



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

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).

NAME OF APPLICANT: Claud Coal CC

TEL NO: 033 345 7668

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FILE REFERENCE NUMBER SAMRAD: KZN30/5/1/1/2/10897PR

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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 uninterpreted 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.

PART A
SCOPE OF ASSSMENT AND BASIC ASSESSMENT REPORT

3. Contact Person and correspondence address

a) Details of

i) Details of the EAP

Name of The Practitioner: Francois Deysel / Eben van Sckalkwyk

Tel No.: 082 881 8500

Fax No. : 086 538 4706

e-mail address: Eben@ep3.co.za

ii) Expertise of the EAP.

- (1) **The qualifications of the EAP**
(with evidence). Please refer to Annexure 1
- (2) **Summary of the EAP's past experience.**
(In carrying out the Environmental Impact Assessment Procedure)

CV SUMMARY: FRANCOIS DEYSEL

1. Employment history:

- January 2019 – Present: Consulting Associate EP3 Environmental
- December 2015 – Present: Director/Principal Consultant, **Earth Ties Environmental Services (Pty) Ltd.**, (Environmental Practitioner – All Environmental Project Related work)
- March 2015 – November 2015: Freelance Environmental Consultant
- October 2012 – March 2015: Environmental Practitioner, **Exxaro – Leeuwpan Coal**
- February 2011 – September 2012: Environmental Scientist, **Clean Stream Environmental Consultants.**
- November 2008 – February 2011: Environmental Consultant, **Bokamoso Environmental Consultants.**

2. Educational qualifications:

- 2010: Implementing ISO 140001, North West University (Potochefstroom campus).
- 2009: ISO 14001 Auditing course, Crystal Clear Consulting
- 2007: **B.Sc (Honours): Geography and Environmental Management;** North West University (Potochefstroom campus).
- 2006: **B.Com: Environmental Management;** North West University (Potochefstroom campus).

3. Experience:

Compilation / conducting of the following:

- Basic Assessment reports in terms of the NEMA, 1998, (Act 107 of 1998) and the MPRDA, 2002, (Act 28 of 2002) and the regulations there under;
- Scoping Reports and Environmental Impact Assessments (EIA's) as well as Environmental Management Programmes (EMPr) in terms of the NEMA, 1998, and the MPRDA, 2002;
- Environmental Scoping Reports in terms of the DFA, 1995 (Act 87 of 1995);
- Environmental Management Programme Performance Assessment Reporting in terms of the MPRDA, 2002 (Act 28 of 2002);
- Public Participation in terms of the MPRDA, 2002 and EIA Regulations, dated April 2006, June 2010 and December 2014(as amended April 2017), under the NEMA, 1998;
- Waste License Applications in terms of the NEM:WA, 2008 (Act 59 of 2008);
- Water Use License Applications, in terms of the NWA, 1998 (Act 36 of 1998);
- Specialist GIS consulting;
- Compilation and Review of all mining related documentation.

Relevant mining project involvement includes, amongst other:

- Schoongezicht Coal Mine – EAP (Yellowbeak Minerals);
- Stuart Coal Consolidation Application - EAP (Stuart Coal (Pty) Ltd.);
- Verkeerdepain Mining Application - EAP (Xtrata Coal South Africa);
- Eastplats Platinum Mine - EAP (EastPlats);
- Landau Colliery - EAP (Anglo Coal South Africa);
- Sasol Impumulelo Mine – GIS Specialist (Sasol Coal Ltd);
- Exxaro Resources: New Clydesdale Colliery – Environmental Practitioner;
- Exxaro Resources: Leeuwpan Coal – Environmental Practitioner;
- Poortjie Mining Applications, Heidelberg – EAP (Bastismart Dump);
- Merafong Crushers, Mining Application – EAP (Bastismart Dump);
- Sublime Technologies, Kriel - EAP (Sublime Technologies);
- Lancaster Gold Mining Company, Krugersdorp – EAP (Lancaster Gold)
- Various Mining and IWUL audits eg: Mafube Colliery, Amandelbult Anglo Platinum, Stuart Coal, Exxaro Leeuwpan, Exxaro New Clydesdal Colliery, etc.

b) Location of the overall Activity.

Farm Name:	Portion 1, 2, 4,8, 9, 13 and 15 of the farm Rustverwacht 151 HT
Application area (Ha)	1822 Ha
Magisterial district:	HT Pietermaritzburg
Distance and direction from nearest town	The town of Utrecht is situated to 17km south east of the study area
21 digit Surveyor General Code for each farm portion	<ul style="list-style-type: none"> • NOHT00000000015100001 • NOHT00000000015100002 • NOHT00000000015100004 • NOHT00000000015100008 • NOHT00000000015100009 • NOHT00000000015100013 • NOHT00000000015100015

c) Locality map (show nearest town, scale not smaller than 1:250000).

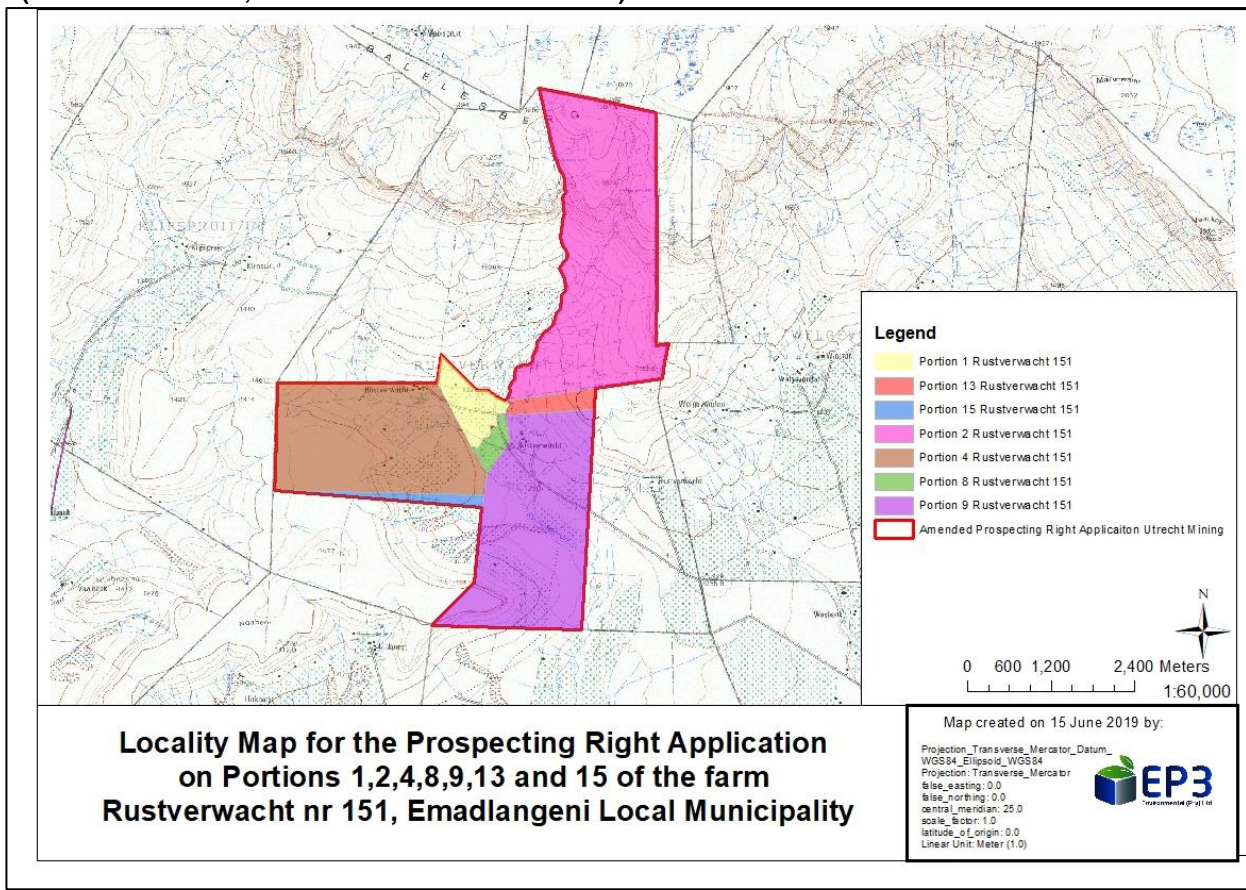


Figure 1: Locality Map

d) 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



Figure 2: Northern South Africa Coalfields and Mines (Anglo Coal Australia, 2007)

The Proposed Prospecting Right Application site is situated near the town of Utrecht in the KwaZulu Natal Province. The study area is situated in the border of the Utrecht and Kipriver Coalfields (please refer to Figure 2 above).

Jeffrey LS, (2004) describes in his published study: The characterisation of the coal resources in South Africa in the Journal of The South African Institute of Mining and Metallurgy that the Utrecht Coalfields (0-100m) has the following coal seams:

- Coking Seam (< 1.5 m, good quality),
- Dundas Seam (2 m mixed dull, bright and shaly coal),
- Gus Seam (well developed, economically most important, 1 m in south, split by a sandstone parting in north,
- Alfred Seam (persistent, 3–4 m south of Utrecht, bright—dull-lustrous coal, Eland Seam. 5 major dolerite sills (Zuinguin (> 150 m), B, Utrecht, Ingogo and No. 10) with associated faulting (throws > 15 m)

Jeffrey LS, (2004) further states that the Utrecht Coalfield, the seams have been a major source of moderately good coking coal and require little beneficiation. The Lower Dundas Seam rank varies from medium volatile bituminous to anthracitic, with the coal mined as a source of bituminous coal in the northeaster sector of the coalfield and as anthracite in the southern sector. However, the sulphur content can be high—in excess of one per cent. The Gus Seam is subdivided into three coal quality zones with the upper part comprising mainly dull coal, the central part predominantly bright coal and the bottom section mainly poor quality coal with shale partings. The seam has elevated methane gas concentration. The Alfred Seam is of better quality in the Utrecht Coalfield, particularly towards the bottom portion of the seam. The seam is generally high in ash and sulphur content but beneficiation can produce relatively high quality, low ash coal with low sulphur and phosphorus.

The Applicant wishes to proceed with the prospecting and bulk sampling study area. The Core Sampling method by means of the drilling of core samples is planned as 20 locations at various locations on the study area. The aim of the core sampling is to establish if the resources in the area is feasible to mine in the future.

(i) Listed and specified activities

<p>NAME OF ACTIVITY</p> <p>(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc</p> <p>E.g. for mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</p>	<p>Aerial extent of the Activity</p> <p>Ha or m²</p>	<p>LISTED ACTIVITY</p> <p>Mark with an X where applicable or affected.</p>	<p>APPLICABLE LISTING NOTICE</p> <p>(GNR 544, GNR 545 or GNR 546)</p>
<p>Prospecting – Core sampling by means of drilling will be conducted on the study area.</p>	<p>1822ha</p>	<p>X</p>	<p><i>GN R. 983, Activity 20:</i> Any activity including the operation of that activity which requires a prospecting right in terms of Section 16 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including (a) associated infrastructure, structures and earthworks, directly related to prospecting of a mineral or (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining, or gasification of the mineral resource</p>
<p>Drilling site camp erected at various locations to include storage areas, temporary ablutions, access road and</p>	<p>500m²</p>	<p>X</p>	<p><i>GN R. 985, Activity 12(d):</i> The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan</p> <p>v. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p>

(ii) 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 Applicant is planning to obtain core samples by means of sampling holes drilled by a drill rig. The drill rig will drill holes with a diameter of approx. 110 mm and extract the soil and rock to be transported to the site camp for storage and analysis.

Drill site establishment:

- A drill site of approximately 500 m² will be established that will require:
- Clearing of vegetation for sumps and the drill entrance point;
- Earth sumps for water recycling;
- Laydown area for drill rods, fuel and chemical storage;
- Chemical toilets.

Drilling and removal of geological cores:

- Drilling a hole of approximately 110 mm in diameter and removing of rock core. Number of boreholes will be finalised once non-invasive prospecting is completed.

