules for contractor/s, their staff and any other person who must comply with the EMP;
- Ensure zero pollution incidents; minimal vegetation clearing and earthworks, protect local flora, fauna, and water resources; and use water and other natural resources effectively and efficiently.
- Provides a monitoring and auditing programme to track and record compliance and identify and respond to any potential or actual negative environmental impacts, and
- Provides a monitoring programme to record any mitigation measures that are implemented.
- Ensure that an annual environmental audit is carried out by either MME or MEFT.
- Once exploration has ceased, any impacts shall be rehabilitated.

TABLE 2 - EXPLORATION EMP AUDIT

Activity	Potential Impacts	Management/Mitigation Measures	Compliance	Comments
Use of plant and equipment (on the ground)	– Safety	<ul style="list-style-type: none"> Plant and equipment shall be brought onto site as and when required and stored in specific areas. Amenities (e.g., portable toilets) shall be provided and set up in a suitable location (if required). 	– Compliant	– The proponent will continue to ensure mitigation measures are in place as per the EMP.
	– Aerial Emissions	– All plant to be shut down or throttled back between periods of use.	– Compliant	– The proponent will continue to ensure mitigation measures are in place as per the EMP.
	– Potential loss of oil and fuel causing ground contamination	<ul style="list-style-type: none"> Refueling shall be undertaken in a designated area All stationary vehicles and machinery must have drip trays to collect leakages of lubricants and oil In the event of pollution, polluted soils must be collected and dumped at an approved site 	– Compliant	– The proponent will continue to ensure mitigation measures are in place as per the EMP.
	– Water contamination	<ul style="list-style-type: none"> Water during drilling should be retained in a lined pond to prevent pollution A ‘good housekeeping’ policy shall be adopted across the construction and maintenance working area 	– Compliant	– The proponent will continue to ensure mitigation measures are in place as per the EMP.
	– Dust generation	<ul style="list-style-type: none"> Use existing access roads and tracks where possible Apply dust suppression methods such 	– Compliant	– The proponent will continue to ensure mitigation measures are

Activity	Potential Impacts	Management/Mitigation Measures	Compliance	Comments
		<ul style="list-style-type: none"> as water spraying during drilling operations - Restricted speeds (<30km/h) - Provide protective masks and eyeglasses to employees in dusty working environments - Specific activities that may generate dust shall be avoided during high wind events, e.g., soil preparation activities 		in place as per the EMP.
	<ul style="list-style-type: none"> - Noise generation 	<ul style="list-style-type: none"> - Noise shall be minimised as much as possible during construction works - Limit normal operating hours to 07h00 to 18h00 on weekdays and 07h00 until 13h00 on Saturday; - Inform local communities and residents of scheduling and duration of noisy activities through notices or face-to-face communications - Regular maintenance and servicing of vehicles, plant and equipment - All plant to be shut down or throttled back between periods of use - Provide earmuffs to employees working near excessive noise 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - The proponent will continue to ensure mitigation measures are in place as per the EMP.
General Exploration activities	<ul style="list-style-type: none"> - Loss of access or access affected to the farm and farm areas - Farm operations 	<ul style="list-style-type: none"> - Access to farms and all farm areas shall be made available at all times - Cattle water holes and feeding areas to remain unaffected 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - The proponent will continue to ensure mitigation measures are in place as per the EMP
Use of airborne	<ul style="list-style-type: none"> - Noise generation 	<ul style="list-style-type: none"> - Only use remote sensing equipment 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - The proponent will

Activity	Potential Impacts	Management/Mitigation Measures	Compliance	Comments
equipment (remote sensing- drone, helicopter)		<ul style="list-style-type: none"> between 07h00 and 17h00 - No flying is to be conducted (aerial surveys) between dusk and dawn, on Sundays and on public holidays - When operating a drone, a minimum distance of 50 m must be maintained for uninvolved persons and other objects such as vehicles, buildings etc. - Correspond with wildlife authorities to determine the best time to conduct aerial surveys - When possible avoid flying directly over human settlements. 		continue to ensure mitigation measures are in place as per the EMP
Vegetation Clearance	- Alien species	<ul style="list-style-type: none"> - All project or earth moving equipment must have an internal weed and seed inspection completed prior to equipment being used on site - Ensure the potential introduction and spread of alien plants is prevented - Ensure the correct removal of alien invasive vegetation from the proposed development area and prevent the establishment and spread of alien invasive plants due to the development activities 	- Compliant	- The proponent will continue to ensure mitigation measures are in place as per the EMP
	- Dust generation	<ul style="list-style-type: none"> - Apply speed restrictions - Avoid off road driving 	- Compliant	- The proponent will continue to ensure mitigation measures are

