

**mineral resources**Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA**ERICURE (PTY) LTD**

**BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT
PROGRAMME REPORT**

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL 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).

PREPARED BY: TSHIFCOR INVESTMENT AND RESOURCES (PTY) LTD**NAME OF APPLICANT:** ERICURE (PTY) LTD**TEL NO:** +27 (0) 11 027 5996**FAX NO:** +27 (0) 86 605 9120**POSTAL ADDRESS:** 20 Pitzer Road, Glen Austin AH, Midrand, 1686**FILE REFERENCE NUMBER DMR:** KZN 30/5/1/3/2 (10680) MP



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

Compiled in terms of Appendix 1, Appendix 4 of the Environmental Impact Assessment Regulations, 2014 (Government Notice No. R 983) (EIA Regulations, 2014 as Amended in 2017) and Submitted as contemplated in Regulation 19 of Chapter 4 of the EIA Regulations, 2014 as amended

For

The application for an Environmental Authorization in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), Environmental Impact Assessment Regulations 2017, Government Notice R326 - Government Notice R983 - Listing Notice 1 of 2014, as amended in 2017 and National Environmental Management Waste Act- Government Notice R633 and R632.

ABBREVIATIONS AND ACRONYMS

%	Percent
°C	Degrees Celsius
<	Less than
>	Greater than
ADM	Amajuba District Municipality
AMD	Acid Mine Drainage
BAR	Basic Assessment Report
BID	Background Information Document
CARA	Conservation of Agricultural Resources Act
CM	Centimetre
CR	Critically Rare
CSI	Corporate Social Investment
CSR	Corporate Social Responsibility
DBAR	Draft Basic Assessment Report
DEAT	Department of Environment, Agriculture and Tourism
DM	District Municipality
DLM	Dannhauser Local Municipality
DMRE	Department of Mineral and Resources and Energy
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMPR	Environmental Management Programme
FBAR	Final Basic Assessment Report
GN	Government Notice
GNR	Government Notice Regulation
HA	Hectares

HIA	Heritage Impact Assessment
I&AP's	Interested and Affected Parties
IWULA/IWMMP	Integrated Water Use Licence Application / Integrated Wastewater Management Plan
IDP	Integrated Development Plan
KZNP	KwaZulu Natal Province
LED	Local Economic Development
LM	Local Municipality
MAE	Mean Annual Evaporation
Mamsl	Meters above Mean Sea Level
MAP	Mean Annual Precipitation
MAR	Mean Annual Runoff
MHSA	Mine Health and Safety Act
MPRDA	Minerals and Petroleum Resource Development Act,
NDP	National Development Plan
NEMA	National Environmental Management Act
NEMWA	National Environmental Waste Act
NFPAP	National Freshwater Protected Areas Programme
PPP	Public Participation Process
PPE	Personal Protective Equipment
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SHE	Safety, Health and Environmental
TCIR	Tshifcor Investment and Resources (Pty) Ltd
WMA	Water Management Area

EXECUTIVE SUMMARY AND IMPORTANT NOTICE

Summary and Overview of the Project

Ericure (Pty) Ltd, is the holder of an existing Prospecting Right 10651PR within the farms Mooidoornhoek 3722HT, Ngisana 13992HT and Avalon 14869HT within the Magisterial District of Dannhauser, Kwazulu Natal Province. Prior to lodgement of the proposed mining permit, "Ericure" has spent time in completing exploration activities which includes desktop studies, drilling, logging and sampling and analysis of the samples through the accredited laboratory. The resource within the project area has been declared and a Competent Persons Report including mining studies is completed.

The proposed mining permit project has been applied strategically as part of the funds raising scheme for the required investment to take the remaining portions of the prospecting right into a productive mining through the mining right application. The proposed Mining Permit is part of old dump reclamation.

"Ericure" have lodged an application for an Environmental Authorisation for proposed Mining permit activities in respect of coal, Pseudocoal and Torbanite/Oilshale on a 5ha of portion 3 of the farm Ngisana 13992 HT. The application has been lodged in terms of Regulation 16 of the National Environmental Management Act (Act 107 of 1998) (NEMA): Environmental Impact Assessment (EIA) Regulations 2014 as amendment in 2017, the National Environmental Waste Act of (Act No. 59 of 2008) and Section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) read with Section 23 of MPRDA (Act 49 of 2008). See **Figure 1-2** for the Regulation 2(2) plan for the proposed mining permit application.

In terms of the NEMA (Act 107 of 1998) and EIA regulations of 2014 as amended in 2017, the proposed mining activities triggers Listed Activity 21 and Activity 27 of the Listing Notice 1, GNR 327 and Activity 12(b)(v) of the Listing Notice 3, GNR 324 and Activity 15 of Category A (NEMWA, GNR 633) and the applicant cannot proceed without an environmental authorisation for the mentioned listed activities. Tshifcor Investment and Resources (Pty) Ltd (TCIR) has been appointed by "Ericure" as an independent environmental assessment practitioner to undertake the environmental impact assessment for the proposed mining permit project. The purpose of the EA is to identify and assess all the possible impacts that may arise from the implementation of the proposed project and to find the most effective ways of enhancing environmental benefits and mitigating potential impacts to encourage sustainable development within the area.

The public participation process was announced on the local newspapers and the registration process for Interested and Affected Parties (IAPs) was conducted accordingly. The following processes were undertaken as part of the public participation process:

- Newspaper advertisement on local newspapers in English (Newcastle advertiser) **(Appendix 3)**;
- Erecting site notices at visible and accessible entry points in and around the proposed project area;
- Directly notifying interested and affected (I&APs) and Stakeholders representing various sectors of society by hand-distributing information;
- Meetings with the IAPs and the landowners **(Appendix 4)**.

The proposed mining activities will be undertaken over a period of Two (2) years and the activities to be carried out includes excavation, blasting, loading, hauling, stockpiling, transportation, discard dumps and supporting infrastructure including primary processing of mineral resource through winning, extraction, classifying, concentrating, crushing and screening. Other stages will involve geological modelling and analyses of metallurgical test work and resource estimation to keep track of the extent of the deposit.

Potential risks and key issues identified are based on consultation with I&APs, through an internal process based on similar projects, current state of the environment of the site, and ground truthing via site assessment. A summarised description of the surrounding land use is provided within this report, ensuring that all environmental aspects are highlighted. A description of the biophysical and social environment is also included in the report, to ensure that all potential risks and issues are taken into consideration in all phases of the proposed project.

All environmental data (*i.e.* surface and ground water qualities and quantities, topographical analyses, soil, vegetation, wetland, and geological conditions including socio-economic aspects) including the historic land uses that has been used in this report has been obtained through desktop studies, site inspections, specialist studies and through IAPs engagements. Weather data was acquired from the Climate Data Online, 2019. The data accumulated and analysed is therefore deemed sufficient to gain a baseline indication of the present state of the environment. The use of this baseline data for determining the potential impacts associated with this project is thus justified, and reliable conclusions will however be made once the consultation process is complete. The impacts that could arise during and after the proposed mining activities have been determined and ranked accordingly to their significance.

The findings and conclusions of this document, which concerns assessment of environmental impacts and a programme for management of the impacts for the proposed mining activities at the proposed project site, was compiled in terms of the EIA Regulations 2014 as amended in 2017, for the competent authority review and comments. Based on the collected data in respect of impact assessment, proper recommendations have been made to mitigate significant negative impacts as well as to maximize positive impacts that will result from the proposed project.

Important Notice

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a mining permit 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, 1998 (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 as amended, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17(1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

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

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

PART A (BASIC ASSESSMENT PROCESS)

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

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

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PART A (SECTION ONE)

INTRODUCTION

1. INTRODUCTION

1.1 WHO IS DEVELOPING THE BAR AND EMPr?

1.1.1 Name and contact details of the EAP who prepared the BAR and EMPr

Table 1-1: Details of the Environmental Assessment Practitioner

Company	Tshifcor Investment and Resources (Pty) Ltd
Contact Person	Mr Mpho Ramalivhana
SACNASP Membership No	400395/14
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Cell No	+27 (078) 901 4833
Fax No	+27 (086) 605 9120
E-mail address	info@tshifcor.co.za
Address	20 Pitzer Road, Glen Austin, Midrand 1686, Johannesburg, Republic of South Africa

1.1.2 Expertise of the EAP who prepared the BAR and EMPr

* Mpho Ramalivhana

Mpho Ramalivhana is currently the Senior Environmental Consultant and Ecological Specialist at Tshifcor Investment and Resources (Pty) Ltd. He matriculated at Mudinane Secondary School in 2004 with a merit. He then went to the University of Limpopo (Turfloop Campus) to further his career from 2005 to 2007. He obtained a BSc Degree majoring with Microbiology and Botany. Then in 2008 he graduated top of his Honours Botany Class in the field of plant ecology. His honours project involved "the investigation of the floral composition of the granite hills within the campus of the University of Limpopo".

He also has extensive experience in conducting Environmental Impact Assessment, developing Environmental Management Plans and implementation of Environmental Monitoring Systems. He also has remarkable experience in conducting Environmental Audit, Environmental Due Diligence, Land Quality Assessment, Ecological Assessment and Environmental Site Assessment.

His recent experience has focused upon formal environmental authorisation processes, particularly the management of public participation processes, environmental screening process projects. He has experience in energy related projects, including alternative energy (solar and wind) and power transmission projects as well as projects for social infrastructure including inter alia road, housing and waste management. He is familiar in compiling the

requisite documentation for Environmental Impact Assessments (EIA) and Environmental Management Plans (EMP). Furthermore, he has experience in undertaking environmental compliance monitoring and the biomonitoring of water resources.

Prior joining Tshifcor, Mpho worked for companies such as Tshikovha Environmental and Communication Consulting, Parsons Brinckerhoff Africa (Now WSP), Muondli Consulting, South African National Biodiversity Institute and Limpopo Department of Economic, Environment and Tourism where his professional working career started. Mpho is a member of the South African Council of Natural Scientific, Profession (400395/14), South African Association of Botanists (SAAB) as well as the International Association of Impact Assessment – South Africa (IAIASa).

*** Mrs Caroline Munyai**

Mrs. Caroline Munyai is currently an Environmental Consultant at Tshifcor Investment and Resources (Pty) Ltd. She matriculated at Ramauba Secondary School in 2005 with a merit. She then enrolled at the University of Venda to further her studies from 2006 to 2009. She obtained a BESC Honours Degree majoring with Mining and Environmental Geology. Then in 2010 she graduated with a distinction on her honors thesis. She has over five years' experience in environmental professional consulting.

Caroline also has extensive experience in environmental compliance/ permitting (including environmental impact assessments, basic assessments, water use license applications, social and environmental due diligence, social and environmental management systems, mining and mining right applications) and public participation /stakeholder engagement. Her recent experience has focused upon formal environmental authorisation processes, Basic Assessment processes, scoping, application for mining licenses including other related licenses.

Prior joining Tshifcor, Caroline worked for state organisations and private sectors such as Department of Rural Development and Land Reform, South African Diamond and Precious Metals Regulator, Mintek and International Resource Limited (SA).

*Please refer to **Appendix 1** for the Curriculum Vitae of EAPs*

1.2 WHO WILL EVALUATE AND APPROVE THE BAR AND EMPR?

Before the proposed project can proceed, an Environmental Assessment Practitioner (EAP) must compile an application for an environmental authorisation for the proposed project. The impact assessment (basic assessment process) and Environmental Management Programme

must be undertaken in support of the application for an environmental authorisation. The basic assessment process will determine the potential environmental impacts that may result from the proposed project and an environmental management programme will be compiled to provide mitigation measures against the identified impacts. The above-mentioned application must be made to the competent authority and in terms of section 24D (1) of NEMA, the Minister responsible for mineral resources is the responsible competent authority for this application. In view of the above, the application for the environmental authorisation for the proposed project was submitted to the Department of Mineral Resources (DMR), Kwazulu Natal Regional Office for their consideration and decision making on the 24th January 2020.

In the spirit of co-operative governance and in compliance with the requirements of NEMA and the MPRDA, the competent authority may, during the processing for the environmental authorisation application, consult with other organs of state that administers laws that relate to matters affecting the environment relevant to this application.

1.3 DETAILS OF THE APPLICANT

Table 1-2: Details of the Applicant

Company	Ericure (Pty) Ltd
Responsible Person	Mr. Kgomotso Nkhumise
Tel No.	082 825 2467/011 907 2213
E-mail address	Kgomotso@alltrans.co.za
Postal Address	PO Box 61442, Marshalltown, Johannesburg, 2107.

1.3.1 Property description

Table 1-3: Details of the Mining Permit Application

Farm Name	Portion 3 of the farm Ngisana 13992 HT
Application Area (Hectares)	5 (ha) Hectors
Magistrate District	Dannhauser Magisterial District
Distance and direction from nearest town:	Approximately 28 Km south of Newcastle town and 22 Km North of Dundee town. It is also located adjacent to Magdalena Coal Mine.
21-digit Surveyor General Code of the farm	T0HT00000001399200003

1.3.2 Land Tenure and Use of Immediate and Adjacent Land

The land use of the mining project is usually determined by several factors. These include the land use for the project itself (the specifically project area) and the land use of the adjacent land, the associated issues of climate, resources, economic activities, topography, etc. Land use for the properties within and around the proposed project includes but not limited to provincial and private farm roads, mining, stockpiling, informal and formal grazing, livestock farming and rural residential purposes including farmstead. Within the farm there is an old coal dump that which is a result of old mining activities, there is also recent opened pits and stockpiles due to illegal mining activities within the area (Figure 1-1). There are also watercourses such as dams and stream that are located more than 500m away from the demarcated mine permit area. Due to old mining and farming activities, most part of the land is already degraded (**Figure 1-4**). The applied Portion 3 of the farm Ngisana 13992 HT is under private ownership of Izwelethu Community Trust (**Appendix 2**).

1.4 Locality Plan

The proposed mining project is situated approximately 28 Km South of the Newcastle Town and 22 Km North of Dundee Town. The project is located adjacent to Magdalena Coal Mine (**Figure 1-3**).



Figure 1-1: Proposed mining permit area showing the conduct of previous illegal mining on the dump

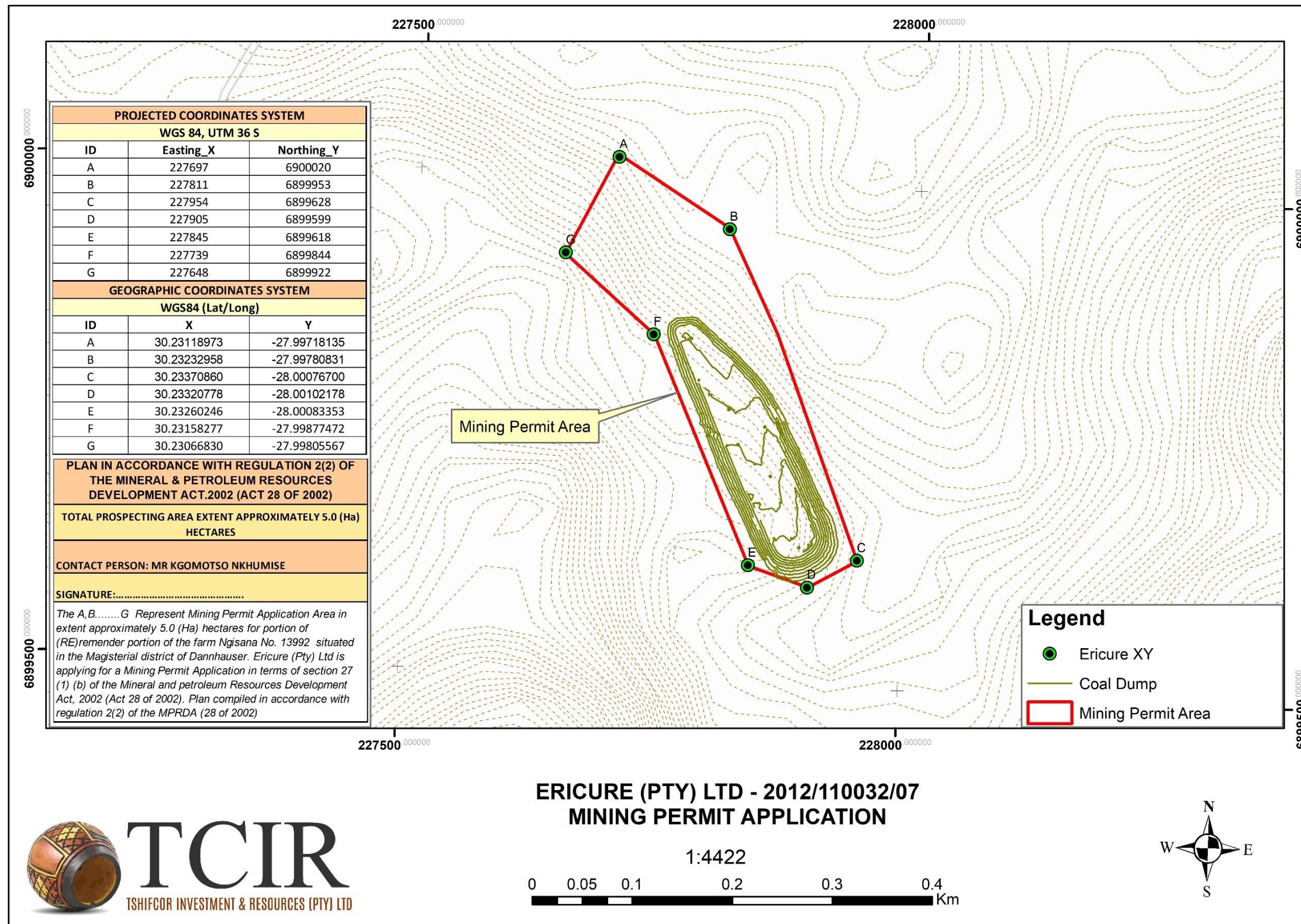


Figure 1-2: Regulation 2.2 Plan as referred to in terms of the MPRDA Act 28 of 2002

