

**DRAFT BASIC ASSESSMENT REPORT
COAL PROSPECTING RIGHT APPLICATION ON FARM
MOOIKLIP 239 HU IN THVRYHEID DISTRICT, KWAZULU
NATAL PROVINCE.**

10 FEBRUARY 2020

DMR REFERENCE: KZN 30/5/1/1/2/10899 PR



**LUSHIKA
SERVICES**



**DLAMINI
FAMILY TRUST**



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DRAFT BASIC ASSESSMENT REPORT
AND
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 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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COMPILED BY: LUSHIKA SERVICES (PTY) LTD

DATE: FEBRUARY 2020

1 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.

2 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 the 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.

3 EXECUTIVE SUMMARY

Dlamini Family Trust (Pty) Ltd has applied for an Environmental Authorisation for the proposed prospecting activities for Coal on Farm Thor 142 RD, Portion 0, 5, 6, and 7 of farm Kruidfontein 67 RD, Dorking 206 RD, Kronebloem 68 RD, Odin 93 RD, And Die Pan 225 RD situated in the Parys District, Free State Province.

The application has been lodged in terms of Regulation 16 of the National Environmental Management Act (Act 107 of 1998) (NEMA): Environmental Impact Assessment (EIA) Regulations, 2014 and Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002). In terms of the NEMA (Act 107 of 1998). EIA regulations of 2014 (amended April 2017), the proposed prospecting activity triggers Activity 20 and 22 of Listing Notice 1 GNR 327 and the applicant cannot proceed without an Environmental Authorisation.

Lushika Services (Pty) Ltd has been appointed by Dlamini Family Trust (Pty) Ltd as an independent environmental assessment practitioner (EAP) to undertake the Environmental Impact Assessment for the proposed prospecting right project. The purpose of the study is to identify and assess all the possible impacts that may arise from the implementation of the proposed project and also to find the most effective way of enhancing environmental benefits and mitigating potential impacts to encourage sustainable development in the area.

The proposed prospecting activities will be undertaken over a period of five (5) years and the activities will be conducted in progressive phases which include Non-invasive and invasive methods. The Non-invasive method will include desktop studies and geological mapping, whereas Invasive methods will include drilling and sampling.

The potential risks and key issues identified were based on consultation with I&APs, internal process based on similar projects and the current state of the environment of the site. A description of the biophysical and social environment is included in the report, to ensure that all potential risks and issues are taken into consideration in all phases of the proposed project. A brief description of the potential aspects that will be impacted include the following:

- Air quality
- Fauna
- Flora
- Waste
- Ground water
- Geology
- Soils
- Traffic
- Cultural and Heritage
- Socio-economic

This document FINAL BASIC ASSESSMENT REPORT (FBAR) and the Environmental Management Programme (EMPr), was compiled in terms of the EIA Regulations of 2014 (amended, April 2017).

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PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

4 CONTACT PERSON AND CORRESPONDENCE ADDRESS

4.1 Details of

4.1.1 Details of the EAP

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4.1.2 Expertise of the EAP.

4.1.2.1 The qualifications of the EAP

(with evidence).

attached in **Appendix 1**

4.1.2.2 Summary of the EAP's past experience.

(In carrying out the Environmental Impact Assessment Procedure)

(C.V is attached in **appendix 2**)

5 LOCATION OF THE OVERALL ACTIVITY.

5.1 LOCALITY MAP

(Show nearest town, scale not smaller than 1:250000).

KZN 10899 PR Prospecting Right Locality Map

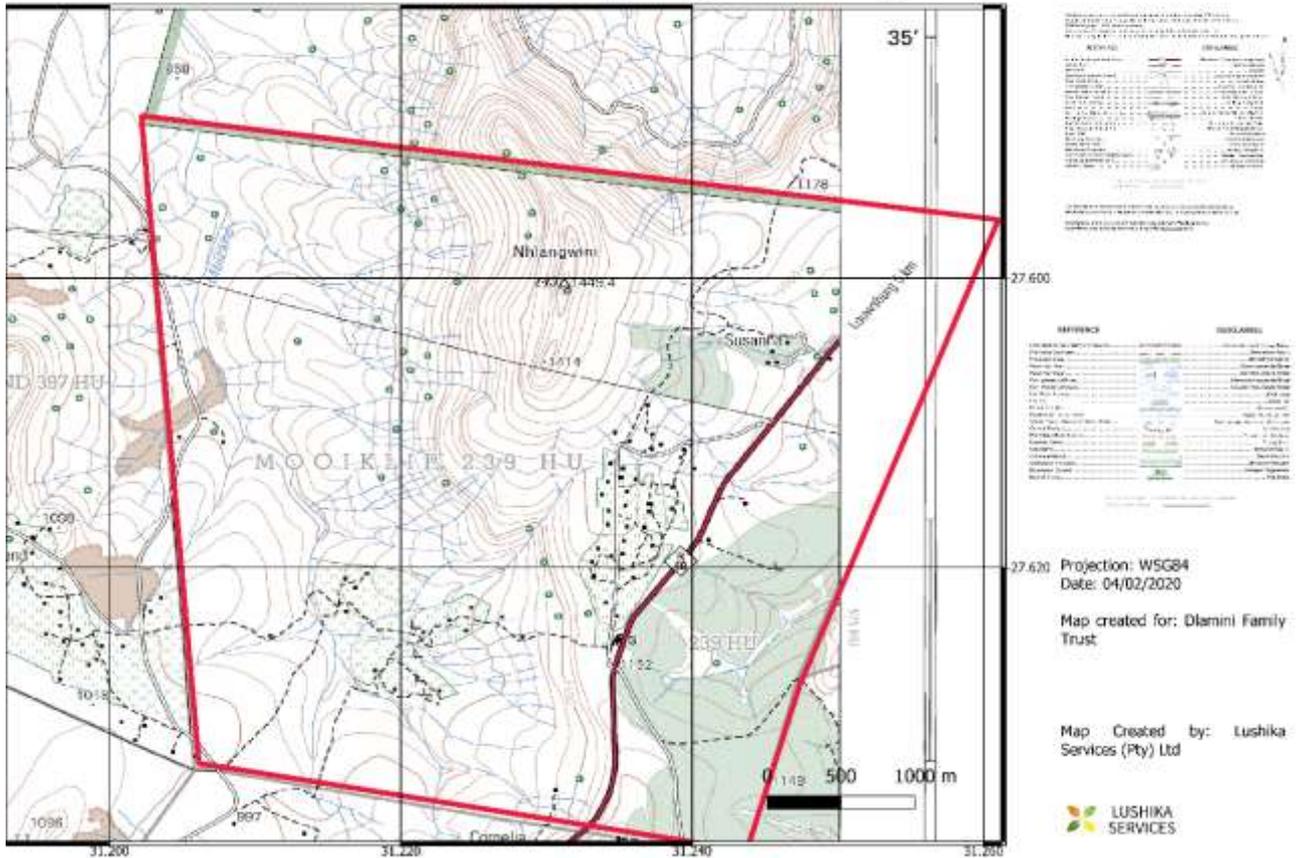


Figure 1: Locality Map showing proposed prospecting area 1: 50 000

KZN 10899 LOCALITY MAP



Figure 2: Locality Map showing proposed prospecting right area (1: 250 000)

A larger locality maps will be attached as **Appendix 3**

6 DESCRIPTION OF THE SCOPE OF THE PROPOSED OVERALL ACTIVITY.

Provide a plan drawn to a scale acceptable to the competent authority but not less than 1: 10 000 that shows the location, and area (hectares) of all the aforesaid main and listed activities, and infrastructure to be placed on site.

Please take note: Prospecting tries to find out whether a mineral occur in an area, and if it does, how much of the mineral occur there; it is not mining. Prospecting means intentionally searching for any mineral by means of both non-invasive and invasive methods which disturbs the surface or subsurface of the earth. Prospecting starts with desktop studies that survey the land and gather information with no physical disturbance. The results from this study then allow the applicant to make an informed decision on where to drill, with minimal disruption to the existing landowner and the biophysical environment. All disturbances caused by the prospecting operations on the property will be rehabilitated on a concurrent basis. Please note that prospecting does not necessarily guarantee mining of the deposit in the future.

In Phase 1 (Desktop study) there will be no activity on site apart from a few site visits. However Phases 2 to 4 will require work on site. Phase 2 (Drilling, sampling, analysis and geophysical wireline logging) will require access to the farm to be able to carry out a farm wide soil geochemistry and geophysical survey where existing farm access roads will need to be used. Phases 3, 4, and 5 will be carried out off site as it involves modelling of results, and a pre-feasibility study. When drilling is carried out it is possible that access roads will need to be created. This will be discussed with the respective landowners. Since exploration is temporary in nature no permanent structures will be constructed, negotiations and agreements will be made with the farm owners to use any existing infrastructure like accommodation for the explorers, access roads and other infrastructure such as workshops and ablution facilities.

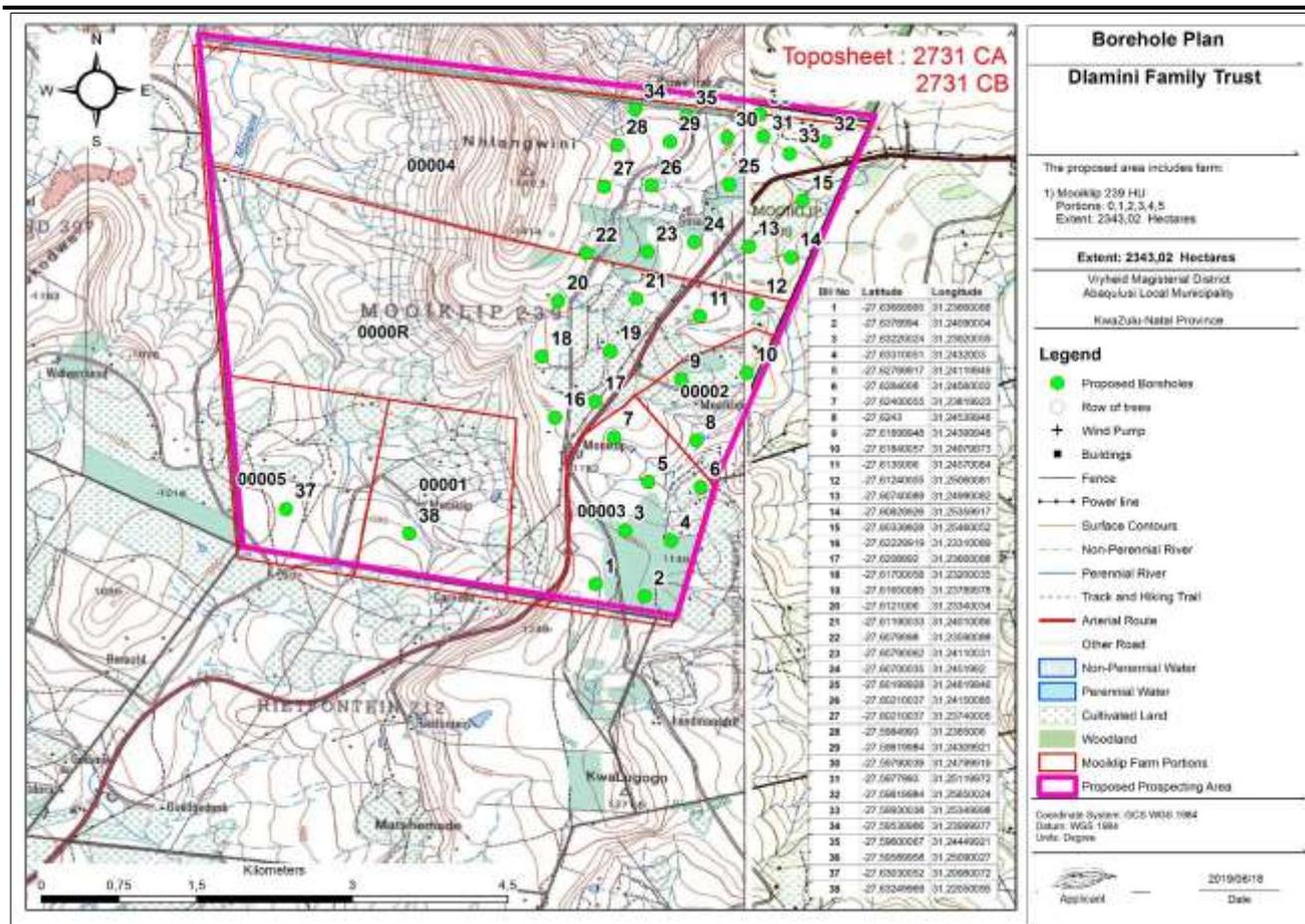


Figure 3: Preliminary drilling plan.

Preliminary drilling locations (Figure 3) are not final and is subject to changes depending on the desktop studies proposed in phase 1 of the prospecting right activities and on the recommendation of the on-site geologist who will be contracted at that stage. The drilling location is based on the proposed prospecting work programme submitted to the DMR.

7 LISTED AND SPECIFIED ACTIVITIES

Table 1: Listed activities in terms of NEMA

NAME OF ACTIVITY (E.g. For prospecting - drill site, site)	Aerial extent of the Activity Ha or m ²	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
Drilling	2343.02 Ha is the cadastral area for the prospecting area but the footprint of collective drilling impact of 38 boreholes will be 0.1862 Ha. Total for 38 drilling sites = 0.1862 Ha(1862 m ²) 0.0049 Ha (49 m ²) per drilling site	X	GNR 327 (as amended 07 April 2017) Listed Activity 20
Rehabilitation of drilling site	0.1862 Ha	X	GNR 327 (as amended 07 April 2017) Listed Activity 22
Site Preparation	0.15 Ha		
Access Roads	0.005		
Sampling and storage	Less than 100 m ³		

8 DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN

(Describe Methodology or technology to be employed, including the type of commodity to be prospected/mined and for a linear activity, a description of the route of the activity)

The commodity to be prospected is Coal Ore. The prospecting activities are anticipated to be undertaken for a period of 5 years of which only 2 years will involve on site drilling activities. These prospecting activities will be conducted in phases, with the succeeding phase depending on the results and success of preceding phase. The intended phases in sequence are indicated below:

- Phase 1- Desktop Study:
 - Literature Review

The exploration records of all previous work in the area will be re-examined, and the following studies will be carried out:

Literature survey is a comprehensive review of published and unpublished work from secondary data sources. Time will be spent reviewing books, journals, government publications etc. A period of 2 months is estimated for literature review.

- Geological Mapping

Mapping will be conducted such that accurate and meaningful structural and geological data may be derived from it and to communicate information gathered from the desktop study with mapping results.

These records will need to be captured into a GIS format for geological modelling and exploration scheduling analysis. This work will form an initial desktop and surface fieldwork study to be continued during the period that prospecting permit application is being assessed and, presumably, approved. A period of 2 months is estimated for this.

- Phase 2- Invasive prospecting (Drilling)
 - Drilling and Sampling

Borehole planning will involve drilling program design and implementation procedures to ensure that drilling is conducted as safe and economic as possible. This phase will include cooperation between the drilling contractor, services contractors, geologists and other technical specialists. The planning process will also ensure that the health and safety of all working on the drilling sites and the environment are protected. It is envisaged that 30 core boreholes will be drilled at an average depth of 500m (see *Figure 3*) for proposed borehole locations). Furthermore, core sampling will occur concurrently with drilling and the selected samples will be analysed.

All drilling to be undertaken will be diamond drilling using conventional equipment and TNW (60 mm) core size. The diamond drill is composed of industrial diamonds set into a soft metallic matrix. The diamonds are scattered throughout the matrix, and the action relies on the matrix to slowly wear during the drilling, to expose more diamonds. The bit is mounted onto a drill stem, which is connected to a rotary drill. Water is injected into the drill pipe, to wash out the rock cuttings produced by the bit. An actual diamond bit is a complex affair, usually designed for a specific rock type, with many channels for washing. The drill uses a diamond encrusted drill bit to drill through the rock. Although a larger diameter core is the most preferred it is the most expensive. A period of 24 months is estimated for the drilling and sampling phase.