Activity	Potential Impacts	Management/Mitigation Measures	Compliance	Comments
				in place as per the EMP
	<ul style="list-style-type: none"> – Reduced soil quality 	<ul style="list-style-type: none"> – Use existing tracks where possible – Refueling to occur in designated areas with drip trays – Avoid natural drainage lines for exploration activities 	– Compliant	<ul style="list-style-type: none"> – The proponent will continue to ensure mitigation measures are in place as per the EMP
	<ul style="list-style-type: none"> – Injure or kill animals 	<ul style="list-style-type: none"> – Relocate slow-moving reptiles and amphibians away from the construction area – No driving off designated access routes (into the bush) / off-road driving – No snares or catching of animals, no keeping or housing of pets for food – No animals or birds may be collected, caught, consumed or removed from site by the Contractor or personnel on site 	– Compliant	<ul style="list-style-type: none"> – The proponent will continue to ensure mitigation measures are in place as per the EMP
	<ul style="list-style-type: none"> – Removal of vegetation – loss of flora and fauna, protected/important species 	<ul style="list-style-type: none"> – Use existing tracks where possible – Route new tracks around established and protected trees, and clumps of vegetation – Identify rare, endangered, threatened and protected species. Demarcate and avoid cutting down, and clearly highlight to construction workers so that they are avoided – Avoid natural drainage lines 	– Compliant	<ul style="list-style-type: none"> – The proponent will continue to ensure mitigation measures are in place as per the EMP
Site and ground	<ul style="list-style-type: none"> – Creation of dust 	<ul style="list-style-type: none"> – As above 	– Compliant	<ul style="list-style-type: none"> – The proponent will continue to ensure

Activity	Potential Impacts	Management/Mitigation Measures	Compliance	Comments
Preparation – creation of access tracks and areas for setting up drill rigs				mitigation measures are in place as per the EMP
	<ul style="list-style-type: none"> - Heritage remains 	<p>Discovery of unearthed archaeological remains to be uncovered, the following measures (chance find procedure) shall be applied:</p> <ul style="list-style-type: none"> - Works to cease, area to be demarcated with appropriate tape by the site supervisor, and the Site Manger to be informed - Site Manager to visit the site and determine whether work can proceed without damage to findings, mark exclusions boundary and inform the Environment and Social Manager with the GPS position if possible - If works cannot proceed without damage to findings, Site Manager to inform the Environmental Manager who will get in touch with an archaeologist who will provide advise - Environment Manager (ECC) / Archaeological Specialist to evaluate the significance of the remains and identify appropriate action, for example, record and remove; relocate or leave in situ (depending on the nature and value of the remains) - Inform the police if the remains are 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - The proponent will continue to ensure mitigation measures are in place as per the EMP

Activity	Potential Impacts	Management/Mitigation Measures	Compliance	Comments
		human – Obtain appropriate clearance or approval from the competent authority, if required, and recover and remove the remains to the National Museum or National Forensic Laboratory as direct		
Fuel handling and storage	– Loss of containment leading to ground or groundwater contamination.	<u>Safe Delivery and handling:</u> – Training employees and Toolbox Talks – Good housekeeping across site – Fuel is handled with care – Spill kits to be at designated areas across site or available for use during refueling, fuel delivery or use. Absorption material should be available and at hand. Where saw dust is used it should be cleaned up immediately and not left for long periods as this poses a fire hazard. – Any major spill is reported to the PM once containment has been achieved. – Plant and equipment to be well maintained and serviced regularly. – In the field, use of hydrocarbons under 200 liters can be used for mobile refueling or servicing. <u>Storage:</u> – All tanks to be stored on a non-porous floor and bunded area.	– Compliant	– The EMP does not mention fire extinguishers, which is the responsibility of the proponent under their health and safety management plan and is only mentioned here to maximize the ability to protect the environment. The proponent will continue to ensure mitigation measures are in place as per the EMP.

Activity	Potential Impacts	Management/Mitigation Measures	Compliance	Comments
		<ul style="list-style-type: none"> - Bund to be capable of storing at least 110% of the volume of the tank - All containers to be suitable for use and not damaged. - Tanks are locked at all times - Spill kits available at storage locations and around site in suitable locations. <p>Refueling:</p> <ul style="list-style-type: none"> - Drip tray to be used during refueling of vehicles and on a permeable flat surface where possible. - Funnel should be available and used to avoid spillage during decanting 		
<p>Generation of waste</p>	<ul style="list-style-type: none"> - Nuisances (odors and visual) - Land use - Litter (nuisance and ecological risk) 	<ul style="list-style-type: none"> - Training and Toolbox Talks - Good housekeeping across site - All working areas shall apply good house-keeping - Implement the waste management hierarchy across site: Avoid, reuse, recycle, then disposal through burning or dump - Waste shall be collected and shall be removed on a regular basis to avoid pests and bad odours - It is unlikely that hazardous material and wastes will be produced, however in the event that they do, they shall be managed in a safe and responsible manner so as to prevent 	<ul style="list-style-type: none"> - Compliant 	<ul style="list-style-type: none"> - The proponent will continue to ensure mitigation measures are in place as per the EMP

Activity	Potential Impacts	Management/Mitigation Measures	Compliance	Comments
		<p>contamination of soils, pollution of water and/or harm to people or animals as a result of the use of these materials.</p> <ul style="list-style-type: none"> – Hazardous and non-hazardous waste shall be stored separately at all times 		
Resource Use	<ul style="list-style-type: none"> – Inefficient use of water 	<ul style="list-style-type: none"> – Use water effectively and efficiently 	<ul style="list-style-type: none"> – Compliant 	<ul style="list-style-type: none"> – The proponent will continue to ensure mitigation measures are in place as per the EMP
Job Creation	<ul style="list-style-type: none"> – Employment creation and skills development opportunities during the exploration phase. 	<ul style="list-style-type: none"> – Maximise local employment and local business opportunities to promote and improve the local economy – Enhance the use of local labour and local skills as far as reasonably possible. – Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained – Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible 	<ul style="list-style-type: none"> – Compliant 	<ul style="list-style-type: none"> – The proponent will continue to ensure mitigation measures are in place as per the EMP

4 REHABILITATION

The proponent ensured that all impacts caused by them during exploration activities were rehabilitated should no further use of the land be required. The proponent drilled a total of eight (8) diamond holes, which were then all subsequently properly rehabilitated on completion.