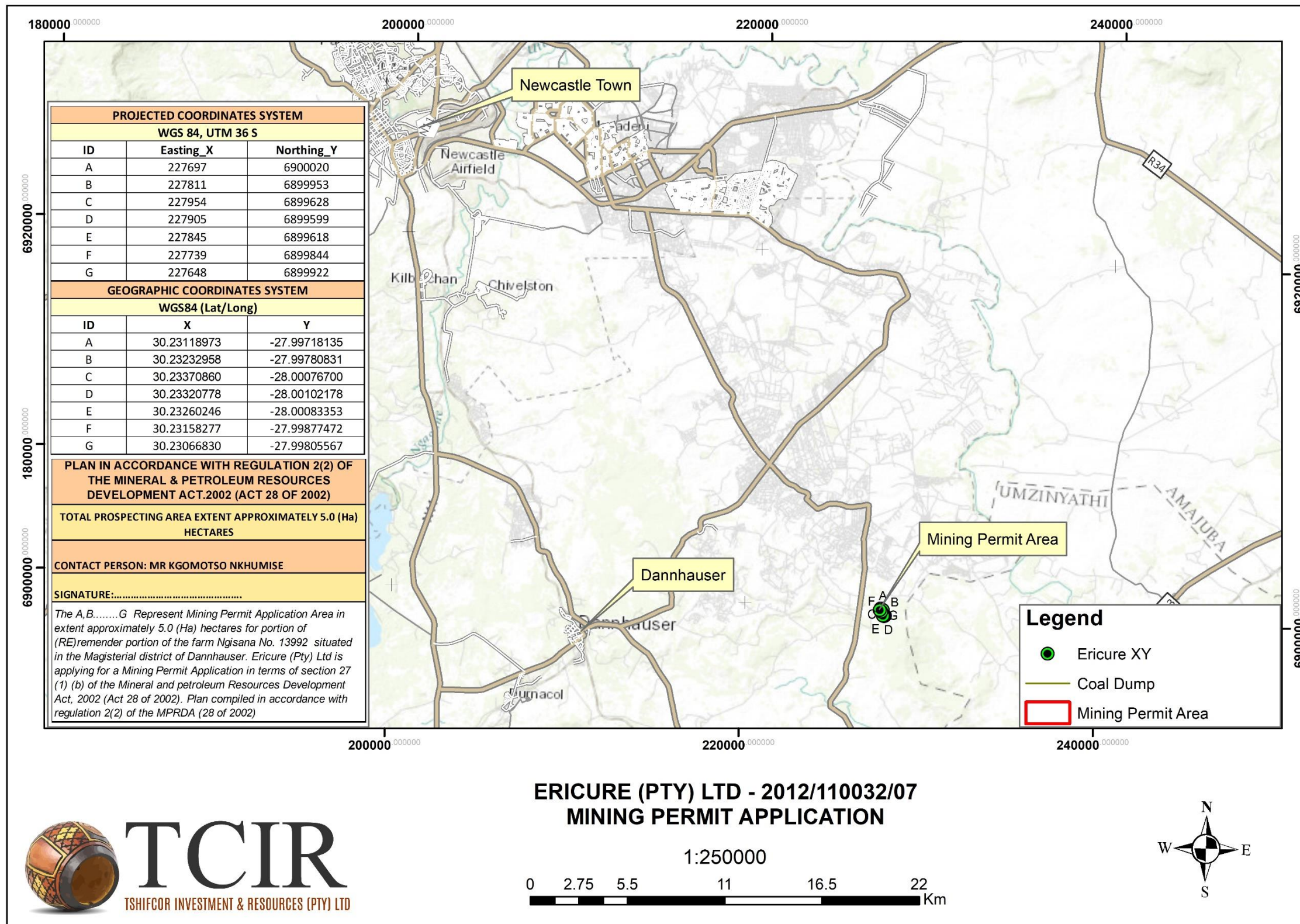


Figure 1-3: Locality Map showing the applied mining permit area

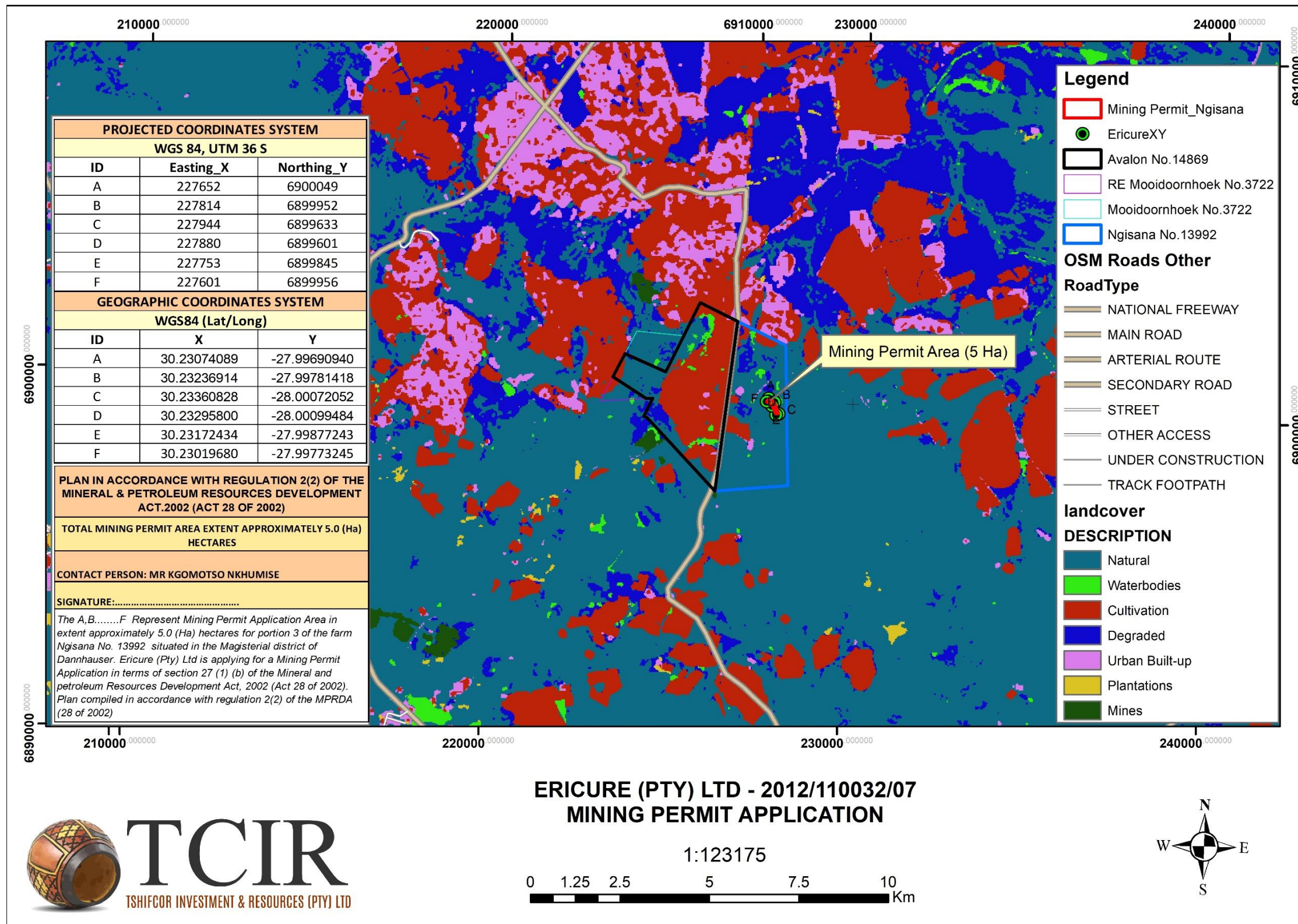


Figure 1-4: Land use within the proposed mining project

SECTION TWO

DESCRIPTION OF THE SCOPE OF THE PROPOSED APPLICATION

2. DESCRIPTION OF THE SCOPE OF THE PROPOSED PROJECT

2.1 LISTED ACTIVITIES AND SPECIFIED ACTIVITIES

Listed activities are activities identified in terms of Section 24 of NEMA which are likely to have a detrimental effect on the environment, and which may not commence without an EA from the Competent Authority (CA). An EA required for a listed activity is subject to the completion of an environmental process, either a Basic Assessment (BA) or a S&EIA of which in this case is BA.

The proposed mining permit project will trigger several activities in terms of NEMA, EIA Regulations 2014 as amended in 2017 and NEMWA, Regulation (Act No. 59 of 2008). Based on the above, Ericure has applied for NEMA combined with NEMWA BAR type of Environmental Authorisation, in order to undertake mining activities in a form of a mining permit on a 5ha of portion 3 of the farm Ngisana 13992 HT within the magisterial district of Dannhauser, in KwaZulu Natal Province. The proposed project entails mining activities using excavator, bulldozer, front-end loader and dump trucks, then primary process the mined materials within the mobile plant that would be allocated within the proposed project area. Access to the mining area will be via existing roads and private farms roads which has already agreed with landowners, as part of the company shareholding. Some of the already existing roads will be extended for easy access of mining machinery and trucks.

In terms of NEMA, EIA Regulations, Ericure, must obtain both an environmental authorisation with waste license and a mining permit before the commencement of the proposed mining activities. The above-mentioned environmental authorisation and mining permit applications were lodged concurrently on 24 January 2020 and the EA application was acknowledged by the Department of Mineral Resources (KwaZulu Natal Regional Offices) on the 18 February 2020, while the permit was accepted on the 14 February 2020. The **Table 2-1** below has been compiled as prescribed by the Department of Mineral Resources Basic Assessment Report and EMPr template and reflect all applied activities in relation to the proposed project.

Table 2-1: Proposed Ngisana mining project applied listed Activities

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
PROPOSED NGISANA MINING PROJECT LISTED AND SPECIFIC ACTIVITIES			
NATIONAL ENVIRONMENTAL MANAGEMENT ACT			
Mining permit activities within the proposed project area for the mining of Coal, Psedocoal and Torbanite/Oilshale which will include excavation, stockpiling, loading, hauling and transport, discard dumps and supporting infrastructure and primary processing such as winning, extraction, classifying, concentration, crushing and screening.	3 ha	<p>ACTIVITY 21 OF THE LISTING NOTICE 1: Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including —</p> <p>(a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource; or [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)]</p> <p>(b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening.</p> <p>ACTIVITY 27 OF THE LISTING NOTICE 1: The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.</p>	GNR 327 (07 April 2017)
Reclamation of Dump, through excavation, stockpiling, loading, hauling and transport of coal materials	2 ha	<p>ACTIVITY 56 OF CATEGORY A</p> <p>Reclamation of a residue stockpile or residue deposit resulting from activities which require a prospecting right or mining permit, in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act 28. of 2002).</p>	NEMWA, GNR633

Clearance of the mining area for mining purpose	3 ha	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. (d) (v) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	GNR 324 (07 April 2017)
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2.2 DESCRIPTION OF THE PROPOSED MINING PROJECT

Ericure proposes to mine on portion 3 of the farm Ngisana 13992 HT in a form of an open cast using excavators, front end loaders for loading, hauling, stockpiling, transportation, discard dumps and supporting infrastructure including primary processing of minerals through winning, extraction, classifying, concentrating, crushing and screening. Please refer to **Table 2-2** for the equipment that would be utilised for the proposed project.

Table 2-2: Equipment's to be used or needed

Equipment and/or Technology to be used	Production rig Excavator Bulldozer and Tipper truck Water cart 4x4 Bakkies Generator Mobile crusher
Materials required	Diesel Grease Hydraulic Oil Picks, shovels,
Storage Facility	Diesel, Grease and Oil
Spillage control	Dip trays
Sanitation Facility	Chemical toilets
Waste Management	Waste skip and Bins
Water	Water will be transported to site

2.2.1 Target Mineral

The targeted mineral is Coal, Psedocoal and Torbanite/Oilshale.

2.2.2 Mining Method Statement to be used for proposed Project

In terms of NEMA regulations and requirements by the DMR, BAR and EMPr template, Ericure must describe the methods and technology to be utilised for the proposed project. In view of the above, a method statement for each phase of the proposed project has been provided below. This identifies all actions, activities or processes associated with the proposed mining operation.

2.2.2.1 Specific activities to be undertaken

The specific activities that will be undertaken during the life of the project will include:

- Surveying of the applied mining area,
- Erecting of fence around the mine area for demarcation purpose,
- Construction of beams surrounding the mining pit area,
- Excavation of Coal, Psedocoal and Torbanite/Oilshale materials in a form of box cut at a time starting with the dump area first and stockpiling of this material in front of the advancing opencast mining front, with bulldozers and front-end loaders;
- Use of high impact excavator and blasting, to mine the hard materials,
- The stockpiled mined materials will be hauled to the designated proposed processing area where it will be primarily processed through winning, extraction, classifying, concentrating, crushing and screening, prior to loading and transporting the material to the mine market,
- The overburden will be stockpiled separately from the topsoil and the waste rock, if any;
- Testing of the stockpiled overburden for any contamination prior to certifying it for rehabilitation purpose,
- Continuously backfilling the opencast void with overburden and topsoil, in that order, followed by fertilisation and re-vegetation with locally indigenous species of grass, shrubs and trees;
- Decommissioning and removing all equipment, removing infrastructure, backfilling the opencast quarry, making the ex-operating area safe, shaping them to be free draining and rehabilitating them to a condition fit for residing and farming.

2.2.2.2 Quarry Operations

An excavator will be used to dig out the materials directly from the working face of the proposed quarry operation. The quarry face will be designed to have a depth limit as high as sixty meters for safe extraction. If the quarrying proceeds beyond the stipulated face height, then benches or steps will be used; this approach, called "benching," is not only safer, it also permits easier and less expensive restoration of the land after the quarry is closed.

The quarry floors will be kept flat and reasonably clear of holes to maintain drainage and minimize waste. The quarry floor will be graded or sloped slightly away from the face. Ground water aquifer assessment will be conducted as part of the specialist study prior to mining activities in order to determine the impact and mitigation measures for the proposed project towards the groundwater table. The location of this area and the layout of the supporting infrastructure are shown schematically on **Figure 2-1** and infrastructure footprint sizes are listed on **Table 2-3** below.

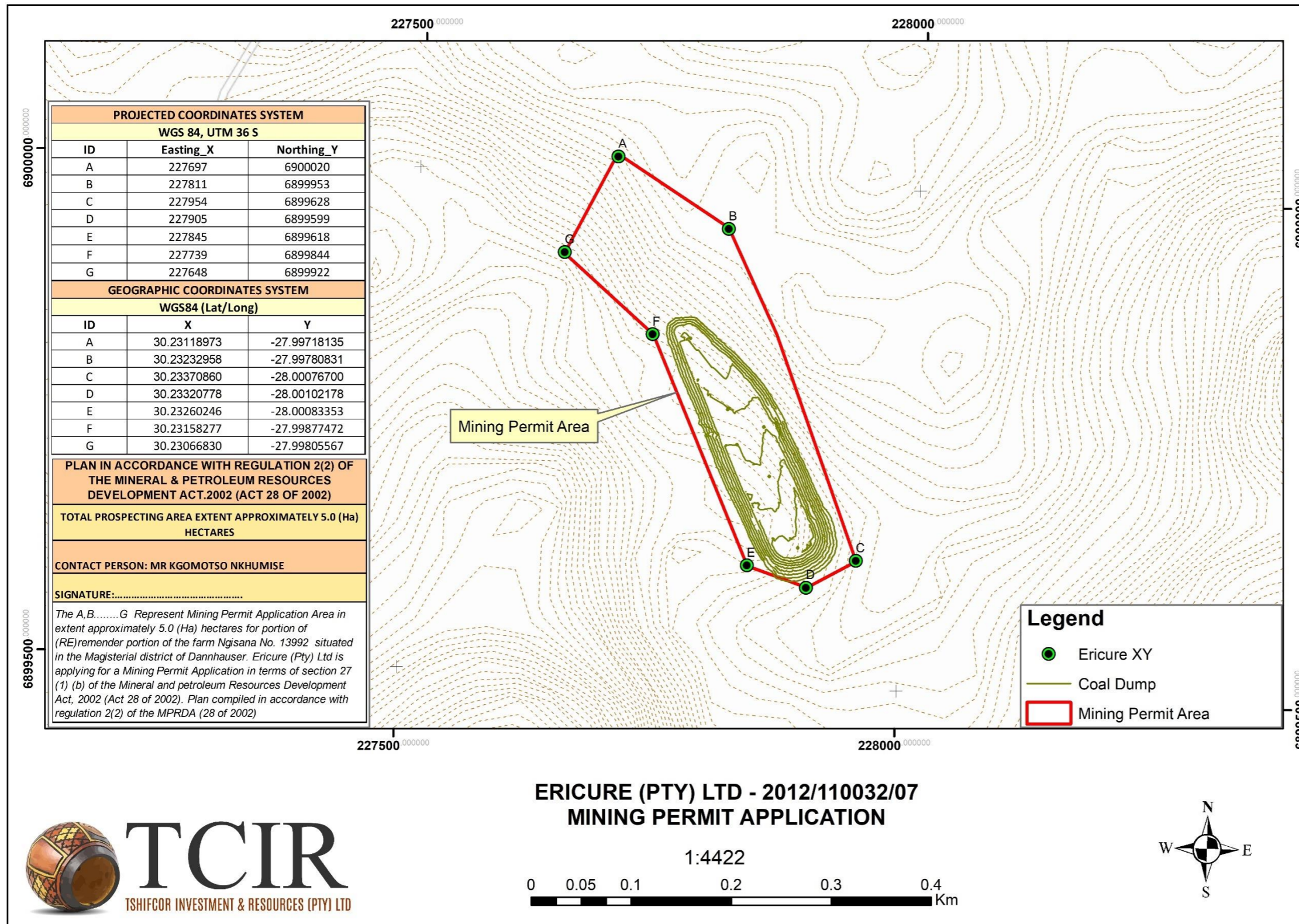


Figure 2-1: Proposed quarry mining infrastructure designs

Table 2-3: Footprint sizes of Mining area and associated infrastructures

ITEM	FOOTPRINT (HECTARE)
Mining quarry Area	4
Temporary Stockpile Area	0.3
Rock dump – Quarry Area	0.5
Infrastructures (offices, ablution etc)	0.2
Total	5

2.3 PROPOSED MINING PERMIT PROJECT SURFACE INFRASTRUCTURE DESCRIPTION

2.3.1 Access Roads

Within the proposed project area there are gravel roads that link to the proposed mine area of which will be utilised. Existing provincial roads to be used include the R33 and R68. Authorities will be informed of the road to be used where required, and landowners of private farm roads will also be requested permission to use their roads. The accumulative traffic impact within the area has been taken into consideration. The mitigation standards of such impact include the provision of mining equipment such as excavators and bull dozers to be kept on site for the life of the mine and only be removed during emergency maintenance and such must be done during off-peak periods.

Additional double cab bakkies will be used during the lifespan of the mine as a daily in-mine vehicles. Local employees will be prioritised in terms of employment to avoid traffic network of many vehicles on site that can be caused by people who travel from far to the mine area. During the life span of the mine, water carts will be used to spray grey water on the gravel mine roads to suppress dust. No roads will be constructed, only existing roads and existing farm tracks will be expanded where necessary for usage.

2.3.2 Power Line Infrastructure

No power line infrastructure will be affected and no electricity from the National Grid will be required for the proposed mining project. Only diesel-powered vehicles and generators machinery will be used for the proposed project.

2.3.3 Water Infrastructure

Based on the amount of water required and the use of such water during the operation of this mining activities which is estimated to 1080 cubic meters per annum, there is no planned water infrastructure for the proposed project. Water will be accessed from the neighbouring dams in agreement with the authorised stakeholders including the neighbour mine. Water delivered to the project area (mining site) will be trucked with a water cart and be stored on an in-site water tank. This water will be used for the purpose of supplying service water, potable water and fire protection water. Service water will be required for the operation of machinery and dust suppression and this will not be raw (clean) water. Potable water supply will be required for domestic water use within the mining sites. Fire water will be required for firefighting purposes. A water tank of 5000l will be used for the storage of water at the proposed project area. The proposed water use license for this mine will be applied during the lodgement of the mining right that will be applied during operational phase of the mining permit in accordance with Section 22 of the Water Act (Act 36 of 1998).

2.3.4 Workshops and Buildings

No permanent building structures will be required for the proposed project, only mobile offices will be installed within the mine area as indicated on the infrastructure map (**Figure 2-1**). All machinery will be maintained at an offsite workshop. Should emergency repairs be required, the repairs will be conducted on site mobile workshop within the areas bunded with cement and covered with tarpaulins.

2.3.5 Waste Management

2.3.5.1 Waste Identification and Management

Hazardous Waste

- Hazardous waste to be generated includes, hydrocarbon wastes (oil and liquid fuel wastes) such as used oils bottles and containers from mine machinery and vehicles,
- Mineral residue will be stored within the site and will be stabilised so that they can form part of rehabilitation materials,
- Hydrocarbon waste will be collected in 210 litre drums for storage. The drums will be placed on cement bunded ground. The removal of the drums or any other appropriate receptacle will be undertaken by a waste disposal company, for disposal at a registered licensed waste disposal site. Waste disposal certificates will be kept on site for records.

- Chemical toilets will be used for the management of sewage waste generated on site and the removal and disposal of such toilets will be undertaken by the certified professional company.

General Waste

- General waste to be generated from the proposed project area include domestic waste such as food (leftovers), polystyrene, paper, and discarded personal protective equipment (PPE).
- This waste will be collected in marked 210l bins and disposal of at a registered landfill site closer to the proposed site (disposal agreement will be provided to DWS and DMR) for their records and disposal certificate will be kept as proof of proper disposal.

SECTION THREE

POLICY AND LEGISLATIVE CONTEXT

3. POLICY AND LEGISLATIVE CONTEXT

3.1 CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA (ACT NO. 108 OF 1996)

Section 24 of the Constitution of the Republic of South Africa (Act No.108 of 1996) states that everyone has the right:

- a. to an environment that is not harmful to their health or well-being; and
- b. to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that;
 - 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.

In terms of Section 24 of the Constitution of the Republic of South Africa (Act No.108 of 1996), everyone has the right to an environment that is not harmful to their health or well-being. In addition, people have the right to have the environment protected, for the benefit of present and future generations, through applicable legislations and other measures that prevent pollution, ecological degradation and promote conservation and secure ecological sustainable development through the use of natural resources while prompting justifiable economic and social development.

The needs of the environment, as well as affected parties, should thus be integrated into the overall project in order to fulfil the requirements of Section 24 of the Constitution. In view of the above-mentioned, a number of laws pertaining to environmental management were promulgated to give guidance on how the principles set out in section 24 of the Constitution of the Republic of South Africa (Act No.108 of 1996) would be met. Below are laws applicable to the proposed project that were promulgated to ensure that section 24 of the Constitution of the Republic of South Africa (Act No.108 of 1996) is complied with.

This document was accordingly prepared, submitted and considered within the constitutional framework set by, inter alia, section 24 and 33 of the Constitution.

3.2 THE PROMOTION OF ACCESS TO INFORMATION ACT (ACT NO. 2 OF 2000)

Without access to information, a person may be unable to determine whether or not his or her right to just administrative action (or to an environment not harmful to human health or wellbeing or, for that matter, any other Constitutional right) has been infringed. The

purpose of the Promotion of Access to Information Act (“PAIA”) is to give effect to the Constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any rights, and to provide for matters connected therewith. In addition to providing access to information, cognisance should be taken that PAIA also makes provision for the refusal of access to information that is deemed to be of a sensitive, confidential or classified nature. This is captured under Chapter 4 of part 2 and 3 of PAIA.

This document is accordingly prepared and was made available for public reviews and comments in terms of PAIA.

3.3 THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT (ACT NO. 28 OF 2002)

The MPRDA was passed in order to make provision for equitable access to and sustainable development of the nation’s mineral and petroleum resources, and to provide for matters connected therewith. The Preamble to the MPRDA inter alia affirms the State’s obligation to: • protect the environment for the benefit of present and future generations; • ensure ecologically sustainable development of mineral and petroleum resources, and; • promote economic and social development. The aforesaid MPRDA preamble affirms the general right to an environment provided for in section 24 of The Constitution of the Republic of South Africa, Act 108 of 1996 (then Constitution).

The national environmental management principles provided for in section 2 of the National Environmental Management Act (NEMA), Act No.107 of 1998 apply to all prospecting and mining operations and any matter relating to such operation. These principles apply throughout the Republic to the actions of all organs of state including, inter alia, the Department of Mineral Resources (DMR), previously known as the Department of Minerals and Energy (DME), that may significantly affect the environment. Any prospecting or mining operation must be conducted in accordance with generally accepted principles of sustainable development by integrating social, economic and environmental factors into the planning and implementation of prospecting and mining projects in order to ensure that exploitation of mineral resources serves present and future generations.

The project is in relation to mining activities, and for that reason the Mineral and Petroleum Resource Development Act applied herewith, and necessary licensing application (mining permit application) has been taken into consideration in terms of Section 27 of the MPRDA.