Casing of boreholes:

- 1 m² per borehole.

e) Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. (E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)
Constitution of South Africa, specifically everyone has a right: a. to an environment that is not harmful to their health or wellbeing; and b. to have the environment protected for the benefit of present and future generations, through reasonable legislative and other measures that: <ol style="list-style-type: none"> i. prevent pollution and ecological degradation ; ii. promote conservation; and iii. secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. 	Prospecting activities	The prospecting activities shall be conducted in such a manner that significant environmental impacts are avoided, where significant impacts cannot all together be avoided, be minimised and mitigated in order to protect the environmental right of South Africans
Mineral and Petroleum Resources Development Act (MPRDA) 2002 (MPRDA) section 16 as amended	Prospecting activities	The conditions and requirements attached to the granting of the prospecting right will apply to the prospecting activities.
National Environmental Management Act, No 107 of 1998 (as amended) Listing Notice 20 of Listing Notice 1 in terms of Regulation 327 of 2017.	Prospecting activities	The appropriate environmental authorisation will be obtained before proceeding with any prospecting activities. Measures will be implemented to prevent any pollution occurring during the drilling activities. The disturbed area shall be rehabilitated in such a way that is stable, non-polluting,

		non-eroding, free from alien invasive species and suitable for agreed post closure land use.
National Water Act (Act 36 of 1998).	N/A	No water use license is required for this application. Any water required for drilling activities will be obtained from a legal source within the area or brought in via a mobile water tanker.
National Environmental Management: Air Quality Act, Act39 of 2004, National Dust Control Regulations (GN 827)	N/A	Appropriate dust extractions / suppression equipment will be a condition imposed on the drill contractor for their drill rigs
National Environmental Management: Air Quality Act, Act39 of 2004, National Dust Control Regulations (GN 827)	N/A	Appropriate dust extractions / suppression equipment will be a condition imposed on the drill contractor for their drill rigs.
National Environmental Management: Waste Act, Act 59 of 2008 (NEMWA) NEM: WA (as amended)	Management Measures	The generation of potential waste will be minimised through ensuring that employees of the drilling contractor are subjected to the appropriate environmental awareness campaign, before commencement of drilling. All waste generated during the drilling activities will be disposed of in a reasonable legal manner. Proof of legal disposal will be maintained on site

f) 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).

The aim of the prospecting activities is to locate and evaluate coal quality. The area applied for falls within a contiguous known coal occurrence and an exploration programme will determine the exact resource extent and qualities. Thus, allowing a determination to be made to take the project to the next phase where a Mining Right application would be submitted, if the resource proves to be mineable.

Prospecting activities are therefore needed to:

1. Confirm and obtain additional information concerning potential targets through non-invasive activities (eg. desktop studies and ground geophysical surveys) and invasive (e.g. drilling) activities.
2. Assess if the resource is of good quality and can be extracted through future mining in an environmental socially and economically viable manner. Should prospecting activities prove that there are feasible minerals to allow for mining, a new mine may be developed, which would generate new employment opportunities in an area where employment is needed.

g) Motivation for the overall preferred site, activities and technology alternative.

Because of the geological structure and depositional feature of the coal resource in the area, no other sites, activities or methods of exploration are deemed applicable

h) 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.

i) 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:

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

(a) The prospecting localities were designed in conjunction with the appointed Geologist to ensure that the prospecting activities depicts the nature and true geology of the application site. These localities can be seen in Figure 3: Prospecting Localities below:

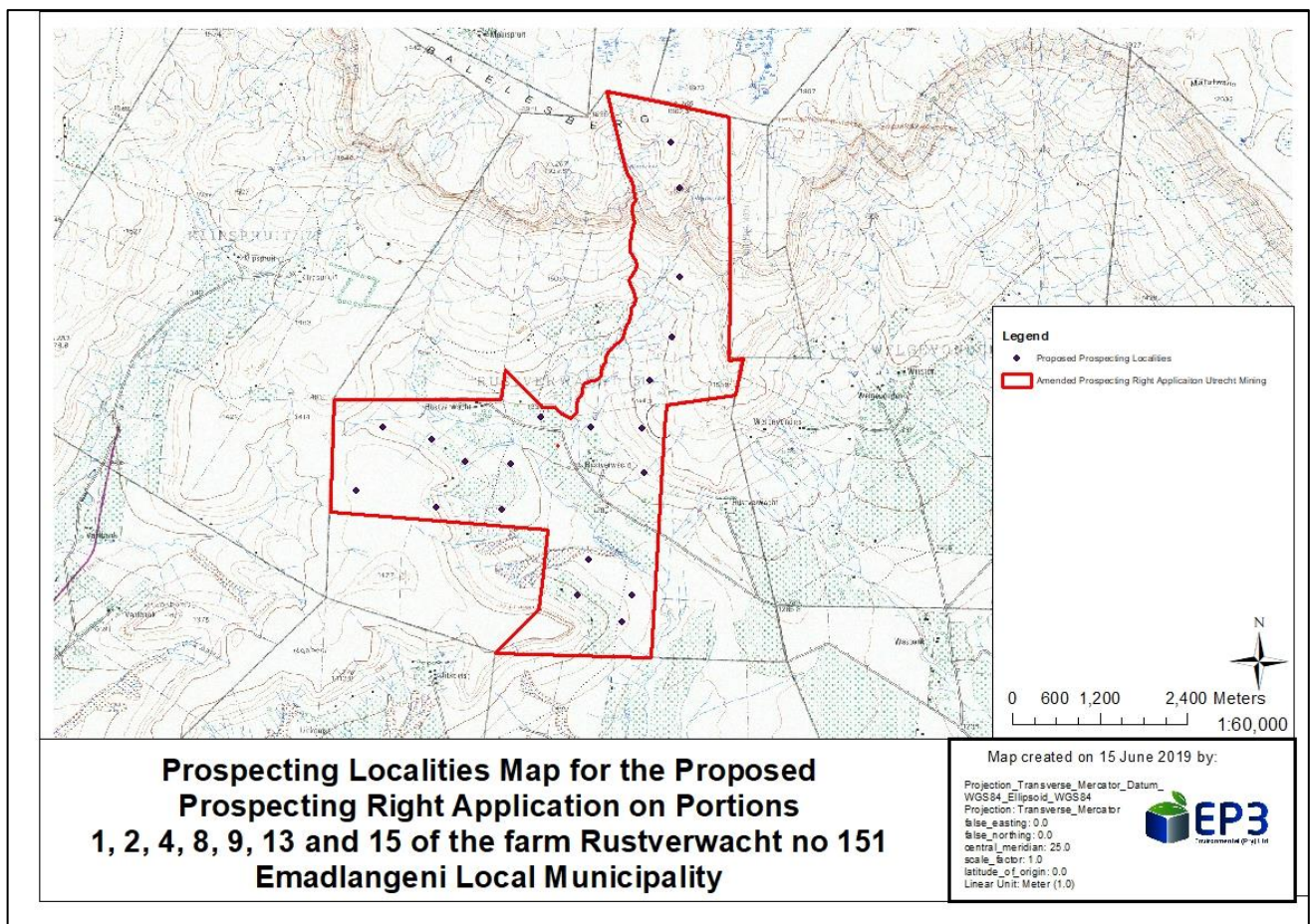


Figure 3: Proposed Prospecting Localities

(b) In terms of technologies proposed, these have been chosen based on the success of the company in terms of their prospecting activities. The prospecting activities proposed in the Prospecting Works Programme is dependent on the preceding phase as previously discussed. Therefore, no alternatives are indicated, but rather a phased approach of trusted prospecting techniques.

(c) Alternative site layout is considered to ensure that resting place and ablution facilities are located away from the drilling activities to minimise the noise impacts. Site establishments are done with closure in mind to ensure that only the required size is disturbed.

Due to the location of the proposed drilling, no camp sites will be required. The drilling contractor can make use of the existing accommodation within the area.

Each borehole will be located at suitable sites to ensure the resource report shows the potential feasibility of the resource; the areas under contemplation will measure approximately 100m² per borehole and will be cleared of all rubble and loose flammable material (grass, etc) by means of a TLB or similar unit; each area will be fenced off suitably to prevent ingress by animals and unauthorized people; sumps will be dug to a depth which will allow the rescue of anyone/thing falling into them inadvertently; cores will be stored in suitably constructed core trays.

(d) The method and techniques employed for the investigation of potential targets and deposits are suitable for the proposed prospecting activities.

GIS software for geological maps and satellite imagery during desktop research. HQ3 or NQ/TNW size drill equipment will be employed for diamond drilling and down the hole geophysical logging will also be done.

(e) Ideally, prospecting activities will occur continuously until such time that drilling at individual sites is completed. However, when reaching an access agreement with the impacted landowners, Claud Coal will ensure that drilling activities commence and operate at times that minimise disruption and exposure risks (i.e. post-harvest period, daylight hours, school holidays, etc). This will be discussed and agreed upon in consultation with stakeholders prior to the implementation of prospecting activities.

ii) 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.

Details of the public participation process will be updated as soon as the process is completed.

iii) Summary of issues raised by I&Aps
 (Complete the table summarising comments and issues raised, and reaction to those responses)

Interested and Affected Parties		Date	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.
List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Comments Received			
<u>AFFECTED PARTIES</u>					
Landowner/s	X				
Lawful occupier/s of the land					
Landowners or lawful occupiers on adjacent properties	X				
Municipal councillor	X				
Municipality	X				
Organs of state (Responsible for infrastructure that may be affected Roads Department,					

Eskom, Telkom, DWA e					
Communities					
Dept. Land Affairs					
Traditional Leaders					
Dept. Environmental Affairs					
Other Competent Authorities affected					
<u>OTHER AFFECTED PARTIES</u>					
<u>INTERESTED PARTIES</u>					

iv) **The Environmental attributes associated with the alternatives.**(The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)

(1) **Baseline Environment**

(a) **Type of environment affected by the proposed activity.**

(its current geographical, physical, biological, socio- economic, and cultural character). **Climate**

The Utrecht area normally receives about 615mm of rain per year, with most rainfall occurring mainly during mid summer.It receives the lowest rainfall (3mm) in July and the highest (114mm) in January. The monthly distribution of average daily maximum temperatures shows that the average midday temperatures for Utrecht range from 18.7°C in June to 26.1°C in January. The region is the coldest during July when the mercury drops to 2.9°C on average during the night. (Source: http://www.saexplorer.co.za/south-africa/climate/utrecht_climate.asp date accessed: 17 July 2018)

Vegetation

The site is situated in the grassland biome. In South Africa the grassland biome occurs mainly on the highveld, the inland areas of the eastern seaboard, the mountainous areas of KwaZuluNatal and the central parts of the Eastern Cape (Mucina & Rutherford, 2006). The Study area is bisected by 3 major vegetation zones i.e the Income sandy grassland (Gs 7), the KwaZulu Natal Highland Thornveld (Gm 6) and the Wakkerstroom Montane Grassland (Gm 14):