Rehabilitation measures include the following:

- Remove all construction equipment, surplus materials and temporary structures, fences and works of every kind;
- The removal of all waste types from the project site to a recognized dump site;
- Any other waste should be removed from site to an appropriate landfill facility (e.g., Otjiwarongo Dump Site);
- Oil spills should be cleaned up immediately. Contaminated soils should be disposed of at an approved disposal site;
- The sites were rehabilitated by pouring the rock chips back into the hole, closing the hole and a peg (insert) is placed on the drill hole for future identification and
- Diamond drill holes were rehabilitated and covered with a steel cap.



Figure 4 - The sites were rehabilitated by pouring the rock chips back into the hole, closing the hole and a peg (insert) is placed on the drill hole for future identification.



Figure 5 - Plates 3 (a) Diamond drill site after rehabilitation and (b): Diamond drill hole rehabilitated and covered with steel cap.

5 CONCLUSION AND RECOMMENDATIONS

All proposed activities shall be carried out in compliance with the relevant requirements and conditions of the granted licence in accordance with the approved EMP. It is recommended that the proponent continue to adhere to all environmental legislation and company standards to ensure that best practical environmental protection continues as the project activities progress.

APPENDIX A: ENVIRONMENTAL MANAGEMENT PLAN

APPENDIX B: ENVIRONMENTAL CLEARANCE CERTIFICATE



REPUBLIC OF NAMIBIA

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28 February 2019

OFFICE OF THE ENVIRONMENTAL COMMISSIONER

The Managing Director
B2Gold Namibia (Pty) Ltd
P.O. Box 80363
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Namibia

Dear Sir or Madam,

SUBJECT: ENVIRONMENTAL CLEARANCE CERTIFICATE FOR THE PROPOSED EXPLORATION ACTIVITIES ON EPL 6628 FOR BASE, RARE AND PRECIOUS METALS, AND INDUSTRIAL MINERALS, WEST OF OTAVI, KUNENE AND OTJOZONDJUPA REGIONS

The Environmental Scoping Report and Environmental Management Plan submitted are sufficient as they made provisions of the environmental management concerning the project's activities. From this perspective regular environmental monitoring and evaluations should be conducted. Targets for improvements should be established and monitored from time to time.

This Ministry reserves the right to attach further legislative and regulatory conditions during the operational phase of the project. From this perspective, I issue this clearance with the following condition that rehabilitation and closure plan for all quarries must be implemented.

On the basis of the above, this letter serves as an Environmental Clearance Certificate for the project to commence. However, this clearance letter does not in any way hold the Ministry of Environment and Tourism accountable for misleading information, nor any adverse effects that may arise from this project activity. Instead, full accountability rests with B2Gold Namibia (Pty) Ltd and their consultants.

This environmental clearance is valid for a period of 3 (three) years, from the date of issue unless withdrawn by this office.

Yours sincerely,


Fredrick Mupoti Sikabongo
DEPUTY ENVIRONMENTAL COMMISSIONER



"Stop the poaching of our rhinos"

All official correspondence must be addressed to the Permanent Secretary



ECC-36-147-REP-06-A

ENVIRONMENTAL MANAGEMENT PLAN

Exploration Activities on EPL 6628 for Base, Rare and Precious Metals, and Industrial Minerals in the Kunene and Otjozondjupa Regions

PREPARED FOR



OCTOBER 2018

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Date of issue:	October 2018
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DEFINITIONS AND ABBREVIATIONS

EIA	Environmental Impact Assessment
EMA	Environmental Management Act
EMP	Environmental Management Plan
EPL	Exclusive Prospecting Licence

INTRODUCTION

1.1. PROJECT BACKGROUND

B2Gold Namibia (Pty) Ltd operates the Otjikoto Gold Mine near Otjiwarongo which employs approximately 800 permanent employees. To extend operations in Namibia, B2Gold Namibia propose to undertake exploration activities on Exclusive Prospecting Licence EPL 6628 for base, rare and precious metals, and industrial minerals in the Kunene and Otjozondjupa Regions (referred to as the proposed project from herein).

Exploration methods undertaken may include drilling; aerial or remote sensing; geophysical surveys; and mineral sampling. To allow these methods to be undertaken vegetation clearance for the creation of tracks and the creation of exploration boreholes shall be undertaken.