3.4 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT NO. 107 OF 1998)

Section 24(1) of the NEMA states: "In order to give effect to the general objectives of integrated environmental management laid down in this Chapter [Chapter 5], the potential consequences for or impacts on the environment of listed activities or specified activities must be considered, investigated, assessed and reported on to the competent authority or the Minister of the Department of Mineral Resources, as the case may be, except in respect of those activities that may commence without having to obtain an environmental authorisation in terms of this Act." In order to regulate the procedure and criteria as contemplated in Chapter 5 of NEMA relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto, Regulations (EIA Regulations, 2014) were promulgated. These Regulations took effect from the 8th of December 2014 and was amended in 2017.

In addition to the above, Section 28 of the NEMA includes a general "Duty of Care" whereby care must be taken to prevent, control and rehabilitate the effect of pollution and environmental degradation. This section stipulates the importance to protect the environment from degradation and pollution irrespective of the operations taking places or activities triggered / not triggered under GN983, GN984 and GN985. In view of the above, an environmental impact assessment is being undertaken to comply with the requirements of the NEMA and the NEMA EIA Regulations, 2014. The NEMA EIA Regulations of December 2014 determines requirements to be met in order to obtain an environmental authorisation. This report has therefore been compiled in compliance with the above regulations.

The listed activities triggered by the proposed mining permit activities are activities 21, 27 and 56 of the Listed Notice 1 of the GNR327 as amended and these activities have been assessed in the current EIA process that has been undertaken (i.e. Basic Assessment). This BAR and EMPR was circulated to all identified and registered IAPs including the competent and commenting authority in support of the application for environmental authorisation during public participation process.

3.5 NATIONAL ENVIRONMENTAL MANAGEMENT AIR QUALITY ACT (ACT NO. 39 OF 2004)

The National Environmental Management: Air Quality Act (Act No.39 of 2004) (NEM: AQA) focuses on reforming the law regulating air quality in South Africa in order to protect the environment through the provision of reasonable measures protecting the environment

against air pollution and ecological degradation and securing ecological sustainable development while promoting justifiable economic and social developments. This Act provides national norms and standards regulating air quality management and control by all spheres of government. These include the National Ambient Air Quality Standards (NAAQS) and the National Dust Control Regulations (NDCR). The standards are defined for different air pollutants with different limits based on the toxicity of the pollutants to the environment and humans, number of allowable exceedances and the date of compliance of the specific standard.

On 22 November 2013 the list of activities which result in atmospheric emissions which have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage was published under GN R893 in Governmental Gazette No 37054, in terms of Section 21(1)(b) of the NEM: AQA.

The proposed mining permit activities will not trigger any of the activities listed under the above-mentioned Regulations as Ericure will ensure that emissions from their mining activities complies with the standards as set in the above-mentioned regulations. Dust Control Regulations describes the measures for control and monitoring of dust, including penalties. These regulations will be applicable during the operational phase.

3.6 THE NATIONAL HERITAGE RESOURCES ACT (ACT NO. 25 OF 1999)

The National Heritage Resources Act (Act No. 25 of 1999) (NHRA) focuses on the protection and management of South Africa's heritage resources. The governing authority for this act is the South African Heritage Resources Agency (SAHRA). In terms of the NHRA, historically important features such as graves, trees, archaeology and fossil beds are protected as well as culturally significant symbols, spaces and landscapes. Section 38 of the NHRA stipulates the requirements a developer must undertake prior to development. In terms of Section 38 of this act, certain listed activities require authorisation from provincial agencies:

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- (b) the construction of a bridge or similar structure exceeding 50 m in length;
- (c) any development or other activity which will change the character of a site—
 - (i) exceeding 5 000 m² in extent; or**
 - (ii) involving three or more existing erven or subdivisions thereof; or**
 - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or**

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m² in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,

The applicant must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Stand-alone HIAs are not required where an EIA is carried out as long as the EIA contains an adequate HIA component that fulfils the provisions of S38. In such cases only those components not addressed by the EIA should be covered by the heritage component.

The proposed mining activities are not in close proximity with sites that require protection. Heritage impact assessment have been conducted as part of specialist study for the proposed mining activities such report is attached herewith as appendix.

3.7 NATIONAL ENVIRONMENTAL MANAGEMENT BIODIVERSITY ACT (ACT NO. 10 OF 2004) (NEMBA)

The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA) provides for the management and protection of South Africa's biodiversity within the framework established by NEMA. The Act aims to legally provide for biodiversity conservation, sustainable, equitable access and benefit sharing and provides for the management and control of alien and invasive species to prevent or minimize harm to the environment and indigenous biodiversity. The Act imposes obligations on landowners (state or private) governing alien invasive species as well as regulates the introduction of genetically modified organisms. The Act encourages the eradication of alien species that may harm indigenous ecosystems or habitats.

In terms of S57, the Minister of Environmental Affairs has published a list of critically endangered, endangered, vulnerable, and protected species in GNR 151 in Government Gazette 29657 of 23 February 2007 and the regulations associated therewith in GNR 152 in GG29657 of 23 February 2007, which came into effect on 1 June 2007.

In terms of GNR 152 of 23 February 2007: Regulations relating to listed threatened and protected species, the relevant specialists must be employed during the EIA Phase of the project to incorporate the legal provisions as well as the regulations associated with listed

threatened and protected species (GNR 152) into specialist reports in order to identify permitting requirements at an early stage of the EIA Phase.

The Act provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), and vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national maps of listed ecosystems (National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (GG 34809, GN 1002), 9 December 2011).

The Basic Assessment Report and Environmental Management Programme has been compiled to ensure that all applicable requirements prescribed in the NEMBA are complied with. The Biodiversity specialist study has also been conducted and it forms part of this report.

3.8 NATIONAL WATER ACT (ACT NO. 36 of 1998) (NWA)

The National Water Act (Act No. 36 of 1998) (NWA) is the primary regulatory legislation, controlling and managing the use of water resources as well as the pollution thereof in South Africa. The NWA recognises that the ultimate aim of water resource management is to achieve sustainable use of water for the benefit of all users and that the protection of the quality of water resources is necessary to ensure sustainability of the nation's water resources in the interests of all water users. The NWA presents strategies to facilitate sound management of water resources, provides for the protection of water resources, and regulates use of water by means of Catchment Management Agencies, Water User Associations, Advisory Committees and International Water Management. The National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest. Further, an industry can only be entitled to use water if the use is permissible under the NWA. The enforcing authority on water users is the Department of Water and Sanitation (DWS).

Furthermore, Regulation 704 of the NWA deals with the control and use of water for mining and related activities aimed at the protection of water resources.

No water use licence application has been submitted yet to the Department of Water and Sanitation for their consideration. However, the WULA will be submitted to cover the planned mining right application. So far, all measures are been undertaken to ensure that requirements in terms of the NWA and the GN 704 are complied with where necessary. The mining permit currently doesn't trigger the requirements of WULA.

3.9 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT (ACT NO. 59 OF 2008)

The National Environmental Management: Waste Act (NEMWA) requires that all waste management activities must be licensed. According to Section 44 of the NEMWA, the licensing procedure must be integrated with an EIA process in terms of the NEMA.

The objectives of NEMWA involve the protection of health, wellbeing and the environment. The NEMWA provides measures for the minimisation of natural resource consumption, avoiding and minimising the generation of waste, reducing, recycling and recovering waste, and treating and safely disposing of waste.

As part of the waste management matters dealt with in the NEM: WA, waste activities have been identified in GN 921 of 29 November 2013. List of Waste Management Activities that have, or are likely to have, a Detrimental Effect on the Environment. GN R921 provides that the waste management activities listed in Category A and B thereof may not commence, be undertaken or conducted without a Waste Management Licence (WML). Activities listed in Category C of GN 921 may only be commenced with, undertaken or conducted in accordance with the National Norms and Standards published in terms of the NEM: WA.

Accordingly, the reclamation of the Ngisana Old Dump (NOD) requires a Waste Management License (WML) authorising activity 15 in Category A of GN R633. In addition to the requirement for a WML for the (NOD) reclamation, Category A activities require a BAR process. It should be noted that previously, residue deposits and residue stockpiles were regulated in terms of the MPRDA Regulations and in particular Regulation 73.

However, with the commencement of the NEMLAA section 4(b) of the NEM: WA has been deleted and as such the NEM:WA now regulates residue stockpiles and residue deposits. In line with the aforesaid amendment, GN 921 was amended by GN 633 of 24 July 2015 by including Activity 15 which provides for *"The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a prospecting right or mining permit, in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act 28. of 2002)."*

The Proposed Project will also need to comply with GN R632 of 24 July 2015, as amended by GN R990 of 21 September 2018, must be adhered to. These regulations regulate the assessment of impacts and analyses of risks relating to the management of residue stockpiles and residue deposits, the characterisation of residue stockpiles and residue deposits, the classification of residue stockpiles and residue deposits, the investigation and selection of site for residue stockpiling, the design of the residue stockpiles and residue deposits, impact

management, the duties of the holder of right/ permit, the monitoring and reporting system for residue stockpiles and residue deposits, dust management and control, decommissioning, closure and post closure management of residue stockpiles and residue deposits.

The EA and WML are being dealt with as NEMA BAR and NEMWA BAR application..

3.10 THE NATIONAL ENVIRONMENTAL MANAGEMENT: PROTECTED AREAS ACT (ACT NO. 57 OF 2003)

The aim of the National Environmental Management: Protected Areas Act (No 57 of 2003) is to provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and natural seascapes. The purpose of a Protected Environment is amongst others to protect a specific ecosystem outside a special nature reserve world heritage site or nature reserve and also to ensure the use of the natural resources in the area is sustainable.

Ericure has applied this legislation during the application of the proposed project and has ensured that the applied area does not fall under any protected and conserved areas.

3.11 THE CONSERVATION OF AGRICULTURAL RESOURCES ACT (ACT NO. 43 OF 1983)

The Conservation of Agricultural Resources Act (No 43 of 1983) requires the maintenance of riparian vegetation and provides a list of invasive alien vegetation that must be controlled or eradicated.

Control of invasive vegetation has been discussed in the Environmental Management Plan (EMPr) and such will be complied with accordingly.

3.12 NATIONAL FOREST ACT (ACT NO. 84 OF 1998)

The purpose of this act is to amongst others, promote the sustainable management and development of forests for the benefit of all.

The act defines the following:

"Forest" includes-

- (a) a natural forest, a woodland and a plantation;
- (b) the forest produces in it; and

"Natural forest" means a group of indigenous trees-

- (a) whose crowns are largely contiguous; or
- (b) which have been declared by the Minister to be a natural forest under section 7(2); (c) the ecosystems which it makes up”

A license is required to cut, disturb, damage or destroy any indigenous tree in a natural forest; or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any tree, or any forest product derived from an indigenous tree in a natural forest.

Moreover, the minister has published a list of protected trees. No person may- (a) cut, disturb, damage or destroy any protected tree; or (b) possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, or any forest product derived for a protected tree, except- if they have a license to do.

The proposed project site does not include a natural forest and thus no permit will be required from DAFF for the destruction or damage in terms of this Act.

3.13 THE OCCUPATIONAL HEALTH AND SAFETY ACT (ACT NO. 9 OF 1997)

The Occupational Health and Safety Act, 1993 (No.85 of 1993) provides for the health and safety of people at work as well as the health and safety of persons using plant and machinery. Ericure will be able to meet the requirements of the OHS Act during the construction and operational phases of the proposed project.

Ericure, will ensure that the proposed project complies with the OHS Act and necessary appointments in terms of this act will be done accordingly.

3.14 THE MINE HEALTH AND SAFETY ACT (ACT NO. 29 OF 1996)

The Mine Health and Safety Act, Act 29 of 1996 provide for protection of the health and safety of employees and other persons at mines and, for that purpose -

- to promote a culture of health and safety;
- to provide for the enforcement of health and safety measures;
- to provide for appropriate systems of employee, employer and State participation in health and safety matters;
- to establish representative tripartite institutions to review legislation,
- promote health and enhance properly targeted research;
- to provide for effective monitoring systems and inspections, investigations and inquiries to improve health and safety;
- to promote training and human resources development;
- to regulate employers' and employees' duties to identify hazards and

- eliminate, control and minimise the risk to health and safety;
- to entrench the right to refuse to work in dangerous conditions; and
- to give effect to the public international law obligations of the Republic relating to mining health and safety; and to provide for matters connected therewith.

Ericure, intent to meet the requirements of the MHS Act during the construction, operational and closure phases of the proposed project.

SECTION FOUR

NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

4. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

Coal deposit, because of its strategic importance, is one of the five minerals selected by the DMR for local beneficiation as it is considered critical to the on-going development of South Africa (Department of Mineral Resources, 2011). The driving force behind the emphasis of the importance of coal, coal mining and local beneficiation is primarily due to concerns voiced by Electricity Supply Commission (Eskom) over the future security of supply in both the medium and long term of the mineral to its coal fired electricity generating power stations, which has economic impacts if not met.

South Africa's energy is predominately coal fueled, with limited renewable energy alternatives. South Africa consumes approximately 175 Mtpa of coal where Eskom consumes approximately 110 Mtpa (Eskom, 2017). Eskom is a South African electricity public utility, established in 1923 as the Eskom by the government of South Africa in terms of the Electricity Act (1922). The utility is the largest producer of electricity in Africa, is among the top seven utilities in the world in terms of generation capacity and among the top nine in terms of sales. The company is divided into Generation, Transmission and Distribution divisions and together Eskom generates approximately 95% of electricity used in South Africa. Currently, Eskom has power stations in commission, consisting of coal-fired stations, cold reserve storage, nuclear station, gas turbine stations, hydroelectric stations and pumped storage schemes.

Eskom's existing coal fired power stations are critical in terms of electricity production and in meeting the growing energy requirements of South Africa as a whole including neighboring countries such as Zimbabwe and Botswana. Without steady, secure supply of the mineral, it is unlikely that Eskom will be able to meet the energy demands of the country. As a result, coal mining, beneficiation and supply is of paramount important to South Africa for continued electricity generation to meet the rising energy demands of the country in the short, medium and long term. Coal produced is usually used locally within the municipal region but also exported. Eskom is the largest local buyer while China and India are the major international export buyer.

The proposed coal mine will not only contribute directly to the South African economy but will also contribute to the development and growth of other industries supporting the mining sector. The proposed mining operation will also contribute to favorable economic impacts on both a local, regional and national scale. This will result in numerous job creation and skills development opportunities and provide an economic injection in the region. If the project was not to proceed the additional economic activity, skills development and available jobs would not be created, and the coal reserves would remain unutilized. Though

the current application is in respect of the mining permit, which is small scale, this application was made strategically to be able to raise funds that are needed for bigger mining operation in terms of the mining right. Therefore, based on the above, it will be more beneficial for the current project's approval as part of the stepping-stone for a planned bigger operation which will have higher positive impacts economically.

The applicant further commits to ensure their contribution to environmental education to their employees during the project life. The employees will be made aware of work that may be harmful to their health and the environment and of any work posing danger. This is undertaken in terms of the Mine Health and Safety Act, 1996 (Act 29 of 1996) and its regulations, which gives the employees the right to refuse work that is dangerous. The applicant will respect decisions of employees regarding the above and is committed to the protection of employees against any dangerous working environment.

SECTION FIVE

MOTIVATION FOR THE PREFERRED DEVELOPMENT FOOTPRINT

5. MOTIVATION FOR THE PREFERRED DEVELOPMENT FOOTPRINT

Mining is still considered a “sunrise industry” and the most important economic sector in the country. Mining in South Africa directly contributed to the establishment of the Johannesburg Stock Exchange in the late 19th century, and today it still accounts for a large portion of its market capitalization. From this, it is clear that mining in South Africa has shaped the country politically, culturally, and economically and that the South African mining sector has provided the critical mass for a number of industries that are either suppliers to the mining industry, or users of its products. These include, but are not limited to, energy, financial services, water and engineering services, and specialist seismic geological and metallurgical services. Mining greatly helps to improve most people’s lives, while an upsurge in growth and employment is curtailing poverty and increasing prosperity.

The area or community around the proposed mining project is characterized by very high levels of unemployment (78.6%) and this is attributed to the general economic situation in the area, as well as the fact that the area is largely rural and farmlands. Closure of coal mines and the related industries within the greater area has attributed to the increase in unemployment. Also, the retrenchments of migrants in the cities where they were employed and have now returned to Dannhauser have a huge influence on the low economic levels in this municipal area. At present, small scale agricultural, informal mining and trade (produce and general supplies) dominate the major economic activities within the immediate area. Two thirds of the Dannhauser Municipality residents are mostly dependent on Social Services Grants. This intervention provided by Social Development is the greatest relief to the residents who had no access to any other source of income (Dannhauser Municipality, 2010). Therefore, the project will result in several benefits both at the local, district and national levels. The local economy will also be boosted by the creation of job opportunities. Further to this, the national economy is also expected to benefit through the export of coal resulting in foreign revenue if this mining permit is granted.

The proposed mining method for Coal reserve within the proposed area will be conducted via opencast, where excavators, tipper trucks and bulldozers will be utilized. This allows easy access of mining machinery and mobile offices installations to the site using existing roads and does not require extensive machinery or any development for new structures based on the project scale. The applied area is located in a close proximity to other proposed mine (e.g. Magdalene Colliery) and this will play a bigger role in assisting the proposed operation in terms of utilising the already existing infrastructures such as roads, waste management facilities, water facilities, processing facilities etc.

5.1 CONSIDERATION OF ALTERNATIVES

The National Environmental Management Act 107 of 1998, Environmental Impact Assessment Regulations, 2014 as amended requires BAR and EMPr to identify alternatives for the applied projects. 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; (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.

5.1.1 Location Alternatives

The location alternative considered for the proposed project includes the mining site and access routes. The location alternatives were selected based on several criteria, which include the environmental considerations (how sensitive is the area in terms of soils, wetlands, groundwater etc.), the availability of the required minerals on the area and the dependency of the project to the required infrastructure.

5.1.1.1 Mining Site and Access Routes

One location is considered for the proposed mining project. The proposed location for the applied area is a 5ha of portion 3 of the farm Ngisana 13992 HT. The considered location is the one that has shallower reserve as per the conducted exploration and is also consists of the old dump which is easily mineable compared to deposit itself. The proposed project is situated within the Klip River coalfield located within the Ecca Group of the Karoo Supergroup. The regional road R33 and R68, and other existing gravel roads within the proposed area will play a role in minimising the need for constructing new roads and rather there would be extension of the existing roads. Based on the above, the proposed location and the use of the already existing roads for the proposed mining permit have been found the best as per the attached proposed mining project locality map (**Figure 1-3**).

5.1.2 Design/Layout Alternatives

The design or layout of the activity entails the consideration of the different options to place project mine. The site was selected based on the geographic location of the potentially underling required mineral reserves. The layout of the site was however selected based on considerations made for the surrounding environment where possible, ease of operations and mining activities on site as well as minimal disturbance to the community near the site.

The site/land area for run of activity was selected based on the size (according to the geology of the area), and position of the mineral reserves to be exploited.

In terms of design and layout alternatives, two options were determined which includes: 1. Permanent infrastructures or 2. Mobile infrastructure. The proposed project is only for an extent not more than five (5) hectares and for a period of not more than two (2) years. The best alternative in terms of design and layout will be to utilise mobile infrastructures. The project is an open pit mine with the estimated depth not more than 60m.

The preferred layout was more considered importantly owing to the availability of Coal, the land ownership, the geo-hydrological impacts and the ease and available transport modes and routes therefore the proposed layout is the most suitable and economically and environmentally viable option for the open pit mining.

5.1.3 Technology Alternatives

The project will entail excavation of Coal through an open cast mining process. Mining will be performed with the use of bulldozers, trucks, bowl scraper and shovel. Gyratory crushers are normally used in high capacity ore primary crushing applications as they are beneficial in cost and operation when the capacities are higher than what a single jaw crusher can handle, the civil and structural work becomes too expensive for lower capacities. A tripper conveyor is proposed for the stacking method during primary processing of the mined materials. In terms of the technologies proposed, these have been chosen based on their long-term success in terms of mining history, therefore, accordingly, no other technology alternatives were considered.

5.1.4 Input Material Alternatives

As mentioned above, that the front-end loader and excavator will be utilised, and this equipment's uses energy such as petrol and diesel, therefore the best way will be to use current available energy on the operation of the proposed project. In terms of running the offices daily for mining operation, generators will be utilised. In view of the above, no other input material alternatives were considered for this project.

5.1.5 Operational Alternatives

5.1.5.1 Mining Permit Operational Methods

The mining area must be clearly demarcated (Working Areas and No-go Areas), by means of pegs/markers at all corners of the site and along its boundaries. Permanent pegs/markers

must be firmly erected and maintained in their correct position throughout the life of the operation.

Working areas

- The Site shall be divided into working areas and 'no-go' areas and shall be marked on appropriate plans for reference.
- Working areas are those areas required by the mining permit to erect their site works.

No-go Areas

No-go' areas are generally those large areas outside the designated working areas, and may include, but not be limited to:

- Existing services and infrastructure (e.g. overhead power line towers and bridge pylons)
- Watercourses
- Any heritage sites that receives the protection from KZNPHERA (KZN Provincial Heritage Resources Authority).
- Natural or special features as defined in the Environmental Specification.

5.1.6 No Go Option

The 'no-go' alternative is the option of not undertaking mining permit activities on the project site. The no-go option assumes the site remains in its current state. The no go alternative would result in no impacts on the social and biophysical environment.

The Project Manager and Safety Officers shall ensure that all "no go" areas are demarcated and that no unauthorised entry, litter, stockpiling, dumping or storage of equipment or materials shall be allowed within the demarcated "no go" areas. Once mining activities within an area has been completed and the area has been rehabilitated and re-vegetated, it shall be considered a "no go" area.