Sample Analysis

All core samples collected throughout drilling will be submitted to a SANAS-accredited laboratory for comprehensive analyses and metallurgical recovery tests aimed at determining coal quality. The coal samples will be analysed for moisture, ash, volatile matter, fixed carbon, calorific value and sulphur. A period of 3 months is estimated for sample analysis.

➤ Geophysical Wireline Logging

Down hole geophysics will be conducted on specific boreholes to allow for stratigraphic correlation, for core recovery calculations and to aid in the interpretation and sampling of the various coal seams. Wireline logging is performed by lowering a 'logging tool' on the end of a Wireline into a borehole and recording physical properties using a variety of sensors. A period of 1 month is estimated for geophysical wireline logging.

- Phase 3- 3D Modelling and resource estimation

After the extent and development of the coal seams are investigated by drilling, the acquired data will be modelled using geological modelling software. Geological 3D modelling includes integration of diverse types of observations into 3D geo-models using geological mapping data, borehole data and interpretations and any other field data. A period of 3 months is estimated for a geological 3-D modelling phase.

- Phase 4- Pre-feasibility studies

Prospecting will entail gathering and compilation of all previously acquired data from past prospecting programs in the area if available. The data will be reviewed and modelled and hence be used to plan and sight additional boreholes if required. Subsequent to the investigation of the underlying geological units by drilling, the data will be put into a database and modelled using geological modelling software (Datamine). Should programme prove to be successful; a feasibility study will be conducted to determine the viability of a mining operation prior to applying for a mining right application. A pre-feasibility study is estimated to take 12 months.

- Phase 5- Mining Right application

The applicant will prepare all the necessary documentations for the application of a mining right depending on the results of Phase 1- Phase 4. 13 months will be taken to prepare for an application for a mining right.

9 POLICY AND LEGISLATIVE CONTEXT

Table 2: Applicable legislations

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 the Republic of South Africa, 1996	During Operational and Decommissioning phase of the proposed development	Rights of all personnel who are directly or indirectly involved in the project has been respected and their concerns attended to during public consultation
National Environmental Management Act, 1998 (Act No. 107 of 1998)	During Planning phase of the project, the proposed development is listed in GNR 327 Listing Notices 1. Activity Number 20 is triggered.	This is the key national legislation underpinning environmental Authorisations in South Africa. In terms of NEMA a Basic Assessment has been applied for. An impact Assessment is included and the appropriate mitigation measures and recommendations are made.
Mineral and Petroleum Resources Development Act	The prospecting right activities requires the prospecting right from the Department of Mineral Resources	A Prospecting Right Application has been submitted to the DMR by the Applicant (KZN 30/5/1/1/2 (10899) PR). The application was accepted by the DMR on the 11 October 2020
National Heritage Resources Act (Act No 25 of 1999)	All cultural and heritage resources should be protected if or when encountered	A permit may be required if identified cultural/heritage sites on the proposed site will be disturbed or destroyed as a result of the prospecting activities.
National Environmental Management: Air Quality Act (Act No 39 of 2004)	Minimal Dust from moving vehicles and drilling can be generated.	Standards for particulates and dust used in Impact Assessment to regulate the concentration of a substance that can be tolerated without any environmental deterioration
Occupational Health and Safety Act (No 85 Of 1993)	During operational phase, contractors and employees should adhere to the requirements of this legislation for a safe working environment.	The Act provides for the health and safety of persons at work and for the health and safety of persons in connection with the use of machinery; the protection of persons other than persons at work, against hazards to health and safety arising out of or in connection with the activities of persons at work.
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	The prospecting activities may encounter critical endangered species	The appropriate buffer areas and sensitive areas to be excluded are applied. Species of conservation concern are protected or where required, a search and rescue operation will be carried out by a professional registered scientist. Alien invasive species management
National Forests Act (Act No. 84 of 1998)	During the Site establishment, there may be a clearance of vegetation which includes trees.	In terms of S5(1) no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree.
Mine Health and Safety Act ,1996 (No. 29 of 1996	The mine Health and Safety Act, 1996 (No. 29 of 1996) provides for the protection of the health and safety of employees and other persons at mines and, for that purpose- promote culture of health and safety	DFT will be required to meet the requirements of the Mine Health and Safety Act during invasive and non-invasive prospecting phases.
National Water Act (Act No. 36 of 1998)	The proposed activities requires minimum use of water, however it will not consume enough water to trigger a water use license application.	No water use license is required for this application.

National Environmental Management: Waste Act, Act 59 of 2008	Management measures environmental awareness plan	The generation of potential waste will be minimised through ensuring employees of the drilling contractor are subjected to the appropriate environmental awareness campaign before commencement of drilling. All waste generated during drilling activities will be disposed of in a responsible legal manner.
Conservation of Agricultural Resources Act, 1983	The overall Prospecting Activities	The project should promote the conservation of soil, water and vegetation
Section 34 of the Local Government: Municipal Systems Act, 2000 (ACT 32 of 2000)	The overall prospecting activities	Municipal System Act compels municipalities to draw up the IDP's as a singular inclusive and strategic development plan. In terms of section 26 of the MSA, A municipality produces an IDP every five year.
National Development Plan 2030	The overall prospecting activities	The NDP aims to eliminate poverty and reduce inequality by 2030. According to the plan, South Africa can realise these goals by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnership throughout society.

10 NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES.

(Motivate the need and desirability of the proposed development including the need and desirability of the activity in the context of the preferred location).

Should prospecting prove successful and a resource is quantified, it would indicate a potential viable economic activity in the form of mining. Mining will contribute greatly to local economic growth through direct employment, future business opportunities, royalties and tax revenues.

The transformation from fossil fuels to renewable energy sources is slow in South Africa; accordingly there is still a high demand for coal in the country to meets its energy demands as well as internationally. This demand is evident considering coal shortage at ESKOM power stations across the country. South Africa is dependent on coal for electricity production as about 75% of South Africa’s energy needs are met by coal fired power stations. The potential benefits of the proposed project are:

- Long-term, national benefits of reliable power supply and the resultant socio-economic benefits.
- Ensure the supply of a secure, long-term supply of coal to Eskom.
- Needed job creation and other local, provincial and national socio-economic benefits.
- Local growth in the economy in the surrounding areas, and for local businesses
- Economic benefits for contractors and other suppliers of goods and services.

11 MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVE.

The proposed site was selected based on extensive research and also following on information from previous prospecting activities in the area. There are known coal reserves in the area and coal mining right applications has been applied for in the area. In terms of the technologies proposed, the proposed prospecting methods (i.e. diamond drilling) have been chosen based on the known success of prospecting using the above method. The prospecting activities proposed in the Prospecting Works Programme (PWP) is dependent on the

preceding phase as previously discussed, therefore no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

12 FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE.

NB!! – This section is about the determination of the specific site layout and the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.

12.1 Details of the development footprint alternatives considered.

With reference to the site plan provided as **Appendix 4** and the location of the individual activities on site, provide details of the alternatives considered with respect to:

12.1.1 Property on which or location where it is proposed to undertake the activity.

No location alternative has been considered. The applicant's property or location is being guided by the presence of higher potential underlying coal thus not any location or property is suitable for the proposed activity.

12.1.2 Type of activity to be undertaken

Description of planned Non-invasive Activities

Desktop studies to be undertaken over the area would include studying of all available geological maps/plans, aerial photographs, topography maps and any other related geological information about this area. Upon completion of the desktop study, field geological mapping of the area will be conducted, and if necessary, a ground magnetic geophysical survey to locate the occurrence of any dolerite sills/dykes that may be present in the area.

3D Modelling and resource estimation

After the extent and development of the coal seams are investigated by drilling, the acquired data will be modelled using geological modelling software. Geological 3D modelling includes integration of diverse types of observations into 3D geo-models using geological mapping data, borehole data and interpretations and any other field data. A period of 3 months is estimated for a geological 3-D modelling phase.

Description of planned Invasive Activities

This Prospecting Work Program is designed to establish the extent of the area of the coal deposit, and all available geological information will be utilized to calculate the in-situ Coal Resource and the economic viability of the Project.

Borehole planning will involve drilling program design and implementation procedures to ensure that drilling is conducted as safe and economic as possible. This phase will include cooperation between the drilling contractor, services contractors, geologists and other technical specialists. The planning process will also ensure that the health and safety of all working on the drilling sites and the environment are protected. It is envisaged that 30 core boreholes will be drilled at an average depth of 500m (see *Figure 3*) for proposed

borehole locations). Furthermore, core sampling will occur concurrently with drilling and the selected samples will be analysed.

All drilling to be undertaken will be diamond drilling using conventional equipment and TNW (60 mm) core size. The diamond drill is composed of industrial diamonds set into a soft metallic matrix. The diamonds are scattered throughout the matrix, and the action relies on the matrix to slowly wear during the drilling, to expose more diamonds. The bit is mounted onto a drill stem, which is connected to a rotary drill. Water is injected into the drill pipe, to wash out the rock cuttings produced by the bit. An actual diamond bit is a complex affair, usually designed for a specific rock type, with many channels for washing. The drill uses a diamond encrusted drill bit to drill through the rock. Although a larger diameter core is the most preferred it is the most expensive. A period of 24 months is estimated for the drilling and sampling phase.

- **Sample Analysis**

All core samples collected throughout drilling will be submitted to a SANAS-accredited laboratory for comprehensive analyses and metallurgical recovery tests aimed at determining coal quality. The coal samples will be analysed for moisture, ash, volatile matter, fixed carbon, calorific value and sulphur. A period of 3 months is estimated for sample analysis.

- **Geophysical Wireline Logging**

Down hole geophysics will be conducted on specific boreholes to allow for stratigraphic correlation, for core recovery calculations and to aid in the interpretation and sampling of the various coal seams. Wireline logging is performed by lowering a 'logging tool' on the end of a Wireline into a borehole and recording physical properties using a variety of sensors. A period of 1 month is estimated for geophysical wireline logging.

12.1.3 Design or layout of the activity

Since exploration is temporary in nature limited permanent structures will be constructed. Negotiations and agreements will be made with the farm owners to use any existing infrastructure like accommodation for the explorers, access roads and other things like workshops.

Various designs and layouts for the prospecting operations have been considered and the layout has been altered to avoid potentially high impacted sensitivity areas.

The infrastructure/ processing area will be located in existing disturbed areas to ensure that less agricultural land will be lost and outside sensitive areas.

12.1.4 Technology to be used in the activity

The diamond drilling technique is the only major method used in exploring for deposits of this type and also for resource definition and evaluation. The technology to be used cannot be replaced by any other methods thus these are the preferred activities.

12.1.5 Operational aspects of the activity.

Due to the anticipated depth of the coal, diamond drilling method is the only viable method of retrieving the potential coal samples. The alternative methods that is used for exploration is trenching, where the proposed

mineral is closer to the surface and require bulk samples to properly assess the existence and economic viability of the proposed mineral. The trenching method has extremely significant environmental damage and can be very expensive. Diamond drilling is the preferred operational activity for the proposed coal prospecting.

12.1.6 Option of not implementing the activity.

The 'no-go' alternative is the option of not undertaking prospecting activities on the project site. The no-go option assumes the site remains in its current state. Drilling is required in order to investigate the potential and feasibility of the minerals on site. There is no potential for any future investment in a mine without the confirmation of the mineral resources availability which can only be obtained from drilling activities. Should the prospecting right not be granted, effectively the minerals being applied for will not benefit the local community. The socio-economic benefit and most notably the future employment and potential of mine development will be lost if the prospecting activities are not implemented in order to determine the feasibility of any deposits that may occur within the area.

The mining sector forms part of the backbone of the South African economy. The Kwazulu Natal Province is one of the main contributors to the Provincial GDP and as such the option of not carrying out the prospecting activities would prevent future prospects of mining thus reducing the contribution to the GDP.

The jobs that were to be created during prospecting phase will also be missed; these employment opportunities would be reduced, causing an economic burden on the government as people dependant on social grants would not be reduced.

The state of the natural environment will remain the same, amongst other things the following will be beneficial:

- There will be no geological and soil disturbance which may lead to ground water contamination;
- No excessive generation of wastes from the proposed activities;
- No compaction of path ways affecting the growth pattern of grasses and movement of micro animals;
- No disturbance of wild life in the surrounding game farms will occur; and
- The biodiversity will not be altered as there will be no removal of plants and induced noise from prospecting activities.

13 DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED

Describe the process undertaken to consult interested and affected parties including public meetings and one on one consultation. NB the affected parties must be specifically consulted regardless of whether or not they attended public meetings. (Information to be provided to affected parties must include sufficient detail of the intended operation to enable them to assess what impact the activities will have on them or on the use of their land.

This section of the report provides an overview of the tasks undertaken for the Public Participation Process (PPP) to date. The PPP was conducted in terms of Chapter 6 of the NEMA and included the following:

- a) Identification of key Interested and Affected Parties (affected and adjacent landowners) and other stakeholders (organs of state and other parties);
- b) Placement of site notices on farms, and other accessible public areas;
- c) Formal notification of the application to key Interested and Affected Parties and other stakeholders;

- d) Consultation and correspondence with I&APs and Stakeholders and the addressing of their comments. This appendix will be included in the Final Basic Assessment; and
- e) Newspaper adverts.

The objectives of PPP include:

- Provides Interested and Affected parties (I&APs) with an opportunity to voice their support, concerns and raise questions regarding the project, application or decision;
- Provides an opportunity for I&APs, Environmental Assessment Practitioners (EAPs) and the Competent Authority (CA) to obtain clear, accurate and understandable information about the environmental, social and economic impacts of the proposed activity or implications of a decision;
- Provides I&APs with the opportunity of suggesting ways of reducing or mitigating negative impacts of an activity and for enhancing positive impacts; and
- Enables the applicant to incorporate the needs, preferences and values of affected parties into the application.

The PPP must comply with the several important sets of legislation that require public participation as part of an application for authorisation or approval; namely:

- The Mineral and Petroleum Resources Development Act (Act No. 28 of 2002 - MPRDA); and
- The National Environmental Management Act (Act No. 107 of 1998 - NEMA).

Adherence to the requirements of the above-mentioned Acts will allow for an Integrated PPP to be conducted, and in so doing, satisfy the requirement for public participation referenced in the Acts.

During the process, the following methods are used to develop a stakeholder database which will be utilised to ensure a proper representation of stakeholders interested in or affected by the proposed Project.

This included the following:

- Search works and desktop searches are conducted in and around the project area to verify land ownership and obtain contact details;
- Responses received from newspaper advertisements, public notices and site notices;
- Responses received from distribution of the Background Information Document (BID);
- Identification and consultation with stakeholders including commenting authorities (local and district municipalities);
- Organs of state, other than the competent authority, such as the Department of Agriculture, Forestry and Fisheries (DAFF), Kwazulu Natal Department of Agriculture and Rural Development, and Department of water and Sanitation having jurisdiction in respect of any aspect of the proposed project and affected authorities; and
- Consultations with affected landowners.

The PPP commenced on 13 January 2020 with a site visit which included the placing site notices in and around the fences of the respective farms. A registration period commenced the 13th January 2020 ending on the 11th of February 2020. The notification procedure is included in **Appendix 5**.

- Newspaper advertisement: published in the “The Vreyheid herald” for the week of 17 January 2020;
- Site Notices: erected at prominent points on 13 January 2020; and
- Public Notices: distributed to identified stakeholders, landowners and residence (where possible) on 13 January 2020 and throughout the registration period.

No consultation meetings were held at this stage. Arrangements will be made with registered interested and affected parties who will register as stakeholders in due course.