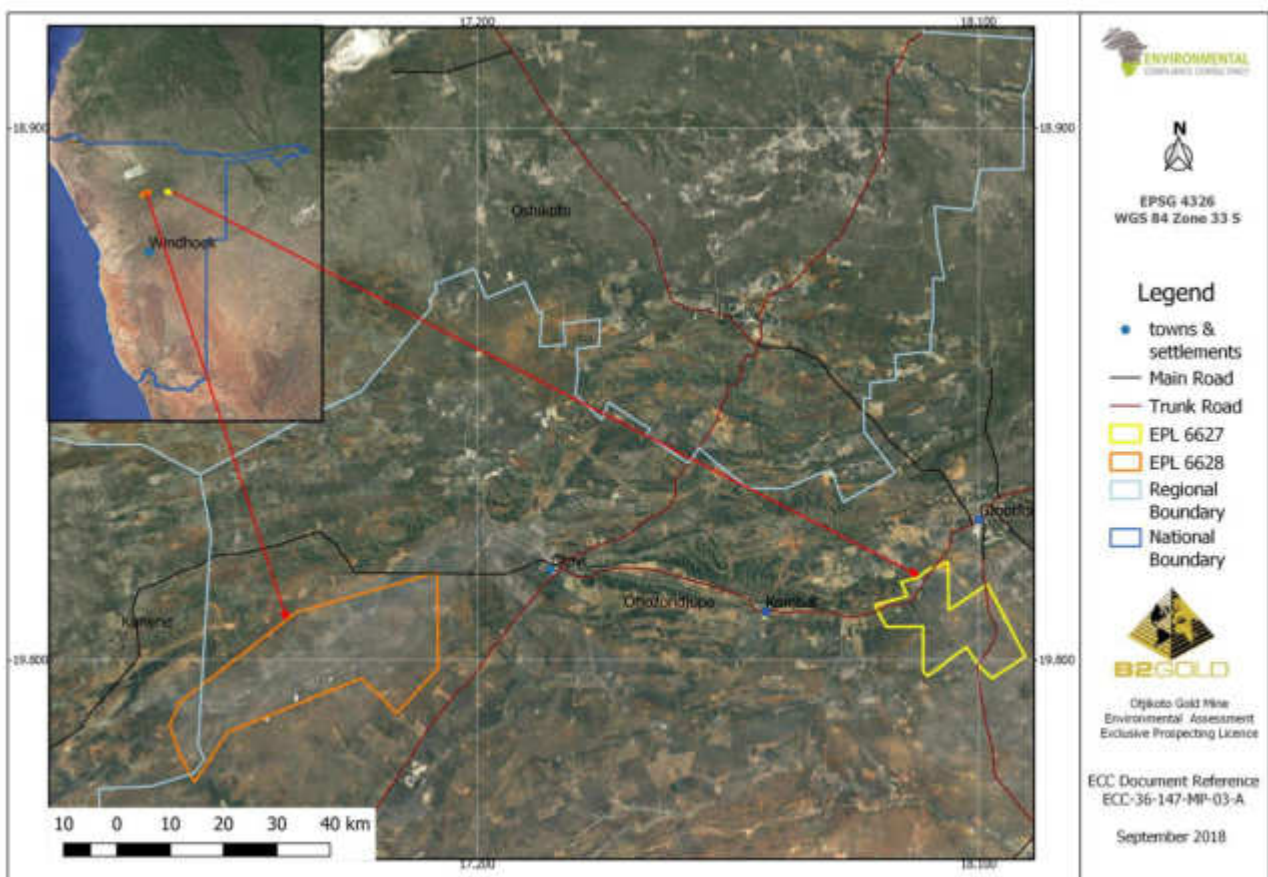


Figure 1: Locality of EPL 6627 and EPL 6628

1.2. ENVIRONMENTAL REGULATORY REQUIREMENTS

The proposed project is considered as a Listed Activity as set out in the Environmental Management Act, 2007 (Act No. 7 of 2007) and the Environmental Impact Assessment Regulation, 2007 (No. 30 of 2011) gazetted under the Environmental Management Act, (EMA), 2007 (Act No. 7 of 2007) (referred to herein as the EIA Regulations). As a Listed Activity an application for an Environmental Clearance Certificate is required. An Environmental Scoping Report and Environmental Management Plan (EMP) are required as part of the Environmental Clearance Certificate application, as well as to support the decision-making process. This report presents the EMP and has been undertaken in accordance with the requirements of the Environmental Management Act, 2007 and associated Regulations.

1.3. PURPOSE AND SCOPE OF THIS REPORT

This EMP provides a logical framework, mitigation measures and management strategies for the exploration activities associated with the proposed project, in this way ensuring that the potential environmental and social impacts are mitigated and minimised as far as practically possible and that statutory and other legal obligations are adhered to and fulfilled. Outlined in the EMP are the protocols, procedures and roles and responsibilities to ensure the management arrangements are effectively and appropriately implemented.

This EMP forms an appendix to the Environmental Scoping Report and has been based on the findings of the assessment; therefore, the Environmental Scoping Report should be referred to for further information on the proposed project, assessment methodology, applicable legislation and assessment findings.

This EMP is a live document and shall be reviewed at predetermined intervals, and/or updated when the scope of works alters, or when further data / information can be added. All personnel working on the project will be legally required to comply with the standards set out in this EMP.

The scope of this EMP includes all activities carried out during the exploration stage in search of base, rare and precious metals and industrial minerals on EPL 6628.

1.4. MANAGEMENT OF THIS EMP

The proponent B2Gold Namibia (Pty) Ltd will hold the Environmental Clearance Certificate for the proposed project and shall be responsible for the implementation and management of this EMP. Prior to the exploration activities commencing, this EMP shall be reviewed, amended as required and approved ready for implementation. The implementation and management of this EMP and thus the monitoring of compliance shall be undertaken through daily duties and activities and monthly inspections.

This EMP shall be circulated to all contractors and shall be made available on the Environmental Compliance Consultancy's (ECC) website.

1.5. LIMITATIONS, UNCERTAINTIES AND ASSUMPTIONS OF THIS EMP

This EMP does not include measures for compliance with statutory occupational health and safety requirements. This will be provided in the safety management plan to be developed by the proponent.

Where there is any conflict between the provisions of this EMP and any contractor's obligations under their respective contracts, including statutory requirements (such as licences, project approval conditions, permits, standards, guidelines and relevant laws), the contract and statutory requirements are to take precedence.