5.2 DETAILS OF THE PUBLIC PARTICIPATION PROCESS FOLLOWED AND RESULTS THEREOF

Public participation is the cornerstone of any EIA process. The principles of the NEMA govern many aspects of EIA's, including public participation. The general objectives of integrated environmental management laid down in the NEMA include to "ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment". The National Environmental Management Principles include the principle that "The participation of all interested and affected parties in environmental governance

must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary to achieve equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured”, which basically means that the person responsible for the application (EAP) must ensure that provision of sufficient and transparent information on an ongoing basis to stakeholders are made to allow them to comment, and to ensure that the participation of previously disadvantaged people like women and the youth are undertaken.

In terms of the EIA Regulations of 2014 as amended in 2017, when applying for environmental authorisation, the Environmental Assessment Practitioner managing the application must conduct at least a public participation process where all potential or registered interested and affected parties, including the competent authority, are given a period of at least 30 days to submit comments on the draft environmental reports of which in this case is Basic Assessment Reports and EMPr.

This section of the BAR and EMPr will give an explanation of the public participation process that was undertaken in order to comply with the above-mentioned requirements. A number of public participation guidelines were published in a bid to assist persons responsible for the environmental authorisation applications. The available guidelines were used in determining the public participation process, in guiding the public participation process of the proposed project.

Ericure has applied for an environmental authorisation for the proposed Mining Permit Project. The application for the environmental authorisation is undertaken in terms of the process as laid out in part 2 of Chapter 4 under the NEMA EIA Regulations, 2014 as amended in 2017. The abovementioned regulations require that an applicant for an environmental authorisation submit a FBAR and EMPr to the competent authority after having subjected the reports to a public participation process. In view of the above, a public participation process is been undertaken for the proposed mining permit project. The public participation process for the proposed project is designed to provide sufficient and accessible information to interested and affected parties (I&APs) in an objective manner to assist them to:

- raise issues of concern and make suggestions for enhanced benefits;
- contribute local knowledge and experience;
- verify that their issues have been captured;
- verify that their issues have been considered in the technical investigations; and
- comment on the findings of the EIA.

The following was conducted in undertaking of the public participation process for the proposed mining permit project.

5.2.1 Registration and BAR phase

The public participation process commences by compiling the database of all identified IAPs and providing potential Interested and Affected Parties (I&AP's) 30 days to register as interested and affected parties and to comment on the DBAR and EMPr. The registration and commenting process commenced on the 24 May 2019. The DBAR and EMPr was made available for 30 days period as from 07 June 2019 to the 12 July 2019.

5.2.1.1 Notification of the potential interested and affected parties

The following methods of notification were used to notify the potential interested and affected parties of the opportunity to register and access the DBAR and all related project information during the public participation process for the proposed project:

- A newspaper advert inviting the public to register as interested and affected parties and to comment on the proposed project were published on the local newspapers. The newspaper notice was published. The advert was in compliance with the requirements of Regulation 41(3) of the EIA Regulations, 2014 as amended in 2017 **(Appendix 3)**.
- Fixing of site notices at different areas surrounding the properties affected by the project. The notices are compiled in compliance with the requirements of Regulation 41(3) of the EIA Regulations, 2014 as amended in 2017.
- Circulation of the written notices to all identified IAPs.
- A stakeholder focus group meeting was undertaken with the landowners and meeting with the community **(Appendix 4)**. During the proceedings of the abovementioned meeting, the attendants were made aware and encouraged to comment on the DBAR and EMPr. Methods of commenting on the DBAR and EMPr were further explained to the attendees during the meeting proceedings.

5.2.1.2 Registered Interested and affected parties

Table 5-1 shows the identified and registered interested and affected parties for the Mining project (database of IAPs has been updated):

Table 5-1: List of Registered Interested and Affected Parties

IAPs	Contact Persons	Contact Number	Email Address	Postal/Physical Address
Dannhauser Municipality	Zanele Nkabinde	T: (034) 6212666		8 church street, Dannhauser, 3080.
KZN Department of Agriculture and Rural Development (KZNDARD)	Bheki Xaba	C: (072) 6091069	Bhekithemba.xaba@kzndard.gov.za	1 Cedera, Pietermaritzburg, 3200.
Ezemvelo KZN Wildlife	Nontobeko Magwaza	T: (033) 8451999		1 Peter Brown DR, Town Bush Valley, Pietermaritzburg, 3200
KwaZulu Natal Heritage (Amafa)	Mpume Nhlabathi	T: (033) 3956543		195 Langalibalele street, Pietermaritzburg, 3201.
Department of Mineral Resources (DMR)	Sanele Nala	T: (031) 3359680	Karoon.moodley@dmr.gov.za	33 Anton Lembede street, 3rd Floor, Durban, 4000.
Department of Water and Sanitation (DWS)	Nokuthula Gambushe	T: (031) 3362700	gambushen@dws.gov.za	707 southern life building, 88 Joe slovo street, Durban, 4000.
Department of Corporate Governance and Traditional Affairs	Nomfundo Ntombela	T: (033) 3556100	Nomfundo.ntombela@kzncogta.gov.za/ communications@kzncogta.gov.za	330 Langalibalele Street, Pietermaritzburg, 3201.
Department of Rural Development and Land Reform	Lynn Boucher	T: (033) 3412606	Lynn.boucher@drdlr.gov.za	139 Langalibalele Street, Pietermaritzburg, 3201.
Department of Transport	Nontokozi Dladla	T: (033) 3558600	Nontokozi.dladla@kzntransport.gov.za	Inkosi Mhlabunzima Mampumulo House 172 Burger Street, Pietermaritzburg, 3200.
Department of Economic Development, Tourism and	Mavis Padayachee	T: (033) 2642572		270 Jabu Ndlovu Street, Pietermaritzburg, 3200.

Environmental Affairs				
Department of agriculture, Forestry and Fisheries.	Buhle Mzulwini	T: (033) 3927753	BuhleM@daff.gov.za	Old Mutual Building, 185 Langalibalele Street, Pietermaritzburg, 3201.
Izwelethu Trust	P.S Sikhakhane	C: (071) 2381649	Duncansbo63@gmail.com	Ngisane Community.
Community Member	Sthembile Ndebele	C: (078) 8334442	sthembilendebele78@gmail.com	Perthfarm Community
Community Member	Thandeka Ndebele	C: (079) 5407340		Perthfarm Community
Community Member	Thandi Zulu	C: (079) 0953912		Perthfarm Community
Community Member	Thabo Nkala	C: (076) 1142241		Perthfarm Community
Community Member	Thando Kubheka	C: (081) 0239024		Perthfarm Community
Community Member	Mzwakhe Ziqubu	C: (064) 8665616		Perthfarm Community
Community Member	Sibusiso Khulu	C: (081) 8172432	sibusiso8905@gmail.com	Flintfarm Community
Community Member	Xolani Tshwawini	C: (071) 4995209		Peachfarm Community
Community Member	Muzi Xaba	C: (066) 1452172	xabapraisegod@yahoo.com	Dorset Community
Community Member	A.Z. Nsibanyoni	C: (072) 1146283		Currah Community
Community Member	M.P. Nxumalo	C: (073) 0178230		Perthfarm Community
Community Member	Hector Zwane	C: (076) 2634486		Perthfarm Community
Community Member	W. Hleleni	C: (083) 5491114		Perthfarm Community
Community Member	Fikile Mlambo	C: (076) 7614276		Ezi Pokothelwani Community
Community Member	Busi Zwane	C: (082) 8497409		Perthfarm Community
Community Member	Johan Ngoma	C: (073) 8379414		Keekeel Community
Izwelethu Trust	Mbulazi Khumalo	C: (078) 2620267	mbulazi@yahoo.com	Ngisane Community
Community Member	Thulani Malevu	C: (063) 8161130		Dorset Community
Community Member	Sandile Sibiya	C: (081) 8477445		Perthfarm Community

Community Member	Ayanda Ntshingila	C: (072) 9283490	ayandantshingila53@gmail.com	Perthfarm Community
Community Member	Bandile Ntuli	C: (083) 6383068		Dorset Community
Community Member	Bonginkosi Sibeko	C: (076) 2599176		Dorset Community
Community Member	Phumlani Sthole	C: (083) 6383068		Dorset Community

5.2.1.3 Proof of Consultation

Proof of the consultation has been attached as Appendix 3 to Appendix 4 of this report to be submitted to the competent authority (DMR KwaZulu Natal regional offices).

5.2.1.4 Finalisation of interested and affected parties

On expiry of registration and comment period, the database of interested and affected parties will be updated for finalisation. All parties that indicated the interest in the project are listed on the IAPs database for DMR submission.

Note: All organs of state, which have jurisdiction in respect of any aspect of the proposed project and the competent authority are automatically registered as interested and affected parties.

5.2.2 Draft Basic Assessment Report

The DBAR and EMPr was made available for comment to all relevant stakeholders during the period of the 07th June 2019 to 12th July 2019. DBARs were hand-delivered and emailed to all identified IAPs and the availability and ways of accessing the same was also advertised on the Local Newspaper and within all the site notices.

5.2.2.1 Notification of potential and registered interested and affected parties

Different methods of notification were used to notify the potential and registered interested and affected parties of the opportunity to comment on the DBAR and EMPr during the public participation process for the proposed project:

- Fixing notices as described under the registration phase was undertaken to invite comments from the potential interested and affected parties.
- Written notices to all identified and potential interested and affected parties, landowners, lawful occupiers, municipal councillors and local municipalities, authorities responsible for roads, environment, water, minerals and agriculture were used to invite comments on the DBAR and EMPr.

- Public meeting was arranged and conducted with the assistance of Izwelethu Trust members. During the proceedings of the above-mentioned meeting, the attendants were advised about the availability of the DBAR and EMPr and its content, and they were also encouraged to comment on the report and the methods to comment on the DBAR and EMPr were outlined to them.

5.2.2.2 Comments, Issues and Response on the Draft report

The consultation process for this project is still continuing and the final results will be submitted with the updated report to DMR on or before the 15th September 2020. The below **Table 5-2** is populated based on issues raised during the meeting proceeding.

Table 5-2: Interested and affected parties (IAP) list of comments and their response for the public meeting carried out on the 29th June 2019.

INTERESTED AND AFFECTED PARTIES (IAPS) <i>(this column, and Mark with an X were those who were in fact consulted)</i>		DATE COMMENTS RECEIVED	ISSUES RAISED	EAP RESPONSE TO ISSUES	SECTION AND PARAGRAPH REFERENCE
Johan Ngoma	X	29 June 2019	When is the project starting	The final date to comment on the proposed project is the 12 th July 2019, after that the Final report will be submitted to DMR of which have 107 days for final decision. DMR can either refuse or grant the mining permit. However, should the mining permit be granted the project might start earlier next year	Appendix 4
Xolani Tshwawini	X	29 June 2019	How long it will take to mine the whole 5ha and how is this mining project going to develop the community in terms of infrastructure and skills development? Will they be a continuation of consultation with all other communities under Dannhauser local municipality when the mine's start?	In terms of mining period, it is 2 years for a 5ha and if in two years the applicant is not yet done and there are still minerals, they can renew the mining permit three times, annually and the renewal is done only on the applied area. Therefore, this gives the mining permit a maximum period of 5 years. In terms of community development, there will be employment of youth and other community members and this will be done through the database that the community representative will provide to the applicant and from that database people will be employed with regard to the available opportunities. In terms of infrastructure, the community is the one that knows best when it comes to community needs, so that it can be discussed between the community representatives and the applicant. It is very important that community members are 100% involve in	Appendix 4

				<p>projects like this so that they can have knowledge of everything happening within the project.</p> <p>The mandate will be given to Izwelethu trust as the owner of the land, they are the ones who knows how to Channel the information to the nearby community, and this is because the nearby community will be mostly affected by this project when it starts operating.</p>	
Mbulazi Khumalo	X	29 June 2019	<p>How is community members exploitation going to be prevented, prevent workers from being robbed of what they deserve as employees.</p> <p>How the mine is going to support and assist financially small businesses.</p>	<p>Prevention of exploitation will be within the contracts and labour laws guides that would be applied during mining operations. In project like this there are structures that looks specifically to the issue of how employees are being treated and making sure that workers are being treated and paid in time and in accordance to their services to the mine. Issues of health and safety act applies during mining period and this is done to monitor the conditions of workers and how safe they are to that environment and all workers they have rights to give complains if they are being mistreated.</p> <p>The sponsoring small businesses, it can be very risky to the mine as a business. Therefore, such is rare however, the mine project can be able to assist with all required documents should they be required by any funding institutions like a bank in supporting the small business should that small business be the one which won the tender.</p>	Appendix 4

Xolani Tshwawini	X	29 June 2019	Is this consultation just for presentation of the project and discussion or what is being discussed and agreed on will be considered when mine start?	Is not just a presentation, everything that is being said here its being recorded down as meeting minutes and such will be circulated o all the meeting attendees for the comments prior to finalisation.	Appendix 4
Johan Ngoma	X	29 June 2019	What will happen to the kids of the Izwelethu beneficiaries? Where will the processing plant be situated during mining	Such will be discussed during commercial discussions with the applicant. A mobile processing plant will be allocated space within the applied 5ha as the project is a small scale, therefore there is no planned permanent plant.	Appendix 4
Xolani Tshwawini	X	29 June 2019	There are other activities such as farming that are happening in part of the applied farm. What is going to be a way forward based on the landowners planned activities on those areas. Is it possible, to rehabilitate 5ha within 5 years and is there a rehabilitation plan within the EMPR? Where will the mine gets its water during the operational period.	The applied area is only 5ha of approximately 1620ha of the farm Ngisana. Only 5ha will be mined and there will still be many hectors left of the farm. The planned mining area will be demarcated and fenced to avoid the planned livestock farming from danger of falling inside the mining pit. Further discussions between the landowners and the applicant will need to be conducted should the mine be on stage of expansion so that a workable solution can be reached between the two parties, however, mining and farming can coexist within one land. It is possible to rehabilitate the mined area within 3 to 5 years and a proper monitoring to ensure a successful rehabilitation need to be done. The rehabilitation plan is included within the EMPr. The water to be utilised during mining will be purchased from neighbouring mine.	Appendix 4

5.3 ENVIRONMENTAL ATTRIBUTES (BASELINE INFORMATION AS PER DESKTOP INVESTIGATIONS AND SITE OBSERVATION)

5.3.1 BIOPHYSICAL ENVIRONMENT

5.3.1.1 Geology

South Africa's Coal Resources are restricted to the area east of the longitude 26° E and are hosted by the late Carboniferous to middle Jurassic sedimentary deposits of the Karoo Supergroup (320-180 Ma). It is also a host to 19 coalfields, which encompass a total area of about 9.7 million hectares (around 24 million acres). The largest of these coalfields by Coal Reserves are the Highveld and Witbank coalfields, followed by Ermelo and Waterberg. Within the main Karoo Basin, coal is hosted in the Vryheid Formation of the Ecca Group (**Figure 5-1**).

The site consists of a series of horizontally layered sedimentary units of the Vryheid formation located within the Ecca Group of the Karoo Supergroup. These sediments comprise successions of sandstones, shales, mudstones, carbonaceous shales and coal seams. The Ecca Group overlies rocks of the Dwyka Group (**Figure 5-2**).

The Proposed mining activities is situated within the Klip River coalfield. This coalfield comprises Carboniferous and Permian sediments, which include the Vryheid formation, deposited on an undulating glaciated surface with the Dwyka tillites at the base of the sequence. Above this are predominantly Ecca sediments. No pre-Karoo rocks are exposed. The aerial extent of the Klip River coalfield is mainly controlled by structural features. Within this area the two principal coal seams developed are the Leader Seam and the Main Seam unit, which comprise the 'Top', and 'Bottom' seams. Coarse grained and gritty sandstones occur more frequently within the coal bearing strata, with overlying sediments generally being more argillaceous.

Within the proposed mining area, 3 coal seams are presence, namely: the leader seam which occurs some 13m – 18.5m above the top seam, and the bottom seam occurring some 6 – 21m below the top seam. The parting between the top and bottom seam decreases in a northerly to north westerly direction. Both the Top and Bottom seam are not uniform but contain one or more partings of shale or sandstone. The Top seam has a seam thickness of 1.32m to 4.38m. This coal is ranked as a low volatile bituminous coal. The total inter-seam partings have an average thickness of 0.19m. The bottom seam occurs at an average of 19m below the Top seam. The parting between the Top and Bottom seam consists of medium to coarse grained sandstone. The Bottom seam height ranges from 0.7m to 2.04m.

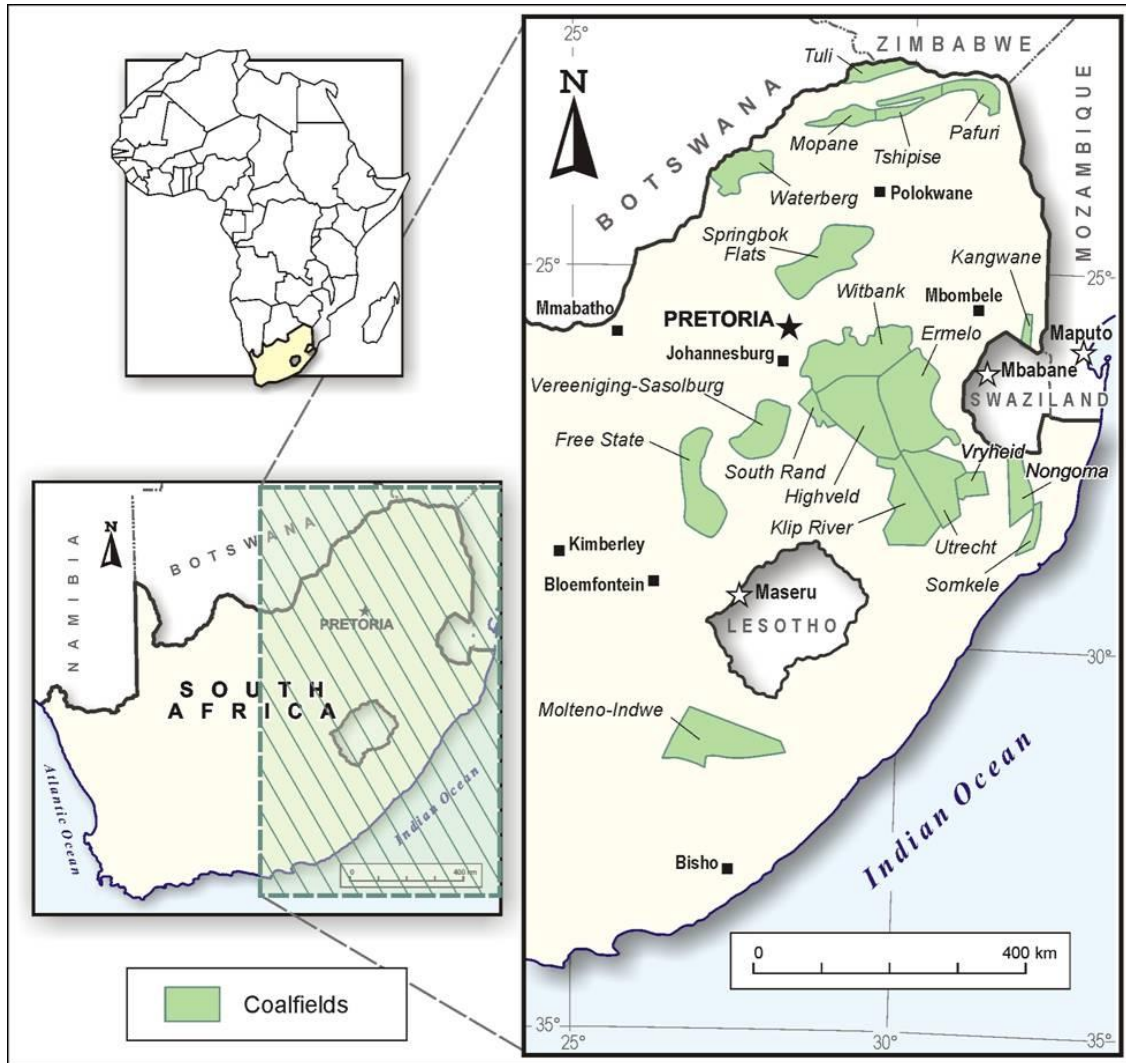


Figure 5-1: Geological map depicting the Coal fields of Southern Africa.