13.1 Summary of issues raised by I&APs

(Complete the table summarising comments and issues raised, and reaction to those responses)

Table 3: Summary of issues raised by I & APs

Interested and Affected Parties List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.	Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Section and paragraph reference in this report where the issues and or response were incorporated.
AFFECTED PARTIES				
Landowner/s	X			
Lawful occupier/s of the land				
Landowners or lawful occupiers on adjacent properties	X			
Municipal councillor	X			
Municipality				
Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e				
Communities				

Dept. Land Affairs					
Land claims	X				
Traditional Leaders					
Dept. Environmental Affairs					
Other Competent Authorities affected					
OTHER AFFECTED PARTIES					
INTERESTED PARTIES					

No comments received at this stage of this application

14 BASELINE ENVIRONMENT

14.1 Climate

The area normally receives about 723mm of rain per year, with most rainfall occurring during summer. The chart below shows the average rainfall values for Louwsburg per month. It receives the lowest rainfall (3mm) in July and the highest (119mm) in December. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for Louwsburg range from 20.4°C in June to 27°C in January. The region is the coldest during June when the mercury drops to 6°C on average during the night. Consult the chart below for an indication of the monthly variation of average minimum daily temperatures.

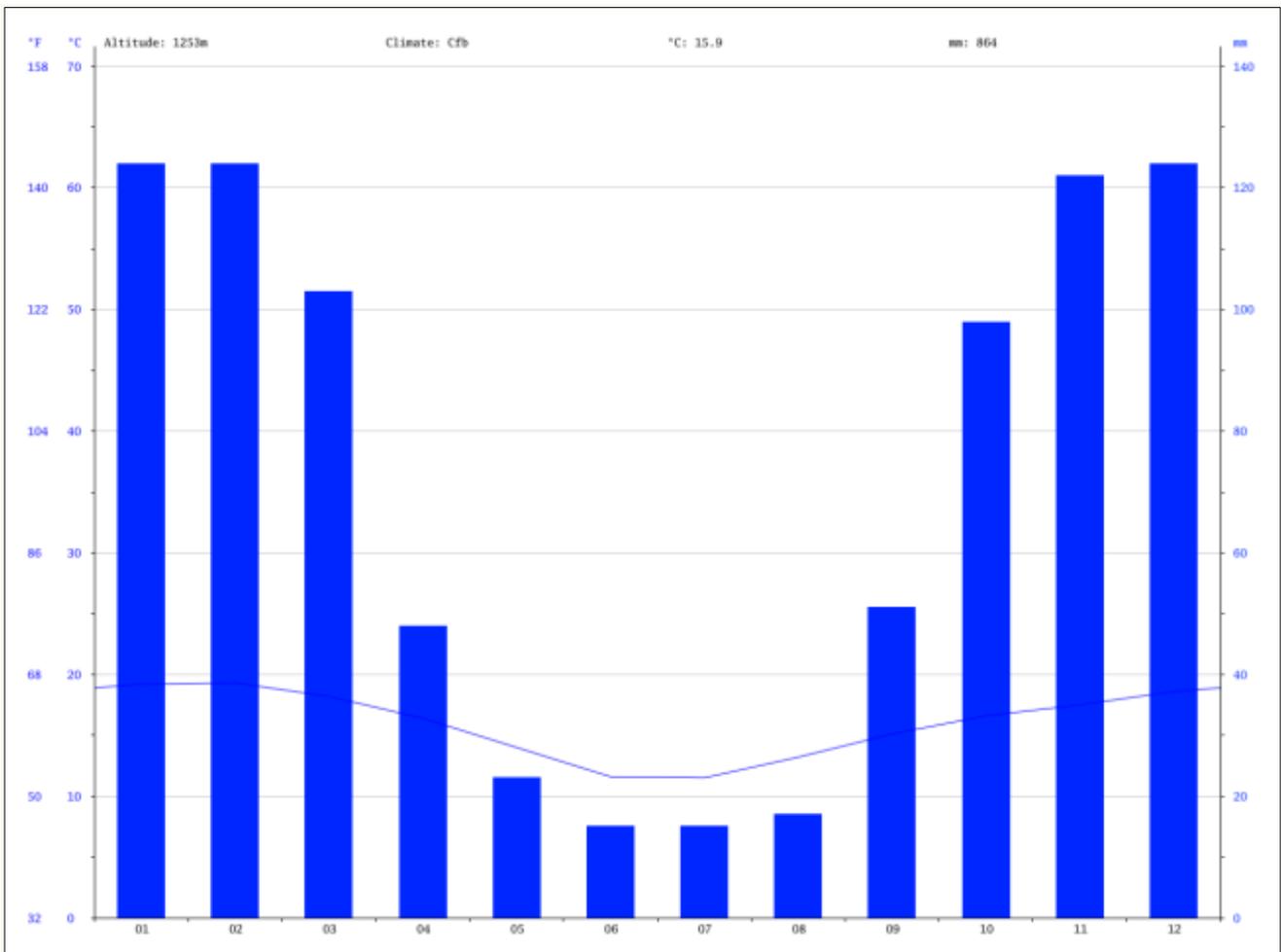


Figure 4: Shows climate chart for the proposed prospecting right area.

14.1.1.1 Topography

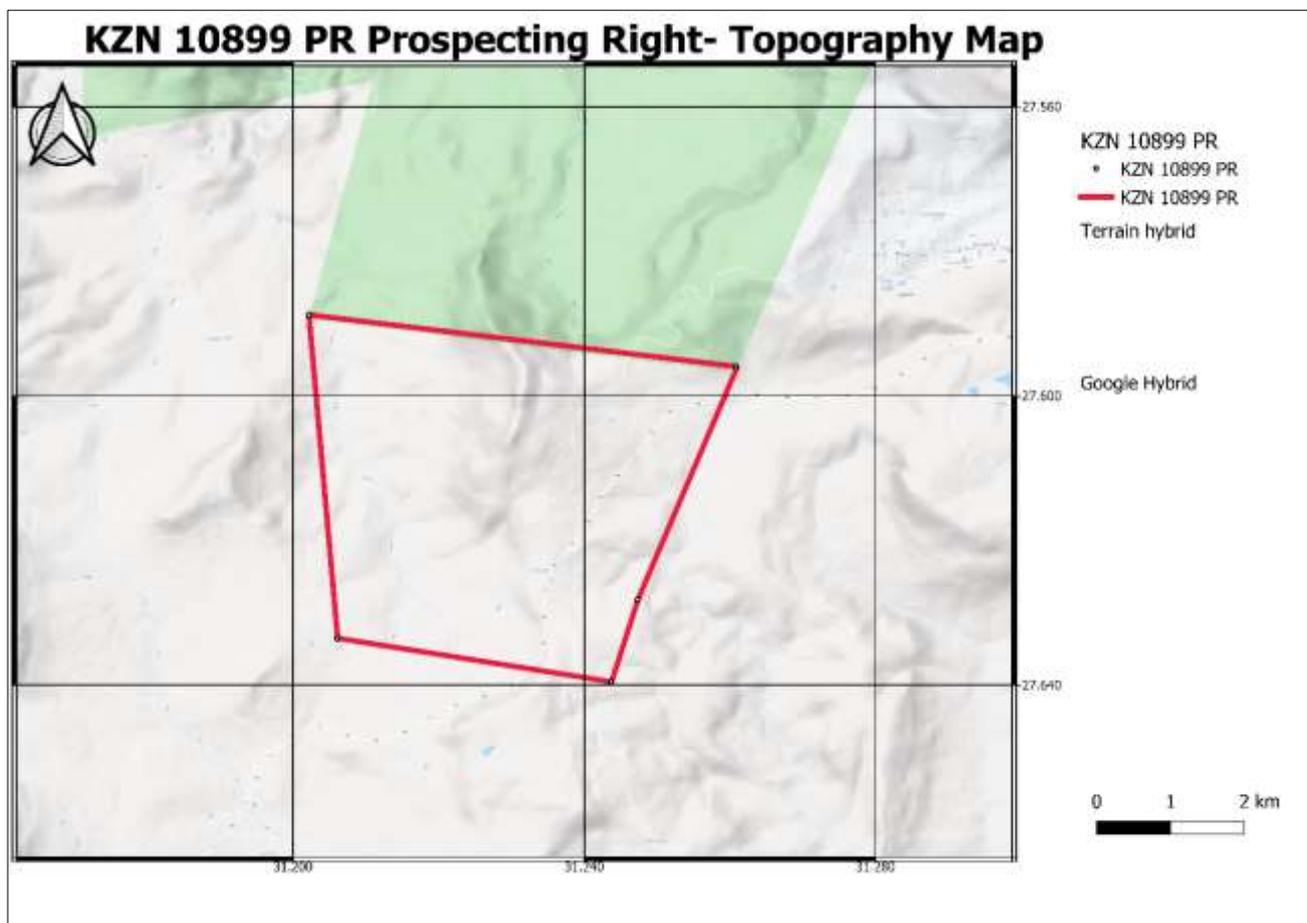


Figure 5: Topographic map of the proposed prospecting area.

The general topography of the area can be characterized as a mountainous landscapes with elevation ranging between 832 to 1314 m.am.s across the different farm portions. The terrain is undulating towards the north and flat towards the south of the proposed prospecting right area.



Figure 6: Elevation profile for the prospecting right application area.

14.1.1.2 **Geology**

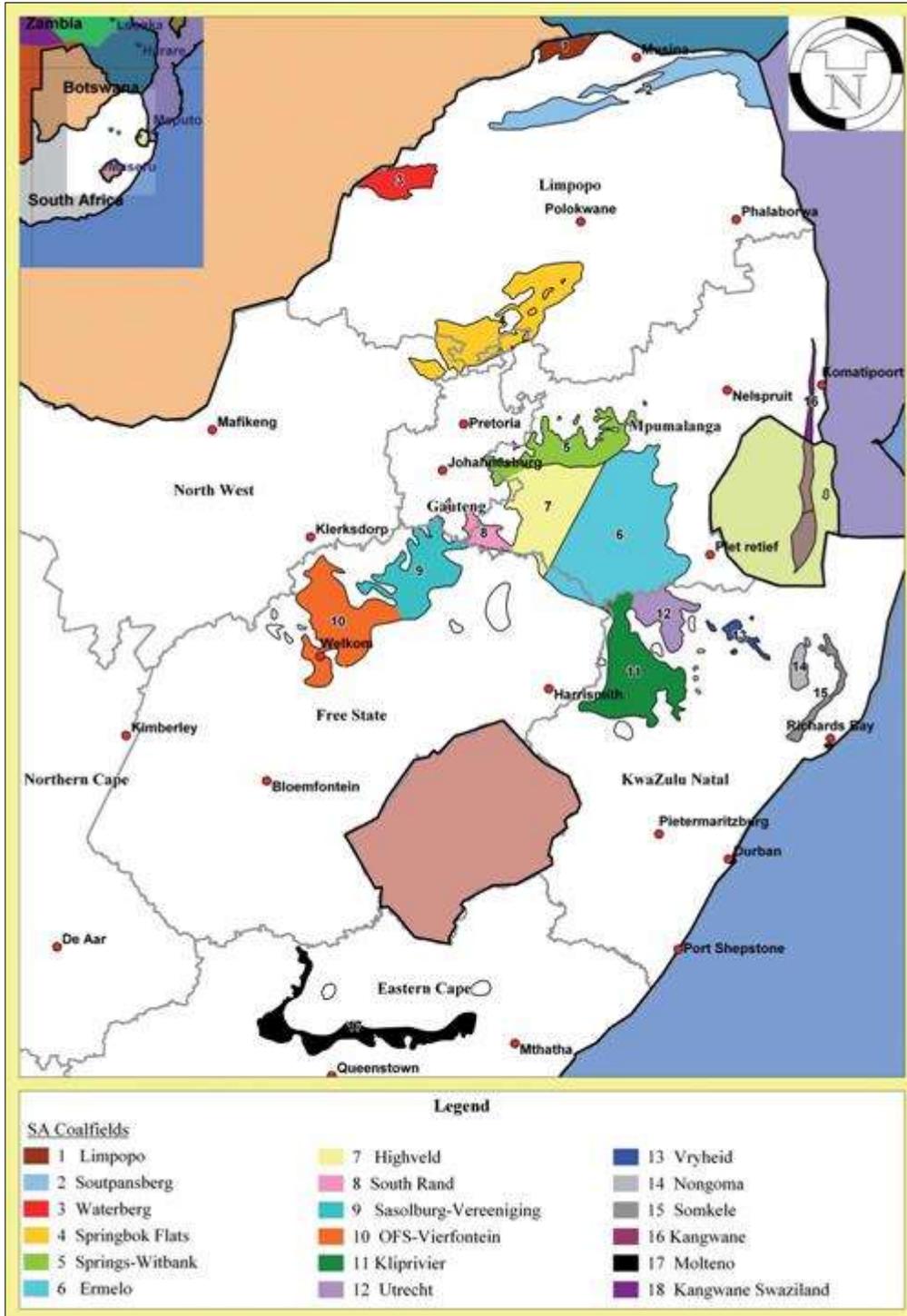


Figure 7: Shows the geology of the proposed South African coalfields (Vryheid in Blue).

The Vryheid Coalfield lies to the east of the Utrecht Coalfield and covers an area of approximately 2 500km². The main coal zone is found within the Vryheid Formation (Middle Ecca) of the Karoo Sequence, resting above the glacial Dwyka Formation. The Dwyka Formation is composed of diamictites and associated fluvio-glacial sandstones and black shales. It averages 150m in thickness, but it is thicker in Pre-Karoo glacial valleys and

thinner or absent over Pre-Karoo highs. Dolerite sills have had a marked effect on the topography of the area. Sedimentary facies are characterized by a series of coal-capped, upward-fining cycles.

This Coalfield has produced some of the best coking coal, anthracite and thermal coal over several years. The rank of the coal varies from moderate to high quality. Historically, Vryheid has locally been a consistent producer of high-quality metallurgical coal and anthracite. Seams have been affected by displacement and devolatilization due to the presence of intrusions.

Nine coal seams have been identified within the main coal zone of the Vryheid Coalfield and several of these have been mined over the last century.

A total of nine discrete seams have been identified in the main coal zone of the Vryheid Coalfield and several of these have been mined over the last century.

TARGAS SEAM (MINOR) - LOWEST:-

The lowest seam, Targas, occurs sporadically and has not been exploited and is generally thin (0.3m)

COOKING SEAM:-

The Coking seam was the first of the seams in the sequence to have been mined. The seam is general thin and rarely exceeds 1.0m. This seam has produced a good quality coking coal, and in some case the raw coal ash content is 7- 8%. The roof of the seam is fairly competent with medium grained sandstone (which forms the parting between this seam and the overlying Dundas Seam exist as an excellent marker bed (Figure 2B); however, the floor is mostly fine grained, micaceous sandstone with grey shale that tends to break up under the mining equipment.

In many localities the No. 1 Seam rests directly on basement along the flanks of palaeovalleys (Stavrakis and Smyth, 1991). Intra-seam sandstone partings are common in the proximal reaches of the coalfield. In the middle of the coalfield the No. 1 Seam comprises a zone composed of bands of coal interbedded with laminated mudstone and siltstone, whereas in the most distal reaches it consists of only a very thin coal, or a carbonaceous or sapropelic mudstone (Stavrakis, 1986). Petrographic studies on the No. 1 Seam undertaken by Smyth (CSIRO, Australia) showed the seam to be comprised of highly laminated coal comprising thin (0.25 mm) vitrinite bands alternating with 0.5 mm bands of clay containing scattered sporinite and inertodetrinite.