The information contained in this EMP has been based on the project description as provided in the Environmental Scoping Report. Where the design or construction methods alter, this EMP may require updating and potential further assessment undertaken.

1.6. ENVIRONMENTAL CONSULTANCY

ECC, a Namibian consultancy registration number 2013/11401, has prepared this EMP on behalf of the proponent. ECC operates exclusively in the environmental, social, health and safety fields for clients across Southern Africa, in the public and private sector. ECC is independent to the proponent and has no vested or financial interest in the proposed project.

1.7. STRUCTURE OF THIS EMP

The report has the following structure:

- Chapter 1 – Introduction

-
- Chapter 2 – Project Management Personnel
 - Chapter 3 – Communication and Training
 - Chapter 4 – Compliance and Enforcement
 - Chapter 5 – Environmental and Social Management
 - Chapter 6 – Implementation of the EMP

2. PROJECT MANAGEMENT PERSONNEL

2.1. B2GOLD NAMIBIA (PTY) LTD

The proponent shall provide a Project Team to oversee and undertake the preparation and exploration activities, which shall be composed of the proponent's personnel and contractors. A nominated role shall be identified to ensure the management and implementation of this EMP is throughout the duration of the project, which shall be supported by the central environmental team on the B2Gold Namibia site.

2.2. ORGANISATIONAL STRUCTURE, ROLES AND RESPONSIBILITIES

The proponent shall be responsible for:

- Ensuring all members of the Project Team, including contractors, comply with the procedures set out in this EMP;
- Ensuring that all personnel are provided with sufficient training, supervision and instruction to fulfil this requirement; and
- Ensuring that any persons allocated specific environmental responsibilities are notified of their appointment and confirm that their responsibilities are clearly understood.

Contractors shall be responsible for ensuring and demonstrating that all personnel employed by them are compliant with this EMP, and meet the responsibilities listed above.

The key personnel and environmental responsibilities of each role through the project life are presented in **Error! Reference source not found.**

Table 1 – Roles and Responsibilities

ROLE	RESPONSIBILITIES & DUTIES
Proponent	<ul style="list-style-type: none"> - Responsible for the management and implementation of the EMP; - Ensure environmental policies is communicated to all personnel throughout the proposed project and that employees understand the guidelines of the EMP; - Responsible for providing the resources required to complete the project tasks; - Appoint a Site manager and Exploration Manager; and - Ensure all workers are inducted on safety measures.
Exploration Manager	<ul style="list-style-type: none"> - Overseeing exploration activities; - Monitoring daily operations and ensure adherence by personnel to the EMP; - Maintain the community issues and concerns register and keep records of complaints; and - Maintain an up to date register of employees who have completed site induction.
Site Manager	<ul style="list-style-type: none"> - Ensuring that all contract workers, sub-contractors and visitors to the site are conversant with the requirements of this EMP, relevant to their roles on site and adhere to this EMP at all times; - Reporting any non-compliance or accidents to the Exploration Manager; - Receiving, recording and responding to complaints; - Ensure adequate resources are available for the implementation of the EMP; - Report non-compliance to the Exploration Manager; - Ensure safe and environmentally sound operations; and - Responsible for the management, maintenance and revisions of this EMP.

Employees	<ul style="list-style-type: none"> - Adhere to measures set out in the EMP; - Ensure they have undertaken a site induction; and - Report any operations or conditions which deviate from the EMP as well as any non-compliant issues or accidents to the Site Manager
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2.3. CONTRACTORS

Any contractors hired during the exploration activities and accessory works for the project duration shall be compliant with this EMP, and shall be responsible for the following:

- Undertaking activities in accordance with this EMP as well as relevant policies, procedures, management plans, statutory requirements, and contract requirements;
- Implementing appropriate environmental and safety management measures;
- Reporting of environmental issues, including actual or potential environmental incidents and hazards, to the Site Manager and/or Exploration Manager; and
- Ensuring appropriate corrective or remedial action is taken to address all environmental hazards and incidents reported by employees and subcontractors.

2.4. EMPLOYMENT

The proponent and all contractors shall comply with the requirements of the Republic of Namibia Regulations for Labour, Health and Safety, and any amendments to these regulations. The following shall be complied with:

- In liaison with local government, community, stakeholders and relevant authorities the proponent shall ensure that local people have access to information about job opportunities and are considered first for construction / maintenance contract employment positions;
- The number of job opportunities shall be made known together with the associated skills and qualifications. The maximum length of time the job is likely to last for shall be clearly indicated;
- Foreign workers with no proof of permanent legal residence shall not be hired; and
- Every effort shall be made to recruit from the pool of unemployed workers living in the local area.

3. COMMUNICATION AND TRAINING

3.1. COMMUNICATIONS

During exploration, the Exploration Manager and Site Manager shall communicate site wide environmental issues to the Project Team through the following means (as and when required):

- Site induction;
- Audits and site inspections;
- Toolbox talks, including instruction on incident response procedures; and
- Key project specific environmental issues briefings.

This EMP shall be distributed to the exploration team including any contractors and personnel working on the exploration site to ensure that the environmental requirements are adequately communicated. Key activities and environmentally sensitive operations shall be briefed to workers and contractors.

During the exploration activities, communications between the management team shall include discussing any complaints received and actions to resolve them; any inspections, audits or non-conformance with this EMP; and any objectives or target achievements.