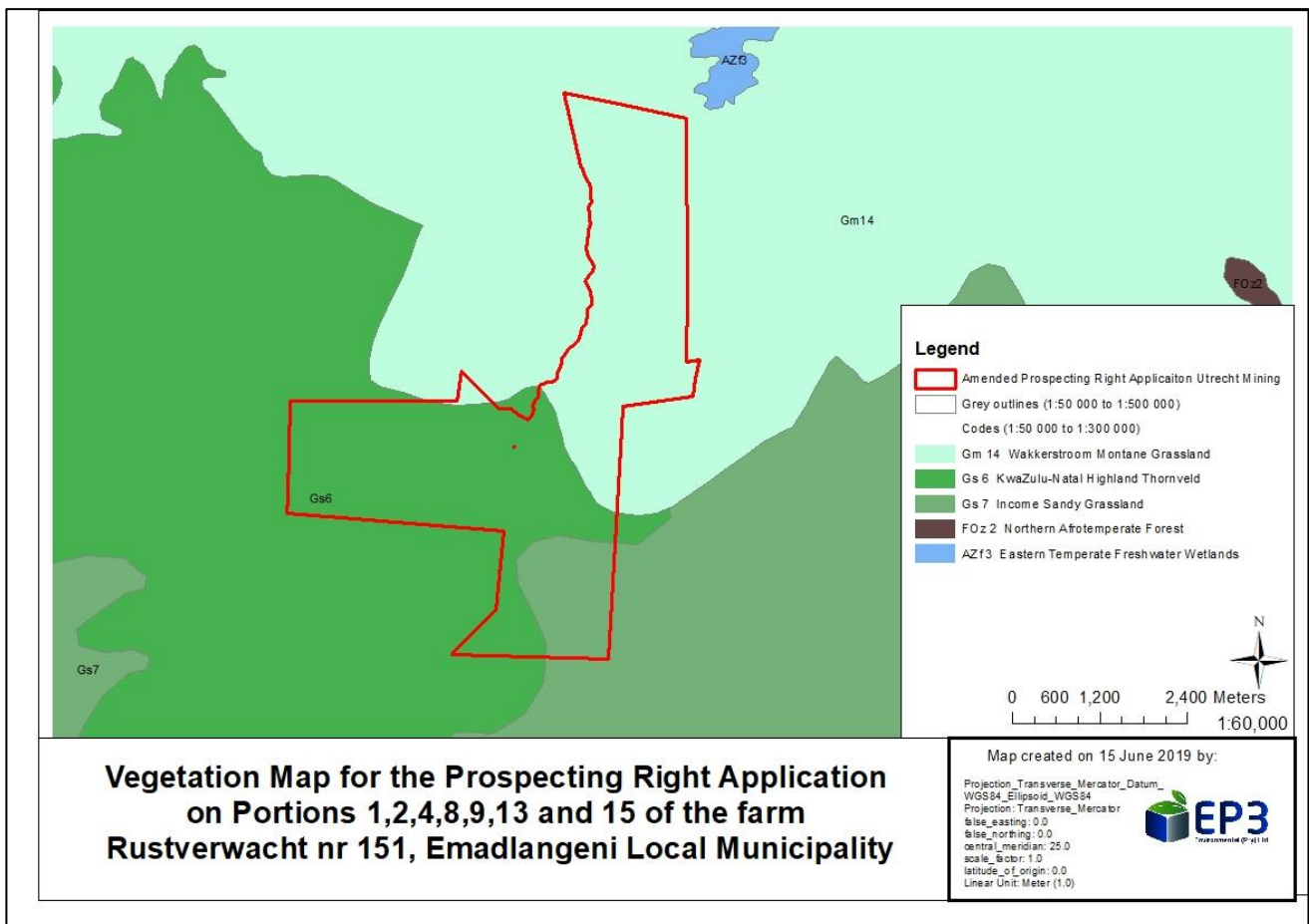


Figure 4: Vegetation Map

Mucina et al, 2006, describes the vegetation features as the following:

Income Sandy Grassland (Gs7)

Very flat extensive areas with generally shallow, poorly drained, sandy soils supporting low, tussock-dominated sourveld forming a mosaic with wooded grasslands (with *Acacia sieberiana* var. *woodii*) and on well-drained sites with the trees *A. karroo*, *A. nilotica*, *A. caffra* and *Diospyros lycioides*. On disturbed sites *A. sieberiana* var. *woodii* can form sparse woodlands. *Aristida congesta*, *Cynodon dactylon* and *Microchloa caffra* are common on shallow soils (Camp 1999c).

Wakkerstroom Montane Grassland (Gm14)

This unit is a less obvious continuation of the Escarpment that links the southern and northern Drakensberg escarpments. It straddles this divide and is comprised of low mountains and undulating plains. The vegetation comprises predominantly short montane grasslands on the plateaus and the relatively flat areas, with short forest and *Leucosidea* thickets occurring along steep, mainly eastfacing slopes and drainage areas. *L. sericea* is the dominant woody pioneer species that invades areas as a result of grazing mismanagement.

KwaZulu-Natal Highland Thornveld (Gs6)

Hilly, undulating landscapes and broad valleys supporting tall tussock grassland usually dominated by *Hyparrhenia hirta*, with occasional savannoid woodlands with scattered *Acacia sieberiana* var. *woodii* and in small pockets also with *A. karroo* and *A. nilotica*

The site specific maps and description can be found below:

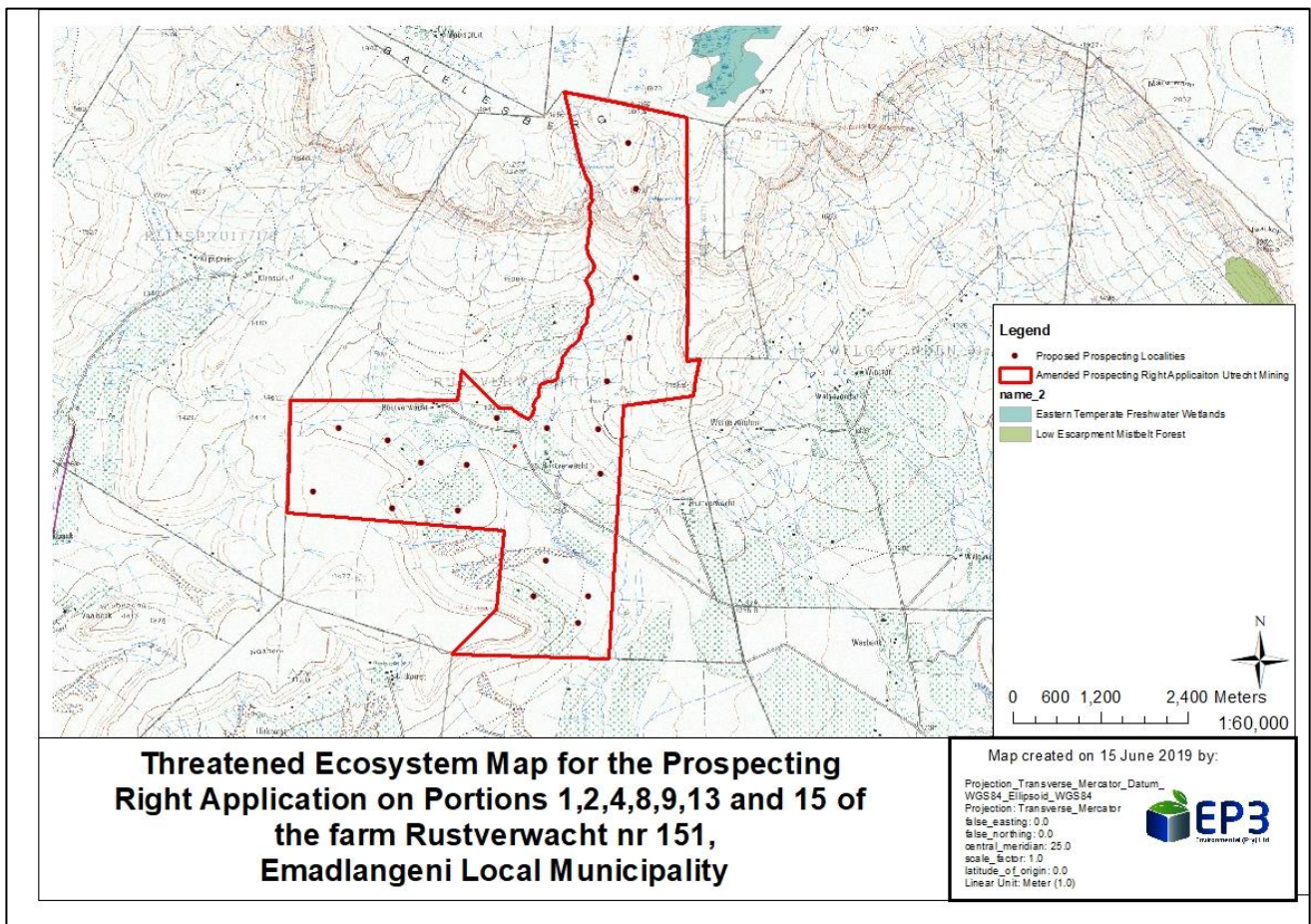


Figure 5: Threatened Ecosystems Map

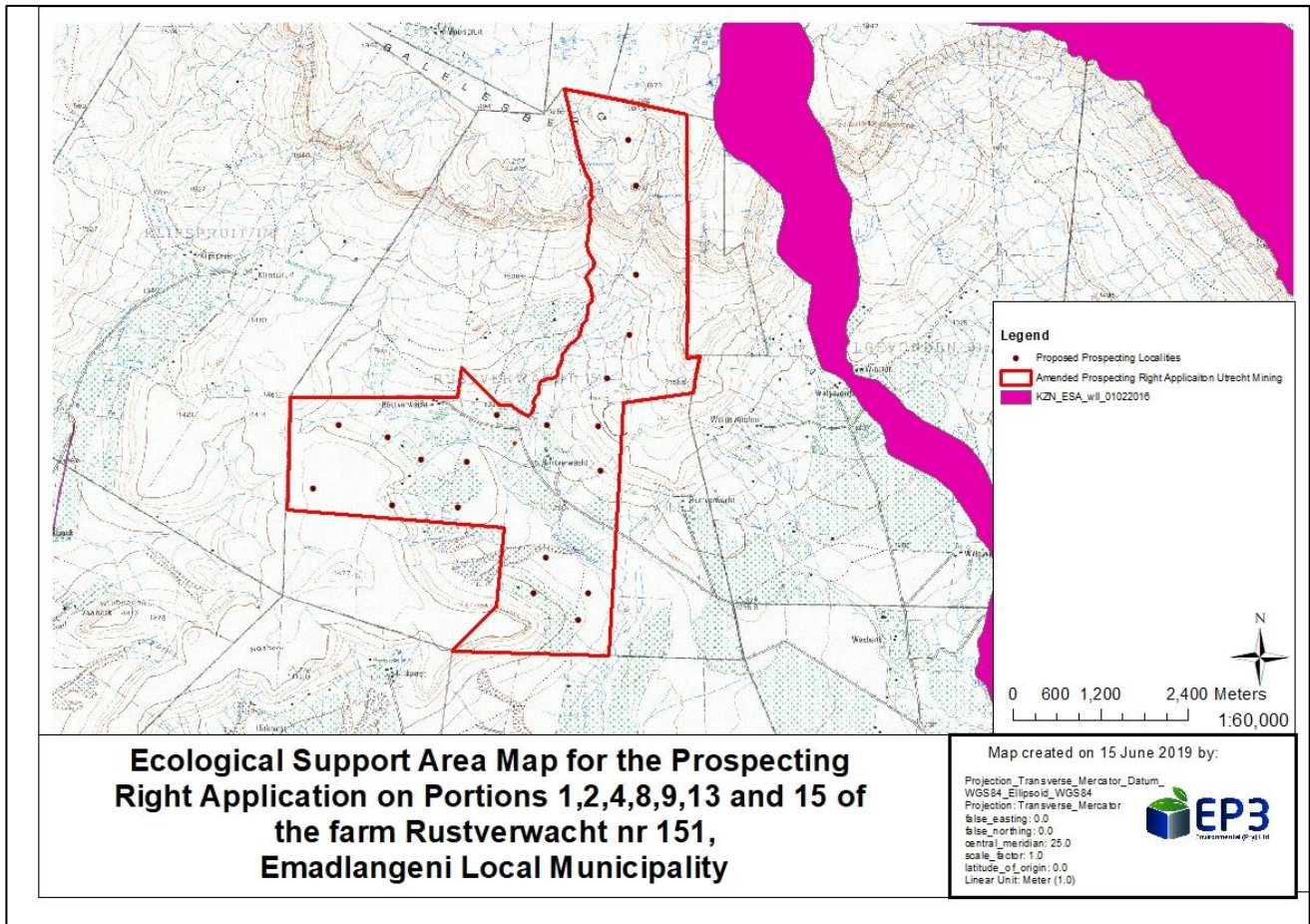


Figure 6: Ecological Support Area Map

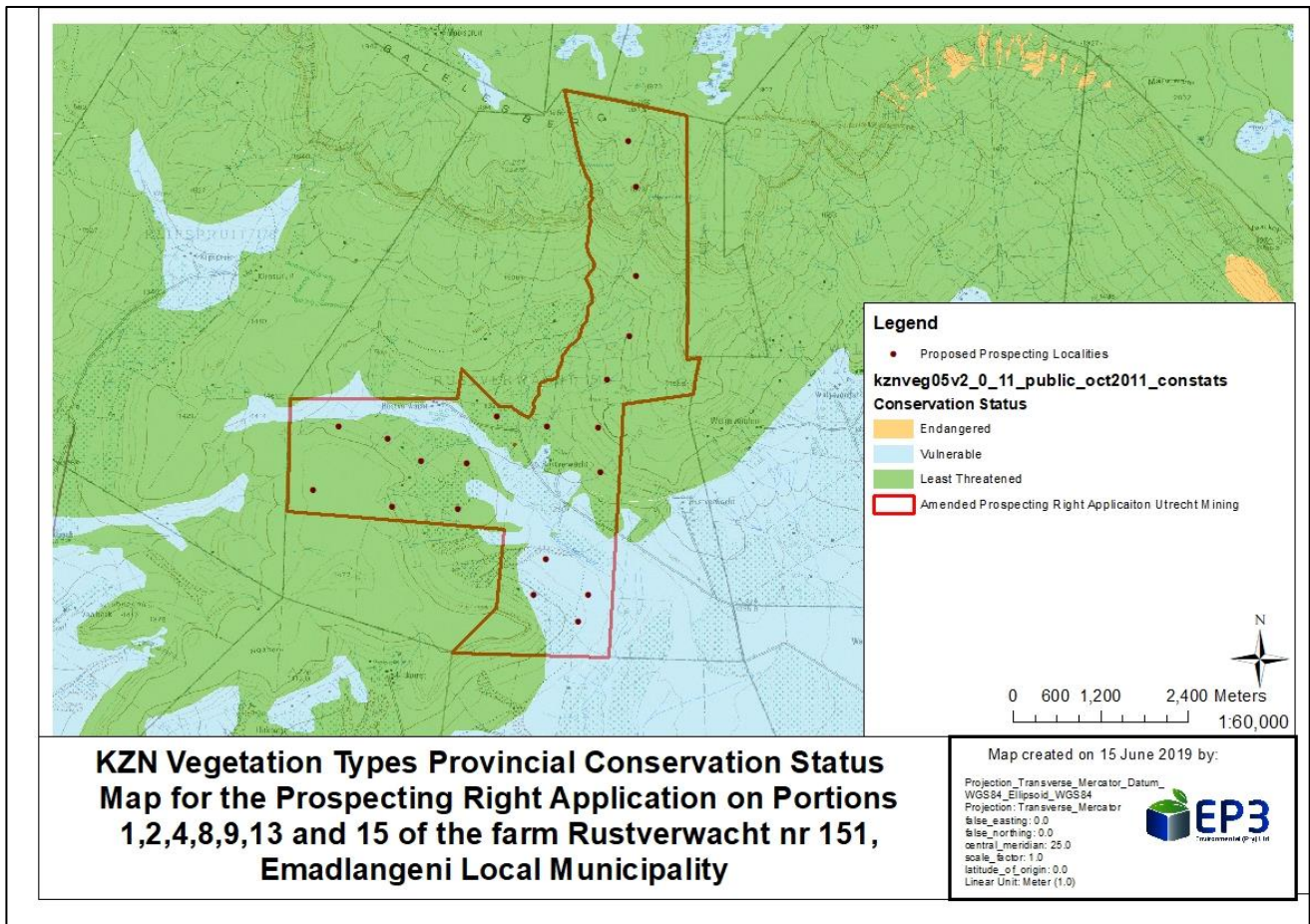


Figure 7: KZN Vegetation Types Provincial Conservation Status Map

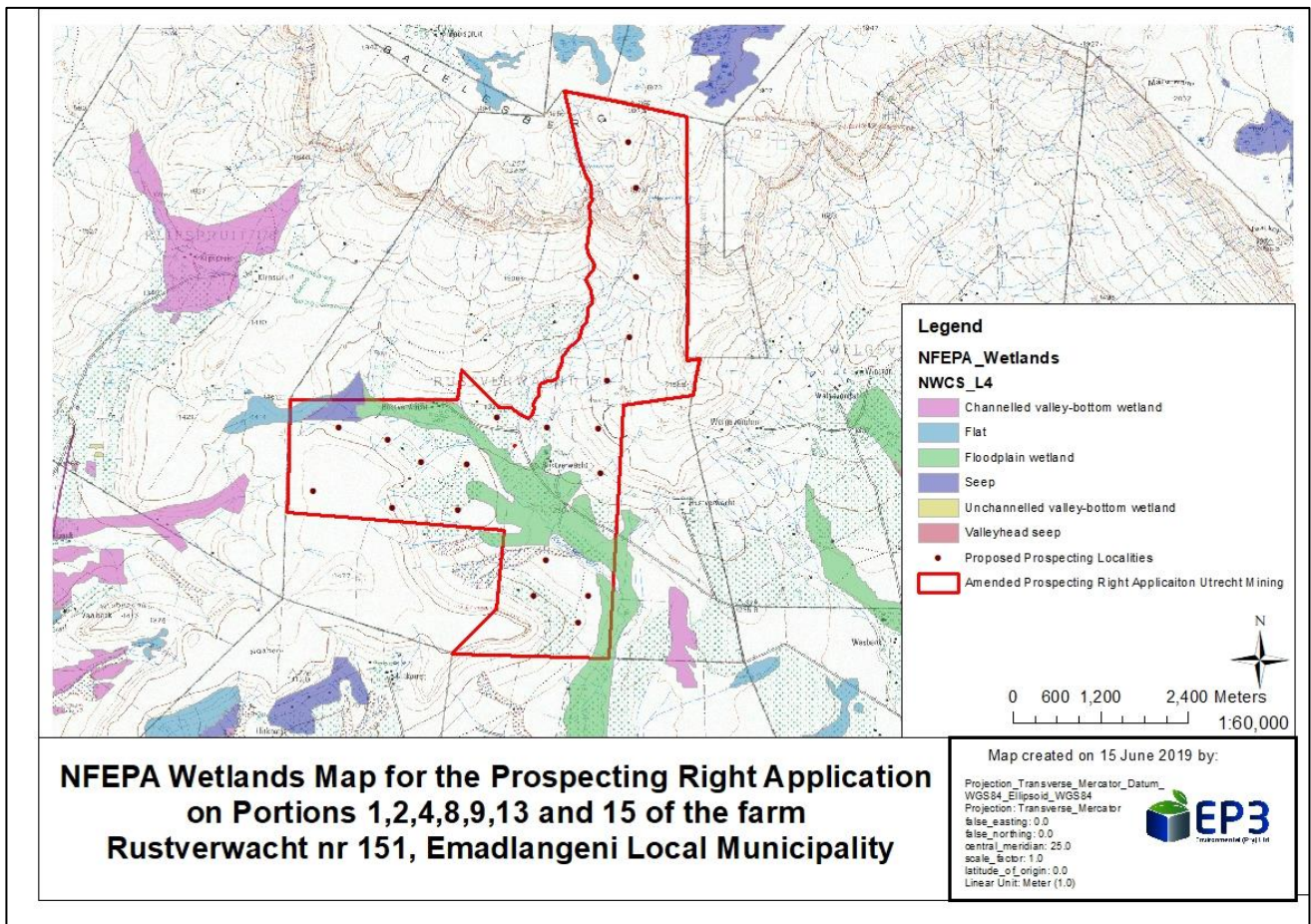


Figure 8: NFEPA Wetlands and Watercourses Map

Water Research Commission (WRC), 2011, describes a floodplain wetland as a flat or gently sloping wetland area adjacent to and formed by a lowland or upland floodplain river. Periodic inundation by overtopping of the channel bank may occur and water and sediment input is mainly via overtopping of a major channel, although there could be some overland or subsurface flow from adjacent valley side-slopes (if present).

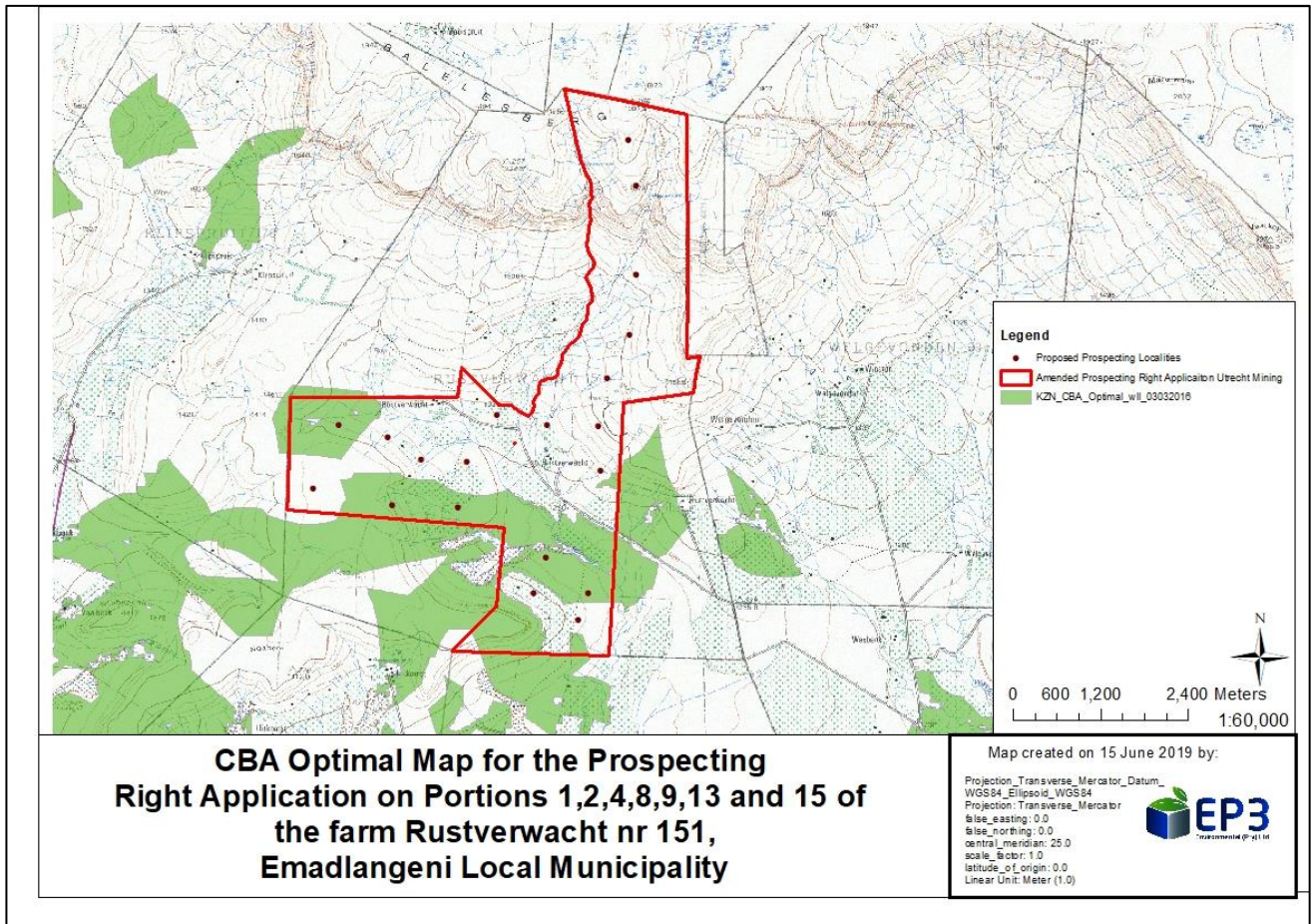


Figure 9: Optimal Critical Biodiversity Area Map

Ezemvelo KZN Wildlife (2016) describes the CBA: Optimal Layer as areas that are the most optimal solution to meet the required biodiversity conservation targets while avoiding high cost areas as much as possible.