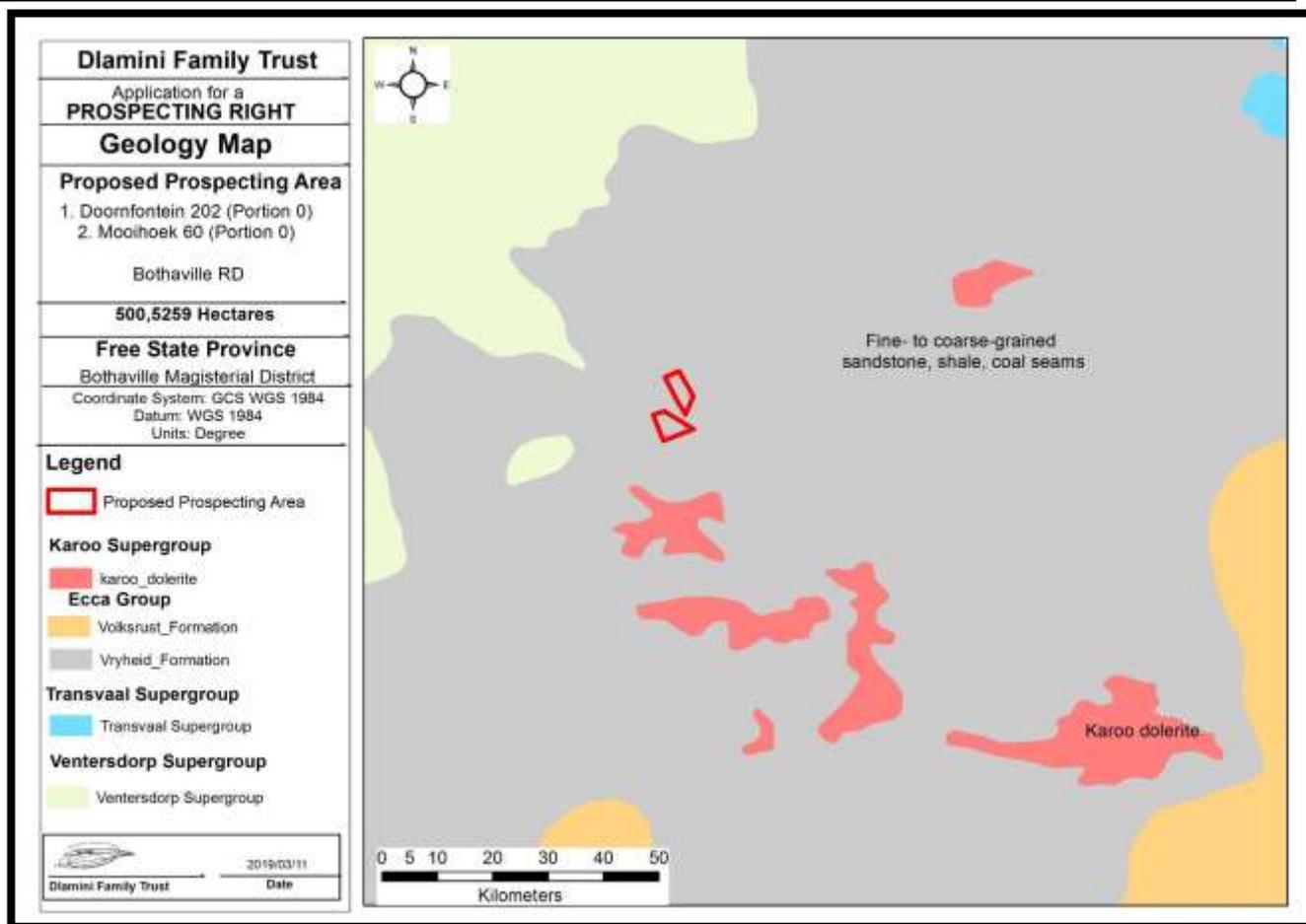


Figure 8: Shows geology of the proposed prospecting area

The No. 2 Seam

The No. 2 Seam (Bottom Seam) occurs some 10-20 m above the No. 1 Seam at the top of Cycle 2 (Supercycle A) of Stavrakis (1986). It is developed over most of the Free State Coalfield and ranges in thickness from 7-12 m. It is the most important seam from an economic perspective and together with the No. 1 Seam comprises over 85% of the coal resources of the Free State Coalfield (Stavrakis, 1986). Where mined at the Vierfontein

Colliery the No. 2 (Bottom) Seam was up to 2.5 m thick and was a dull banded coal with some bright coal stringers, and rare bands of cannel coal. Here both the roof and floor conditions were good, being comprised of a hard sandstone floor and a competent sandstone roof. At Welkom, where the No. 2 (Bottom) Seam can be up to 8 m thick, it is dull to shaley coal, with a thick (2.75 m) siltstone parting towards the bottom of the seam. Floor conditions are considered good, but the nature of the roof is more variable, ranging from carbonaceous mudstone and siltstone through to a fine-grained sandstone.

The No. 3 Seam

The No. 3 (Middle) Seam occurs stratigraphically some 20 m above the No. 2 Seam at the top of Cycle 3 of Stavrakis (1986). In the Free State Coalfield the No. 3 Seam ranges in depth below surface from about 200-500 m, is generally less than 3 m thick, and is of fairly poor quality.

From an area south of the Koppies valley to Hennenman the seam has a high mudstone and sulphur content (up to 6%). The pyrite is framboidal and does not decrease substantially with beneficiation. The immediate roof to the No. 3 Seam is often comprised of glauconitic sandstone.

The No. 4 Seam

The No. 4 (Top) Seam occurs between 2-20 m above the No. 3 Seam in the Free State Coalfield and is not present over large areas. In small isolated sub-basins to the west of the town of Kroonstad it may attain a thickness of between 3-4 m. Where preserved the coal quality is generally better than for the No. 1, 2 and 3 seams. The quality of the No. 4 Seam is strongly controlled by depositional environment, with poor development of the seam in the Theunissen, Virginia, Hennenman, Steynsrus, Edenville and Heilbron valleys. In the southern Theunissen area only a single potentially economic seam (termed the No. 3 Seam) has been reported (Prevost, 2011) as well as a reference to an uneconomic No. 4 Seam. Here the parting thickness between the No. 3 and No. 4 seams is between 20-40 m elsewhere in the coalfield a composite of the No. 2 and No. 3 seams has been referred to.

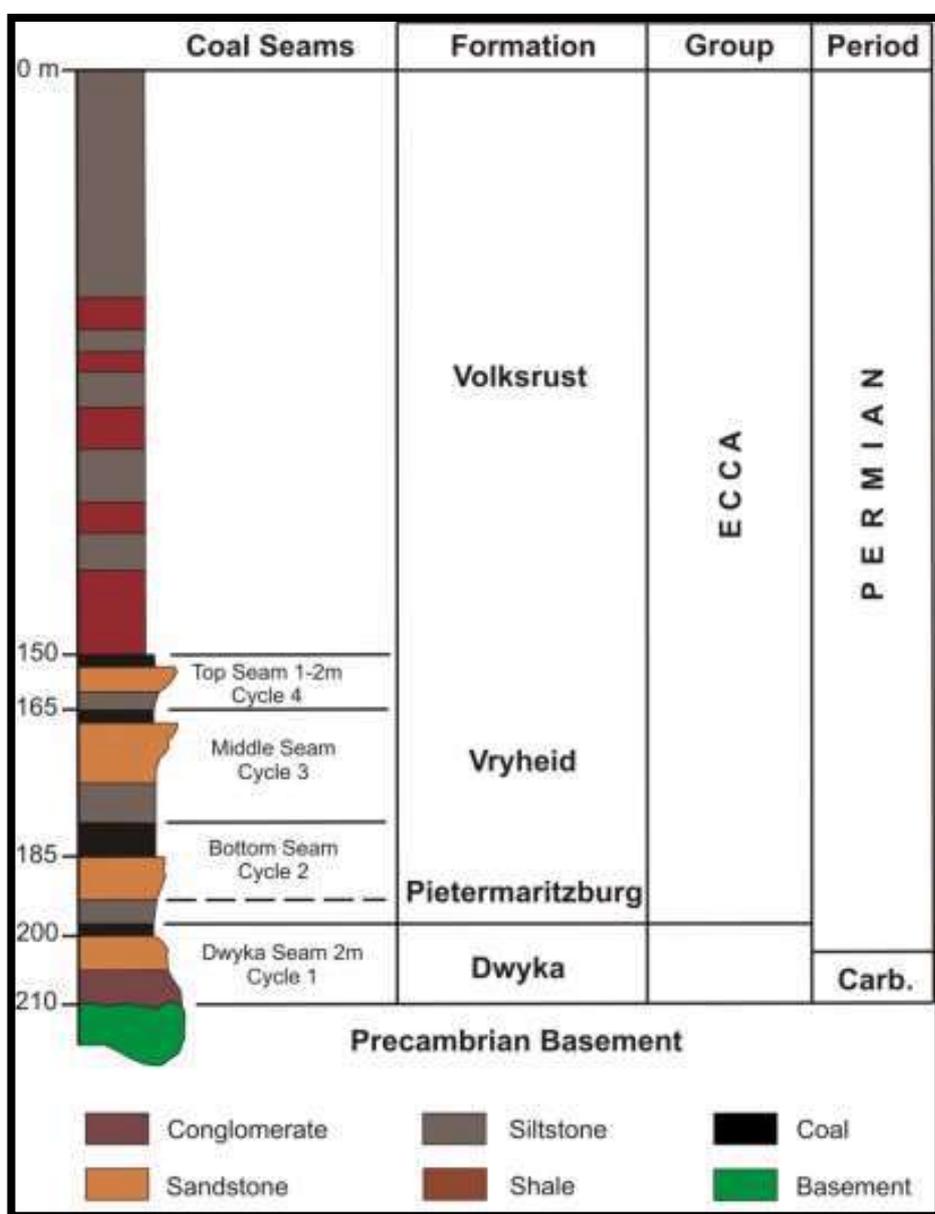


Figure 9: Stratigraphic column of the Free State coalfield

14.1.1.3 Surface Water

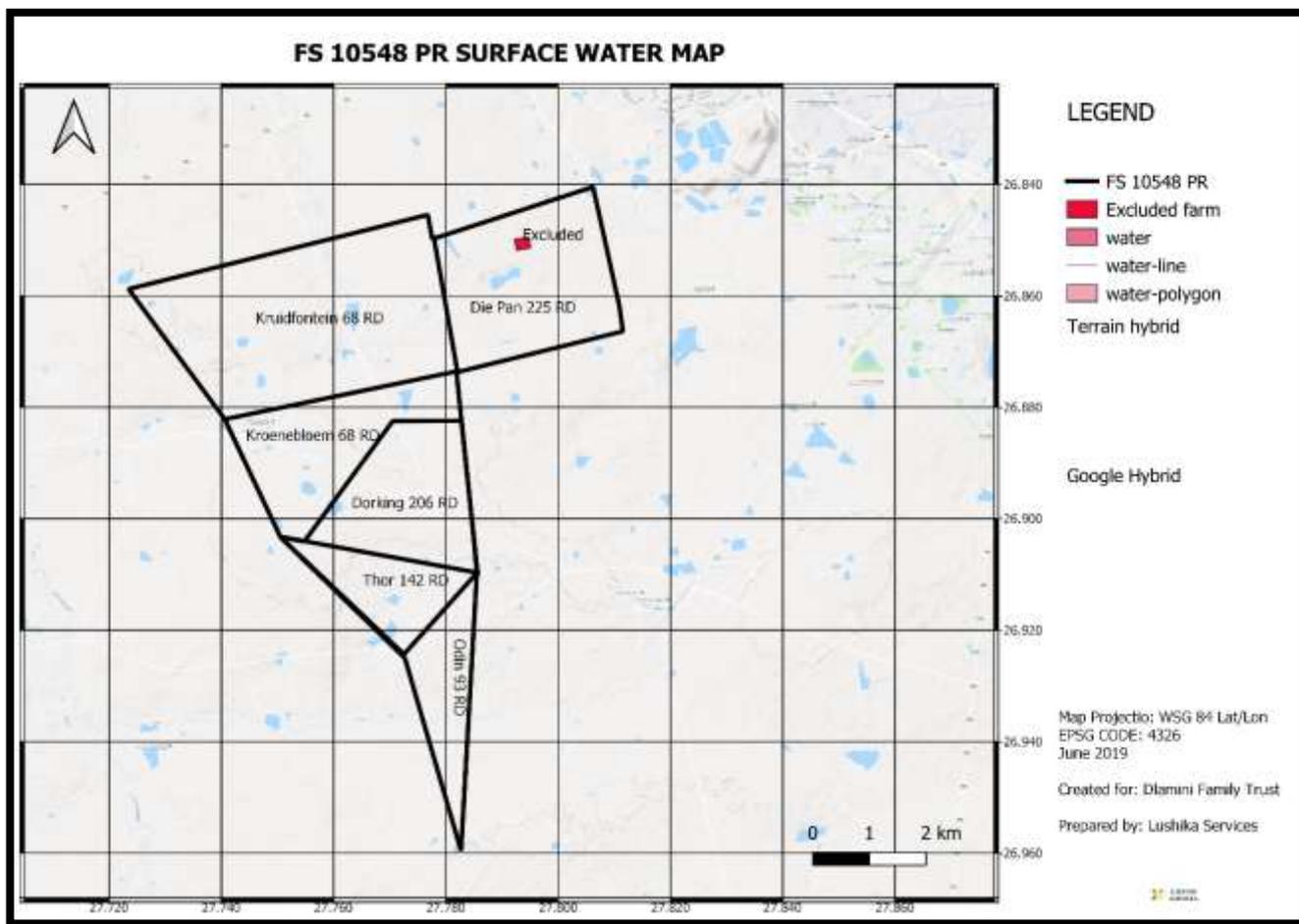


Figure 10: Shows Surface water bodies within the proposed area

The map around the prospecting area shows multiple surface water bodies in a form of ponds, dams and small tributaries.

14.1.1.4 Biodiversity

The proposed prospecting area consist largely of degraded area as the farms have in the past been used for commercial farming. Doornfontein 202 has a small strip which falls under CBA1 and coincides with a channel which flows across the farm.

14.1.2 Socio-economy

14.1.2.1 Spatial context

AbaQulusi Local Municipality is located in the Northern part of KwaZulu-Natal Province and forms part of the Zululand District Municipality. It is named after the AbaQulusi, a Zulu clan whose descendants live in the vicinities of Vryheid, Utrecht, eDumbe and eNgoje. Abaqulusi Municipality comprises of many settlements, both rural and urban, with Vryheid being its main urban settlement/town. Other areas of interest that fall within the boundaries of Abaqulusi also include Louwsburg, eMondlo, Hlobane, Bhekuzulu, etc. It is estimated at 4185km² in extent.