3.2. COMPLAINTS HANDLING AND RECORDING

Any complaints received verbally by any personnel on the project site shall be recorded by the receiver, including the name and contact details of the complainant, date and time of the complaint, and the nature of complaint. The information shall be given to the Exploration Manager who is overall responsible for the management of complaints and will provide a written response to the complainant. The Exploration Manager shall inform the Site Manager of issues, concerns or complaints. It is the duty of the Exploration Manager to maintain a complaint register that details the name of the complainant, date and time of complaint, action taken to resolve the issues and date of complaint handover.

The workforce shall be informed about the complaints register, its location and the person responsible, in order to refer local residents or the general public who wish to lodge a complaint. The complainant shall be informed in writing of the results of the investigation and action to be taken to rectify or address the matter(s). Where no action is taken, the reasons why are to be recorded in the register.

The complaints register shall be kept for the duration of the project and will be available for government or public review upon request.

3.3. TRAINING AND AWARENESS

All personnel working on the project shall be competent to perform tasks that have the potential to cause an environmental impact. Competence is defined in terms of appropriate education, training and experience.

3.3.1. SITE INDUCTION

All personnel involved in the project shall be inducted to the site with specific environment and social awareness training, and health and safety issues. The environment and social awareness training shall ensure that personnel are familiar with the principles of this EMP, the environment and social aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures.

The Exploration Manager shall ensure a register of completed training is maintained.

The Site Induction should include, but not limited to the following:

- A general site-specific induction that outlines:
 - o What is meant by “environment” and “social”;
 - o Why the environment needs to be protected and conserved;
 - o How exploration activities can impact on the environment;
 - o What can be done to mitigate against such impacts;
- The inductee’s role and responsibilities with respect to implementing the EMP;
- The sites environmental rules;
- Details of how to deal with, and who to contact if environmental problems should they occur;
- Basic vegetation clearing principals and species ID sheets;
- The potential consequences of non-compliance with this EMP and relevant statutory requirements; and
- The role of responsible people for the project.

4. REPORTING, COMPLIANCE AND ENFORCEMENT

4.1. ENVIRONMENTAL PERFORMANCE MEASUREMENT

4.1.1. SUMMARY OF ENVIRONMENTAL RISKS AND MITIGATION MEASURES

Chapter 5 provides a Register of Environmental Risks and Issues, which identifies mitigation and monitoring measures, as well as roles responsible. This register will be subject to regular review by the PM and updated when necessary.

The Exploration Manager and Site Manager will use this register to undertake monthly inspections (see next section) to ensure the project is compliant with this EMP.

4.1.2. COMPLIANCE MONITORING

4.1.2.1. DAILY COMPLIANCE MONITORING

A copy of this EMP shall be on site throughout the construction works and shall be available upon request. It is the responsibility of the Exploration Manager and Site Manager to ensure this EMP is complied with through their daily roles. Daily inspections will be undertaken by the Site Manager (or nominated site supervisor). Any environmental problems or risks identified shall be notified to the Exploration Manager and actioned as soon as is reasonably practicable.

4.1.2.2. MONTHLY COMPLIANCE MONITORING

Monthly inspections shall be undertaken by the Site Manager to check that the standards and procedures set out in this EMP are being complied with and pollution control measures are in place and working correctly. Any non-conformance shall be recorded, including the following details: brief description of non-conformance; the reason for the non-conformance; the responsible party; the result (consequence); and the corrective action taken and any necessary follow up measures required.

4.3. NON- COMPLIANCE

4.3.1. NON-COMPLIANCE EVENT

Where it has been identified that works are not compliant with this EMP, the PM shall employ corrective actions so that the works return to being compliant as soon as possible. In instances where the requirements of the EMP are not upheld, a Non-Conformance and Corrective Action Notice shall be produced. The Notice shall be generated during the inspections and the PM shall be responsible for ensuring a corrective action plan is established and implemented to address the identified shortcoming.

A non-compliance event / situation, for example, is considered if:

- There is evidence of contravention of this EMP and associated indicators or objectives;
- The Site Manager and/or Contractor have failed to comply with corrective or other instructions issued by the Environmental Manager or qualified authority; or
- The Site Manager and/or Contractor fail to respond to complaints from the public.

Works shall be stopped in the event of a non-compliance, until corrective action(s) has been completed

4.3.2. DISCIPLINARY ACTION

This EMP is a legally binding document and non-compliance with it shall result in disciplinary action being taken against the perpetrator/s. Such action may take the form of (but is not limited to):

- Fines / penalties;

-
- Legal action;
 - Monetary penalties imposed by the proponent on the contractor;
 - Withdrawal of license/s; and
 - Suspension of work.

The disciplinary action shall be determined according to the nature and extend of the transgression / non-compliance, and penalties are to be weighed against the severity of the incident.

4.4. ENVIRONMENTAL PERMITS

Whilst the Water Resources Management Act, 2013 is not enforced, it is best practice to adhere to the stipulations while ensuring compliance to the Water Act of 1956 is also maintained. A licence to abstract and use water may be required if boreholes are to be created, however this is unlikely. If required, the proponent will apply for relevant permits and shall operate in accordance with any conditions in the licence.

Some vegetation shall be cleared on the EPL sites to allow exploration activities to commence. It is unlikely that an area greater than 15ha shall be cleared, therefore a permit under the Forest Act, 2001 is not required.

5. ENVIRONMENTAL AND SOCIAL MANAGEMENT

5.1. OBJECTIVES AND TARGETS

Environmental objectives for the project are as follows:

- Zero pollution incidents;
- Minimal vegetation clearing and earthworks
- Protect local flora and fauna; and
- Use natural resources effectively and efficiently.