Geology

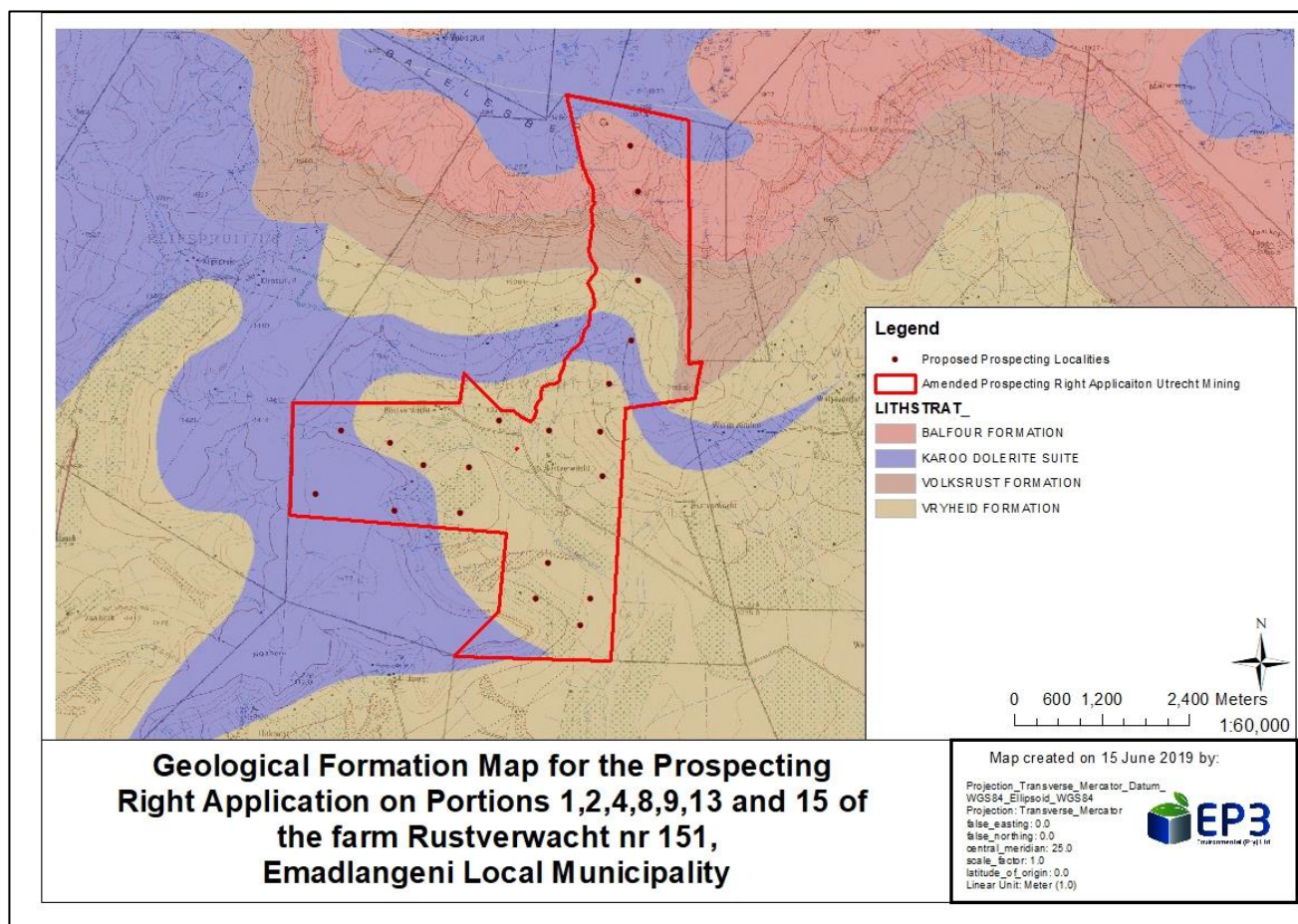


Figure 10: Optimal Critical Biodiversity Area Map

The **Vryheid Formation** consists mainly of sandstone and shale with some subordinate coal seams associated with it (SACS, 1980). The sediments of the Vryheid Formation probably represent alluvial plain, upper and lower delta plain deposits with associated shallow lagoon and coastal swamps (Jermey and Bell, 1990). The change from stable margin to subsiding foreland basin confined the Vryheid - 7 - Formation and the shales of the succession to "pinch-out" to the north. This "pinching-out" results in a gradation of a fluvial valley-fill sequence into sediments of deltaic origin (Van Vuuren, 1981).

According to Cadle et al. (1990) the sandstones become interfingered with the deeper water shales, a so-called "shale-out", approximately 500 km from the present northern basin margin. They state that this is due to rapid basinward facies migration down the southerly dipping paleoslope.

The Water Research Commission Report Project K860, 2001, describes the **Karoo Dolerite Suite** as The Karoo dolerite, which includes a wide range of petrological facies, consists of an interconnected network of dykes and sills and it is nearly impossible to single out any particular intrusive or tectonic event. It would, however, appear that a very large number of fractures were intruded simultaneously by magma and that the dolerite intrusive network acted as a shallow stockwork-like reservoir.

Dolerite dykes, like many other magmatic intrusions, develop by rapid hydraulic fracturing via the propagation of a fluid-filled open fissure, resulting in a massive magmatic intrusion with a neat and transgressive contact with the country rock. This fracturing mechanism is in contrast to the slow mode of hydraulic fracturing responsible for breccia-intrusions (i.e. kimberlite). For the intrusion to develop the magma pressure at the tip of the fissure must overcome the tensile strength of the surrounding rock. Dykes can develop vertically upwards or laterally along-strike over very long distances, as long as the magma pressure at the tip of the fissure is maintained. The intrusion of dolerite and basaltic dykes are therefore never accompanied by brecciation, deformation or shearing of the host-rock, at least during their propagation.

The average thickness of Karoo dolerite dykes ranges between 2 and 10m. The country rock is often fractured during and after dyke emplacement. These fractures form a set of master joints parallel to its strike over a distance that does not vary greatly with the thickness of the dyke (between 5 and 15m).

One of the most prominent features of the present Karoo landscape is the large number of dolerite sills and ring-complexes. These structures often display a sub-circular saucer-like shape, the rims of which are commonly exposed as topographic highs and form ring-like outcrops. The Karoo dolerite sills and ring-complexes have the same geographical distribution as the dolerite dykes and they are by far the most common type of intrusion in the Karoo basin. The dolerite sills and dykes form a complex intrusive network that probably acted as a shallow magma storage system. The lithology of the country-rock strongly controlled the emplacement of the sills.

The **Volksrust Formation** consists of grey to black, silty shale with thin, usually bioturbated, siltstone or sandstone lenses and beds, particularly towards its upper and lower boundaries. Thin phosphate and carbonate beds and concretions are relatively common.

Jeffrey LS, (2004) describes in his published study: The characterisation of the coal resources in South Africa in the Journal of The South African Institute of Mining and Metallurgy that the **Utrecht Coalfields** (0-100m) has the following coal seams:

- Coking Seam (< 1.5 m, good quality),
- Dundas Seam (2 m mixed dull, bright and shaly coal),
- Gus Seam (well developed, economically most important, 1 m in south, split by a sandstone parting in north,
- Alfred Seam (persistent, 3–4 m south of Utrecht, bright—dull-lustrous coal (Spurr9), Eland Seam. 5 major dolerite sills (Zuinguin (> 150 m), B, Utrecht, Ingogo and No. 10) with associated faulting (throws > 15 m (Barker7))

Jeffrey LS, (2004) further states that the Utrecht Coalfield, the seams have been a major source of moderately good coking coal and require little beneficiation. The Lower Dundas Seam rank varies from medium volatile bituminous to anthracitic, with the coal mined as a source of bituminous coal in the northeastern sector of the coalfield and as anthracite in the southern sector. However, the sulphur content can be high—in excess of one per cent. The Gus Seam is subdivided into three coal quality zones with the upper part comprising mainly dull coal, the central part predominantly bright coal and the bottom section mainly poor quality coal with shale partings. The seam has elevated methane gas concentration. The Alfred Seam is of better quality in the Utrecht Coalfield, particularly towards the bottom portion of the seam. The seam is generally high in ash and sulphur content but beneficiation can produce relatively high quality, low ash coal with low sulphur and phosphorus.

(b) Description of the current land uses.

The current land uses can be described Agriculture. The areas is utilised for grazing and cultivation of crops.

(c) Description of specific environmental features and infrastructure on the site.

The study area is situated within a valley between mountains and hills to the Northern and the Southern boundaries of the site. The site is bisected by a flood plain that appears to be a non-perennial stream.

(d) Environmental and current land use map.

(Show all environmental, and current land use features)

- v) Impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts**

(Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated).

The potential environmental and social impacts included:

- Noise caused by the drilling rig travelling to and being established on each site, the diesel engine driving the drill, vehicles going to and from the drilling site and the voices of the drilling crew;
- Visibility of the drilling rig;
- Dust generated by the drilling operation and vehicles travelling over unpaved areas;
- Disturbance of soil from drill pad preparation and compaction;
- Disturbance of flora and fauna;
- Disturbance or damage to cultural and heritage resources such as graves or historic ruins;
- Potential contamination of soil, surface water and groundwater with hydrocarbons;
- Friction between local residents/landowners and prospecting personnel;
- If drilling is undertaken close to any residence, lodge, guest house or game farm, receptors may experience the noise, the visual appearance, the associated traffic and the presence of the drilling crew on the property as intrusive;
- It is not anticipated that the prospecting activities will have any lasting material effects on existing land uses on the prospecting areas or any other areas in the vicinity

vi) 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).

Please refer to Impact Assessment Methodology described in Section I below.

vii) 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)

All of the identified impacts will occur for a limited time and the extent of the impacts will be localised. All of the identified impacts can be suitably mitigated with residual impact ratings of low. After drilling activities have been completed and the drill pads rehabilitated to pre-drilling status, the impacts will cease to exist.

viii) 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).

Please refer to Impact Assessment Methodology described in Section I below.

ix) Motivation where no alternative sites were considered.

The proposed prospecting right area is targeted, as it is known for coal deposits. The proposed prospecting license area is therefore regarded as the preferred site and alternative site have not been considered

x) Statement motivating the alternative development location within the overall site. (Provide a statement motivating the final site layout that is proposed)

The location of the preferred drilling/prospecting locations were considered with the shape and slope of the study area in mind. The current preferred sites were deemed the best positions to identify the coal seams effectively to make a decision to continue with a Mining Right Application.

i) 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.)

Significance scoring will be used to assess and predict the significance of environmental impacts through evaluation of the following factors; probability of the impact; duration of the impact; extent of the impact; and magnitude of the impact. The significance of environmental impacts will be then assessed taking into account any proposed mitigations. The significance of the impact "without mitigation" is the prime determinant of the nature and degree of mitigation required. Each of the above impact factors will be used to assess each potential impact using ranking scales. Unknown parameters will be given the highest score (5) as significance scoring follows the Precautionary Principle. The Precautionary Principle is based on the following statement: "When the information available to an evaluator is uncertain as to whether or not the impact of a proposed development on the environment will be adverse, the evaluator must accept as a matter of precaution, that the impact will be detrimental". It is a test to determine the acceptability of a proposed project. It enables the evaluator to determine whether enough information is available to ensure that a reliable decision can be made.

This section provides an indication of potential positive and negative environmental impacts associated with the proposed prospecting right for coal.

Methodology used for the Risk Assessment is: Significant Scoring = (Magnitude + Duration + Scale) X Probability

Magnitude

- 2 – minor
- 4 – low
- 6 – moderate
- 8 – high
- 10 – very high

Probability

- 1 - very improbable
- 2 - improbable
- 3 - probable
- 4 - highly probable
- 5 – definite

Extent

- 1 - limited to the site
- 2 - limited to the local area
- 3 - limited to the region
- 4 - national
- 5 – international

Duration

- 1 - very short duration (0-1 years)
- 2- short duration (2-5 years)
- 3 - medium term (5-15 years)
- 4 - long term (>15 years)
- 5 - permanent/unknown

** Significance Scoring **(Negative Impact Results)

- -Low significance(<30 significance points) -Low environmental significance (Impacts with little effect and which should not have an influence on or require modification of the project design.
- -Medium significance(31-59 significance points) - Moderate environmental significance (An impact which is sufficiently important to require management and which could have an influence on the decision unless mitigated.
- -High significance (>60 significance points) - High environmental significance(An impact which could influence the decision about whether or nt to proceed with the project regardless of any possible mitigation.

****Significance Scoring (Positive Impact Results)**

- -Low significance (<30 significance points)- Low environmental significance (Impacts with little positive effect and which should not have an influence on or require modification of the project design.
- -Medium significance (31-59 significance points) - Moderate environmental significance (A positive impact or benefit which is sufficiently important and which could have an influence on the decision taking into consideration set mitigation measures.
- -High significance (>60 significance points) - High environmental significance (A positive impact which could influence the decision in a positive way about whether to proceed with the project regardless.

Impact scores given “with mitigation” are based on the assumption that the mitigation measures recommended in this assessment are implemented correctly and at all times and that rehabilitation of the site is fully and correctly undertaken. Failure to implement mitigation measures during construction and rehabilitation will keep the impacts at an unacceptably high level

j) 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).