14.1.2.2 Population

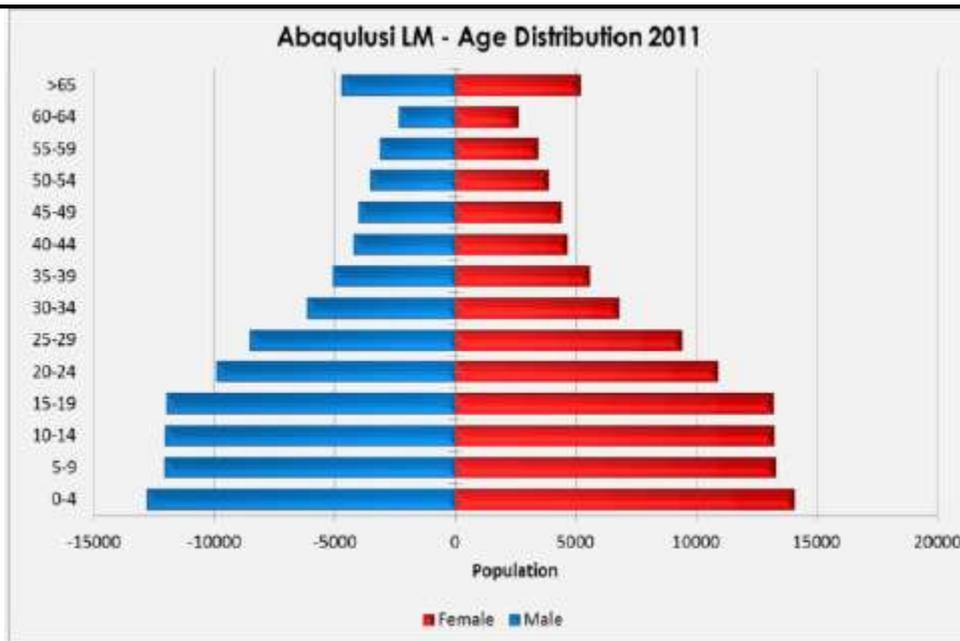
The population of Abaqulusi have been growing steadily since 2001. From 2001 (191 019) to 2011 (211 060) the population of the municipality increased by 20 041 as per Census 2011, with a 1% growth rate per annum. The population density of Abaqulusi Local Municipality as expressed in terms of households per hectare depicts that the population within the municipality is not evenly distributed, within a high population density clustered around the main center of Vryheid. There is a lower population concentration in the smaller urban centers of Hlobane, Louwsburg, eMondlo and Gluckstadt, while the outlying areas of Dlomdlomo, Khambi, Bhukumthutu, Gwebu, Ezibombu, Ezidulini, and Mvuzini all have an even lower population density. The full breakdown of the Abaqulusi population distribution per ward is as follows:

Ward	Population	Ward	Population
1	10006	12	12706
2	8552	13	14248
3	11176	14	8604
4	6977	15	8107
5	10757	16	9417
6	10335	17	11881
7	10947	18	8087
8	4840	19	7440
9	6353	20	11115
10	2707	21	12604
11	11360	22	12852

14.1.2.3 Age Profile

The Abaqulusi Municipality is characterized with a fairly young population based on the table below. However, this places an additional amount of pressure on the municipality in terms of providing employment, educational facilities, health care, etc. The characterization of the Age Distribution is as follows:

Age	Characterization	2011 Sensors	2016 sensors
0-14	Youth	36.8%	37.9%
15-64	Working age	58.5%	57.8%
65+	Elderly	4.7%	4.3%
Total		100	100



14.2 Description of the current land uses.

Land cover information is a crucial reference dataset that informs a wide variety of activities ranging from environmental planning and protection, development planning, economic development, compliance monitoring, enforcement and strategic decision making.

When the global accessibility of Landsat 8 satellite imagery became available, it offered the opportunity to the national land-cover dataset for South Africa, circa 2013-14, which replaced and updated the previous 1994 and 2000 South African National Land cover datasets (GEOTERRAIMAGE, 2015). The 2013-14 National Land cover dataset is based on 30x30m raster cells and is ideally suited for $\pm 1:75\ 000$ - $1\ 250\ 000$ scale GIS-based mapping and modelling applications.

From the national 2013-14 National land cover dataset, the majority of the study area is located on cultivated commercial fields, with some grassland and plantation areas.

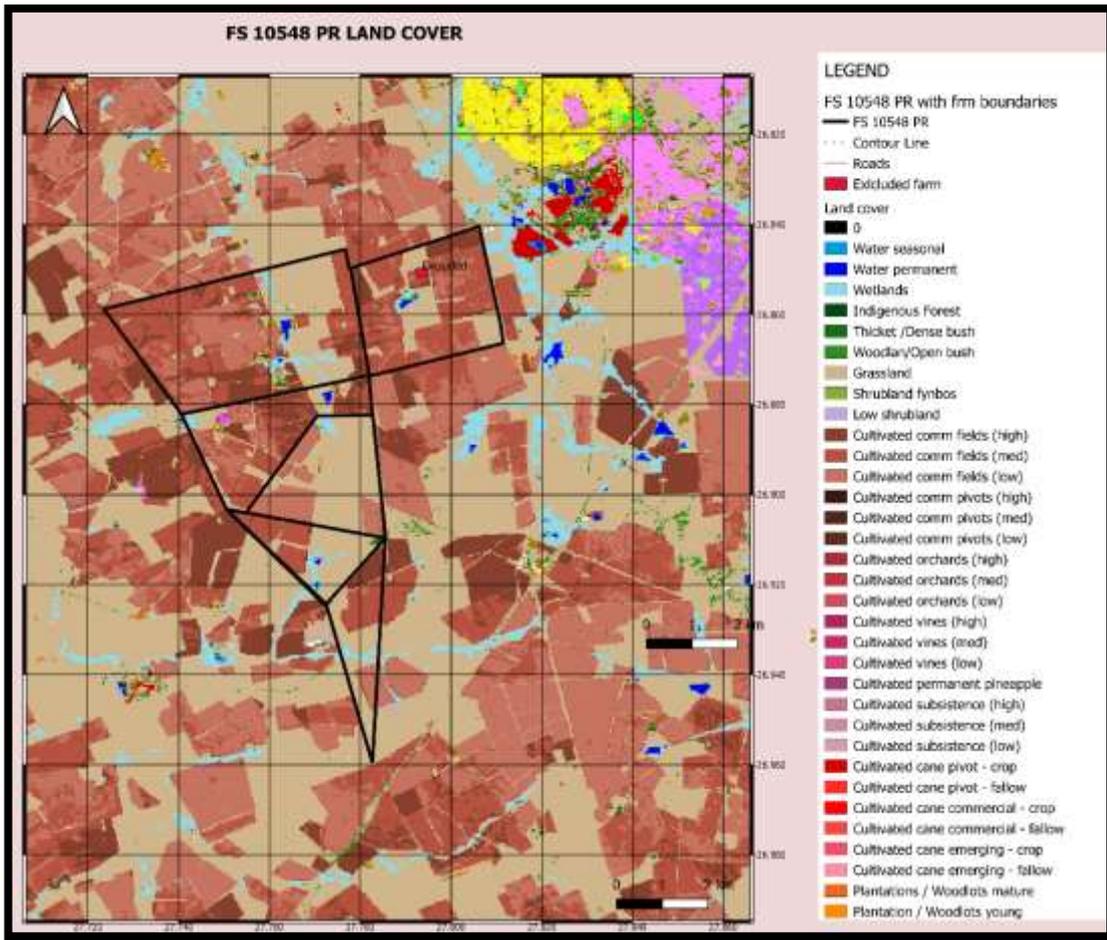


Figure 11: Land cover map for the proposed prospecting right application area.

14.3 Description of specific environmental features and infrastructure on the site.

The current infrastructure on the site are mostly related to the agricultural operations and include farm offices, houses, storerooms, feedlots etc. other infrastructure include telephonic and electric cables (transmission towers), access rad. Only the access road will be disturbed by the proposed prospecting activities.

In terms of the environmental features, refer to Baseline Environment section above.

14.4 Environmental and current land use map.

(Show all environmental, and current land use features)

The map is used for Agricultural purposes and some farm houses.

15 IMPACTS AND RISKS IDENTIFIED

Table 4: Impacts identified

Impacts	Phase	Description
Flora	Establishment	Destruction / loss of indigenous natural vegetation due to site preparation activities.
Fauna	Establishment, Operational	Disturbance of species habitats (i.e. snake holes, spiders, reptiles, etc.)
Groundwater	Establishment and Operational	Spillage of fuels, lubricants and other chemicals
Geology	Operational	Removal of rocks and debris for analysis, disturbance of local geological formation.
Soils	Establishment and operational	Disturbance of soils during site clearance and during drilling operations
Air Quality	Establishment and Operational	Dust stemming from drilling and vehicles going to site
Traffic	Establishment and decommissioning	Increase of traffic in the area as vehicles access and exit the site
Noise nuisance	Establishment and Operational	Noise caused by moving vehicles and drill rigs
Economic	Operational	Project expenditure (incl. direct capital investment)
Visual	Establishment, Operational and Decommissioning	Visual disturbances with all the vehicles, signs and drilling rigs.
Cultural/Heritage - historical	Establishment and Operational	Disturbance of artefacts of cultural and heritage importance (i.e. unidentified grave sites).
Waste	Establishment and Operational Phase	Generation of solid waste on site.

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

(Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

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:

- **Status:** determines whether the potential impact is positive, negative, or neutral (i.e. no perceived cost or benefit to the environment). A positive impact will have a low score value as the impact is considered favourable to the environment;
- **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:** Indicates what the lifetime of the impact will be;
- **Severity:** quantifies the impact in terms of the magnitude of effect on environment (receptor) and is derived by consideration of points 1, 2 and 3 above; and
- **Probability** – quantifies the impact in terms of the likelihood of the impact occurring on a percentage scale of <5% (improbable) to >95% (definite).

Table 5: Status of impact

Rating	Description	Quantitative Rating
Positive	A to the receiving environment (positive impact)	+
Neutral	No determined cost or benefit to the receiving environment	N
Negative	At cost the receiving environment (negative impact)	-

Table 6: Extent of Impacts

Rating	Description	Quantitative Rating
Very Low	Site specific – Impacts confined within the project site boundary	1
Low	Proximal – Impacts extend to within 1 km of the project site boundary	2
Medium	Local – Impacts extend beyond to within 5 km of the project site boundary	3
High	Regional – Impacts extend beyond the site boundary and have a widespread effect- i.e. >5 km from project site boundary	4
Very High	Global – Impacts extend beyond the site boundary and have a national or global effect	5

Table 7: Duration of impacts

Rating	Description	Quantitative Rating
Very Low	Project duration – impacts expected only for the duration of the project or not greater than 1 year	1
Low	Short term – impacts expected on a duration timescale of 1 to 2 years	2
Medium	Medium term – impacts expected on a duration timescale of 2-5 years	3
High	Long term – impacts expected on a duration timescale of 5-15 years	4
Very High	Permanent – impacts expected on a duration timescale exceeding 15 years	5

Table 8: Severity of Impacts

Rating	Description	Quantitative Rating
Very Low	Negligible – zero or very low impact	1
Low	Site specific and short-term impacts	2
Medium	Local scale and / or short-term impacts	3
High	Regional and / or long-term impacts	4
Very High	Global scale and / or permanent environmental change	5

Table 9: Probability of impacts

Rating	Description	Quantitative Rating
Highly Improbable	Likelihood of the impact arising is estimated to be negligible; <5%.	1
Improbable	Likelihood of the impact arising is estimated to be 5-35%.	2
Possible	Likelihood of the impact arising is estimated to be 35-65%	3

Probable	Likelihood of the impact arising is estimated to be 65-95%.	4
Very High	Likelihood of the impact arising is estimated to be > 95%.	5

These five criteria are combined to describe the overall significance rating (Table 10). Calculated significance of impact – determines the overall impact on (or risk to) a specified receptor and is calculated as: the product of the probability (P) of the impact occurring and the severity (S) of the impact if it were to occur (Impact = P × S). This is a widely accepted methodology for calculating risk and results in an overall impact rating of Low (L), Low/Medium (LM), Medium (M), Medium/High (MH) or High (H). The significance of a particular impact is depicted in and assigned a particular colour code in relation to its severity (Table 11).

Table 10: Significance of Impacts

Rating	Description	Quantitative Rating
Low	P x S=1-3 (low impact significance)	L
Low/Medium	P x S= 4-5 (low/medium impact significance)	LM
Medium	P x S=6-9 (medium impact significance)	M
Medium High	P x S=10-14 (medium/high impact significance)	M/H
High	P x S=15-25 (High impact significance)	H
Positive	P x S= (Positive impact significance)	Positive

Table 11: Perceived Significance of Impacts

Probability (P)	Severity (S)				
	1	2	3	4	5
1	L	L	L	LM	LM
2	L	LM	M	M	MH
3	L	M	M	MH	H
4	LM	M	MH	H	H
5	LM	MH	H	H	H

The impact significance rating should be considered by authorities in their decision-making process based on the implications of ratings ascribed below:

- **Insignificant:** the potential impact is negligible and will not have an influence on the decision regarding the proposed development;
- **Low:** the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed development;
- **Low/Medium:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity/development;
- **Medium:** the potential impact should influence the decision regarding the proposed activity/development;
- **Medium/High:** the potential impact will affect the decision regarding the proposed activity/development; and
- **High:** the proposed activity should only be approved under special circumstances.

Practicable mitigation and optimisation measures are recommended and impacts are rated in the prescribed way both without and with the assumed effective implementation of the recommended mitigation (and/or optimisation) measures. Mitigation and optimisation measures are either:

- Essential: measures that must be implemented and are non-negotiable; or
- Best Practice: recommended to comply with best practice, with adoption dependent on the proponent’s risk profile and commitment to adhere to best practice, and which must be shown to have been considered and sound reasons provided by the proponent if not implemented.

15.2 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.

(Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties).

Table 12 Positive and Negative impacts

Impacted Environment	Impact	Status of impact
ESTABLISHMENT PHASE		
Fauna and Flora	Destruction / loss of indigenous natural vegetation and plant species during site preparation	Negative
	Impact on animal species	Negative
	Establishment and spread of declared weeds and alien invader plants	Negative
Groundwater	Damage/contamination of groundwater resulting in hydrological impacts	Negative
Air Quality	Dust emissions	Negative
Surface water	Deterioration of surface water from contaminated top soil run-off	Negative
Noise generation	Nuisance to surrounding landowners	Negative
	Disturbance of animals in surrounding game lodges	Negative
Soils	Physical disturbance of soils during land clearing	Negative
Socio Economic	Direct employment and skills development	Positive
Visual aspect	Visual Disturbance (vegetation clearance and temporary infrastructures including equipment on site)	Negative
Cultural/Heritage-historical resources	Potential impact on heritage and archaeological resources	Undetermined at this stage
Waste generation	Generation of solid waste (e.g. littering)	Negative
Traffic	Increase of traffic in the area as vehicles access the sites	Negative
OPERATIONAL PHASE		
Soils	Physical disturbance of soils during land clearing	Negative
Social	Disturbance of surrounding landowners and local businesses	Negative
	Direct employment and skills development	Positive
Water resource	Damage to groundwater and surface water resulting in hydrological impacts	Negative
Geology	Physical removal of rock material for logging and sampling purposes during drilling phase	Negative
Noise generation	Nuisance to surrounding landowners and local businesses	Negative
	Disturbance of animals	Negative
Cultural-historical resources	Potential impact on heritage resources and archaeological resources	Undetermined at this stage
DECOMMISSIONING		
Air quality	Dust emissions	Negative
Soil	Soil degradation	Negative
Noise generation	Nuisance to surrounding landowners	Negative
	Disturbance of wild animals on surrounding farms	Negative
Traffic	Increase of traffic in the area as vehicles exit the site	Negative

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

(With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/ discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

The mitigation measures have addressed in the Section 16 under Environmental Impact Assessment

15.4 Motivation where no alternative sites were considered.

Minerals are site specific and accordingly alternative sites were not selected for this project. Furthermore, alternative sites may already have an existing prospecting or mining right which limits sites for the applicant. If prospecting does not indicate the desired mineral to be mined, alternative sites will be considered by the applicant. All sensitive features have been considered and will be excluded from the prospecting activities.

15.5 Statement motivating the alternative development location within the overall site.

(Provide a statement motivating the final site layout that is proposed)

Since exploration is temporary in nature no permanent structures will be constructed, negotiations and agreements will be made with the farm owners to use any existing infrastructure like accommodation for the explorers, access roads and other things like workshops. In addition to the information provided, each of the phases is dependent on the results and success of the preceding phase. The location and extent of soil sampling and possible drilling will be determined based on information derived from the geophysics surveys. Sampling and drill sites will be selected to avoid water courses where practicable.

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

(In respect of the final site layout plan) through the life of the activity. (Including (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

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

- The stakeholder consultation process is currently undertaken in a manner to be interactive, providing landowners and identified stakeholders with the opportunity to provide input into the project. This is a key focus, as the local residence has capabilities of providing site specific information, which may not be available in desktop research material. Stakeholders are requested to provide their views on the project and any potential concerns which they may have. All comments and concerns are captured and formulated into the impact assessment.