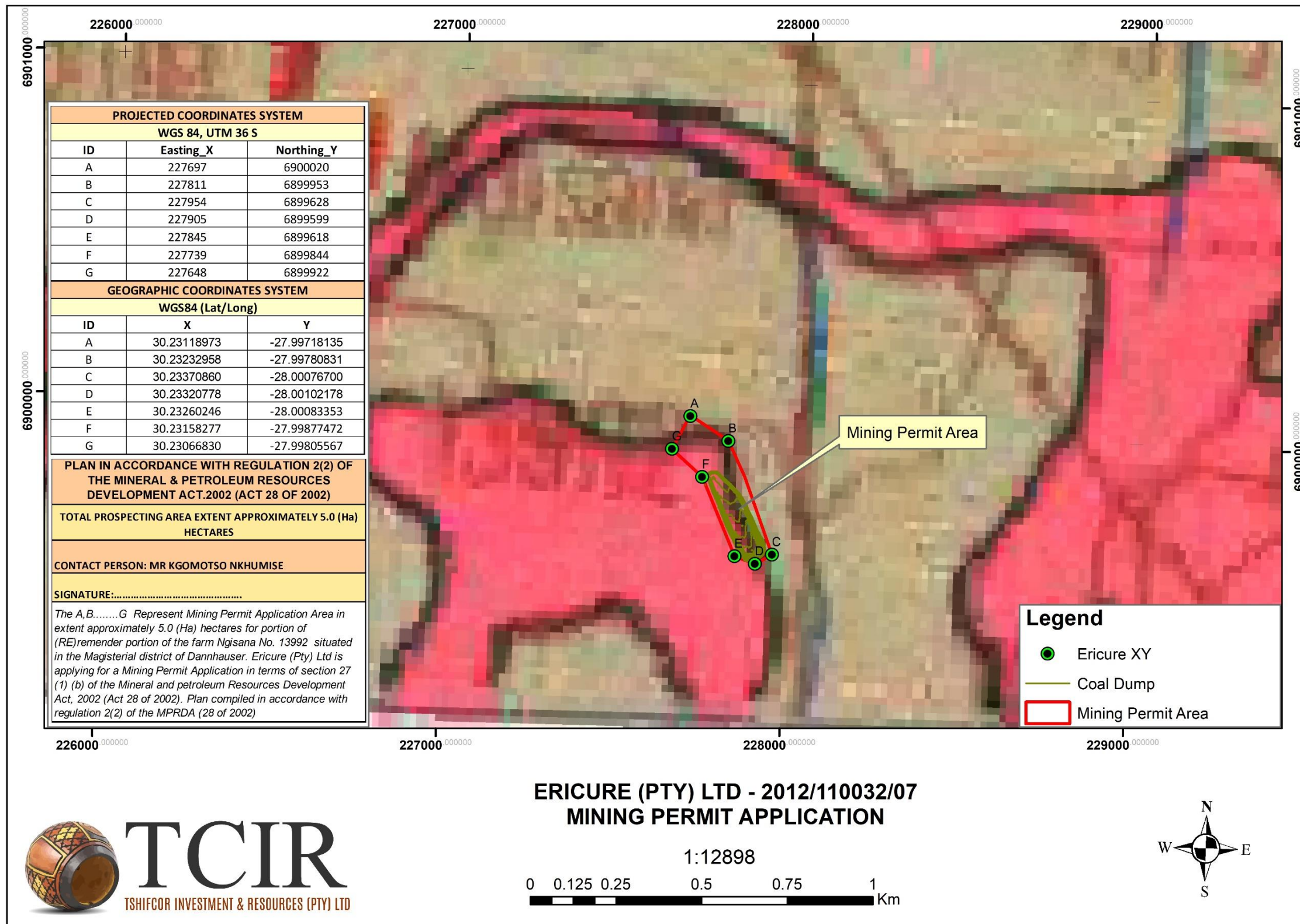


Figure 5-2: Geological map of the applied mining permit area

5.3.1.2 Climate

The KwaZulu-Natal Province has a summer rainy season with relatively dry winters. The Dannhauser Local Municipality also shows a variation of climate with an average annual rainfall of 671 mm which occurs mostly during mid-summer (December and January). The monthly distribution of average daily maximum temperatures ranges from 18.5°C in June to 26.2°C in January, the coldest month being July (2.1°C during the night).

5.3.1.3 Temperature

Temperatures can vary between 32°C (maximum) to 3.6°C (minimum) in the summer and 21.6°C (maximum) to -7.4°C (minimum) in the winter.

5.3.1.4 Rain Fall

The proposed mining activity is located within the summer rainfall region of South Africa, receiving more than 80% of the annual rainfall from October to March, the most of which occurs in January. The rainfall generally occurs in the form of convectional thunderstorms and is usually accompanied by lightning, heavy rain, strong winds and sometimes hail. The rainfall events are highly localized and can vary markedly over short distances.

5.3.1.5 Wind Speed

The prevailing wind direction is north-westerly. The highest velocities occur during the months of August to October when westerly winds of up to 5.7 m/s can occur. The average wind speed is 3.7 m/s. During spring and summer, strong South-easterly winds can also develop.

5.3.1.6 Topography

The general topography of the Dannhauser Municipality varies significantly. The area consists of flatter grounds on the north-eastern segment, from areas around Nyanyadu up to the Klipbank and Inverness areas and on the northern mid-sections around the Chelmsford Nature Reserve & Ntshingwo Kamahole Xhosa Dam and areas around Alcockspruit to Milnerdale. The mid-eastern to southern portions consist of areas of moderate slopes consisting of small hills and undulating terrains. The terrain is very steep, on the western ends of the municipal area and is characterized by mountains with high altitudes and steep slopes. (NDG AFRICA: 2010). The surrounding of the proposed project area, elevations rise to a maximum of 1 920 meters above mean sea level (mamsl) and within the valley elevations drop to as low as 760 mamsl (**Figure 5-3**).

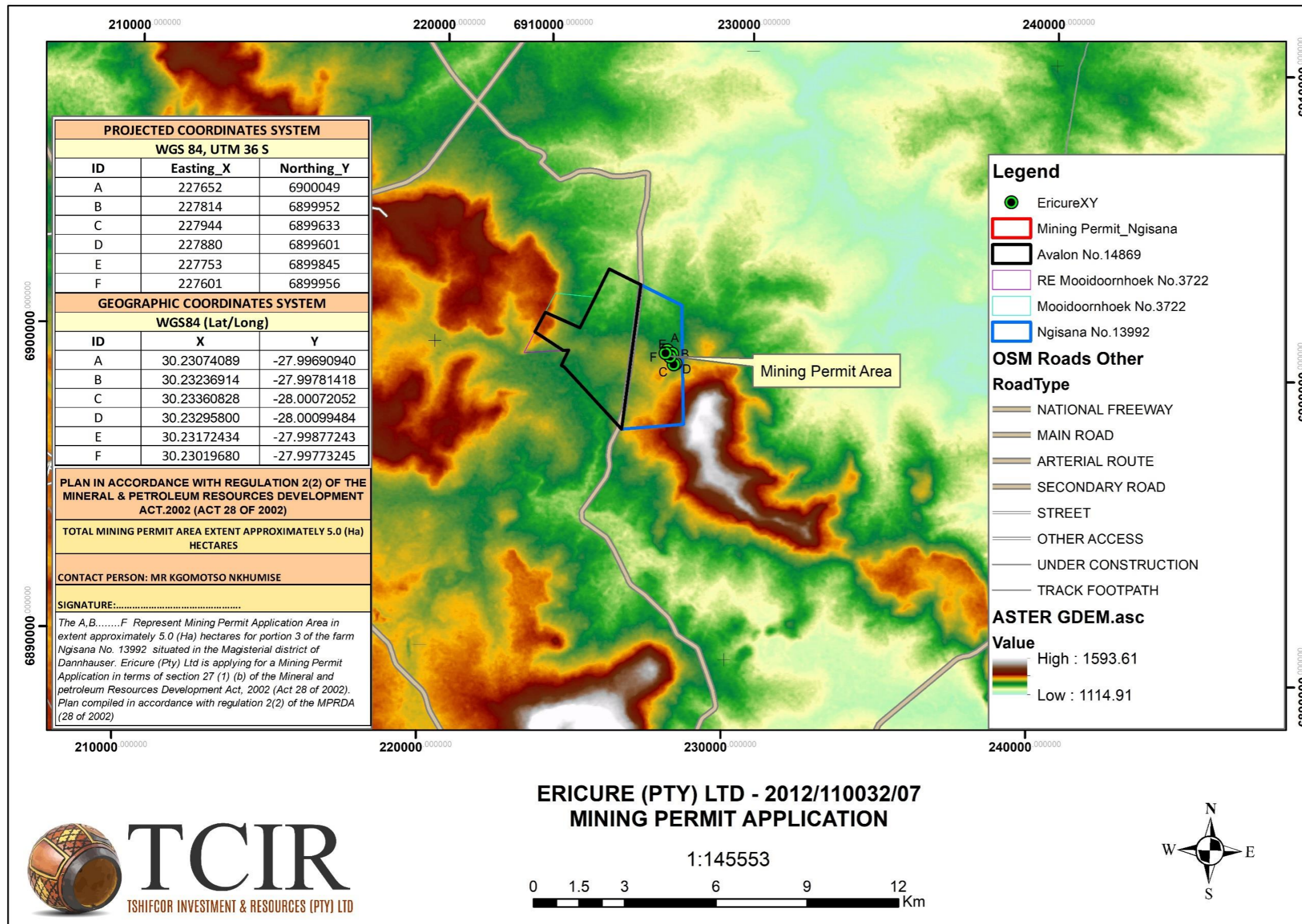


Figure 5-3: Map showing topography of the proposed mining area

5.1.3.4 Soils

Soils are a significant component of most ecosystems. As an ecological driver, soil is the medium in which most vegetation grows and a range of vertebrates and invertebrates exist. In the context of mining operations, soil is even more significant if one considers that mining is a temporary land use where-after rehabilitation (using soil) is the key to re-establishing post closure land capability that will support post closure land uses. The concentrations of natural salts and stores of nutrients within soils are a sensitive balance due to the extremes of rainfall, wind and temperature. The ability of a soil to retain moisture and nutrients and in turn influence the sustainability of vegetative growth and dependence of animal life is determined by the consistency and degree of soil moisture retention within the profile but out of the influence of evaporation. These conditions and the sensitivity of these variables must be noted and their importance to the overall bio-diversity balance understood if the sustainability equation is to be managed and mitigated.

The major soil types covering Dannhauser Local Municipality are Loam and Silty Clay soils (Amajuba District EMP:2010). According to the soils database from the Environmental Protection Atlas of South Africa (ENPAT), the soils of the majority of the proposed mining area comprise miscellaneous rocky soils derived from dolerite, sandstone and shale, with a small portion comprising prisma-cutanic and/or pedocutanic diagnostic horizons with one or more of: vertic, melanic, red structured diagnostic horizons. It is speculated that the soils are relatively shallow and highly erodible.

Mining projects have the potential to damage the soil resource through physical loss of soil and/or the contamination of soils, thereby impacting on the soils ability to sustain natural vegetation and altering land capability. Contamination of soils may in turn contribute to the contamination of surface and groundwater resources. Loss of the topsoil resource reduces chances of successful rehabilitation and restoration.

5.3.1.5 Land Use

5.3.1.5.1 Current Land Use

The Land use within the proposed mining project area and immediately adjacent to the proposed mining project area include but not limited to mining, informal farming, provincial road, township and rural residential purposes (**Figure 1-4**).

5.3.1.6 Natural Vegetation/ Plant Life

Vegetation type within the boundary of the Dannhauser Municipality varies significantly but dominated mainly by five vegetation types. These include the Income Sandy Grassland, the

Glencoe Moist Grassland and the Northern KwaZulu-Natal Moist Grassland. Other vegetation types include the KwaZulu-Natal Highland Thornville and the Low Escarpment Moist Grassland. According to the KZN Wildlife Vegetation Status Database, the Northern KZN Moist Grassland is vulnerable while the Glencoe Moist and Income Sandy Grasslands are endangered and endemic to KZN. The proposed mining area is dominantly covered by Income Sandy Grasslands (**Figure 5-4**).

5.3.1.7 Biodiversity

The proposed mining area falls within Dannhauser municipal area which is endowed with numerous environmental assets, which are of conservation and economic value. These include:

- The Chelmsford Nature Reserve - this is the only KZN Wildlife protected area reserve in the municipal area. It is a 6 014 ha reserve and is located around the Ntshingwayo Dam;
- Important Escarpments - these are found along the western and southern boundary of the municipality and are identified as being of high conservation value;
- Important species sites - these include the wetland e.g. Paddavlei (which is a habitat for the endangered White winged Flufftail), threatened plant species and grasslands;
- Important ecosystems - the municipality falls within the Acocks Veld Type 66 (Natal sour sandveld) which is endemic to KwaZulu Natal. The area has a high incidence of Red Data species, forest patches and medicinal plants (**Figure 5-5**).

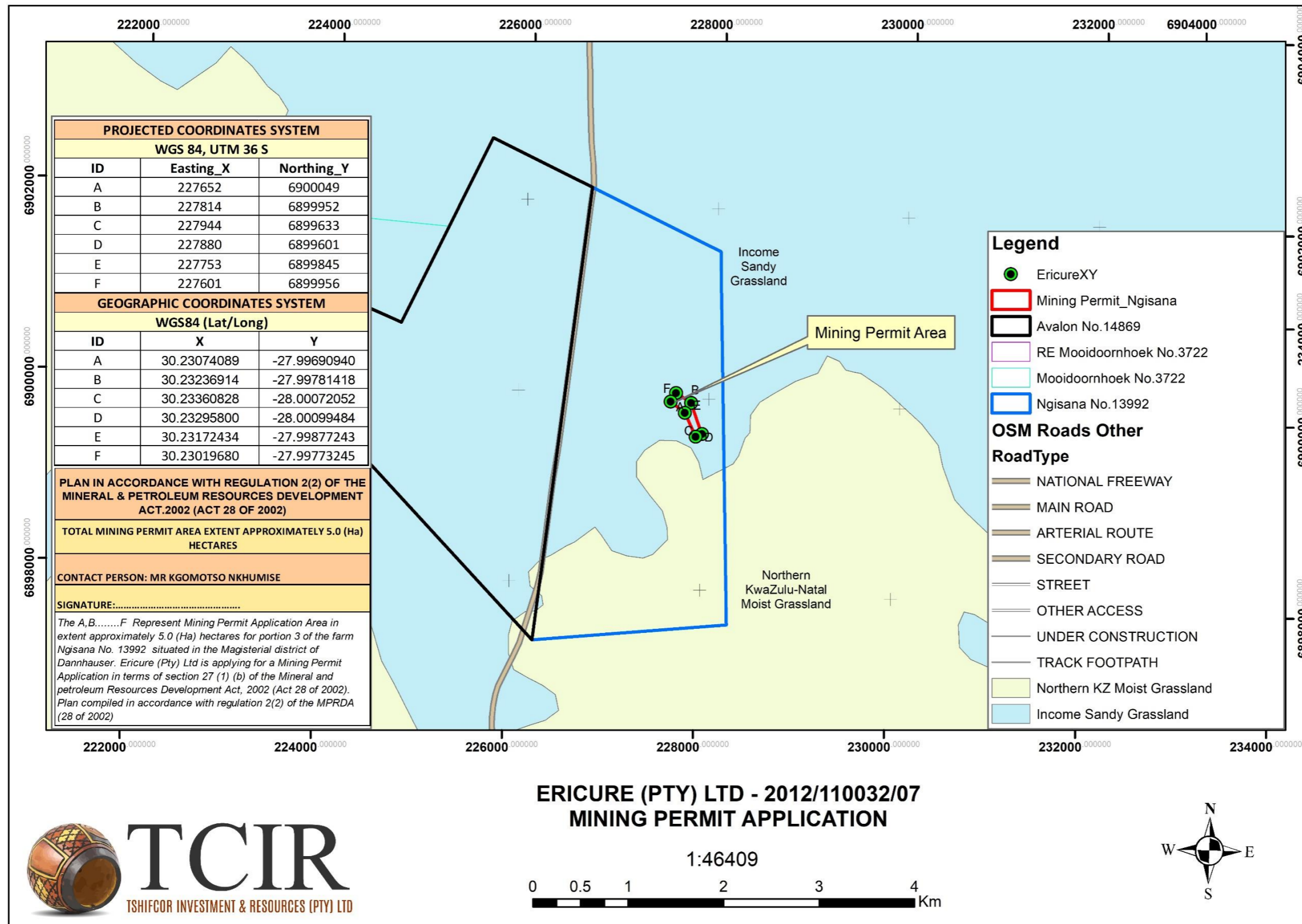


Figure 5-4: Vegetation type associated with the proposed mining permit area

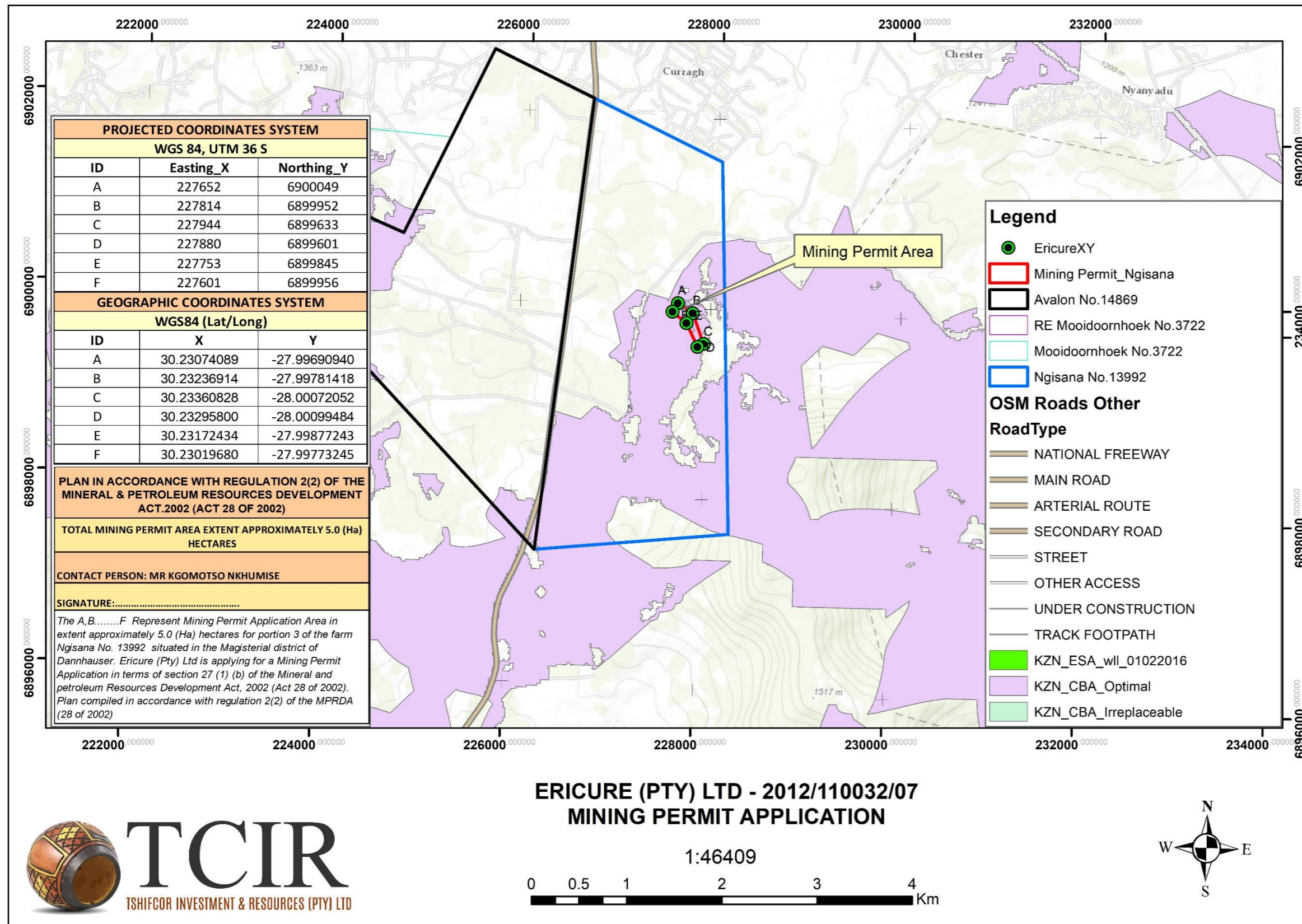


Figure 5-5: Biodiversity map of the applied mining permit area

5.3.1.8 Water

5.3.1.8.1 Surface Water

The proposed development falls within Water Management Area 7, the Thukela River catchment, and more specifically the Buffalo River sub-Catchment and Quaternary Catchment V32D which is 596km² and has a mean annual precipitation of 743.9 mm and an evaporation rate of 1845.2 mm. The catchment's mean annual surface runoff is 49.7 mm which implies a significant amount of infiltration and ground water recharge.

Very little, if any, surface runoff occurs within the Ngisana proposed mining area except during storms. The streams are non-perennial and are expected to be dry for most of the year, except for during and after rainstorms. Within the proposed area of study there are also some swamps of water. The assumed downstream surface water uses include domestic (potable); agriculture (livestock watering and irrigation); and aquatic ecosystems.

5.3.1.8.2 Geohydrology

According to ground water assessment project by Magdalena coal mine located adjacent to the area of study, it is indicated that groundwater levels have seasonal fluctuations with a general increase over time. Groundwater levels and flow directions follow the topographical setting of the area in general. A general decrease was noted in most boreholes during the 2012 period due to a drought; however, water levels appeared to be returning to normal at the time of compilation of the groundwater assessment. It was found that groundwater movement in the Ecca sediments (which is present on this site) is slow to moderate, compounded by the relatively planar topography.

5.3.1.9 Sensitive Landscapes

The only formally protected area in the municipality is the Chelmsford Nature Reserve, located around the Ntshingwayo Dam in the north-western part of the municipality. There are numerous Important Landscapes (portions of the high lying areas along the western and southern boundary of the municipality), Ecosystems and Communities (namely Adcocks Veld Type 666 and Important Mammals in the Chelmsford Nature Reserve; wetlands [e.g. Paddavlei in the south-central part of the municipality]; forest patches on the escarpment; and Medicinal Plants in the Grassland areas) and Species Sites in the municipality which have a high conservation value (namely the wetlands and linkages between them - which provide a habitat for important birds such as the White winged Flufftail; threatened plants in the high lying areas; and the grasslands around Chelmsford for endemic bird species). In the proposed area of study there is some few swamps of water

which are being utilised by livestock's and some periodic streams that experience ephemeral flow after significant rainfall events do exist (**Figure 5-6**).