5.2. REGISTER OF ENVIRONMENTAL RISKS AND ISSUES

An environmental review of the proposed project has been completed to identify all the commitments and agreements made within the Environmental Scoping Report. From this, a schedule of environmental commitments and risks has been produced (Tables 2 & 3), which details deliverables including measures identified for the prevention of pollution or damage to the environment during exploration.

Table 2 – Environmental Risks and Issues, and Mitigation and Monitoring Measures

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
Use of Plant and equipment (on the ground)	– Safety	<ul style="list-style-type: none"> – Plant and equipment shall be brought onto site as and when required and stored in specific areas – Amenities (e.g. portable toilets) shall be provided and set up in a suitable location (if required) 	– Daily observations	<ul style="list-style-type: none"> – Exploration Manager – Site Manager
	– Aerial emissions	<ul style="list-style-type: none"> – All plant to be shut down or throttled back between periods of use 	– Daily observations	<ul style="list-style-type: none"> – Exploration Manager – Site Manager
	– Potential loss of oil and fuel causing ground contamination	<ul style="list-style-type: none"> – Refueling shall be undertaken in a designated area – All stationary vehicles and machinery must have drip trays to collect leakages of lubricants and oil – In the event of pollution, polluted soils must be collected and dumped at an approved site 	– Daily observations	<ul style="list-style-type: none"> – Exploration Manager – Site Manager
	– Water contamination	<ul style="list-style-type: none"> – Water during drilling should be retained in a lined pond to prevent pollution – A ‘good housekeeping’ policy shall be adopted across the construction and maintenance working area 	– Daily observations	<ul style="list-style-type: none"> – Exploration Manager – Site Manager
	– Dust generation	<ul style="list-style-type: none"> – Use existing access roads and tracks where possible – Apply dust suppression method such as water spraying during drilling operations – Restricted speeds (<30km/h) – Provide protective masks and eye glasses to employees in dusty working environments – Specific activities that may generate dust shall be avoided during high wind events, e.g. soil preparation activities 	– Daily observations	<ul style="list-style-type: none"> – Exploration Manager – Site Manager
	– Noise generation	<ul style="list-style-type: none"> – Noise shall be minimised as much as possible during construction works – Limit normal operating hours to 07h00 to 18h00 on weekdays and 07h00 until 13h00 on Saturday; – Inform local communities and residents of scheduling and duration of noisy activities through notices or face-to-face communications – Regular maintenance and servicing of vehicles, plant and equipment 	– Daily observations	<ul style="list-style-type: none"> – Exploration Manager – Site Manager

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<ul style="list-style-type: none"> - All plant to be shut down or throttled back between periods of use - Provide ear muffs to employees working in close proximity to excessive noise 		
General exploration activities	<ul style="list-style-type: none"> - Loss of access or access affected to the farm and farm areas - Farm operations 	<ul style="list-style-type: none"> - Access to farms and all farm areas shall be made available at all times - Cattle water holes and feeding areas to remain unaffected 	-	-
Use of airborne equipment (remote sensing – drone, helicopter)	<ul style="list-style-type: none"> - Noise generation 	<ul style="list-style-type: none"> - Only use remote sensing equipment between 07h00 and 17h00 - No flying is to be conducted (aerial surveys) between dusk and dawn, on Sundays and on public holidays - When operating a drone, a minimum distance of 50m must be maintained for uninvolved persons and other objects such as vehicles, buildings etc. - Correspond with wildlife authorities to determine the best time to conduct aerial surveys - When possible avoid flying directly over human settlements. 	- Daily observations	<ul style="list-style-type: none"> - Exploration Manager - Site Manager
Vegetation Clearance	<ul style="list-style-type: none"> - Alien species 	<ul style="list-style-type: none"> - All project or earth moving equipment must have an internal weed and seed inspection completed prior to equipment being used on site - Ensure the potential introduction and spread of alien plants is prevented - Ensure the correct removal of alien invasive vegetation from the proposed development area and prevent the establishment and spread of alien invasive plants due to the development activities 	<ul style="list-style-type: none"> - Monitor daily the removal of the alien invasive vegetation. - Check the tyre of vehicles after use on site 	<ul style="list-style-type: none"> - Employees - Exploration Manager
	<ul style="list-style-type: none"> - Dust generation 	<ul style="list-style-type: none"> - Apply speed restrictions - Avoid off road driving 	- Daily observations	<ul style="list-style-type: none"> - Exploration Manager - Site Manager
	<ul style="list-style-type: none"> - Reduced soil quality 	<ul style="list-style-type: none"> - Use existing tracks where possible - Refueling to occur in designated areas with drip trays - Avoid natural drainage lines for exploration activities 	- Daily observations	<ul style="list-style-type: none"> - Exploration Manager - Site Manager
	<ul style="list-style-type: none"> - Injure or kill 	<ul style="list-style-type: none"> - Relocate slow moving reptiles and amphibians away from the construction 	- Daily observations	- Exploration