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	SIGNIFICANCE if not mitigated	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	SIGNIFICANCE if mitigated
Site establishment activities: -Vegetation clearance -Topsoil stripping and stockpiling -Drill pad compaction -Erection of office, toilets, fuel storage, water tanker, core storage. -Vehicle movements -Waste Management	CULTURAL AND HERITAGE	Destruction or loss of Cultural and Heritage Resources	Planning/ Construction Phase	High (8)	All contractor personnel must be made aware of the locations of all identified heritage resources and the necessity of avoiding them. Personnel must be informed about the consequences of unlawful removal of cultural and historical remains and artefacts associated with heritage sites. A safe distance of at least 50 metres will be maintained between the identified heritage	Low (6)

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	SIGNIFICANCE if not mitigated	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	SIGNIFICANCE if mitigated
					resources and prospecting activities. Where necessary, directional drilling will be practised to assess coal reserves situated below identified heritage resources. If any heritage resources are discovered as a result of prospecting activities, such activities will cease with immediate effect and a qualified archaeologist will be commissioned to assess their significance and determine appropriate mitigation measures.	
	NOISE	Noise Generation	Planning/ Construction Phase	Moderate (6)	Construction/setup, operational and decommissioning activities must be limited to daylight hours on Monday to	Low(4)

<p>NAME OF ACTIVITY</p> <p>(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc</p> <p>E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</p>	<p>POTENTIAL IMPACT (Including the potential impacts for cumulative impacts)</p> <p>(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)</p>	<p>ASPECTS AFFECTED</p>	<p>PHASE</p> <p>In which impact is anticipated</p> <p>(e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)</p>	<p>SIGNIFICANCE</p> <p>if not mitigated</p>	<p>MITIGATION TYPE</p> <p>(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)</p> <p>E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..</p>	<p>SIGNIFICANCE</p> <p>if mitigated</p>
					<p>Saturday and no activities on Sunday and Public Holidays.</p> <p>Separation of distance of minimum 200m, but preferably 1000m to be maintained between drill sites and dwellings.</p> <p>Noise abatement equipment, such as mufflers on diesel engines, must be maintained in good condition</p> <p>.</p> <p>If intrusive noise levels are experienced by any persons at any point, the source of the noise must be moved if practical, or it must be placed in an acoustic enclosure, or an acoustic barrier must be erected between the source and the recipient</p>	

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	SIGNIFICANCE if not mitigated	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	SIGNIFICANCE if mitigated
Site establishment activities: -Vegetation clearance -Topsoil stripping and stockpiling -Drill pad compaction -Erection of office, toilets, fuel storage, water tanker, core storage. -Vehicle movements -Waste Management	VISUAL	Visual Intrusion	Planning/ Construction Phase	High(8)	The drilling rig and other visually prominent items on the site must be located in consultation with the landowners. Make use of existing vegetation as far as possible to screen the prospecting operations from view, and If necessary, the operation can be screened from view by erecting a shade cloth barrier.	Low(4)
	FALLOUT DUST	Dust fall and nuisance activities	Planning/ Construction Phase	High(8)	Wet suppression must be applied to ensure that no visible dust is raised by any of the propecting operations; Separation of distance of minimum 200m, but preferable 1000m to be maintained between drill sites and dwellings, and Low vehicle speeds must be	Low(4)

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	SIGNIFICANCE if not mitigated	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	SIGNIFICANCE if mitigated
					enforced on unpaved surfaces.	
	SOIL AND VEGETATION	Soil and vegetation disturbance from drill pad preparation	Planning/ Construction Phase	High(8)	Soil disturbance and clearance of vegetation at drill pad areas must be limited to the absolute minimum requirement, An ecology screening survey will be required on undisturbed land and access routes in order to identify any red data / species of concern prior to any site activities being undertaken. No clear scraping to be carried out unless absolutely necessary to establish a level drill pad. Rather that surface vegetation be cleared to make way for the drilling rig leaving the roots intact so that vegetation can coppice and regrow, and Disturbed areas must be re-vegetated	Low(4)

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	SIGNIFICANCE if not mitigated	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	SIGNIFICANCE if mitigated
					with locally indigenous species as soon as possible.	
	OIL, SURFACE WATER AND GROUNDWATER	Soil, surface water and groundwater contamination from hydrocarbon	Planning/ Construction Phase	High(8)	Proper vehicle maintenance. Refuelling to be done with care to minimise the chance of spillages; a spill kit will be made available on each site where prospecting activities are in progress. Any spillages to be cleaned up immediately Drilling muds must be contained in lined drill sumps and this material must be removed from site and disposed in a licensed disposal facility.	Low(4)
	SOCIAL	Friction between local residents / landowners and construction personnel	Planning/ Construction Phase	High(8)	All operation must be carried out under the guidance of a strong, experienced manager with proven skills in public consultation and conflict resolution. All prospecting personnel will be made aware of the local conditions and sensitivities in	Low(4)

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	SIGNIFICANCE if not mitigated	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	SIGNIFICANCE if mitigated
					the prospecting area and the fact that some of the local residents may not welcome the prospecting activities in the area. There will be strict requirement to treat local residents with the utmost respect and courtesy at all times	
Exploration drilling: - Drilling; -Drill maintenance and refuelling; -core sample collection and storage; - Vehicle movements -Waste generation and management	CULTURAL AND HERITAGE	Destruction or loss of Cultural Heritage Resources	Operational Phase	High(8)	All contractor personnel will be made aware of the locations of all identified heritage resources, the necessity of avoiding them. Personnel must be informed about the consequences of unlawful removal of cultural and historical remains and artefacts associated with heritage sites. A safe distance of at least 50 metres will be maintained between the identified heritage resources and prospecting activities. Where	Low(4)

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	SIGNIFICANCE if not mitigated	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	SIGNIFICANCE if mitigated
					necessary, directional drilling will be practised to assess coal reserves situated below identified heritage resources. If any heritage resources are discovered as a result of prospecting activities, such activities will cease with immediate effect and a qualified archaeologist will be commissioned to assess their significance and determine appropriate mitigation measures.	
	NOISE	Noise Generation	Operational Phase	High(8)	Construction/setup, Operational and decommissioning activities must be limited to daylight hours on Monday to Saturday and no activities on Sunday and Public Holidays. Separation of distance of minimum 200m, but preferably 1000m to be maintained between drill	Low(4)

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. For mining- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	SIGNIFICANCE if not mitigated	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	SIGNIFICANCE if mitigated
					sites and dwellings. Noise abatement equipment, such as mufflers on diesel engines, must be maintained in good condition, and If intrusive noise levels are experienced by any persons at any point, the source of the noise must be moved if practical, or it must be placed in an acoustic enclosure, or an acoustic barrier must be erected between the source and the recipient	
	VISUAL	Visual Intrusion	Operational Phase	High(8)	The drilling rig and other visually prominent items on the site will be located in consultation with the landowners. Make use of existing vegetation as far as possible to screen the prospecting operations from view . If necessary, the operation can be screened	Low(4)

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	SIGNIFICANCE if not mitigated	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	SIGNIFICANCE if mitigated
					from view by erecting a shade cloth barrier.	
	FALLOUT DUST	Dust fall and nuisance activities	Operational Phase	High(8)	Wet suppression must be applied to ensure that no visible dust is raised by any of the prospecting operations; Separation of distance of minimum 200m, but preferable 1000m to be maintained between drill sites and dwellings, and Low vehicle speeds will be enforced on unpaved surfaces	Low(4)
	SOIL AND VEGETATION	Soil and vegetation disturbance from drill pad preparation	Operational Phase	High(8)	Soil disturbance and clearance of vegetation at drill pad areas must be limited to the absolute minimum requirement, An ecology screening survey will be required on undisturbed land and access routes in order to identify any red data / species of concern prior to any site activities	Low(4)

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	SIGNIFICANCE if not mitigated	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	SIGNIFICANCE if mitigated
					being undertaken. No clear scraping to be carried out unless absolutely necessary to establish a level drill pad. Rather that surface vegetation be cleared to make way for the drilling rig leaving the roots intact so that vegetation can coppice and regrow. Disturbed areas must be re-vegetated with locally indigenous species as soon as possible	
	SOIL, SURFACE WATER AND GROUNDWATER	Soil, surface water and groundwater contamination from hydrocarbons	Operational Phase	High(8)	Proper vehicle maintenance. Refuelling to be done with care to minimise the chance of spillages; a spill kit will be made available on each site where prospecting activities are in progress; any spillages to be cleaned up immediately; Drilling muds must be contained in lined drill sumps and this material must be removed from site	Minor (2)

NAME OF ACTIVITY (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. For mining - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	POTENTIAL IMPACT (Including the potential impacts for cumulative impacts) (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	SIGNIFICANCE if not mitigated	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..	SIGNIFICANCE if mitigated

The supporting impact assessment conducted by the EAP must be attached as an appendix, marked **Appendix**

k) 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):-

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.
No specialist studies have been undertaken. A desktop analysis has been followed that informs the compilation of this assessment			

Attach copies of Specialist Reports as appendices

l) Environmental impact statement

(i) Summary of the key findings of the environmental impact assessment;

The majority of the prospecting activities are non-invasive and hence will have no environmental or social impact. Invasive activities entail the drilling of a maximum of 20 exploration boreholes which will have a minimal environmental and social impact as each drill site will be confined to an area

The assessed impacts ratings after implementation of the mitigation measures described above are as follows:

- Cultural and Heritage - Low environmental significance (14)
- Noise - Low environmental significance (10)
- Visual - Low environmental significance (10)
- Dust Fall- Low environmental significance (12)
- Disturbance of soil vegetation - Low environmental significance (12)
- Contamination of soil, surface water and groundwater - Low environmental significance (12)
- Friction between local residents and prospecting personnel - Low environmental significance (10)

All of the identified impacts will occur for a limited time and the extent of the impacts will be localised. All of the identified impacts can be suitably mitigated with the residual impact ratings being low. After drilling activities have been completed and the drill pads rehabilitated to pre-drilling status, the impacts will cease to exist.

(ii) 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**

(iii) Summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;

Destruction or loss of Cultural and Heritage Resources during the construction/set-up phase as well as during the operational phase as drilling commences;

- Noise generation from construction / set-up and operational activities of drilling;
- Visual intrusion caused by the drilling activities in the largely rural setting;
- Dust fall & nuisance from construction / set-up and drilling activities;
- Soil and vegetation disturbance from drill pad preparation during the construction / set-up and operational phase as contractors rehabilitate one site and move to the next site and prepare it;
- Soil, surface water and groundwater contamination from hydrocarbons during the construction / set-up and operational activities which include drill rig operation and use of vehicles on site; and.
- Friction between local residents/landowners and construction personnel during the course of the construction / set-up and operational drilling activities.

m) 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.

The objectives of the EMPr will be to:

- Provide sufficient information to strategically plan the prospecting activities as to avoid unnecessary social and environmental impacts.
- Provide sufficient information and guidance to plan prospecting activities in a manner that would reduce impacts (both social and environmental) as far as practically possible.
- Ensure an approach that will provide the necessary confidence in terms of environmental compliance.

- Provide a management plan that is effective and practical for implementation.

Through the implementation of the proposed mitigation measures it is anticipated that the identified social & environmental impacts can be managed and mitigated effectively. Through the implementation of the mitigation and management measures it is expected that:

- Heritage/cultural resources can be managed by avoidance of known resources and through consultation with landowners/stakeholders. Contractor personnel will also be briefed of these sensitivities and consequences of any damage/removal of such features;
- Noise generation can be managed through consultation and restriction of operating hours and by maintaining equipment and applying noise abatement equipment if necessary;
- Visual intrusion can be managed through consultation with landowners/stakeholders and by suitable siting of drill pads and use of screens (natural vegetation or shade cloth etc);
- Dust fall can be managed by application of wet suppression on exposed surfaces and use of water during drilling;
- Soil disturbance and clearance of vegetation at drill pad areas will be limited to the absolute minimum required and disturbed areas will be re-vegetated with locally indigenous species as soon as possible;
- Soil, surface water and groundwater contamination by hydrocarbons can be managed by conducting proper vehicle maintenance, refuelling with care to minimise the chance of spillages and by having a spill kit available on each site where prospecting activities are in progress;
- Social friction with landowners can be managed by employing strong, experienced personnel with proven skills in public consultation and conflict resolution during stakeholder consultation phases. All prospecting personnel will be made aware of the local conditions and sensitivities in the prospecting area and that they treat local residents with respect and courtesy at all times.

n) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

It is the opinion of the EAP that the following conditions should form part of the authorisation:

- Maintain a buffer of 100m from a water course;
- Maintain a minimum 200m (preferably 1000m) buffer from any infrastructure or dwelling;
- Conduct a heritage survey of the identified drill sites and access routes once these are known and prior to any activities being undertaken at these sites;
- Conduct an ecology survey of any identified drill sites and access routes that may fall within any critical endangered ecosystems; and
- 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.

o) Description of any assumptions, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

- Due to the nature of the activities (small scale and short term) the site was not subjected to a Surface Water, Geohydrological Assessment, etc;
- The final drill hole and trench layout can only be finalised on completion of the non-invasive phases of the programme and after agreements have been signed with the relevant landowners;
- Heritage Assessment: Although all efforts are made to locate, identify and record all possible cultural heritage sites and features (including archaeological remains) there is always a possibility that some might have been missed as a result of grass cover and other factors. The subterranean nature of these resources (including low stone-packed or unmarked graves) should also be taken into consideration. Should any previously unknown or invisible sites, features or material be uncovered during any development actions then an expert should be contacted to investigate and provide recommendations on the way forward;
- Ecology Assessment: No site survey has been conducted to verify or dispute the desktop findings.