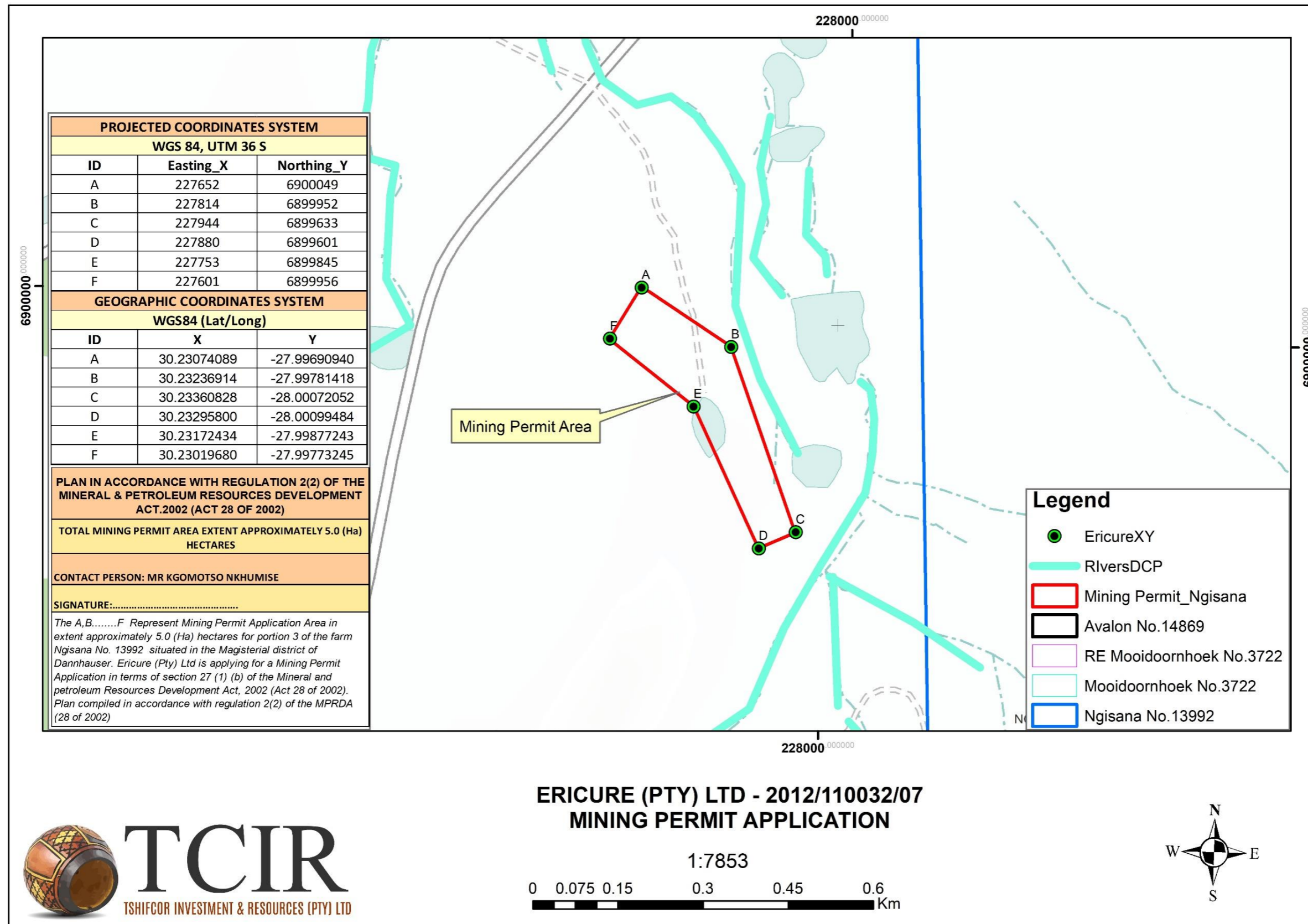


Figure 5-6: Sensitive landscape map

5.3.1.10 Air Quality

The air quality in the surrounding areas is relatively good with the main local pollutant sources of the area being the mine and smoke from cooking fires in the mornings and evenings. During the cold winter nights, the local people burn coal from the mine; this results in smog forming over the area. There are no major industrial activities, which may further impact on air quality within a 5km radius of the proposed mining operation. The air quality at the site is moderate depending on the time of year and the strength of the prevailing winds. The potential sources of dust pollution within and in the vicinity of the mine are the exposed, bare surfaces onsite, predominately the dirt roads, old dumps and haulage and earthmoving activities.

5.3.1.11 Noise

Local noise levels are minimal as the study area does not occur within the vicinity of industrial activities. However, few mining activities in the surrounding Ngisana mining project contribute to noise pollution. The existing noise sources will also be vehicular activities on the R33 and secondary roads in the area.

5.3.1.12 Socio-Economic Status

Dannhauser is one of three local municipalities within the Amajuba District Municipality and covers an area of approximately 1516 square kilometres. It is the smallest municipality within the District Municipality consisting of 10 wards of which 98% are in rural areas and only 2% located in urban areas. It is surrounded by some of the largest coal-producing mines in KwaZulu-Natal of which Magdalena Colliery which is adjacent to the proposed mining area is one of them. As most of the municipality is rural, it is characterized by a lack of business development opportunities and as a result majority of people are unemployed and poverty is visible throughout the region (Danhauser Municipality, 2010).

The area is characterized by very high levels of unemployment (78.6%) and this is attributed to the general economic situation in the area, as well as the fact that the area is largely rural. Closure of coal mines and the related industries within the greater area has attributed to the increase in unemployment. Also, the retrenchments of migrants in the cities where they were employed and have now returned to Dannhauser have a huge influence on the low economic levels in this municipal area. The municipality gets its income from grants provided by the Provincial Government and a small fraction of its population and businesses that pay municipal rates. Mining, tourism and agriculture sectors offer growth opportunities for many; but this is hampered by lack of skilled people and proper infrastructure in the industrial area (Dannhauser Municipality, 2010).

5.3.1.13 Population size and Composition

The population of the Amajuba District Municipality is 486 846 with an estimated 105 341 people living in the Dannhauser Municipal area (**Figure 5-7**). Population densities are highest in the Traditional Authority Areas in the north-eastern portion of the municipal area and in the town of Dannhauser itself. Africans account for most of the population of Dannhauser Municipality and represent 96.8 % of the total population and are mainly situated within the rural areas. However, in some of the semi urban wards, other races are present, and their percentage representation of total population is: Coloureds 0.4 %, Indians 1.2 % and Whites constitute 1.6 % (**Table 5-3**).

The ratio of males to females in Dannhauser has not changed significantly since 2011 to 2016. In 2011 there were 90 males in every 100 females, and a similar trend in 2016. In 2011 there was a total of 49 860 males and 55 482 females, and in 2016 there was a total of 48 380 males and 56 961 females (**Figure 5-8**) (Danhauser Municipality, 2018). Approximately 74% of the total population is below the age of 34. Children (0-4years of age), that is, below the pre-school enrolment age constitute 13% of the population; while those who are at school constitute 28.1% of the population, 4% of the total population are over 65 years old. This however indicates a high dependency ratio within the municipal area which in turn has a negative impact on the overall socio-economic development of the area as it impedes the ability of individuals to save and invest (Dannhauser Municipality, 2010).

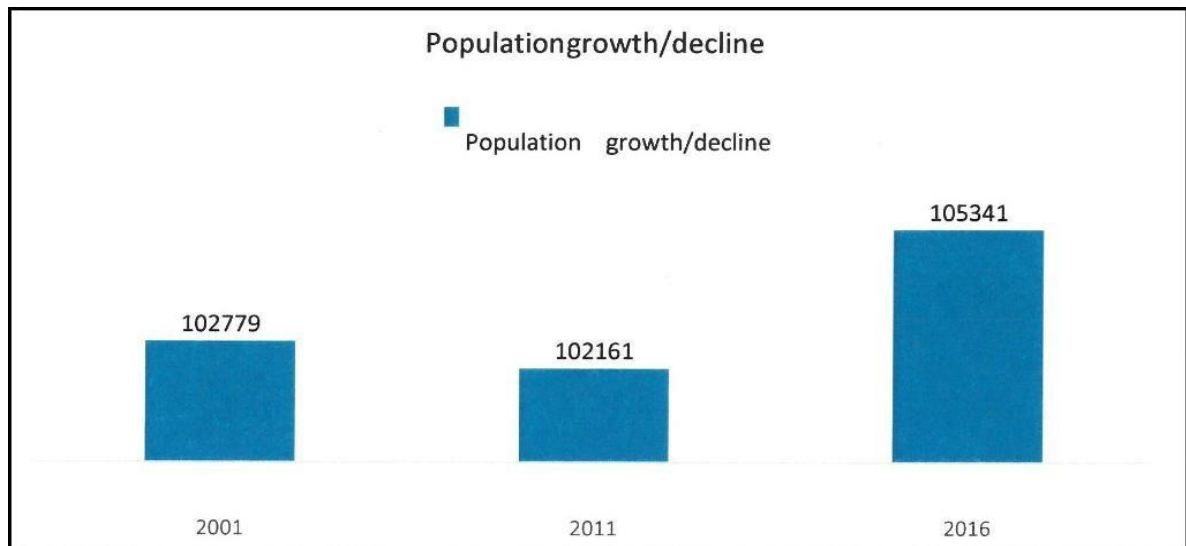


Figure 5-7: Population within the Local Municipality (Dannhauser IDP, 2018).

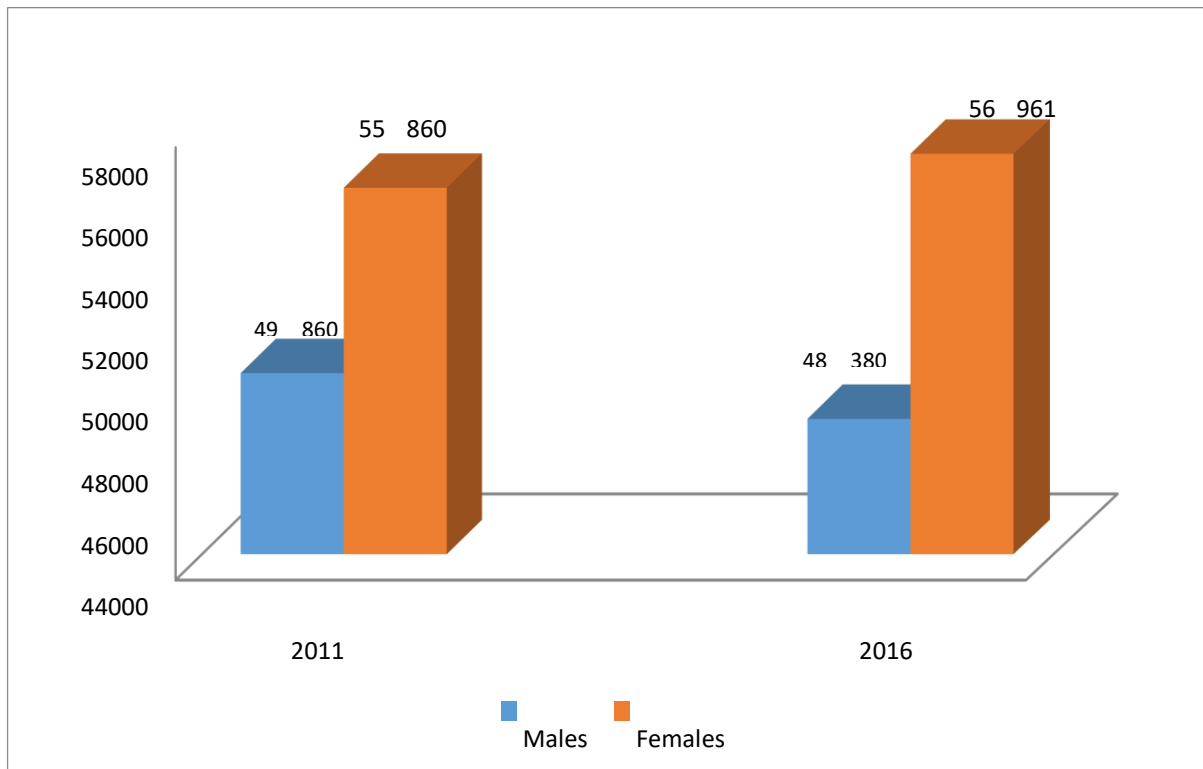


Figure 5-8: Population by gender within the Local Municipality (Dannhauser IDP, 2018).

Table 5-3: Indicates population by race: Source Census 2016

Population Group	Total Population
Africans (Blacks)	102 047
Coloureds	370
Indians / Asians	1 233
Whites	1 691
Total	105341

5.3.1.14 Education

Education plays an important role in economic development. It provides skilled labor that is key in producing goods and services in an economy. In 2016, of the total population of 105 341, only 1.9% had obtained tertiary educational attainments and only 16.4% had matriculated. People with no schooling increased to 14.7% 2011. This can be attributed to a lower level of primary school enrolment that was experienced in the municipal area in 2014-2015. Only a handful of those who finish matric pursue further studies (Dannhauser Municipality IDP, 2018) (**Figure 5-9**).

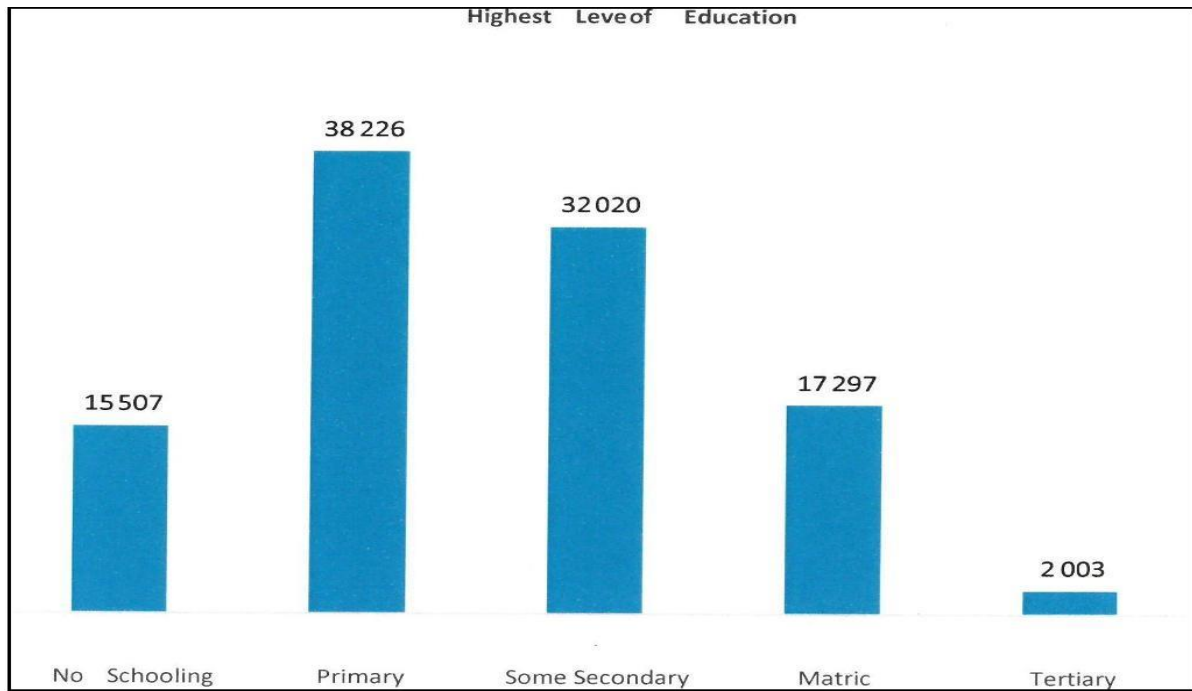


Figure 5-9: Educational level within the municipality (Dannhauser IDP,2018).

5.3.1.15 Health facilities

Dannhauser Municipality has ten clinics that are administered by the Department of Health and one community health center (CHC) in Dannhauser, which is operational. The CHC is to ensure that health services of a higher degree are accessible and closer to the people. The Department of Health further supports thirty-six mobile clinics in areas where health services are not available. An application of planning standards for health services in the area (one clinic for every 6 000 households or one clinic within a 5km radius) indicates that the Dannhauser municipality area is well provided with clinics and primary health facilities, except for a concern that some of these facilities are mobile (Dannhauser Municipality, 2018).

5.3.1.16 Employment Status

The major economic sectors within Dannhauser used to be agriculture and mining. However, mining is undergoing a movement away from large scale operations to smaller operations and there has been a decline of the coal-mining sector. Farming remains a major source of formal employment (KZNcogta, 2011).

Notably, the closure of mines that occurred few years ago had a major negative influence on economic activity and growth in the area and this has, in turn, adversely affected

industries and retailers downstream that benefited from the past mine population. At present, small scale agricultural, informal mining and trade (produce and general supplies) dominate the major economic activities within the immediate area. Two thirds of the Dannhauser Municipality residents are mostly dependent on Social Services Grants. This intervention provided by Social Development is the greatest relief to the residents who had no access to any other source of income (Dannhauser Municipality, 2010).

The area is characterized by very high levels of unemployment (78.6%) and this is attributed to the general economic situation in the area, as well as the fact that the area is largely rural. Closure of coal mines and the related industries within the greater area has attributed to the increase in unemployment. Also, the retrenchments of migrants in the cities where they were employed and have now returned to Dannhauser have a huge influence on the low economic levels in this municipal area (Dannhauser Municipality, 2010).

The municipality gets its income from grants provided by the Provincial Government and a small fraction of its population and businesses that pay municipal rates. Mining, tourism and agriculture sectors offer growth opportunities for many; but this is hampered by lack of skilled people and proper infrastructure in the industrial area.

5.3.1.17 Housing

Dannhauser Municipality is predominantly rural in character with urban areas limited to Dannhauser and surrounding areas that formed part of the coal mining activities. The rural settlements of Dannhauser Municipality are populated by dwellings that have settled in an informal manner. These dwellings accordingly exhibit a rural settlement structure as they have grown organically and not benefited from any formal planning. Dannhauser municipality due to its rural setting has more traditional dwellings compared to formal residential ones. A handful of formal dwellings are situated around Dannhauser Town, in Durnacoal and Hattingspruit, while the traditional dwellings are situated on tribal council authority land in the north-eastern portion of the jurisdiction (Dannhauser Municipality, 2018).

The number of households in the municipal area slightly increased from 20 439 in 2011 to 20 844 in 2017. These households are mostly located in rural settlements and are scattered in space in an inefficient manner. These scattered households pose a great challenge in terms of providing basic services such as water, roads, electricity. Housing delivery seems to be problematic for the municipality of Dannhauser as this was reflected in the Housing Plan compiled by the municipal's department of housing. The plan indicated that much attention

must be given to the housing needs of the people of Dannhauser as it appears that a huge percentage of them are without adequate housing. The municipality of the area has placed housing needs at the top of the priority list and has established various measures to implement the housing plan of the area (Dannhauser Municipality, 2018).

SECTION SIX

ENVIRONMENTAL IMPACT ASSESSMENT

6. ENVIRONMENTAL IMPACT ASSESSMENT

6.1 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS FOLLOWED

6.1.1 Approach to Environmental Impact Assessment

“The term ‘environment’ is used in the broadest sense in an EIA. It covers the physical, biological, social, economic, cultural, historical, institutional and political environments.”

An Environmental Impact Assessment is a good planning tool. It identifies the environmental consequences of a proposed project from the beginning and helps to ensure that the project, over its life cycle, will be environmentally acceptable and integrated into the surrounding environment in a sustainable way.

6.1.2 Environmental Impact Assessment Process Followed

Under Section 24 of the National Environmental Management Act (NEMA), the Minister promulgated the regulations pertaining to environmental impact assessments (EIA Regulations, 2014) under Government Notice R982 in Government Gazette 38282 of 4 December 2014. These EIA regulations repealed the 2010 EIA regulations and therefore any process relating to environmental authorisations must be undertaken under the EIA Regulations, 2014 as amended in 2017.

Chapter 4 of the EIA Regulations, 2014 as amended deals with the provisions for application for environmental authorisation. In view of the above, Ericure is obliged to comply with provisions of Chapter 4 for the intended environmental authorisation application for the activities (listed activities) related to the proposed project.

Part 2 of chapter 4 of the EIA Regulations, 2014 as amended, contemplate process to be undertaken for the application for environmental authorisation for the proposed project, which is the BAR process. The process to be followed is described below.

6.1.2.1 Pre-application consultation with the Competent Authority

In terms of section 24D (1) of the National Environmental Management Act, 1998 (Act 107 of 1998), the Minister responsible for mineral resources is the competent authority for environmental matters relating to mining and associated activities. In view of the above, the application for the environmental authorisation for the proposed project was submitted to the Department of Mineral Resources (DMR), KwaZulu Natal Regional Office for their consideration and decision making. The application for the environmental authorisation was submitted on 24 January 2020.

6.1.3 Public Participation Process

Public participation is the cornerstone of the EIA process. The principles of the NEMA govern many aspects of EIA's, including public participation. These include provision of sufficient and transparent information on an ongoing basis to stakeholders to allow them to state their views. Comments received from the public participation process are included in the impact assessment and measures have been determined on how the comments will be addressed during the life of the proposed project.

The following steps were conducted during the public participation process:

- An opportunity for the potential interested and affected parties to register,
- Report was compiled and subjected to the public for review,
- Further to the above, interested and affected parties and the public were informed of the decision taken by the responsible authorities on the submitted application.

The above process ensured that the BAR and EMPr is subjected to a public participation process, which ensures that the proposed project was brought to the attention of interested and affected parties, the public and relevant organs of state including the competent authority.

6.1.3.1 BAR Phase

In compliance with Regulation 19 of the EIA Regulations of 2014 as amended, the FBAR and EMPr is being submitted to the competent authority within 90 days from the day the competent authority received the application of an environmental authorisation.

As part of the public participation, the DBAR and EMPr is made available to the competent authority, potential and registered interested and affected parties for their comment for a period of 30 days as part of the EIA phase.