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
	animals	area <ul style="list-style-type: none"> - No driving off designated access routes (into the bush) / off-road driving - No snares or catching of animals, no keeping or housing of pets for food - No animals or birds may be collected, caught, consumed or removed from site by the Contractor or personnel on site 		Manager - Site Manager
	<ul style="list-style-type: none"> - Removal of vegetation – loss of flora and fauna, protected/important species 	<ul style="list-style-type: none"> - Use existing tracks where possible - Route new tracks around established and protected trees, and clumps of vegetation - Identify rare, endangered, threatened and protected species. Demarcate and avoid cutting down, and clearly highlight to construction workers so that they are avoided - Avoid natural drainage lines 	<ul style="list-style-type: none"> - Daily visual inspection during construction of new access tracks/widening 	<ul style="list-style-type: none"> - Exploration Manager - Employees - Site Manager
Site and ground Preparation – creation of access tracks and areas for setting up drill rigs	<ul style="list-style-type: none"> - Creation of dust 	<ul style="list-style-type: none"> - As above 	<ul style="list-style-type: none"> - Daily observations 	<ul style="list-style-type: none"> - Exploration Manager - Site Manager
	<ul style="list-style-type: none"> - Heritage remains 	Discovery of unearthed archaeological remains to be uncovered, the following measures (chance find procedure) shall be applied: <ul style="list-style-type: none"> - Works to cease, area to be demarcated with appropriate tape by the site supervisor, and the Site Manger to be informed - Site Manager to visit the site and determine whether work can proceed without damage to findings, mark exclusions boundary and inform the Environment and Social Manager with the GPS position if possible - If works cannot proceed without damage to findings, Site Manager to inform the Environmental Manager who will get in touch with an archaeologist who will provide advise - Environment Manager (ECC) / Archaeological Specialist to evaluate the significance of the remains and identify appropriate action, for example, record and remove; relocate or leave in situ (depending on the nature and value of the remains) 	<ul style="list-style-type: none"> - Daily observations 	<ul style="list-style-type: none"> - Exploration Manager - Site Manager

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
		<ul style="list-style-type: none"> – Inform the police if the remains are human – Obtain appropriate clearance or approval from the competent authority, if required, and recover and remove the remains to the National Museum or National Forensic Laboratory as direct 		
Fuel handling and storage	<ul style="list-style-type: none"> – Loss of containment leading to ground or groundwater contamination. 	<p><u>Safe Delivery and handling:</u></p> <ul style="list-style-type: none"> – Training employees and Toolbox Talks – Good housekeeping across site – Fuel is handled with care – Spill kits to be at designated areas across site or available for use during refueling, fuel delivery or use. Absorption material should be available and at hand. Where saw dust is used it should be cleaned up immediately and not left for long periods as this poses a fire hazard. – Any major spill is reported to the PM once containment has been achieved. – Plant and equipment to be well maintained and serviced regularly. – In the field, use of hydrocarbons under 200 liters can be used for mobile refueling or servicing. <p><u>Storage:</u></p> <ul style="list-style-type: none"> – All tanks to be stored on a non-porous floor and bunded area. – Bund to be capable of storing at least 110% of the volume of the tank – All containers to be suitable for use and not damaged. – Tanks are locked at all times – Spill kits available at storage locations and around site in suitable locations. <p><u>Refueling</u></p> <ul style="list-style-type: none"> – Drip tray to be used during refueling of vehicles and on a permeable flat surface where possible. – Funnel should be available and used to avoid spillage during decanting 	<ul style="list-style-type: none"> – Daily observations when fuels are delivered and handled – Supervision during refuelling – Weekly observations monitor containment and storage 	<ul style="list-style-type: none"> – Exploration Manager
Generation of waste	<ul style="list-style-type: none"> – Nuisances (odors and visual) – Land use 	<ul style="list-style-type: none"> – Training and Toolbox Talks – Good housekeeping across site – All working areas shall apply good house-keeping 	<ul style="list-style-type: none"> – Daily observations – Weekly checks 	<ul style="list-style-type: none"> – Exploration Manager – Employees

ACTIVITY	POTENTIAL IMPACTS	MANAGEMENT/MITIGATION MEASURES	MONITORING REQUIREMENTS	RESPONSIBILITY
	<ul style="list-style-type: none"> Litter (nuisance and ecological risk) 	<ul style="list-style-type: none"> Implement the waste management hierarchy across site: Avoid, reuse, recycle, then disposal through burning or dump Waste shall be collected and shall be removed on a regular basis to avoid pests and bad odours It is unlikely that hazardous material and wastes will be produced, however in the event that they do, they shall be managed in a safe and responsible manner so as to prevent contamination of soils, pollution of water and/or harm to people or animals as a result of the use of these materials. Hazardous and non-hazardous waste shall be stored separately at all times 		
Resource use	<ul style="list-style-type: none"> Inefficient use of water 	<ul style="list-style-type: none"> Use water effectively and efficiently 	<ul style="list-style-type: none"> Daily observations 	<ul style="list-style-type: none"> Exploration Manager Employees
Job creation	<ul style="list-style-type: none"> Employment creation and skills development opportunities during the exploration phase. 	<ul style="list-style-type: none"> Maximise local employment and local business opportunities to promote and improve the local economy Enhance the use of local labour and local skills as far as reasonably possible. Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible 	<ul style="list-style-type: none"> Daily observations Weekly checks 	<ul style="list-style-type: none"> Exploration Manager Employees

6. IMPLEMENTATION OF THE EMP

This EMP:

- A. Has been prepared pursuant to a contract with the proponent;
- B. Has been prepared on the basis of information provided to ECC up to October 2018;
- C. Is for the sole use of the proponent, for the sole purpose of an EMP;
- D. Must not be used (1) by any person other than the proponent or (2) for a purpose other than an EMP; and
- E. Must not be copied without the prior written permission of ECC.

ECC has prepared the EMP on the basis of information provided by the proponent, specialist reports and the Environmental Scoping Report.