- 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:
 - Detailed mapping based on existing data sources applicable to the study area
 - Geographic Information System base maps;
 - Literature and existing data/reports for the study area
- A site visit was conducted on the 06 of April 2019. The site visit was to ensure that the information gathered as part of the Desktop investigation reflects the current status of the land.
- 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 the outcomes of the calculation to determine whether the outcome reflects the perceived and the actual views.
- The identification of management measures are done based on the significance of the impacts and measures that have been considered appropriate and successful, specifically as Best Practical and Economical Options.

16 ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK

(This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties).

Table 13: Impact Assessment

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	SIGNIFICANCE If not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
Site Establishment and drilling.	Disruption/alteration of ecological life cycles) due to noise, dust and lighting	Flora and fauna	Medium (-)	<ul style="list-style-type: none"> Equipment with low noise emissions must be used. A dust monitoring system should be implemented. Reduce exterior lighting to that necessary for safe operation, and implement operational strategies to reduce spill light. Keep noise levels down as per the local municipality or national standards. 	Low (-)
Drill site	Loss of natural habitat/sensitivity	Flora and fauna	High (-)	<ul style="list-style-type: none"> Clearings associated with core drilling should occur in as small a footprint as possible. The surrounding natural area that is not part of the layout design may not be disturbed or damaged. The site camps and laydown areas should be located in low sensitivity areas and should be demarcated. Core drilling should occur within disturbed areas or areas indicated as low sensitivity. Drilling should not take place within 30m of a watercourse/wetland. Re-vegetation where required after clearance should commence immediately after drilling. An environmental induction for all staff members must be mandatory. 	Low (-)
Prospecting operational activities	Staff and drilling contractors poaching and hunting fauna	Fauna and flora	Medium (-)	<ul style="list-style-type: none"> An environmental induction for all staff members must be mandatory. No animals may be harmed or killed during the operation of this project. Several staff members should complete a snake handling course in order to safely remove snakes from designated areas. Snakes should only be handled after inductions have taken place due to the risks of envenomation. 	Low (-)
Access roads, site establishment	Fauna mortality due to collisions with vehicles	Flora and fauna	Medium (-)	<ul style="list-style-type: none"> An environmental induction for all staff members must be mandatory. All vehicle speeds associated with the project should be monitored and should be limited to 40 km/h (maximum). The ECO should monitor live animal observations in order to monitor trends in animal populations and thus implement proactive adaptable mitigation of vehicle movements. 	Low (-)
Drilling	Fauna mortality due to vegetation and ground clearing	Fauna and flora	Medium (-)	<ul style="list-style-type: none"> An environmental induction for all staff members must be mandatory. Should holes or burrows be located at the drilling sites, it is suggested to either avoid these areas, or if this is not possible, to contact a zoological specialist to investigate and possibly remove any species located within them. Layout design should exclude natural areas, especially breeding habitat 	Low (-)
Drilling	Disruption/alteration of ecological life cycles) due to noise, dust and lighting	Flora and fauna	Medium (-)	<ul style="list-style-type: none"> Equipment with low noise emissions must be used. A dust monitoring system should be implemented. 	Low (-)

				<ul style="list-style-type: none"> Reduce exterior lighting to that necessary for safe operation, and implement operational strategies to reduce spill light. Keep noise levels down as per the local municipality or national standards. 	
Drilling	Alien Invasive species management	Fauna and Flora	Medium (-)	<ul style="list-style-type: none"> An environmental induction for all staff members must be mandatory. Alien vegetation control should take place during all phases of the proposed operation. Disturbance of natural areas should be avoided and the spread of alien flora into natural areas should be controlled. Continuous monitoring of the growth and spread of alien and invasive flora coupled with an adaptive management approach to identify suitable control mechanisms (e.g. mechanical, chemical or biological control). Mechanical control is preferred for this project. Cleaning of vehicles and equipment before entering natural areas to remove large deposits of foreign soils and plant material sourced from elsewhere 	Low (-)
Drilling	Loss of wetland habitat	Aquatic and wetlands	High (-)	<ul style="list-style-type: none"> Prospecting activities undertaken within a watercourse or buffer area as determined by wetland specialist will result in application of a water use licence. Driving through wetland areas must be avoided when navigating towards drilling locations. All wetlands and associated 30 m buffer areas should be avoided If not possible, the soil disturbance and clearance of vegetation at drill pad areas must be limited to the absolute minimum required. 	Low (-)
	Hydrocarbon spillage	Aquatic and wetlands	High (-)	<ul style="list-style-type: none"> Vehicles and equipment must be regularly serviced and maintained. Refuelling of vehicles and equipment must be done with care to minimise the chance of spillages. A spill kit must be available on each site where prospecting activities are in progress. Any spillages must be cleaned up immediately to prevent further contamination 	Low (-)
	Destruction of graveyards/graves	Heritage	Medium (-)	Avoid destroying or damaging any graves/graveyards during prospecting operations. All graves/graveyards must be protected <i>in situ</i> .	Low (-)
Socio-economic	Creation of temporary jobs	Economic	Positive		Positive
	Determining viability of economic resources	Socio-economic	Positive		Positive
	Investment and growth in the local economy	Socio-economic	Positive	Drilling contractors must use local companies to cater for their needs during the drilling activities (i.e. accommodation and food).	
Drilling decommissioning and	Disturbance of landowner's daily operations.	Socio-economic	Medium (-)	<ul style="list-style-type: none"> Personnel are not permitted on other properties without permission. No interference with daily farm operations. Compensate the landowner where necessary 	Low (-)
Drilling	Surrounding neighbours	Socio-economic	Medium (-)	<ul style="list-style-type: none"> Personnel are not permitted on other properties without permission. Avoid conflict with surrounding landowners 	Low (-)
Drilling	Spillage of hydrocarbons and other chemicals	Groundwater	Medium/High	<ul style="list-style-type: none"> Regular service of vehicles and machinery. No storage or service of vehicles/machinery close to wetlands/watercourse. Monitoring of groundwater during drilling 	Low (-)

Drilling	Generated from vehicles movements and drilling activities	Dust Pollution	Medium (-)	<ul style="list-style-type: none"> The removal of vegetation will be minimized during stripping to reduce the effects of dust pollution. Dust monitoring must be undertaken should dust emitted exceed the ambient dust levels. 	Low (-)
Drilling	Permanent removal of potential ore material and geological formations	Geology	High (-)	<ul style="list-style-type: none"> Return cores that was drilled as material for drill hole rehabilitation. 	Medium (-)
Decommissioning	Loss of Temporary job	Socio-economic	High (-)	<ul style="list-style-type: none"> Train temporary personnel above management skills that can be transferred to other available jobs 	Medium (-)
	Rehabilitation of drill sites	Flora and fauna	Medium/High	<ul style="list-style-type: none"> Site must be rehabilitated as close as possible to its pre-drilling conditions 	Low (+)

a) Summary of specialist reports.

(This summary must be completed if any specialist reports informed the impact assessment and final site layout process and must be in the following tabular form):-

Table 14: Identified specialist studies

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Archaeological Assessment	From a heritage perspective, the proposed prospecting development may be allowed to proceed subject to the following recommendations; <ul style="list-style-type: none"> • The prospecting teams must be inducted on the possibility of encountering archaeological resources that may be accidentally exposed during clearance and construction at the mining site prior to commencement of work on the site in order to ensure appropriate mitigation measures and that course of action is afforded to any chance finds in accordance with the Chance Find Procedure. • The Archaeology, Palaeontology and SAHRA Meteorites Unit is alerted when site work begins. • Strict and clear reporting procedures for chance finds must be followed by DFT and its contractors throughout the whole period of mining. 	X	Table 15

16.1 Environmental impact statement

16.1.1 Summary of the key findings of the environmental impact assessment

The findings are that the proposed prospecting activities will result in low to medium impact in all aspects of the physical and socio-economic environment. Low impact in terms of disturbances such as dust, lighting and noise may arise from the drilling. All natural areas including watercourses/wetlands and primary vegetation should be excluded from drilling sites; all historical features such as buildings and graves/graveyards should be excluded from drilling sites. There is a risk of hydrocarbon pollution due to leakage from vehicles and machinery, but this can be managed and mitigated to acceptable levels.

Monitoring of the required mitigation measures is to take place on site at a continuous basis by the project manager, contractors and ECO. Annual monitoring audits are to take place by an appointed independent environmental assessment practitioner.

16.1.2 Final Site Map

Provide a map at an appropriate scale which superimposes the proposed overall activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. Attach as **Appendix**

The exact location of drilling points have been identified and attached as appendix 3. The sensitive areas will be identified during the planning phase of the project and no activities will be undertaken at any sensitive area. A detailed map can be produced after the geophysical surveys has been undertaken, although the map will be subjected to changes depending on the results of the preliminary drilling and assaying. Preliminary drilling points have been identified by the geologist, however, the points are subject to changes depending on the desktop and geophysical studies planned.

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

Positive and negative impacts associated with the proposed prospecting activities include:

- Destruction / loss of indigenous natural vegetation during site preparation;
- Impacts on plant species of concern during site preparation;
- Impacts on fauna;
- Establishment and spread of declared weeds and alien invader plants;
- Physical disturbance of soils during land clearing;
- Dust emissions;
- Disturbance of the geological formation due to removal of rock material;
- Direct employment and skills development;
- Impact on groundwater system during invasive phase of the proposed development;
- Impact on surface water;
- Visual Disturbance ;

- Physical disturbance of soils during land clearing;
- Disturbance of surrounding landowners activities and/or livelihoods;
- Direct employment and skills development; and
- Potential impacts on heritage resources and archaeological resources

The proposed activities have low significance since these are short term activities, however socio-economic impacts such as employment has a medium significance. The probability of occurrence of an impact was determined and most of these activities can be controlled and impacts can be reduced or avoided. Generally prospecting activities have low impact on the environment. The planned activities negative impacts can be controlled and avoided or minimised therefore the layout does not require revision. Mitigation measures will be utilised to control, avoid and/or minimise all identified potential impacts.

17 PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPR

Based on the assessment and where applicable the recommendations from specialist reports, the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation.

Impact management objectives are described in terms of the Mitigation Hierarchy of the Lushika Services 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 placing 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, installation of noise silencers, operate in daylight hours).
- **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 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 resources, recreation and amenity space)

The EMPr will seek to achieve a required end state and describe how activities could have an adverse impact on the environment will be mitigated, controlled and monitored. The EMPr will address the environmental impacts during the Site establishment, Operational, and Decommissioning Phases of the proposed project. Due regard will be given to environmental protection during the entire project. A number of environmental recommendations will therefore be made to achieve environmental protection. The environmental and social objectives will be set to allow prospecting in an environmental and socially responsible manner while ensuring that sustainable closure can be achieved. To achieve closure, the correct decisions need to be taken during the planning phase of the project.

The overall goal for environmental management for the proposed is to construct and operate the project in a manner that:

- Minimises the ecological footprint of the project on the local environment;
- Facilitates harmonious co-existence between the project and other land uses in the area;
- Contributes to the environmental baseline and understanding of environmental impacts of Prospecting activities in a South African context.

The following environmental management objectives are recommended for the proposed mineral prospecting development and associated infrastructure:

- Monitor soils so as to avoid unnecessary erosion, and implement erosion control measures to preserve the quality of the soil for rehabilitation;
- Development planning must restrict the area of impact to minimum and designated areas only;
- Monitor and prevent contamination, and undertake appropriate remedial actions;
- Limit the visual and noise impact on receptors;
- Avoid impact on possible heritage and archaeological resources;
- Promote health and safety of workers; and
- Limit dust and other emissions to within allowable limits.

18 ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION.

Any aspects which must be made conditions of the Environmental Authorisation

Dlamini Family Trust (Pty) Ltd (DFT) should comply with all Environmental legislations. Specific environmental legislation to be adhered to include; National Environmental Management Act, Act 107 of 1998 (NEMA) as amended in 2017 and Minerals and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA)

- Notice must be given to landowners and surrounding landowners 1 month prior to any prospecting activities;
 - Landowners and land occupiers should be engaged (re-consulted) at least 1 month prior to any site activities being undertaken once drill sites are known;
 - A map detailing the drilling locations should be provided to the landowners as well as the DMR prior to commencement of prospecting activities;
 - A record must be kept of the implementation of the EMPr measures and monitoring of the efficiency of the implemented measures;
 - A buffer of 32m from wetlands and 100m from streams should be established during the site establishment and operational phase;
 - Measures and recommendations suggested by specialist should be followed;
 - An Environmental Control Officer should be appointed to do regular monitoring as suggested in the EMPr;
 - All graves/graveyards should be protected in situ and a 30m buffer area should be applied where no prospecting activities may take place;
 - All wetlands and watercourses should be protected in situ and a 30m buffer area should be applied where no prospecting activities may take place;
- The combined sensitivity map should be followed where no activity may take place within high sensitive areas; and

- Rehabilitation of drill holes should take place immediately after work has ceased and should be done in a responsible manner.

19 DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE.

(Which relate to the assessment and mitigation measures proposed)

- The EAP does not accept any responsibility in an event that additional information comes to light at a later stage of the process
- All information provided by the EAP was correct at the time it was provided
- The data from unpublished researches is valid and accurate
- The scope of this investigation is limited to accessing the potential environmental impacts associated with the proposed project;
- The public participation process has sought to involve key stakeholders and individual landowners. It is assumed that where participation has been sought from the organisational representative/s, that these parties have the authority to comment on behalf of their organisation;
- Third party information provided by the applicant is correct at the time of writing this report;
- Prospecting activities will take place in Phases and each phase is determined and dependent on the previous phase. Accordingly, the final drilling locations will only be determined later.

20 REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

20.1 Reasons why the activity should be authorized or not.

No fatal flaws were identified in terms of this project as long as the mitigation and recommendations proposed are adhered to. The impact assessment indicated no critical issues that cannot be lowered to an acceptable level through the suggested mitigation measures, resulting in a fatal flaw. All sensitive areas identified throughout the process will be excluded from the proposed development.

Coal is still a strategic mineral in South Africa; even though there has been pressure to reduce the carbon footprint of the country and the energy sector is phasing out coal as the primary energy source in the country. Alternative energy sources such as renewable energy is expected to dominate the energy market by 2050, but until then coal is still a major part of the local and international economy.

It is recommended by the EAP that the proposed prospecting could be authorised, on the assumption that the environmental and social management commitments included in this BA/EMPr are adhered to, the project description remains as per the description provided in this document and considering the positive social impacts associated with the project. It should also be ensured that proper rehabilitation is provided for and that risks are controlled by having emergency plans in place.

20.2 Conditions that must be included in the authorisation

Based on the site investigations and analysis of the EAP it is suggested that the proposed activity should be authorised due to the following:

- Monitoring of the required mitigation measures is to take place on site daily by the site Geologist, Annual monitoring audits are to take place by an appointed independent Environmental Assessment Practitioner (EAP) to compile the required annual environmental compliance report required by the DMR;
- The environmental impacts associated with the limited drilling activities are minimal provided that the proposed mitigation measures are implemented;
- The desktop studies have proven that the site is located on a mineralized zone, prospecting activities must be undertaken to confirm the ore reserves;
- The option of not approving the activities will result in a significant loss to valuable information regarding the status of the ore bodies present on these properties;
- In addition to this, should economical reserves be present and the applicant does not have the opportunity to prospect, the opportunity to utilize these reserves for future phases will be lost as well;
- With appropriate care and consideration, the impacts resulting from drilling can be suitably avoided, minimised or mitigated;
- It has also been noted that mining sector is the pillar of South African economy and also provides employment opportunities for many; and
- A buffer of 32 m from wetlands and 100m from streams should be established during the operational phase.

21 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED.

The Prospecting Right has been applied for a period of five (5) years. The Environmental Authorisation should therefore allow for the five years of prospecting and one year for decommissioning and rehabilitation.