6.1.3.2 Information Gathering

Environmental baseline data has been obtained, pertaining to surface water, geohydrological data, topographical analyses, soil surveys, vegetation surveys, wetland surveys and geological conditions. Weather data was acquired from the South African Weather Service. Historic land use was determined through available data. The data accumulated and analysed is sufficient to gain a baseline indication of the present state of the environment.

6.1.3.3 Decision on the BAR application

In compliance with Regulation 20 of the EIA Regulations, 2014 as amended, the competent authority will within 107 days of receipt of the FBAR and EMPr grant or refuse the environmental authorisation.

6.2 ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY

The following prediction and evaluation of impacts is based on the proposed Mining project and associated activities. The evaluation distinguishes between significantly adverse and beneficial impacts and allocates significance against national regulations, standards and quality objectives governing:

- Health & Safety;
- Protection of Environmentally Sensitive Areas;
- Land use; and
- Pollution levels.

Irreversible impacts are also identified.

The significance of the impacts is determined through the consideration of the following criteria:

- Probability : likelihood of the impact occurring
- Area (Extent) : the extent over which the impact will be experienced.
- Duration : the period over which the impact will be experienced.
- Intensity : the degree to which the impact affects the health and welfare of humans and the environment (includes the consideration of unknown risks, reversibility of the impact, violation of laws, precedents for future actions and cumulative effects).

The above criteria are expressed for each impact in tabular form according to the following definitions as per **Table 6-1** below:

Table 6-1 : Environmental impact criteria expressed for each impact in tabular form according to each definition.

Probability	Definition
Low	There is a slight possibility (0 – 30%) that the impact will occur.
Medium	There is a 30 –70% possibility that the impact will occur.
High	The impact is definitely expected to occur (70% +) or is already occurring.

Area (Extent)	Definition
Small	0 – 40 ha
Medium	40 – 200 ha
Large	200 + ha
Duration	Definition
Short	0 – 5 years
Medium	5 – 50 years
Long	51 – 200 years
Permanent	200 + years
Intensity	Definition
Low	Does not contravene any laws. Is within environmental standards or objectives. Will not constitute a precedent for future actions. Is reversible. Will have a slight impact on the health and welfare of humans or the environment.
Medium	Does not contravene any laws. Is not within environmental standards or objectives. Will not constitute a precedent for future actions. Is not reversible. Will have a moderate impact on the health and welfare of humans or the environment.
High	Contravene laws. Is not within environmental standards or objectives. May constitute a precedent for future actions. Is irreversible. Will have significant impact on the health and welfare of humans or the environment.
Significance and Risk category	Definition
Negligible	The impact/risk is insubstantial and does not require management
Low	The impact/risk is of little importance, but requires management
Medium	The impact/risk is important; management is required to reduce negative impacts to acceptable levels
High	The impact/risk is of great importance, negative impacts could render options or the entire project unacceptable if they cannot be reduced or counteracted by significantly positive impacts positive impacts, and management of the impacts is essential
Positive (No Risk identified)	The impact, although having no significant negative impacts, may in fact contribute to environmental or economical Health

6.3 RESULTS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

6.3.1 Assessment of the Mining Application Area impacts/risks

6.3.1.1 Construction Phase

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
CONSTRUCTION PHASES							
Table 6-2: Site Establishment: Establishment of the access (tracks) to the mining permit site, Establishment of the mobile office site, Site physical surveying and demarcation of mining sites							
The establishment of access and the surveying with demarcating of the mining sites may result in the stripping of soils if the site establishment is not properly conducted. This may result in the loss of soils and erosion that may render the area unusable. During site establishment, machinery and vehicles used for the mining permit operation may result in hydrocarbon leakages, which may result in the contamination of the soils within the access tracks, mobile office-site and mining sites.	Soil/Land capability	Without mitigation					Establishment of the site will be undertaken according to the mining permit method statement. No soil stripping will be allowed during site establishment. Ensure none disturbance of soil when conducting surveys. Any area that may result into the disturbance of the soils will be rehabilitated immediately on discovery. Machinery to be used for the operation will be of good working conditions. Any hydrocarbon spill from the site establishment will be remediated immediately.
		S	L	S	M	M	
		With mitigation					
		S	L	S	L	L	
NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
CONSTRUCTION PHASES							
Current land use over the area to be used for site establishment will cease completely for a period of 2-5 years. This may have an impact on the land owners' livelihood should they not be able to use the land.	Land capability	Without mitigation					Use sites that are not mostly used and that are in the degraded state for the proposed development. This will be done in agreement with the land owner. The setting-up of the mining permit area will be
		S	M	S	M	M	
		With mitigation					

		S	L	S	L	L	conducted to ensure that rocky ridges, sensitive grass lands, indigenous trees and shrubs, site of farmlands actively used for farming are avoided.
The establishment of the site (access, mobile office-site and mining sites) may result in the removal of vegetation cover if the establishment is not done correctly. This may render the land unusable to the land owners after completion of the project.	Natural vegetation	Without mitigation					Use sites with most disturbed vegetation cover for the development. No strip of topsoil and vegetation will be allowed during site establishment. Ensure minimal disturbance of vegetation when erecting mobile office space and surveys. Any area that may result into the disturbance of the vegetation cover must be rehabilitated immediately on discovery.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
Animal burrows and habitats remaining within the proposed development site may be destroyed during construction. This may result in the migration of remaining animal life away from the affected areas. Poaching of wild animals and livestock by the laborers will result in the loss of wild live and loss of livestock to the land owner.	Animal Life	Without mitigation					Establishment of the site will be undertaken according to the mining permit method statement. No soil stripping will be allowed during site establishment. Any area that may result into the disturbance of the soils must be rehabilitated immediately on discovery. Use sites with most degraded environment for the site development. Poaching will be prohibited at the mining permit site.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
NATURE OF THE IMPACT		IMPACT ASSESSMENT					MITIGATION MEASURES
	ENVIRONMENTAL ASPECT	E	P	D	I	S	
CONSTRUCTION PHASES							
Exposure of soils during construction by the stripping of vegetation and soils may cause erosion, which may lead to increased silt loads in surface water runoff. This may result in the contamination of the clean water environment. Waste generated from the site may result in the contamination of surface and ground water should not management of such waste be undertaken.	Surface and Ground Water	Without mitigation					The proposed mining site is not within any sensitive landscapes. Avoid stripping of areas within the construction sites. Rehabilitate areas that may have been mistakenly stripped. Storm water upslope of the mining permit sites should be diverted around these areas. Proper waste management facilities will be put in place at the office site and mining site. Any hydrocarbon spill from the site
		S	L	S	M	M	
		With mitigation					
		S	L	S	L	L	

							establishment will be remediated as soon as possible.
Construction activities during the establishment of the site will include material off-loading. These activities will result in the mobilization of particulates that will migrate away from the site to the nearby local sites. This will be a nuisance to the communities and will result in aesthetic impacts associated with fugitive dust emissions. On-site dust fall may have health and nuisance implications to employees who are handling the construction processes.	Air Quality	Without mitigation					Ensure that specific management measures for mining permit area are complied with. During delivery of construction materials the wet surface management is to be implemented to insure that dust is controlled.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
NATURE OF THE IMPACT		IMPACT ASSESSMENT					MITIGATION MEASURES
	ENVIRONMENTAL ASPECT	E	P	D	I	S	
CONSTRUCTION PHASES							
The noise level generated from the construction activities may exceed the SANS 10103 Levels for urban areas and may exceed the maximum rating levels for ambient noise indoors. This may have an impact in the surrounding residents and employees using/delivering the machinery.	Noise	Without mitigation					Ensure that proper management measures as well as technical changes are undertaken into consideration to reduce the impacts on surrounding plots and employees. This include ensuring that less noisy equipment are used, that equipment are kept in good working order and that the equipment must be fitted with correct and appropriate noise abatement measures and where possible use white-noise generators instead of tonal reverse alarms on heavy vehicles operating on sites.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
The activities undertaken during the construction of the mine and associated infrastructure will be visible from the nearby	Visual Aspects	Without mitigation					Inform the land owner on the type of machinery and equipment to be used at the mining permit site. Ensure that lighting
		S	L	S	L	L	
		With mitigation					

roads and properties. However, visibility for the most part will most probably be restricted to short distances.		S	L	S	L	N	is conducted in manner that will reduce the impacts on visual aspects at night times.
NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
CONSTRUCTION PHASES							
The site may be located in close proximity to a heritage site and may result in the destruction of the identified heritage site.	Sites of Archaeological and Cultural Importance	Without mitigation					There is no archeological site identified so far, however, should any be identified, establishment of the mining permit area will be away from any heritage sites. A management plan will be drafted for the sustainable preservation of the graveyards if any be identified on site. Also the provincial heritage agency will be notified if any heritage artefacts is mistakenly excavated during mining
		S	M	S	H	H	
		With mitigation					
The commencement of the proposed project may result in an influx of 'outsiders' seeking jobs, which may be caused by increase in local unemployment levels. This may result in the potential increase in crime. It must however be noted that mining permit activities would unlikely attract job seeker due to its small nature of scale.	Socio economic aspects	Without mitigation					Recruitment will not be undertaken on site. Employment of farm laborers will be undertaken with the advice from the farm owners and community CLA. Locals residing on adjacent of the farm will also be prioritized for employment should the required skills be identified in the area.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	

6.3.1.2 Operational Phase

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
Table 6-3: Mining activities, loading, hauling and transportation							
Groundwater quality may be negatively impacted on due to the potential formation of Acid Mine Drainage (AMD) from exposed rock dumps, magnetite stockpiles, and deposition of discard into the open pits. Drawdown of the surrounding aquifers due to pit dewatering may potentially influence the groundwater system. This may impact on water users in the area that rely on groundwater for agricultural. Excavated materials that are stockpiled in an incorrect area can interfere with the natural drainage, cause sedimentation and water pollution	Surface and Ground Water	Without mitigation					Prevention of contaminated surface runoff which might impact to the water resource used by downstream users. All hazardous chemical must be stored in a bunded facility. Handling of such chemicals must be undertaken on a non-permeable surface. All hydrocarbons, lubricants and explosives should be adequately stored and bunded off to prevent any contamination to the groundwater during an accidental spill. All water that may collect in an area used for the storage of hydrocarbons must pass through an oil water separator before been discharged as acid. Spillages on open soil must be contained and removed and treated as hazardous waste. Emergency response plan to be put in place if spillages occur. Regular inspection should be conducted of storage facilities. Implement effective concurrent rehabilitation of the opencast pit area. Long-term management of mine affected water including potential decant to form part of the mine's water management strategy. Conduct regular monitoring of groundwater levels. The areas excavated should have berms that are vegetated in order to separate dirty and clean water systems, and as an erosion control measure. The stockpiles must be vegetated to prevent erosion and subsequent siltation of clean and dirty water streams as well as surface water resources. Upslope diversion and down slope silt containment structures should be constructed. Monitoring of surface water resource pre-mining and during mining must be implemented as per the monitoring programme.
		S	H	S	M	H	
		With mitigation					
		S	L	S	L	M	

During the operational phase there may be increased emissions associated with excavation of the open pit, entrainment of dust during hauling and stockpiling, and wind erosion of storage facilities.	Air Quality	Without Mitigation					Use of water boozers daily for dust suppression. Ensure that all vehicles are using the mine prescribed speed of 40km/h. Installation of bucket dust measurement method to monitor dust fallout during mining activities. Avoid tailgating of mining dump trucks in and out of the mining site. All magnetite haul truck to be covered by tarpaulins. Reduction of dust fallout levels and particulate matter. Spraying of dry magnetite mined materials during primary processing to reduce dust emissions.
		S	H	S	M	H	
		With Mitigation					
		S	M	S	M	M	
Vehicle movement may have a significant effect on the soil leading to compaction, surface crusting, water runoff and erosion. Vehicle movement will be restricted to roads and may generate dust, spillages of lubricants and petroleum products, compaction, water runoff and erosion.	Soil	Without Mitigation					Mining activities should be located on low-medium agricultural potential soil to minimise impacts. The areas excavated should have berms that are vegetated in order to work as an erosion control measure. The stockpiles must be vegetated to prevent erosion
		S	M	S	L	M	
		With Mitigation					
		S	L	S	L	L	
The proposed mining activities will result in the displacement of numerous fauna species	Faunal Mortality	Without Mitigation					An environmental induction for all staff members must be mandatory in which specific issues related to the killing and/or disturbance of faunal species should be avoided. Several staff members should complete a snake handling course in order to safely remove snakes from designated areas. Road mortalities should be monitored by both vehicle operators (for personal incidents only) and the ECO (all road kill on a periodic monitoring basis as well as specific incidents) with trends being monitored and subject to review as part of the monthly reporting. Monitoring should occur via a logbook system where staff takes note of the date, time and location of the sighting/incident. This will allow determination of the locations where the greatest likelihood exists of causing road mortality and allow mitigation against it (e.g. fauna underpasses, and seasonal speed reductions). Finally, mitigation should be adaptable to the onsite situation which may vary over time. All staff operating
		S	M	S	H	M	
		With Mitigation					
		S	L	S	L	L	

						motor vehicles must undergo an environmental induction training course that includes instruction on the need to comply with speed limits, to respect all forms of wildlife (especially reptiles and amphibians) and, wherever possible, prevent accidental road kills of fauna. Drivers not complying with speed limits should be subject to penalties. It is suggested that construction and mining operations occur from a predetermined area and move along a gradient to allow fauna species to relocate.	
Noise generated from mining permit operations activities may add to the current noise levels. This may have impacts on surrounding property owners and occupiers.	Noise	Without mitigation					Ensure that proper management measures as well as technical changes are undertaken to reduce the impacts on surrounding residents and employees. This include ensuring that less noisy equipment are used, that equipment are kept in good working order and that the equipment must be fitted with correct and appropriate noise abatement measures and where possible use white-noise generators instead of tonal reverse alarms on heavy vehicles operating on sites. The speed of not more than 40km/hour will be maintained at the proposed project site. Limit operation of machinery and vehicle movement between sunrise and sunset.
		S	L	S	M	L	
		With mitigation					
		S	L	S	L	L	
During mining activities, there will be a change in current land use and land capability though is for a short period	Land use/ Land Capability	Without Mitigation					Rehabilitate areas disturbed by mining with the intention to return land to arable land where feasible. If not, other land uses at the time (decommissioning phase) deemed socially, economically or environmentally applicable should be considered.
		S	L	S	M	M	
		With Mitigation					
		S	L	S	L	L	
The proposed mining project will increase traffic volumes on the existing road networks.	Traffic	Without Mitigation					Possible road upgrades where required. Create safe environment for pedestrians, animals and motorists. Create fauna underpasses where necessary (e.g. bridge crossings).
		S	M	S	M	M	
		With Mitigation					
		S	L	S	L	L	

The machinery for operations will be visible from the nearby residents and properties.	Visual Aspects	Without mitigation					Ensure that the period used for the mining machinery is optimized.	
		S	L	S	L	L		
		With mitigation						
		S	L	S	L	N		
NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES	
		E	P	D	I	S		
OPERATIONAL PHASES								
Operation may affect the day to day operation of the land owners hence result in direct impact on their livelihood.	Socio economic aspects	Without mitigation					Ensure that all safety measures (EMPr) are implemented to prevent the impacts on the property owners. Ensure that negotiations on compensation are undertaken before the mining activities can commence. This will include any other conditions that the landowner may deem necessary for the mining operation.	
		S	L	S	L	L		
		With mitigation						
		S	L	S	L	N		
Operation will result in the employment of locals and support on local businesses.	Socio economic aspects	Positive					The applicant will ensure that as far as possible locals are used during the operation of the mining permit project.	
The mining operation may result in the destruction of graves and any other heritage sites during operational phase of the project.	Sites archaeological and cultural importance	Without mitigation					Demarcating mining location more than five hundred meters from the identified heritage sites. So far, no heritage sites have been identified but should an archeological artefacts be found the provincial heritage authority will be contacted immediately.	
		S	M	S	H	H		
		With mitigation						
		S	S	S	L	L		

6.3.1.3 Decommissioning and Closure Phases

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
DECOMMISSIONING AND CLOSURE PHASES							
Table 6-4: Decommissioning of mining permit site (Site Rehabilitation)							
The removal of the mobile office site equipment and the rehabilitation of the mining sites and associated access infrastructure will result in the affected soil and land use being restored. This will also result in the resumption of the use of the land since the infrastructure would have been removed.	Soils, Land Capability and Land Use					Positive impact	Ensure that rehabilitation is conducted in accordance with a rehabilitation method statements approved by the management. See description of the rehabilitation plan and management actions in the EMP. Ensure that contamination of the rehabilitated area by carbonaceous material and hydrocarbon liquids are prevented.
Positive impacts will result due to the reduction in areas of disturbance and the return of land use of the affected areas and making available an area that was covered by the mining sites.	Land Use					Positive impact	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
DECOMMISSIONING AND CLOSURE PHASES							
The use of vehicles/machinery during the rehabilitation of the mining sites may result in compaction of soils and in the spillages of hydrocarbon liquids from the vehicles and machinery. This will result in the contamination of and destruction of the vegetation cover and soils.	Soils and Natural Vegetation	Without mitigation					Ensure that the rehabilitation work is done in such a manner that the environment is protected from probable spillages and contamination by carbonaceous material. Tarpaulins will be placed on the ground to prevent oil, grease, hydraulic fluid and diesel spills during emergency repairs. All oil spills will be remedied using approved methodologies. The contaminated soils will be removed and disposed of at a licensed waste disposal facility. All waste generated from the mining sites will be collected in proper receptacles and removed to registered disposal facilities e.g., sewage treatment plant, solid waste disposal site or hydrocarbon recycling or treatment facilities.
		S	M	S	M	M	
		With mitigation					
		S	L	S	L	L	
During the decommissioning and closure phases equipment will be removed, stockpiled soils will be used for rehabilitation, the open pit will be refilled, levelled, top soiled and the area re-seeded. During the process of rehabilitation surface water runoff from the rehabilitation site may have elevated silt load, which may cause pollution of the nearby water environment.	Surface Water	Without mitigation					Ensure that water leaving the site do not have elevated silt load. Ensure that the rehabilitated areas are free draining and that water from these areas is clean.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	
NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
DECOMMISSIONING AND CLOSURE PHASES							
Rehabilitation and removal of the mining permit sites and equipment will require vehicular movement. This will result in the	Air Quality	Without mitigation					Dust suppression must be conducted during the decommissioning phase of the project whenever excessive dust is generated. Correct speed will be
		S	L	S	L	L	
		With mitigation					

<p>production of dust and due to blowing winds. Vehicles and machinery will also generate diesel or petrol fumes. Generated dust will migrate towards the predominant wind direction and may settle on surrounding properties including nearby vegetation.</p>		S	L	S	L	N	<p>maintained at the proposed project rehabilitation sites. Vehicle maintenance must be conducted regularly to avoid excessive diesel fumes.</p>
<p>Noise will be generated during the removal of equipment and rehabilitation of the sites. This noise is not expected to exceed occupational noise limits and will be short lived.</p>	Noise	Without mitigation					<p>Where necessary, provide employees with ear plugs and employees must be instructed to use the ear plugs at all times. Ensure that equipment is well maintained and fitted with the correct and appropriate noise abatement measures.</p>
S L S L L							
With mitigation							
S L S L N							

6.4 SUMMARY OF SPECIALIST REPORTS

Based on the desktop information and site assessment in relation to the proposed project, the below listed specialist studies have been conducted so far (**Attached as Appendix 5**), with more specialist still being undertaken and such will be added on the final report. This is also due to the fact that the area will also be subjected to mining right, the conducted specialist studies were also conducted for that purpose.

- a. Biodiversity Specialist Study,
- b. Hydrological Specialist studies,
- c. Heritage Impact Assessment Study,
- d. Vibration Specialist study,
- e. Noise Specialist Study,

6.5 ENVIRONMENTAL IMPACT STATEMENT

Ericure has applied for a mining permit within the portion 3 of the farm Ngisana 13992 HT. The mining permit operation will involve the excavation of Coal seams within proposed project area.

6.5.1 Description of affected environment

The proposed project is situated within Klip River Coalfield hosted in the Vryheid Formations of the Ecca Group of the karoo supergroup. The surrounding of the proposed project area, elevations rise to a maximum of 1 920 meters above mean sea level (mamsl) and within the valley elevations drop to as low as 760 mamsl. Land use in the general area is characterized by mining, stockpiling, farming activities and residential. Due to the above land uses significant change has occurred on the natural vegetation, as the area being utilised for mining activities and residential purpose.

6.5.2 Summary of key findings of the environmental impact assessment

During the proposed mining operation impacts may occur on soils, natural vegetation, surface water, groundwater, sensitive landscapes, air quality, noise, visual aspects and sites of archaeological and cultural importance should the mining method statement not be adhered to. Alternatives considered for the mining sites has shown that the selected locations would be the most favourable.

Ericure will undertake measures to ensure that the identified impacts are minimised. Assessment of the impacts with the proposed mitigation measures has shown the significance of the impacts on all affected environmental aspects to be reduced to low and negligible significance. Land use will not change permanently, it will only be disturbed for a period of few years 2-5 years. The landowners and land occupiers within the proposed project area may be affected although on a temporary basis due to the need to access the sites and establishment and use of the offices. Measures such as safety along the roads and dust suppression will be undertaken to ensure that the impacts on the landowners and land occupiers are minimised.

Impact assessment of the vegetation within the footprint of the development area has shown limited presence of natural vegetation. Storm water runoff from the dirty water areas of the mining sites, its associated surface infrastructure may have a detrimental impact on the surrounding water environment should this water be released to the environment. In order to prevent the occurrence of the above-mentioned impacts, therefore, sediments will be created from the site during the construction, operational and decommissioning phase, which may impact negatively on the surrounding water environment.