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

i) Reasons why the activity should be authorized or not.

It is of the opinion that the EAP that the proposed prospecting activities should be authorised due to the following: The environmental impacts associated with the limited drilling activities are minimal provided that the proposed mitigation is implemented. The spatial extent of the physical impact is less than 0.05 hectare per drill site over a prospecting right license area of approx. 1500 hectares; a maximum of 20 drill sites will be established in total throughout the duration of the drilling programme. With appropriate care and consideration the impacts resulting from drilling can be suitably avoided, minimised or mitigated. With implementing the appropriate rehabilitation activities, the impacts associated with the drilling activities can be reversed. Without implementation of prospecting activities the knowledge concerning the potential mineral resource within the prospecting right area will not be confirmed.

ii) Conditions that must be included in the authorisation

To ensure compliance with, and implementation of the EMP by:

- Appointing of a suitably qualified individual as Environmental Control Officer to oversee implementation of the EMP during all phases of the project
- To ensure that all staff, contractors and sub-contractors are aware of and understand the requirements of the EMP and environmental issues in relation to their individual areas of work by:
 - Developing an induction and training program covering the EMP, environmental awareness, dealing with environmental incidents and waste management; and
 - Advising staff commissioned during pre-construction and construction, including subcontractors, of EMP requirements through the induction program as well as on notice boards at the contractor's camps during construction and notice boards during operation. These notice boards should cover the EMP, environmental awareness, dealing with emergencies and waste management.
- Landowners should be consulted regarding finalised location of drillholes and trenches.

q) Period for which the Environmental Authorisation is required.

5 years

r) 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 undertaking has been duly completed by the Environmental Assessment Practitioner at the end of the EMPr.

s) Financial Provision

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

i) Explain how the aforesaid amount was derived.

Financial provision has been calculated according to the regulation 54 of the MPRDA and the principles presented in the guidelines for the determination of financial provision for the mining industry (2005) – and only aspects applicable to prospecting through exploration drilling and trenching up to de-establishment are addressed in the financial provision assessment. The primary risk ranking of the overall prospecting activities was determined as class C. The overall environmental sensitivity of the proposed project site was defined as being moderate.

ii) 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).

Claud Coal confirmed that the amount has been provided for in the project budget.

t) Specific Information required by the competent Authority

i) 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:-

(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** .

It is not foreseen that any socio-economic impact will arise from the prospecting activities. The impacts are localised and with the extent of the agricultural property being over 1800 hectares with minimal residential structures.

(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)(j)(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 50m of any identified heritage site (which may occur during the prospecting programme).

u) 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 4**).

The proposed prospecting activities requested as part of this authorisation is the only current viable manner in which a mineral deposit can be identified and used to generate a SAMREC compliant resource which is a minimum requirement to determine whether it is viable to invest in a future mine. The National Environmental Management Act 107 of 1998, Environmental Impact Assessment Regulations, 2014 requires the applicant to identify alternatives for projects applied for. In terms of the above-mentioned regulations an alternative in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to the: (a) the property on which or location where it is proposed to undertake the activity; (b) the type of activity to be undertaken;

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1) Draft environmental management programme.

- a) **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).

Please refer to Part A of the BAR

- b) **Description of the Aspects of the Activity** (Confirm that the requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, section (1)(h) herein as required).

Please refer to Part A, Section 1(h) of this document.

c) 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)

Please find attached in Appendix B

d) Description of Impact management objectives including management statements

- i) **Determination of closure objectives.** (ensure that the closure objectives are informed by the type of environment described)

After prospecting is complete at each drill site, the sites will be rehabilitated to be safe, stable, re-vegetated, non-polluting, non-eroded and in a state that is suitable for agreed post-closure land use.

ii) Volumes and rate of water use required for the operation.

The drilling activities will use between 5 000L to 10 000L per day which falls within “small industrial user” where the use is less than twenty cubic metres per day for prospecting. Therefore the water that will be used for the prospecting activities will be sourced on agreement from an existing authorized water user which could be either the land owner or local municipality. No water will be abstracted in terms of section 21(a) of National Water Act, 1998 (Act no. 36 of 1998).

iii) Has a water use licence has been applied for?

It is not foreseen that any abstraction will occur from a watercourse for the water needed for drilling activities.

iv) Impacts to be mitigated in their respective phases

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

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<p>(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc</p> <p>E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</p>	<p>(of operation in which activity will take place.</p> <p>State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).</p>	<p>(volumes, tonnages and hectares or m²)</p>	<p>(describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)</p>	<p>(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)</p>	<p>Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required.</p> <p>With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity or.</p> <p>Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.</p>
<p>Site Establishment activities:</p> <ul style="list-style-type: none"> -Vegetation clearance -Topsoil stripping and stockpiling -Drill pad compaction -Erection of site office, toilets, fuel storage, water tanker, core storage -Vehicle movements; -Waste management 	<p>Construction phase and Operational Phase</p>	<p>Max 0.64 ha (500m²) per drilling site</p>	<ul style="list-style-type: none"> -Avoid cultural/heritage impacts by maintaining 50m buffer from any identified heritage feature; -Any buried artefacts that may be uncovered during site activities to stop and a qualified archaeologist will be commissioned to assess their significance and determine appropriate mitigation measures 	<p>Heritage Act</p>	<p>Before and during drilling activities</p>
<p>Exploration Drilling:</p> <ul style="list-style-type: none"> - Drilling -Drilling maintenance and refuelling -Core sample collection and storage -Vehicle movements 	<p>Construction phase and Operational Phase</p> <p>Max. 0.64 Ha per drill</p>	<p>0.05 ha (500m²) per drilling site</p>	<ul style="list-style-type: none"> -Control noise generation by maintaining equipment; -Limited to daylight hours on Mondays to Saturdays and no activities on Sundays and Public holidays. -Maintain a buffer of 200m-1000m between drill sites ad dwelling' 	<p>SANS 10103 guideline</p>	<p>Before and during drilling activities</p>

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<p>(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc</p> <p>E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)</p> <p>-Waste generation and management</p>	<p>(of operation in which activity will take place.</p> <p>State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).</p>	<p>(volumes, tonnages and hectares or m²)</p>	<p>(describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)</p> <p>-If intrusive noise levels are experienced by anyone at any point, the source of the noise must be moved if practical, or it must be placed in an acoustic enclosure, or an acoustic barrier must be erected between the source and the recipient.</p> <p>-The drilling rig and other visually prominent items on the site must be located in consultation with the landowner;</p> <p>-Make sure of existing vegetation as far as possible to screen the prospecting operations from view; and</p> <p>-If necessary, the operations can be screened from view by erecting a shade cloth barrier.</p> <p>-Control dust emission by ensuring drill rig employs dust suppression system;</p> <p>-Low vehicle speeds must be enforced on unpaved surfaces;</p>	<p>(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)</p> <p>N/A</p> <p>GN R.827 (NEM: AQA, 2004)</p>	<p>Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required.</p> <p>With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity or.</p> <p>Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.</p> <p>Before and during drilling activities</p> <p>Before and during drilling activities</p>

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablation facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablation, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE (of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).	SIZE AND SCALE of disturbance (volumes, tonnages and hectares or m ²)	MITIGATION MEASURES (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	TIME PERIOD FOR IMPLEMENTATION Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
			-Maintain a buffer of 500m-1000m between drill sites and dwellings.		
			-The soil disturbance and clearance of vegetation at drill pad areas must be limited to absolute minimum required and must not be dozed or scraped with vegetation roots left intact for later re-growth; and -Disturbed areas must be re-vegetated with locally indigenous species as soon as possible.	N/A	Before and during drilling activities
			-Avoid hydrocarbon spills by employing proper vehicle maintenance; -Refuelling must be done with care to minimise the chances of spillages; -A spillkit must be available on each site when prospecting activities are in progress; - Any spillages must be cleaned up immediately; -Drill muds to be contained in lined sump and disposed of off-site at a licensed disposal facility.	GN R. 704 (NWA)	Before and during drilling activities

ACTIVITIES (E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	PHASE (of operation in which activity will take place. State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).	SIZE AND SCALE of disturbance (volumes, tonnages and hectares or m ²)	MITIGATION MEASURES (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	TIME PERIOD FOR IMPLEMENTATION Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
			-All operations must be carried out under the guidance of a strong, experienced manager with proven skills in public consultation and conflict resolution; - All prospecting personnel must be made aware of the local conditions and sensitivities in the prospecting area and the fact some of the local residents may not welcome the prospecting activities in the area; -There must be strict requirements with respect and courtesy at all times.	NEMA, 1998	Before and during drilling activities

e) Impact Management Outcomes

(A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph ());

ACTIVITY (whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring • Remedy through rehabilitation.. 	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
Site Establishment activities: -Vegetation clearance -Topsoil stripping and stockpiling -Drill pad compaction -Erection of site office, toilets, fuel storage, water tanker, core storage -Vehicle movements; -Waste management	Cultural and Heritage	Destruction or loss of Cultural and Heritage Resources	Construction / phase and Operational phase	-Avoid cultural/heritage impacts by maintaining 50m buffer from any identified heritage feature; -Any buried artefacts that may be uncovered during site activities to stop and a qualified archaeologist will be commissioned to assess their significance and determine appropriate mitigation measures	Heritage Act
Exploration Drilling: - Drilling -Drilling maintenance and refuelling -Core sample collection and storage -Vehicle movements -Waste generation and management	Noise	Noise Generation	Construction/ phase and Operational phase	-Control noise generation by maintaining equipment; -Limited to daylight hours on Mondays to Saturdays and no activities on Sundays and Public holidays. -Maintain a buffer of 200m-1000m between drill sites and dwellings -If intrusive noise levels are experienced by anyone at any point, the source of the noise must be moved if practical, or it must be	SANS 10103

ACTIVITY (whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring • Remedy through rehabilitation.. 	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
				placed in an acoustic enclosure, or an acoustic barrier must be erected between the source and the recipient.	
	Visual	Visual Intrusion	Construction/ phase and Operational phase	-The drilling rig and other visually prominent items on the site must be located in consultation with the landowner; Make use of existing vegetation as far as possible to screen the prospecting operations from view; and -If necessary, the operations can be screened from view by erecting a shade cloth barrier.	N/A
	Fallout Dust	Dust fall & nuisance from activities	Construction/ phase and Operational phase	-Control dust emission by ensuring drill rig employs dust suppression system; -Low vehicle speeds must be enforced on unpaved surfaces; Maintain a buffer of 200m-1000m between drill sites and dwellings.	GN R. 827 (NEM:AQA, 2004)
	Soil and vegetation	Soil vegetation disturbance from drill and preparation	Construction/ phase and Operational phase	-The soil disturbance and clearance if vegetation at drill pad areas will be limited to absolute minimum required and will not be dozed or	N/A

ACTIVITY (whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring • Remedy through rehabilitation.. 	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
				scraped with vegetation roots left intact for later re-growth; and -Disturbed areas must be re-vegetated with locally indigenous species as soon as possible.	
	Soil, surface water and groundwater	Soil, surface water and groundwater contamination from hydrocarbons	Construction/ phase and Operational phase	-Avoid hydrocarbon spills by employing proper vehicle maintenance; -Refueling must be done with care to minimize the chances of spillages; -A spill kit must be available on each site when prospecting activities are in progress; - Any spillages must be cleaned up immediately; -Drill muds to be contained in lined sump and disposed of off-site at a licensed disposal facility.	GN R.704 (NWA, 1998)
	Social	Friction between local residents/land owners and construction personnel		-All operations will be carried out under the guidance of a strong, experienced manager with proven skills in public consultation and conflict resolution; - All prospecting personnel must be made aware of the local	NEMA, 1998

ACTIVITY (whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring • Remedy through rehabilitation.. 	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
				conditions and sensitivities in the prospecting area and the fact some of the local residents may not welcome the prospecting activities in the area; -There will be strict requirements with respect and courtesy at all times.	

f) Impact Management Actions

(A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (c) and (d) will be achieved).