22 UNDERTAKING

Confirm that the undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic assessment report and the Environmental Management Programme report.

The EAP undertakes that the information provided is correct, and that the comments and inputs from stakeholders and Interested and Affected parties have been correctly recorded in the report.

23 FINANCIAL PROVISION

State the amount that is required to both manage and rehabilitate the environment in respect of rehabilitation.

Operational rehabilitation has been catered for in budget lodged with the application in the PWP. In terms of the decommissioning rehabilitation (Rehabilitation quantum) the amount to be provided by bank guarantee or cash deposit is **R 72 446.**

23.1 Explain how the aforesaid amount was derived.

CALCULATION OF THE QUANTUM							
Applicant: EAP	Dlamini Family Trust Lushika Services (Pty) Ltd		Ref Number: Date:	FS 30/5/1/1/2/10548 PR Aug-19			
No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	16	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	228	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	336	1	1	0
3	Rehabilitation of access roads	m2	500.00	41	1	1	20500
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	395	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	216	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	455	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0	238697	1	1	0
7	Sealing of shafts adits and inclines	m3	0	122	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	159131	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	198195	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	575653	1	1	0
9	Rehabilitation of subsided areas	ha	0	133249	1	1	0
10	General surface rehabilitation	ha	0.247	126059	1	1	31136.573
11	River diversions	ha	0	126059	1	1	0
12	Fencing	m	0	144	1	1	0
13	Water management	ha	0	47931	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	16776	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum	0			1	0
Sub Total 1							51636.573
1	Preliminary and General		6196.38876		weighting factor 2 1		6196.38876
2	Contingencies			5163.6573			5163.6573
Subtotal 2							62996.62
VAT (15%)							9449.49
Grand Total							72446

Figure 12: Dlamini Family Trust quantum calculations.

23.2 Confirm that this amount can be provided for from operating expenditure.

(Confirm that the amount, is anticipated to be an operating cost and is provided for as such in the Mining work programme, Financial and Technical Competence Report or Prospecting Work Programme as the case may be).

The Applicant has direct access to sufficient financial resources required as per the budget to enable it to conduct the proposed prospecting operation optimally in accordance with the Prospecting Work Program. The applicant has provided proof of financial ability during the application phase on the DMR SAMRAD system.

24 SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

24.1 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:-

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

Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as an Appendix.

Current land uses inside the prospecting area, such as grazing, may be temporarily impacted through the presence of the fenced areas that drill rigs will operate within. These are however, small areas. These areas will be rehabilitated post drilling activities and the areas will once again become available for grazing. The farmers raised issues like leaving the gates open and opening of many access roads.

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

Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act, attach the investigation report as **Appendix 2.19.2** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6. and 2.12. herein).

Mitigation measures proposed in this report include that no drill site will be located within 100 m of any identified heritage site (which may occur during the prospecting programme) based on the desktop work undertaken. Should any paleontological or cultural artefacts be discovered work at the point of discovery must stop, the location be clearly demarcated and SAHRA and LIHRA contacted immediately. Work at the discovery site may only be recommenced on instruction from SAHRA.

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

(the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist. The EAP must attach such motivation as **Appendix**).

This Final BAR and EMPr has been compiled in accordance with the NEMA (1998), EIA Regulations (2014, amended April 2017) and MPRDA (2002). The EAP managing the application confirms that this BAR and EMPr is being submitted for Environmental Authorisation in terms of the National Environmental Management Act, 1998 in respect of listed activities that have been triggered by application in terms of the Mineral and Petroleum Resources Development Act, 2002 (MPRDA) (as amended). Should the DMR require any additional information, this will be provided upon request. No reasonable or feasible alternatives exist for this Prospecting Right Application and as such, motivation for no alternatives has been provided in the relevant sections above.

PART B
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1 DETAILS OF THE EAP

(Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required).

The details of the EAP are provided in section 1.1 of part A of this document.

2 DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

(Confirm that the requirement to describe the aspects of the activity that are covered by the final environmental management programme is already included in PART A, section (1)(h) herein as required). The requirement to describe the aspects of the activity that are covered by the final environmental management programme is already included in PART A.

3 COMPOSITE MAP

(Provide a map (**Attached as an Appendix**) at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers)

There is no composite map given the phased activities required to determine the location of the drilling holes. Once the drilling holes have been determined and the temporary infrastructure location has been determined can a composite map be created. The location of the drill sites as well as the infrastructure may not be located in sensitive areas or within their respective boundaries. Refer to Appendix 2 and Appendix 3 for maps created.

4 DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

4.1 Determination of closure objectives.

(ensure that the closure objectives are informed by the type of environment described)

- Rehabilitation of areas disturbed as a consequence of prospecting to a land capability that will support and sustain a predetermined post-closure land uses;
- Removal of all infrastructure/equipment that cannot be beneficially re-used, as per agreements established, and returning the associated disturbed land to the planned final land use;
- Removal of existing contaminated material from affected areas;
- Establishment of final landforms that are stable and safe in the long run;
Establishment and implementation of measures that meet specific closure related performance objectives

Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.

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

Volumes of water cannot be determined at this point.

4.3 Has a water use licence has been applied for?

No, a WULA is not required. The volume of water to be used during prospecting activities does not trigger any NWA listed activities. The Department of Water and Sanitation will be consulted as a project stakeholder.

5 IMPACTS TO BE MITIGATED IN THEIR RESPECTIVE PHASES

Measures to rehabilitate the environment affected by the undertaking of any listed activity.

Table 15: Impacts to be mitigated

POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION	MITIGATION TYPE	STANDARD TO BE ACHIEVED
SITE ESTABLISHMENT PHASE						
Site Establishment- access roads, to prospecting sites, establishment of the campsite, physical surveying of the site and pegging of drilling boreholes						
Loss of top soils and soil erosion	Soils, Land Use and Land Capability	Topsoil must be stockpiled immediately after clearing vegetation to prevent erosion of soil through surface runoff and wind. No topsoil or fertile soil (dark soil) may be stored within 32 m of a wetland and 100m from drainage line, watercourse Where applicable, construct berms in order to prevent rill erosion and donga formation. All cleared areas and sumps are to be monitored for erosion daily, any erosion forming is to be remediated with immediate effect.	Rehabilitation in terms of MPRDA and NEMA principles. Applicable guidelines from NEM:BA and Department of Agriculture, Forestry and Fisheries (DAFF) and Conservation of Agricultural Resources Act (CARA) regarding removal of species General implementation of activities taking Mining and Biodiversity Guidelines into account	During Establishment Phase	Control	Return as close as possible to pre-prospecting environment
Loss of natural vegetation in the affected areas.	Flora.	Site clearance will be limited to only areas where invasive prospecting activities will be undertaken Ensure minimal disturbance of vegetation when conducting geophysical surveys and geological mapping. No vegetation clearance or tree removal should take place prior to a suitable qualified specialist have identified the species and the necessary permits and licenses have been obtained for removal of protected or endangered species. No crops may be harvested from the farms where work is being undertaken by any member of DFT or contractors of DFT.	Rehabilitation in terms of MPRDA and NEMA principles. Permits to (DAFF) and CARA for removal of species in terms of NEM:BA General implementation of activities taking Mining and Biodiversity Guidelines into account	During Establishment phase	Control through visual monitoring and inspection	Adhere to rehabilitation standards and Biodiversity Guidelines
Migration of animal life due to disturbance caused proposed project	Fauna	Use sites with most degraded environment for the site development. Trapping and killing of fauna will be prohibited at the prospecting site.	General implementation of activities taking Biodiversity Act and its guidelines into account.	During Establishment phase	Control through visual monitoring and inspection	Minimise impact on fauna
Deterioration of water quality in the nearby Water courses and within the groundwater regime.	Surface and Ground Water.	Site establishment should not be undertaken within sensitive landscapes, these areas will be avoided. A distance of 32 meters from wetlands and 100m should be kept between stockpiles and water courses Avoid stripping of areas within the Establishment sites. Rehabilitate areas that may have been mistakenly stripped. Storm water upslope of the campsite and drill sites should be diverted around these areas.	Water management measures in compliance with NWA, 1998 and DWS guidelines	During Establishment Phase	Avoid	Minimise the impacts on sensitive areas such as wetlands and streams.
Air pollution through emissions from the vehicles and equipment used on the drilling site.	Air quality.	Dust suppression will be conducted in areas with excessive dust emissions. Traffic will be restricted to demarcated areas. Traffic volumes and speeds within the drilling site will be controlled.	National Environmental Management Air Quality Act.	Throughout Site establishment Phase	Minimise impact	The dust emissions are not to exceed the ambient air quality standards for rural areas
Increased noise levels.	Noise aspects	Limit the maximum speed to 30 km/h or less, subject to risk assessment. Less noisy equipment will be used, the equipment will be kept in good working order and the equipment will be fitted with correct and appropriate noise abatement measures.	National Noise Control Regulations, SANS10103:2008 guidelines.	Throughout the Site Establishment phase	Minimise impacts	The noise levels from the drilling sites will be managed and levels will be within the regulated noise levels as set by the regulations
Visual impacts on the surrounding communities and road users from the site establishment.	Visual aspects. Neighbouring occupants	Temporary stockpiling of excavated material shall take place in demarcated areas. Stockpiles shall be positioned and sloped to create the least visual impact The prospecting area shall be enclosed to minimise visual disruption from machinery and equipment to be used Lighting will be conducted in a way that will decrease the impacts on visual aspects at night times.	Measures will be undertaken to ensure that the visual aspects from the site comply with the relevant visual standards and objectives including Municipal By Laws.	Throughout the duration of the Site establishment phase	Minimise impact	Ensure that all operations during the site establishment phase do not result in detrimental visual impacts on surrounding properties, communities and road
Impact from the influx of job seekers and employment of farm labourers.	Socio-Economic Aspect	Recruitment will not be undertaken on site. Farm labourers will not employed unless agreed to with the farm owners.	Measures taken will be in line with the company's recruitment policies. Occupational Health and Safety Act	Throughout Site establishment Phase	Control	Comply with all national health and safety standards as well as

		Ensure that all labourers are trained and adhere to all health and safety standards				adhere to the company's recruitment policies.
Excessive Waste generation	Soil and Visual impacts	Minimise littering on site and ensure that all labourers are trained in environmental awareness. Bins (sufficient number and capacity) to store general and hazardous produced on a daily basis shall be provided at each drilling site. The waste bins must be sealed to avoid, leakage of leachate material and must be waterproof so that rain water cannot enter into them. Bins shall be emptied on a weekly basis or if there is a nauseous smell coming from them or vectors are breeding within them. An integrated waste management approach shall be used, based on the principles of waste minimisation, reduction, re-use and recycling of materials.	Waste Management Act	Throughout the site establishment phase	Avoid	Avoid the excessive generation of general waste during this phase
POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION	MITIGATION TYPE	STANDARD TO BE ACHIEVED
OPERATIONAL PHASE						
Exploration: Diamond Core drilling of the exploration boreholes, stockpiling, Drilling, use of campsite and rehabilitation of the drilling sites						
Soils contamination, disruption of the Soil profile Disturbance of ecological systems through destruction of natural vegetation. Disturbance to current land use	Soils, Land Use, Land Capability and natural vegetation	Ensure that the land owners' borehole yield is observed during the drilling operation. Should it be proven that the operation is indeed affecting the quantity and quality of groundwater available to users and surrounding water resources, the affected parties must be compensated	Rehabilitation in terms of MPRDA and NEMA principles. Operational control procedures (e.g. spill / leak handling). Incident Reporting System; Environmental Inspections; Planned Maintenance System; water quantity (abstraction) monitoring; continued communication with surrounding landowners.	Throughout operational phase	Control	Return as close as possible to pre-prospecting environment
Establishment of campsite and drilling operation may result in contamination of surface water run-off by hydrocarbon fluids and sedimentation	Surface and water	A buffer of 32m from wetlands and 100m from watercourses should be maintained during the all prospecting activities Excess water and mud from drilling sites should be stored in sumps that are sizeable enough to contain them Storm water generated around drilling sites should be diverted away from natural water courses Ensure that prospecting activities do not impact negatively on the quality and quantity of groundwater used by surrounding occupants	Water management measures in compliance with NWA (National Water Act) 1998 and GN 704, 1999.	Throughout operational phase	Minimise	Maintain groundwater quality
Air pollution caused by vehicle emissions and dust	Air Quality	Dust suppression should be practiced during the operational phase Drilling vehicles should be regularly maintained in order to minimize greenhouse gas emission	National Environmental Management Air Quality Act	Throughout the operational phase	Control and minimise	Maintain air quality
Water courses --destruction and loss of aquatic habitat	Aquatic and terrestrial components	A buffer of 32m from wetlands and 100m from watercourses should be maintained during the all prospecting activities. Remove or eradicate all alien invasive vegetation growing on stockpiles or in any area of the drilling site footprint.	National Environmental Management Act National Environmental Management Waste t Act National Water Act (NWA) National Environmental Management: Biodiversity Act (NEMBA)	Throughout the operational phase	Avoid	Protect aquatic and terrestrial ecosystems in as far as possible.
Noise impacts	Fauna and Adjacent landowners/ occupants	Provide employees with ear plugs Use equipment that produces minimal noise as far as possible Avoid working outside normal working hours (i.e. 08:00 to 17:00) and during weekends All machinery and equipment must be maintained in good working order, and fitted with approved and specified muffler systems. Compliance with local by-laws and regulations regarding the noise and hours of operation	National Noise Control Regulations SANS 10103:2008	Throughout the operational phase	Minimise	Minimal noise
Visual impacts	Neighbouring occupants	Visual screening methods could be used on site to reduce visual impacts. Lighting will be conducted in a manner that will reduce the visual impact at night times.	National Road Traffic Act	Throughout the operational phase	Control	Minimise visual impacts
Impacts on heritage features	Heritage features on-site	No heritage features must be destroyed or removed without a permit in terms of SAHRA. Should any heritage features or remains be discovered, work is to stop, the area is to be demarcated and a qualified Archaeologist is to be contacted and contracted to evaluate the site and apply for the appropriate permit if needed. Once the permit has been obtained from SAHRA the	South African Heritage Resources Agency and Limpopo Heritage Resources Authority.	Throughout the operational phase	Stop and avoid	Protect heritage features

		archaeologist is then to supervise the removal or destruction of the item. Once it has been moved or destroyed works can continue.				
Health and safety impacts	Socio economic aspects Employees and land occupants	Neighbouring occupants should be warned about any disruptions prior the commencement of the activity Ensure that health and safety measures are put in place to protect employees and neighbouring occupants Provide employees with personal protective Equipment (PPE)	Occupational Health and Safety Act	Throughout the operational phase	Avoid	Avoid health risks and injury incidents
Traffic impacts	Traffic movement	Vehicles that are moving to the site should only move during the day when there is less traffic in the road.	National Traffic Act	Throughout the operational phase	Avoid	Avoid traffic congestion
Introduction of weeds and alien invasive plants	Flora	All sites disturbed by prospecting activities must be monitored for exotic or invasive plant species and weeds. Site clearance will encourage the introduction of alien invasive plant species; DFT Contractor should train the labourers on the removal and disposal of alien vegetation (mechanical and chemical). Chemical (herbicides) or mechanical removal may be used. If chemical methods are used the method of use is to be undertaken in accordance with manufacturer's specification for the weeds and this method and management is to be approved by the ECO Any eradicated exotic/invasive plant or weed vegetation must be removed from site and disposed of at an approved waste disposal facility or an alternative eradication method approved by the competent authority	NEM:BA CARA	Throughout the operational phase	Control and avoid	Control in order to avoid alien plants invasion
Soil erosion	Soil	Erosion protection measures are to be undertaken. Daily erosion protection monitoring is to take place at each drilling site prior to commencement of the daily works. If any erosion is identified it is to be remediated prior to the commencement of works. Daily erosion checks are to be undertaken on the sump area. If cracks or erosion is identified the side walls are to be battered back to ensure a safe environment for all. Drainage channels must be kept free draining at all times. No pooling of water will be allowed, drainage diversions must be provided to prevent scour of the site, and this is also to direct water away from the impacted area to prevent erosion.	Rehabilitation in terms of MPRDA and NEMA principles. General implementation of activities taking National Environmental Management Biodiversity Act and its guidelines into account	Throughout the operational phase	Control and Remedy	Ensure that soil erosion is minimised
Waste generation	Soil and Visual impacts	Minimise littering on site and ensure that all labourers are trained in environmental awareness. Bins (sufficient number and capacity) to store general and hazardous produced on a daily basis shall be provided at each drilling site. The bins are to be vandal proof; sealed bins that cannot leak leachate material and waterproof that rain water cannot enter into them. Bins shall be emptied on a weekly basis or if there is a nauseous smell coming from them or vectors are breeding within them. An integrated waste management approach shall be used, based on the principles of waste minimisation, reduction, re-use and recycling of materials.	National Environmental Management: Waste Management Act	Throughout the operational phase	Avoid	Avoid the excessive generation of general waste during this phase
POTENTIAL IMPACT	ASPECTS AFFECTED	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION	MITIGATION TYPE	STANDARD TO BE ACHIEVED
DECOMMISSIONING PHASE						
Removal of temporary infrastructure and final rehabilitation of disturbed areas						
Compaction and contamination of soils within the rehabilitation site.	Soil	All vehicles and machinery used at the rehabilitation site must be kept in good working order. No repairs of vehicles or machinery will be conducted at the rehabilitation site unless it is emergency repairs, which will be conducted on protected ground. Movement of vehicles and machinery should be limited to demarcated routes, which will be rehabilitated when no longer in use	Rehabilitation in terms of MPRDA and NEMA principles. General implementation of activities taking Biodiversity Act and its guidelines into account.	Throughout the Decommissioning Phase	Avoid	Rehabilitation of drilling sites shall be undertaken in line with closure objectives and in consultation with landowners.
Re-instatement of soil productivity, land capability, land use and topographical patterns.	Soil	Ensure that the soil in the vicinity of the rehabilitation site is not detrimentally impacted. All the waste from demolition must be collected from site for disposal. Once the area is shaped correctly the compacted areas are to be ripped at 300mm and topsoil is to be replaced.	Rehabilitation in terms of MPRDA and NEMA principles General implementation of activities taking Biodiversity Act and its guidelines into account.	Throughout the Decommissioning Phase	Avoid	Rehabilitation of drilling sites shall be undertaken in line with closure objectives and in consultation with landowners.

		Areas that have not had topsoil striped are to be monitored for alien plant growth and vegetation recovery. If after a year the vegetation has not recovered the area is to be hand seeded with a Highveld indigenous grass				
Pollution of surface water environment	Surface water	Ensure that the rehabilitation of the site does not have detrimental impacts on the surface water environment.	The surface water leaving the rehabilitation site will comply with the Department of Water and Sanitation target of water quality parameters.	Throughout the Decommissioning Phase	Avoid	Rehabilitation of drilling sites shall be undertaken in line with closure objectives and in consultation with landowners.
Potential injuries to fauna and residents due to Geological instability.	Geology and social	Ensure that all drill holes have been refilled with rocks and or cement to avoid potential injuries to fauna and residents.	Rehabilitation in terms of MPRDA and NEMA principles Occupational Health and safety Act	Decommissioning Phase	Avoid	Rehabilitation of drilling sites shall be undertaken in line with closure objective
Air pollution from rehabilitation site.	Air Quality	Where necessary, wet suppression will be conducted at areas with excessive dust emissions. Vehicles and machinery will be well maintained. The traffic volumes and speed within the rehabilitation site will be controlled	National Environmental Management Air Quality Act	Throughout the Decommissioning Phase	Avoid	Rehabilitation of drilling sites shall be undertaken in line with closure objectives and in consultation with landowners.
Migration of animal life due to disturbance caused proposed project	Fauna	Use sites with most degraded environment for the site development. Trapping and killing of fauna will be prohibited at the prospecting site.	General implementation of activities taking Biodiversity Act and its guidelines into account.	During Drilling phase	Control through visual monitoring and inspection	Minimise impact on fauna
Generated noise from the rehabilitation site	Noise	Smaller or less disruptive equipment should, where possible, be used when working near receptors. Equipment will be well maintained and fitted with the correct and appropriate noise abatement measures.	National Noise Control Regulations, SANS10103:2008 guidelines.	Throughout the Decommissioning Phase	Avoid	Rehabilitation of drilling sites shall be undertaken in line with closure objectives and in consultation with landowners. Ensure that the rehabilitation activities do not have detrimental impacts on people.

6 FINANCIAL PROVISION

6.1 Determination of the amount of Financial Provision.

A total of R 72 446 is required to both manage and rehabilitated the environment in respect of rehabilitation. DFT must update and review the quantum of the financial provision annually.

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

For a prospecting operation such as this, the primary closure and environmental objectives are to:

- Minimise the area to be disturbed and to ensure that the areas disturbed during the prospecting activities are rehabilitated and stable, as per the commitments made in this EMP;
- Sustain the pre-prospecting land use; and
- To record and communicate the results of the monitoring programme during decommissioning to the participating stakeholders.

The closure objectives for mining internationally and in South Africa focuses on the restoration of previous land use capabilities, the zero-net loss of biodiversity, and the satisfaction of community requirements.

Rehabilitation measures have been designed to meet closure objectives:

The objectives of rehabilitation and closure are:

- To ensure closure complies with the Mineral and Petroleum Resources Development Act 28 of 2002;
- To ensure that the mining footprints are rehabilitated to an acceptable standard, where there is ecosystem functioning and that all environmental and social risks have been reduced and do not pose any threat to the environment post mine-closure;
- To ensure that the goals which were specified in the rehabilitation plan have been met and that the land may have a sustainable use;
- To implement management strategies that will ensure that the negative impacts (risks) associated with the Borrow pit is eliminated or minimized to acceptable standards;
- To leave the area in a manner that is environmentally safe and does not pose any health risks to the neighbouring communities.

7 CONFIRM SPECIFICALLY THAT THE ENVIRONMENTAL OBJECTIVES IN RELATION TO CLOSURE HAVE BEEN CONSULTED WITH LANDOWNER AND INTERESTED AND AFFECTED PARTIES.

The environmental objectives in relation to closure will be consulted with the farmers and affected parties. It will be explained that should the prospecting yield negative results, then the end use for area will revert to its pre-prospecting land use (minutes to be incorporated on the final report). The end-use of the area will therefore not be changed by the prospecting operations.

8 PROVIDE A REHABILITATION PLAN THAT DESCRIBES AND SHOWS THE SCALE AND AERIAL EXTENT OF THE MAIN MINING ACTIVITIES, INCLUDING THE ANTICIPATED MINING AREA AT THE TIME OF CLOSURE.

Table 16: Rehabilitation Plan

Aspect/ Impact	Rehabilitation Measure	Monitoring Frequency & Responsibility
Removal of drilling infrastructure structures	<ul style="list-style-type: none"> • Clear and completely remove from site all storage containers, signage, temporary services, fixtures and any other temporary works; and • Ensure that all access roads utilised during site establishment (which are not earmarked for closure and rehabilitation) are returned (as far as possible) to their state prior to site establishment. 	Once-off; DFT.
Vegetation clearing/Replanting	<ul style="list-style-type: none"> • Remove any emerging alien and invasive vegetation to prevent further establishment; • All planting work is to be undertaken by suitably qualified personnel making use of the appropriate equipment; • Transplant during the winter (between April and September); and • Plant indigenous plants to minimise the spread of alien and invasive vegetation. 	When re-vegetation is done and in blooming season; DFT or sub-contractor appointed
Topsoil replacement	<ul style="list-style-type: none"> • Replace and redistribute stockpiled topsoil together with herbaceous vegetation, overlying grass and other fine organic matter in all disturbed areas of the prospecting site, including temporary access routes and roads. Replace topsoil to the original depth. • Prohibiting the use of topsoil suspected to be contaminated with the seed of alien vegetation. 	Once-off; DFT.

Aspect/ Impact	Rehabilitation Measure	Monitoring Frequency & Responsibility
	<p>Alternatively, the soil is to be sprayed with specified herbicides.</p> <ul style="list-style-type: none"> Where local soil has poor drainage, broken rock (Approx. 75 mm in diameter) must be placed to a depth of 150mm at the bottom of the planting hole prior to planting and backfilling with approved plant medium mixture. 	
Waste and Rubble Removal	<ul style="list-style-type: none"> Remove from site all domestic waste and dispose of in the approved manner at a registered waste disposal site. 	Once-Off; DFT
Solid and Hazardous Waste	<ul style="list-style-type: none"> Dispose of all hazardous waste not earmarked for reuse, recycling or resale at a registered hazardous waste disposal site. Remove from site all temporary fuel stores, hazardous substance stores, hazardous waste stores and pollution control sumps. Dispose of hazardous waste in the approved manner. Do not hose oil or fuel spills into a storm water drain or sewer, or into the surrounding natural environment. Dispose of all visible remains of excess cement and concrete after the completion of tasks. Dispose of in the approved manner (drilling cores). 	Once-off; DFT
Erosion protection	<ul style="list-style-type: none"> Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the drilling site. Retain shrubbery and grass species wherever possible. Perform regular monitoring and maintenance of erosion control measures. 	After rainfall events; DFT. or sub-contractor appointed

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

DFT is required to make the prescribed financial provision for the rehabilitation or management of negative environmental impacts. If the DFT fails to rehabilitate or manage any negative impact on the environment, the DMR may, upon written notice to the company, use all or part of the financial provision to rehabilitate or manage the negative environmental impact in question. DFT will specify that the appointed contractor is required to comply with all the environmental

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measures specified in the EMP. This will include avoiding unnecessary disturbance of natural vegetation and the rehabilitation of each drill site, immediately after drilling has been completed. All tracks to the drill sites must be rehabilitated at the end of the prospecting programme. The financial provision provides for the final checking of all sites before site clearance

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

Operational rehabilitation has been catered for in the Budget lodged with the application in the Prospecting Work Programme. In terms of decommissioning rehabilitation (or the so-called Rehabilitation Quantum

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

The Budget has been prepared by the applicant as part of the Prospecting Work Programme and that includes a provision for Rehabilitation in the prospecting budget. The applicant confirms herewith that the amount can be (and will be) provided from operating expenditure. The quantum must be approved by the DMR after which the applicant will provide for the quantum by way of bank guarantee.

9 MECHANISMS FOR MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREON, INCLUDING

- a) Monitoring of Impact Management Actions
- b) Monitoring and reporting frequency
- c) Responsible persons
- d) Time period for implementing impact management actions
- e) Mechanism for monitoring compliance

Table 17: Mechanisms for monitoring compliance

SOURCE ACTIVITY MONITORING AND REPORTING	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	FREQUENCY AND TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS

Site Establishment /construction.	<ul style="list-style-type: none"> • Dust • Noise • removal of vegetation • disruption of animal life • habitat destruction • loss of geology • change in topography 	<ul style="list-style-type: none"> • Daily dust suppression • Monthly dust bucket monitoring 	Geologist and Project Manager	Daily and monthly
Traffic management	<ul style="list-style-type: none"> • Dust • noise • animal life disruption • Traffic Congestion 	<ul style="list-style-type: none"> • Monitor dust fallout levels monthly and • Noise level • Monitor the time frames in which heavy vehicles travel on main roads and national roads. 	Geologist and Project Manager	Monthly and when necessary
Ablution Facility	<ul style="list-style-type: none"> • Land contamination • Water contamination • health hazard 	<ul style="list-style-type: none"> • service the toilet facility • monitor water quality 	Geologist and Project Manager	When necessary and monthly
Existing/Access routes	<ul style="list-style-type: none"> • dust • animal life disruption • Monitor dust. 	<ul style="list-style-type: none"> • Monitor dust fall out levels • Monitor speed on the road 	Geologist and Project Manager	Monthly and when necessary

10 INDICATE THE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ ENVIRONMENTAL AUDIT REPORT.

Regular monitoring of all the environmental management procedures and mitigation measures shall be carried out by DFT in order to ensure that the provisions of this EMP are adhered to. Formal monitoring and performance assessment of the EMP will be undertaken on an annual basis.

11 ENVIRONMENTAL AWARENESS PLAN

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

The following Environmental Awareness Training that will be implemented by DFT in order to inform employees and contractors of the environmental risk that may result from their work, or the risk of their interaction with the sensitive environment. The training will be conducted as part of the induction process for all new employees (including contractors) that will perform work in terms of the proposed activities. Proof of all training provided must be kept on-site. The Environmental Awareness Training will, as a minimum cover the following topics within Table 18

Table 18: Environmental Awareness Plan

Air Quality	<ul style="list-style-type: none"> • Activities that may result or mitigate impact on air quality; speeding on roads, the requirements for dust suppression, etc. • Negative impacts on the receiving environment if mitigation measures are not implemented.
Surface and groundwater	<ul style="list-style-type: none"> • Risks to surface and groundwater, e.g. fuel and chemical handling and further risks of erosion or damage to riparian vegetation. • How incidents should be reported, and emergency requirements. • The importance to reuse water and to prevent spillages.
Cultural Heritage	<ul style="list-style-type: none"> • To respect all cultures and believes. • How to report any sightings of heritage importance as identified during operation activities (e.g. fossils)
Fauna	<ul style="list-style-type: none"> • Overview of the fauna found on/around site and the uniqueness thereof. • Mitigation measures that all contractors and employees need to abide by. • No contractor or personnel allowed to catch or kill any species, and how any sightings should be reported if further actions are required (e.g. to catch and release).
Flora	<ul style="list-style-type: none"> • Overview of the flora diversity on site, and the rare and endangered nature thereof. • Measures taken by the company to protect species. • No contractor or personnel allowed to remove, harvest or destroy any flora species unless clearly instructed based on the operational plans.

Waste management	<ul style="list-style-type: none"> Measures to avoid waste generation and to participate in waste minimisation/reduction.
Traffic strategies.	<ul style="list-style-type: none"> To stay on designated roads and not create new roads on areas that will not be used for prospecting purposes. To be aware of the fauna species and to be on the lookout and avoid collisions.
Emergency Preparedness and Response	<ul style="list-style-type: none"> How to report any emergency or incident. Incident and emergency reporting requirements
General rules and conduct	<ul style="list-style-type: none"> Respect for the sensitive environment. Do not litter. Respect for each other and for different cultures. Safety and health requirements

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

All employees must be provided with environmental awareness training to inform them 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. Employees should be provided with environmental awareness training before prospecting operations start. All new employees should be provided with environmental awareness training. Induction courses will be provided to all employees by a reputable trainer.

12 SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

(Among others, confirm that the financial provision will be reviewed annually).

All potential risks have been identified within this document and are to be communicated to all contractors and all contractors and is indicated in the EMPr which will be available to all staff. Environmental training needs for each section should be identified and addressed to ensure environmental management is part of day to day operations. The environmental risk responsibilities guide the training requirements of each individual. Environmental training recommended for the different levels of management guide the training needs identification process. This is a minimum guideline and any additional training can be added where section specific issues or high risk items require training and awareness. It is the responsibility of the line manager to ensure environmental training needs for individual staff members are identified, agreed to, facilitated and tracked.

An environmental audit report will be submitted annually as per DMR requirements.

13 UNDERTAKING

The EAP herewith confirms

- f) the correctness of the information provided in the reports
- g) the inclusion of comments and inputs from stakeholders and I&APs ;
- h) the inclusion of inputs and recommendations from the specialist reports where relevant; and

- i) 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.



Signature of the environmental assessment practitioner:

Lushika Services (Pty) Ltd

Name of company:

24 January 2020

Date:

-END-