<p>ACTIVITY whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).</p>	<p>POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)</p>	<p>MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring Remedy through rehabilitation..</p>	<p>TIME PERIOD FOR IMPLEMENTATION Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.</p>	<p>COMPLIANCE WITH STANDARDS (A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)</p>
<p>Site Establishment activities: - Vegetation clearance - Topsoil stripping and stockpiling - Drill pad compaction - Erection of site office, toilets, fuel storage, water tanker, core storage - Vehicle movements; - Waste management</p>	<p>Cultural and Heritage</p>	<p>Avoid cultural/heritage impacts by maintaining 50m buffer from any identified heritage feature; -Any buried artefacts that may be uncovered during site activities to stop and a qualified archaeologist will be commissioned to assess their significance and determine appropriate mitigation measures</p>	<p>Before and during drilling activities</p>	<p>Heritage Act</p>

ACTIVITY whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring Remedy through rehabilitation..	TIME PERIOD FOR IMPLEMENTATION Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
Exploration Drilling: - Drilling -Drilling maintenance and refuelling -Core sample collection and storage -Vehicle movements -Waste generation and management	Noise	-Control noise generation by maintaining equipment; -Limited to daylight hours on Mondays to Saturdays and no activities on Sundays and Public holidays. -Maintain a buffer of 200m-1000m between drill sites ad dwelling' -If intrusive noise levels are experienced by anyone at any point, the source of the noise must be moved if practical, or it must be placed in an acoustic enclosure, or an acoustic barrier must be erected between the source and the recipient.	Before and during drilling activities	SANS 10103
	Visual	-The drilling rig and other visually prominent items on the	Before and during drilling activities	N/A

ACTIVITY whether listed or not listed. (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).	POTENTIAL IMPACT (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	MITIGATION TYPE (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring Remedy through rehabilitation..	TIME PERIOD FOR IMPLEMENTATION Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.	COMPLIANCE WITH STANDARDS (A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
		site must be located in consultation with the landowner; - Make use of existing vegetation as far as possible to screen the prospecting operations from view; and -If necessary, the operations can be screened from view by erecting a shade cloth barrier		
	Fallout Dust	-Control dust emission by ensuring drill rig employs dust suppression system; -Low vehicle speeds must be enforced on unpaved surfaces; - Maintain a buffer of 200m-1000m between drill sites and dwellings.	Before and during drilling activities	GN R. 827 (NEM: AQUA, 2014)
	Soil and vegetation	-The soil disturbance and clearance if vegetation at drill	Before and during drilling activities. Disturbed areas to	N/A

<p>ACTIVITY whether listed or not listed.</p> <p>(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).</p>	<p>POTENTIAL IMPACT</p> <p>(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)</p>	<p>MITIGATION TYPE</p> <p>(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)</p> <p>E.g.</p> <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring <p>Remedy through rehabilitation..</p>	<p>TIME PERIOD FOR IMPLEMENTATION</p> <p>Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required.</p> <p>With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-..</p> <p>Upon cessation of the individual activity</p> <p>or.</p> <p>Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.</p>	<p>COMPLIANCE WITH STANDARDS</p> <p>(A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)</p>
		<p>pad areas must be limited to absolute minimum required and must not be dozed or scraped with vegetation roots left intact for later re-growth; and</p> <p>-Disturbed areas will be revegetated with locally indigenous species as soon as possible</p>	<p>be revegetated as soon as possible.</p>	
	<p>Soil, surface water and groundwater</p>	<p>-Avoid hydrocarbon spills by employing proper vehicle maintenance;</p> <p>-Refuelling must be done with care to minimise the chances of spillages;</p> <p>-A spill kit must be available on each site when prospecting activities are in progress;</p> <p>- Any spillages must be cleaned up immediately;</p>	<p>Before and during drilling activities</p>	<p>GN R. 704 (NWA, 1998)</p>

<p>ACTIVITY whether listed or not listed.</p> <p>(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).</p>	<p>POTENTIAL IMPACT</p> <p>(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)</p>	<p>MITIGATION TYPE</p> <p>(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)</p> <p>E.g.</p> <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring <p>Remedy through rehabilitation..</p>	<p>TIME PERIOD FOR IMPLEMENTATION</p> <p>Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required.</p> <p>With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-..</p> <p>Upon cessation of the individual activity</p> <p>or.</p> <p>Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.</p>	<p>COMPLIANCE WITH STANDARDS</p> <p>(A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)</p>
		<p>-Drill muds to be contained in lined sump and disposed of off-site at a licensed disposal facility</p>		
	<p>Social</p>	<p>-All operations must be carried out under the guidance of a strong, experienced manager with proven skills in public consultation and conflict resolution;</p> <p>- All prospecting personnel will be made aware of the local conditions and sensitivities in the prospecting area and the fact some of the local residents may not welcome the prospecting activities in the area;</p>	<p>Before and during drilling activities</p>	<p>NEMA, 1998</p>

<p>ACTIVITY whether listed or not listed.</p> <p>(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.).</p>	<p>POTENTIAL IMPACT</p> <p>(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)</p>	<p>MITIGATION TYPE</p> <p>(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)</p> <p>E.g.</p> <ul style="list-style-type: none"> • Modify through alternative method. • Control through noise control • Control through management and monitoring <p>Remedy through rehabilitation..</p>	<p>TIME PERIOD FOR IMPLEMENTATION</p> <p>Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required.</p> <p>With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-..</p> <p>Upon cessation of the individual activity</p> <p>or.</p> <p>Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.</p>	<p>COMPLIANCE WITH STANDARDS</p> <p>(A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)</p>
		<p>-There must be strict requirements with respect and courtesy at all times.</p>		

i) Financial Provision

(1) Determination of the amount of Financial Provision.

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

The closure objective is to return the affected sites as close as possible to their original state, with the only visible impact being either the concrete plinths and capped and locked boreholes earmarked for future use, and/or droppers identifying the locations of sealed boreholes which protrude about 0.5m above the surface for future reference and location.

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

The closure objectives has been captured within the draft BAR which has been made available to all registered interested and affected parties,

(c) 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.

After drilling has been completed in one area, the drilling team will ensure the site is reverted back to its original state by carrying out the following:

- Removing all infrastructures, including the drill rig, the temporary office, the mobile diesel tank, the mobile water tank and the chemical toilet.
- Capping the boreholes as per legal requirements.
- Ensure that no foreign matter is left behind on the drill site.
- Refilling the sump required for the drilling activities. Initially the plastic lining will be removed and disposed of in a registered landfill site and the soil returned to in order to rehabilitate the area.
- The whole drill site will be inspected for any signs of hydrocarbon pollution. Any identified soil which has been polluted as a result of the drilling activities will be removed and disposed of in a registered landfill site.
- Any area compacted as a result of the drill rig will be ripped and any ruts created by accessing or leaving the site for the drilling activity will be filled in to ensure that no future erosion shall occur on site.
- Applicable landowner will be requested to inspect the rehabilitated area.

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

The closure objectives are to return the land disturbed by drilling activities back to its original condition. The rehabilitation plan above provides the detail on how this will be achieved. Through experience, we can confirm that effective rehabilitation of drill sites is possible and achievable with the rehabilitation plan set out above.

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

Claud Coal is required to make the prescribed financial provision for the rehabilitation or management of negative environmental impacts. If the Company 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.

Claud Coal will specify that the drilling contractor is required to comply with all the environmental measures specified in the EMP. This will include avoiding unnecessary disturbance of horticultural land and the rehabilitation of each drill site, immediately after drilling has been completed.

The financial provision provides for the final checking of all sites before site clearance.

Itemisation of the quantum of the financial provision

Item Cost
Rehabilitation of drill sites R 40,000
Labour & supervision R 10,000
Total (including VAT) **R 50,000**

The quantum of the financial provision required is therefore: R50 000. The Company must annually update and review the quantum of the financial provision (Regulation 54 (2)).

(f) Confirm that the financial provision will be provided as determined.

Upon Approval Claud Coal will provide a bank guarantee of the available funds for rehabilitation.

Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

- g) Monitoring of Impact Management Actions
- h) Monitoring and reporting frequency
- i) Responsible persons
- j) Time period for implementing impact management actions
- k) Mechanism for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
All Prospecting Activities	N/A All commitments contained in the BA report and the accompanying EMPr	Ensure that the prospecting programme is being implemented in line with the approved prospecting works programme. Ensure that commitments made within the approved BAR and EMPr are being adhered to.	Site Manager and Geologist Internal environmental control officer and independent EAP	Submit an annual prospecting progress report to DMR. Undertake and submit and environ
Drilling Activities	- Cultural Heritage Resources; -Noise Dustfall -Visual; -Soil and Vegetation; -Soil, surface water and groundwater; -Social; -Housekeeping and maintenance; -Waste management; -Rehabilitation	Monitor Ground water quality and level within 500m from a drill site. Weekly inspections will cover the following: <ul style="list-style-type: none"> • Implementation of effective waste management; • Establish and implement a stakeholder complaints register on site and ensure that all complaints are responded to immediately; • Ensure that an oil spill kit is always available on site. Ensure that all hydrocarbons and chemicals are stored within bundwalls. • Ensure that the fire break is maintained. • Rehabilitation of drill pads. 	Appointed drilling contractor	Weekly inspection and reporting

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
		<ul style="list-style-type: none"> • Records of water intersections on borehole logs. • Control and minimise the development of new access tracks. • Appropriate storage and handling of top soil. 		
Post Drilling	Groundwater Revegetation Stability Soil erosion Alien invasive species	Monitor the external boreholes within 500m from drill post drilling (if any). The drill site shall be monitored six monthly unit closure certificate is maintained	Environmental Coordinator	Monitoring report

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

An environmental performance audit report will be undertaken by an independent environmental assessment practitioner (EAP) every 2 years after the granting of the prospecting right and authorisation

m) Environmental Awareness Plan

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

Before commencement of the prospecting activities all employees and contractors who are involved with such activities should attend relevant induction and training. It is standard practice for employees and the employees of contractors that will be working on a new project or at a new site to attend an induction course where the nature and characteristics of the project and the site are explained. The training course should include key information abstracted from the EMPr pertaining to the potential environmental impacts, the mitigation measures that will be applied, the monitoring activities that will be undertaken and the roles and responsibilities of contractors' and De Beers personnel. The full EMP document is also made available to attendees

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

Environmental risks and how to manage them are dealt with in the induction course referred to in section (m) (i) above. If an incident of environmental pollution or damage does occur it is analysed and appropriate prevention and/or mitigation measures are developed. These measures are added to the EMP and conveyed to the relevant personnel. All unplanned incidents with the potential to cause pollution or environmental degradation or conflict with local residents will be reported to The Mineral Resources Manager within 24 hours.

Hydrocarbon Spills

Hydrocarbon spills that are considered to be emergency incidents are largescale spills (cover a surface area >1m²), resulting from situations such as; a leaking diesel bowser, an oil drum that is knocked over, large spillages from equipment, etc. Activities that are involved in the clean-up of such instances include:

- The containment of the spill,
- The removal of all contaminated material, and
- The disposal (at a licenced hazardous disposal facility) or bioremediation (at a licenced facility) of this material.

Fire

There is the potential for fire to occur in the following locations of the drill site:

- Veld fires across vegetated areas; and
- Vehicles and equipment.

Veld fires: Any person who observes the fire must report it to the fire brigade immediately and then to their supervisor. If possible, additional personnel may be sent to contain the fire, but only if the lives of the personnel will not be endangered.

Vehicles and Equipment: Fire extinguishers will be available at the site where drilling activities will take place and in the vehicles. All staff members will be trained in the use of fire-fighting equipment.

**n) Specific information required by the Competent Authority
(Among others, confirm that the financial provision will be reviewed annually).**

Not applicable at this stage

2) UNDERTAKING

The EAP herewith confirms

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

Signature of the environmental assessment practitioner:

Name of company:

Date:

-END-