No workers will be housed in the campsite to be established on site, the campsite will be utilised as offices and workshop area. The employees will be given strict instruction not to undertake activities that will affect the environment and that may have an impact on the surrounding landowner. Waste generated from the site will be collected in proper receptacle and disposed of in registered waste disposal sites.

6.5.3 Final Master Layout Plan

The maps showing the layouts of the proposed project plan are included on this report and same will be submitted to the DMR for approval once the public participation process has completed. The map has been developed to superimpose the proposed mining permit project together and associated infrastructure with the environmental sensitivities within the proposed project site.

6.6 ASPECTS FOR INCLUSION AS CONDITIONS OF THE ENVIRONMENTAL AUTHORISATION

- The construction of the proposed project should be implemented according to the conclusions of this report and the specifications of the EMPr to adequately mitigate and manage potential impacts associated with construction activities. The construction activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation (once

issued) and all other relevant environmental legislation. Relevant conditions to be adhered to include:

- A mining permit location map as shown in **Figure 1-3** and **Figure 2-1** detailing the mining permit area should be submitted to the relevant landowners and the DMR once again prior to the commencement of these activities to confirm that there is no any changes on the mining permit locations;
- The mining activities should be restricted to daytime and where possible no mining should take place during rainy days;
- All wastes generated must be disposed of at an appropriate registered landfill and disposal certificate be kept on site,
- All relevant practical and reasonable mitigation measures detailed within this report and within the EMPr must be implemented,
- The implementation of this EMPr for all life cycle phases of the proposed project is considered key in achieving the appropriate environmental management standards as detailed in this report,
- An independent Environmental Control Officer (ECO) should be appointed to monitor compliance with the specifications of the EMPr for the duration of the construction period,
- No Creation of new access roads will be conducted for the proposed project, only expansion of the existing roads will be considered,
- Ericure, will not undertake any new activity that was not part of this environmental impact assessment and that will trigger a need for an environmental authorisation without proper authorisation,
- “Ericure” must, where necessary, undertake specialist’s studies, management procedures and method statement should the need arise,
- The EMPr must be implemented fully at all stages of the proposed mining permit project.

6.7 DESCRIPTION OF ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

The EIA Regulations, 2014 outline specific requirements that a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures must be provided in the BAR. The assessments undertaken are based on conservative methodologies and these methods attempts to determine potential negative impacts that could occur on the affected environmental aspects. These impacts may however be of smaller magnitude than predicted, while benefits could be of a larger extent than predicted.

This section outlines various limitations to the specialist studies that could be undertaken and indicates, where appropriate, the adequacy of predictive methods used for the assessment. This has been done to provide the authorities and interested and affected parties with an understanding of how much confidence can be placed in this impact assessment.

The EIA has investigated the potential impact on key environmental media relating to the specific environmental setting for the site. A number of desktop and site assessment were undertaken and result thereof and are presented in this report. The information provided in this DBAR and EMPr is therefore considered sufficient for decision-making purposes.

6.8 REASONED OPINION AS TO WHETHER THE PROPOSED PROJECT SHOULD OR SHOULD NOT CONTINUE

6.8.1 Reason why the activity should be authorised or not

According to the impact assessment undertaken for the proposed project, the key impacts of the project are on soils, natural vegetation, surface and ground water, archaeological and landowners/occupier's health and socio-economic status. The project will also have positive impacts due to the employment and local business sustainability to be created although for a short term (maximum of 5 years).

The public is being provided an opportunity to review the BAR and EMPr and provide their input/comments and concerns. All comments that would be received during Public Participation Process will be included in this Final BAR and EMPr. All comments will be addressed accordingly as far as possible to the satisfaction of the interested and affected parties.

The management of the impacts identified in the impact assessment for all phases of the proposed project will be undertaken through a range of programmes and plans contained in the EMPr. In consideration of the programmes and plans contained within the EMPr, layouts and method statements compiled for the project, which is assumed will be effectively implemented, there will be significant reduction in the significance of potential impacts. Based on the above, it is therefore the opinion of the EAP that the activity should be authorised.

6.9 PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION

The environmental authorisation is required for a period of two (2) years.

6.10 UNDERTAKING

The signed undertaking is presented at the end of the current document.

6.11 FINANCIAL PROVISION

According to Appendix 3 of the EIA Regulations, 2014 as amended, where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts must be provide in the BAR and EMPr. In order to avoid duplication, the financial provision for the proposed project has only been provided under the relevant section of the EMPr.

6.12 OTHER INFORMATION REQUIRED BY THE COMPETENT AUTHORITY

Aside from the BAR and EMPr, the competent authority also requires the proof of consultation, health and safety mining ability and financial ability.

6.13 OTHER MATTERS REQUIRED IN TERMS OF SECTION 24 (4)(A) AND (B) OF THE ACT

Any matter required in terms of the above section of the Act will be complied with by Ericure (Pty) Ltd.

PART B (SECTION ONE)

ENVIRONMENTAL MANAGEMENT PROGRAMME

7. ENVIRONMENTAL MANAGEMENT PROGRAMME

7.1 DETAILS OF THE EAP

The details of the EAP are provided in **Table 1-1** of part A of this document.

7.2 DESCRIPTION OF THE ASPECTS OF THE ACTIVITY

The requirements to describe the aspects of the activity are covered by the environmental management programme and are included in PART A of the document under section 1. The reader is therefore referred to section 1 of PART A of this document.

7.3 COMPOSITE MAP

The map superimposing the proposed project, its associated structures and infrastructure on the environmental sensitivities of the preferred site will be attached on the FBAR to be submitted to DMR. Note that all areas that must be avoided due to their environmental sensitivity will be indicated in the map.

7.4 DESCRIPTION OF THE MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS

7.4.1 GENERAL CLOSURE PRINCIPLES AND OBJECTIVES

The following are the closure objectives, general principles and objectives guiding closure of the Mining permit area closure planning:

- Rehabilitation of areas disturbed as a consequence of mining permit to a land capability that will support and sustain a predetermined post-closure land use;
- Removal of all infrastructure/equipment that cannot be beneficially re-used, as per agreements established, and returning the associated disturbed land to the planned final land use;
- Removal of existing contaminated material from affected areas;
- Establishment of final landforms that are stable and safe in the long run;
- Establishment and implementation of measures that meet specific closure related performance objectives;
- Monitoring and maintenance of rehabilitated areas forming part of site closure to ensure the long-term effectiveness and sustainability of measures implemented.

7.4.2 MANAGEMENT OF ENVIRONMENTAL DAMAGE, ENVIRONMENTAL POLLUTION AND ECOLOGICAL DEGRADATION CAUSED BY THE MINING PROJECT ACTIVITIES

The following actions will be undertaken by Ericure to ensure that the closure objectives are attained.

7.4.2.1 Infrastructure Areas

- All infrastructure and equipment used during the mining permit operation will be removed from the site.
- All rehabilitated areas will be maintained for a period of 2 years, where after the frequency will be reassessed. Where necessary, vegetation cover will be maintained by annual application of fertiliser.
- Maintenance with respect to erosion will be conducted on a minimum three-monthly basis if and where required.

7.4.2.1.1 Buildings (Office, Workshops and Stores)

Mobile structures will be used, and such structures will be removed from the sites during decommissioning of the site.

7.4.3 POTENTIAL RISK OF ACID MINE DRAINAGE

The proposed Coal mining might have a potential risk of acid Mine Drainage (AMD) from exposed rock dumps, stockpiles, and deposition of discard into the open pits. This might happen should the deposition of Magnetite be somehow associated with pyrrhotite and pyrite. Mining activities may expose the pyrrhotite or pyrite to oxidizing agents such as oxygen and ferric iron. This might lead to formation of acidic conditions and the subsequent acid mine drainage due to heavy metal transport and silt loading, during floods seasons.

7.4.4 STEPS TAKEN TO INVESTIGATE, ASSESS AND EVALUATE THE IMPACTS OF THE ACID MINE DRAINAGE

Prior to commencement of mining activities, geohydrological studies must be conducted and reports must be compiled as part of AMD investigation and assessment. Drilling of core and trenching must be conducted, of which will be followed by testing of pyrite and acid content thereof at that certain time and moment to evaluate any changes that could have occurred between now and the time the project will be commence. The mitigation measures for AMD in case it occurs, have been put in place and such will be adhered to as part of mining operation.

7.4.5 ENGINEERING AND DESIGNS SOLUTIONS TO BE IMPLEMENTED TO AVOID OR REMEDY ACID MINE DRAINAGE

Prevention of contaminated surface runoff which might impact to the water resource used by downstream users. All hazardous chemical must be stored in a bunded facility. Handling of such chemicals must be undertaken on a non-permeable surface. All hydrocarbons and lubricants should be adequately stored and bunded off to prevent any contamination to the groundwater during an accidental spill. All water that may collect in an area used for the storage of hydrocarbons must pass through an oil water separator before been discharged as dirty water. Spillages on open soil must be contained and removed and treated as hazardous waste. Emergency response plan to be put in place if spillages occur. Regular inspection should be conducted of storage facilities.

Implement effective concurrent rehabilitation of the opencast pit area. Long-term management of mine affected water including potential decant to form part of the mine's water management strategy. Conduct regular monitoring of groundwater levels. The areas excavated should have berms that are vegetated in order to separate dirty and clean water systems, and as an erosion control measure. The stockpiles will be vegetated to prevent erosion and subsequent siltation of clean and dirty water streams as well as surface water resources. Upslope diversion and down slope silt containment structures should be constructed. Monitoring of surface water resource pre-mining and during mining must be implemented as per the monitoring programme.

7.4.6 MEASURES TO REMEDY RESIDUAL OR CUMULATIVE IMPACTS FROM ACID MINE DRAINAGE

Acid Mine Drainage is an on-going chemical reaction and if incorrect backfilling and flooding techniques are undertaken the contamination risk may increase. There are a variety of approaches to preventing and cleaning up acid mine drainage. Measures to remedy the cumulative impacts from AMD for the proposed mine includes:

- a. Mining the area in a box cut approach, where 1ha of the mine site mined and rehabilitated immediately on completion. The mined stockpiles will be put on top of the tarpaulins and acid neutralized by alkaline base and be prevented from oxygen and flowing/percolating water. The mined materials will only be allowed to sit on the ground once mined for not more than a week to prevent bacteria from catalyzing the necessary reactions that can cause increase of PH level on the materials.

- b. Should there be any contaminated land within the mine site, such land will be recovered by adding lime or other alkaline materials to neutralize the acidity, and adding uncontaminated top soil, planting vegetation, and modifying slopes to stabilize the soil and reduce infiltration of surface water into underlying contaminated material.
- c. Soil removal to relocate contaminated material to new sites where it can be monitored and treated.
- d. During closure, the pit will first be filled with alkaline materials to prevent the formation of acidic water.

Diverting water from the mine site and surrounding environment to prevent it from running through AMD-forming materials.

7.4.7 VOLUMES AND RATES OF WATER USE REQUIRED FOR THE PROPOSED PROJECT

Minimum water will be required during mining and this will only amount to 1080 cubic meters / quarter Litter and the required amount does not trigger water use licence. Water to be used will be accessed from the nearby mine at a rate and agreements entered will form part of mine agreements to be stored on site during mining activities and such agreements will also be shared with DMR and DWS.

7.4.8 WATER USE LICENCE APPLICATION

The water use activities that will be undertaken within the proposed mining permit activities will depend on the planned WULA that will be lodged for the purpose of Mining Right. Therefore, an Integrated Water Use License will be lodged during the lodgement of the planned mining Right.

7.5 ENVIRONMENTAL MANAGEMENT PROGRAMME

Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency for Monitoring	Time period for Management Action
1. CONSTRUCTION PHASE								
Table 7-1: Establishment of access to mining sites								
Loss of soils, erosion of the soils and impacts on owner's livelihood	Soils, Land Use and Land capability	To ensure that the activities in the development of the mining sites and associated infrastructure do not have detrimental impacts on the soils, land use and land capability	Ensure that the establishment of the mining permit sites is undertaken in accordance with the approved EMPr	Establishment of the site will be undertaken according to the mining method statement	Appointed contractor and site manager	Visual monitoring through inspections.	Environmental Control Officer (ECO) during construction.	During construction phase
				No soil stripping will be allowed during site establishment	Appointed contractor.	Visual monitoring and inspections.	ECO monthly	During construction phase
				Should it be necessary to conduct surveys, ensure no disturbance of soil.	Appointed contractor	Visual monitoring and inspections.	ECO monthly	During construction phase

				Any area that may result into the disturbance of the soils must be rehabilitated immediately on discovery	Appointed contractor and the applicant site manager	Visual monitoring and inspections.	ECO monthly	During construction phase
				Machinery to be used for the operation will be of good working conditions. Any hydrocarbon spill from the site establishment will be remediated as soon as possible	Appointed contractor	Visual monitoring and inspections.	ECO monthly	During construction phase
				Use sites that are unused and that are in the degraded state for the proposed development. This must be done in agreement with the land owner. The setting up of the mining permit area must be conducted such that ensure that rocky ridges, sensitive grass lands, indigenous trees and shrubs, sites of farmlands actively used for farming are avoided.	Appointed contractor	Undertake regular inspections	ECO monthly	During construction phase
Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency for Monitoring	Time period for Management Action

Loss of natural vegetation in the affected areas	Flora	To ensure that the establishment of the mining permit site and associated infrastructure/equipment do not have detrimental impact on the area's flora.	The management of the impact will comply with the company's biodiversity management plan.	Use sites with most disturbed vegetation cover for the development.	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase
				No strip of topsoil and vegetation will be allowed during site establishment.	Appointed contractor and site manager.			During construction phase
				Ensure minimal disturbance of vegetation when conducting surveys if necessary	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase
				Any area that may result into the disturbance of the vegetation cover must be rehabilitated immediately on discovery	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase
Migration of animal life due to disturbance caused	Animal Life	Ensure that the animal life within in the project area is not affected by	Maintenance of the current status on animal life within the project area	Establishment of the site will be undertaken according to the mining permit method statement	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase

proposed project		the proposed project						
				No soil stripping will be allowed during site establishment. Any area that may result into the disturbance of the soils must be rehabilitated immediately on discovery	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase
				Use sites with most degraded environment for the site development	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase
				Poaching will be prohibited at the mining permit site	Appointed contractor and site manager.	Visual monitoring and inspections.	ECO monthly	During construction phase
Deterioration of water quality in the nearby streams and within the groundwater regime.	Surface and Ground Water	Ensure that the establishment of the project and its associated infrastructure does not have detrimental impact on nearby stream and the groundwater regime.	The quality of streams and groundwater within the site will comply with the target DWS target water quality objectives. Construction will be in compliance with the regulations under the GN704.	Site establishment will not be undertaken within sensitive landscapes.	Appointed contractor and site manager.	Regular inspections	ECO monthly	During construction phase

				Avoid stripping of areas within the construction sites.	Appointed contractor and site manager.	Regular inspections	ECO monthly	During construction phase
				Rehabilitate areas that may have been mistakenly stripped	Appointed contractor and site manager.	Regular inspections	ECO monthly	During construction phase
				Storm water upslope of the mining permit sites should be diverted around these areas	Appointed contractor and site manager.	Regular inspections	ECO monthly	During construction phase
				Proper waste management facilities will be put in place at the mining site. Any hydrocarbon spill from the site establishment will be remediated as soon as possible.	Appointed contractor and site manager.	Regular inspections	ECO monthly	During construction phase
Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)	Management Actions and Interventions	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency for Monitoring	Time period for Management Action
Wetland destruction and loss of habitat.	Sensitive Landscapes	Ensure that the construction activities do not have detrimental impacts on the sensitive landscapes	Maintain the current state of the sensitive landscapes within the project area (farm dams and seepage zone).	Construction activities will be limited to be more than five hundred meters from the any wetland on site establishment, any contamination or pollution on wetlands or sensitive landscape will be remediated as soon as possible.	Appointed contractor and site manager.	Inspection to ensure compliance with the action plan will be conducted at the construction site.	Eco will conduct the inspections monthly	Whenever construction is undertaken near the sensitive landscapes.

Air pollution through air pollutants emissions , from the construction site.	Air quality	Ensure that the operations during the construction phase do not result in detrimental air quality impacts.	The construction will be undertaken such that the ambient air quality does not exceed the National Air Quality Standards	Wet suppression using water will be conducted at areas with excessive dust emissions.	Appointed contractor and site manager.	Visual inspection of areas with possible dust emissions. Bucket dust measurements.	ECO monthly	Throughout the construction phase.
				Traffic will be restricted to demarcated areas and traffic volumes and speeds within the construction site will be controlled	Appointed contractor and site manager.	Regular inspections	ECO monthly	Throughout the construction phase.
Increased noise levels.	Noise aspects	Ensure that the noise levels emanating from the construction sites will not have detrimental effects on the mine employees and surrounding communities /and owners.	The noise levels from the construction sites will be managed and measures will be taken to ensure that noise levels are below the National Noise Control Regulations, SANS10103: 2008 guidelines.	Limit the maximum speed to 40 km/h or less, subject to risk assessment. Less noisy equipment will be used, the equipment will be kept in good working order and the equipment will be fitted with correct and appropriate noise abatement measures	Appointed contractor and site manager.	Undertake site checks on speeds used.	Site manager	Throughout the construction phase.

				Ensure that the employees are issued with earplugs and that they are instructed to use them.	Site manager	Speed checking will be conducted.	Site manager checking as regularly as possible	Throughout the duration of the construction phase.
				Educate employees on the dangers of hearing loss due to mine machinery noise	Site manager	Use of earplugs will be checked and reported	Site manager will check the use of the earplugs as regularly as possible	Throughout the duration of the construction phase
Visual impacts on the surrounding communities and road users from the construction	Visual aspects	Ensure that the operations during the construction phase do not result in detrimental visual impacts on surrounding properties communities and road users.	Measures will be undertaken by the mine to ensure that visual aspects from the site are complying with the relevant visual standards objectives	The land owner will be informed on the type of machinery and equipment to be used at the mining permit site.	Applicant and site manager	The constructed perimeter berms will be inspected for compliance the design specifications.	Mine Engineer on a monthly basis.	Throughout the construction phase.
				Lighting will be conducted in manner that will reduce the impacts on visual aspects at night times.	Appointed Contractor	Night time inspection of the site will be undertaken	The site manager daily	During construction phase
Impact Activity Reference	Environmental Attribute	Impact Management Objectives	Targets (Impact Management Outcomes)		Management Actions and Interventions	Responsibility for Actions/Intervention	Monitoring Action	Responsibility and Frequency for Monitoring

Damage or destruction of sites with archaeological cultural significance.	Sites of archaeological and cultural importance	Ensure that the construction activities do not have detrimental impacts on the heritage sites.	The construction will be undertaken in compliance with the requirements of the National Heritage Resources Act, 1999 (Act 25 of 1999) and recommendations from the specialist.		The establishment of the sites will be away from any identified grave site or heritage sites. A buffer of five hundred meters will be created between the sites and the proposed camp and mining sites.	Applicant and site manager	The site will be monitored for any damages on a regular basis.	ECO monthly
Impact from the influx of job seekers and employment of farm laborer	Socio-economic aspects	Ensure that measures are taken to discourage influx of job seekers and employment of farm laborer	Measures taken will be in line with the company's recruitment policies		Recruitment will not be undertaken on site. Farm laborer will not be employed unless agreed to with the farms owners	Appointed contractor and site manager	Visual monitoring	Site manager

7.6 FINANCIAL PROVISION

Section 24 P of NEMA requires an applicant applying for an environmental authorisation related to mining to comply with the prescribed financial provision for the rehabilitation, closure and ongoing post decommissioning management of negative environmental impacts before the Minister responsible for mineral resources issues the environmental authorisation. The above-mentioned financial provision may be in the form of an insurance, bank guarantee, trust fund or cash.

Regulations pertaining to the financial provision for mining, exploration, mining or production operations (GNR 1147) were promulgated on the 20th of November 2015. Ericure has undertaken the financial provision determination in line with the requirements of section 11 of the Regulations pertaining to the Financial Provision for Mining, Exploration, Mining or Production Operations (GNR 1147). The financial provision determination for the proposed project is submitted to the Department of Mineral Resources for their consideration.

7.6.1 DESCRIPTION OF CLOSURE OBJECTIVES AND EXTENT TO WHICH THEY HAVE BEEN ALIGNED TO THE DESCRIBED BASELINE ENVIRONMENT

The closure objectives for the proposed project as detailed under section 7.4.1 of the EMPr, were determined in consideration of physical (infrastructure), biophysical (environmental) and socioeconomic measures as well as alignment to the closure components provided by the Department of Mineral Resources (DMR). See section 7.4.1 for the closure objectives.

7.6.2 CONFIRMATION THAT THE ENVIRONMENTAL OBJECTIVES IN RELATION TO CLOSURE HAVE BEEN CONSULTED WITH LANDOWNERS AND INTERESTED AND AFFECTED PARTIES

The DBAR and EMPr is been made available to the interested and affected parties during the public participation process for the proposed project. Note that the consultation of interested and affected parties included the owners of the properties directly affected by the proposed project and owners of land immediately adjacent the proposed project area. The above confirms that the landowners and interested and affected parties are being

consulted regarding the environmental objectives in relation to the closure of the proposed project.

7.6.3 REHABILITATION PLAN FOR THE PROPOSED PROJECT

In terms of Regulation 23 of NEMA EIA Regulations, 2014 as amended, an EMPr must address the requirements as determined in the regulations, pertaining to the financial provision for the rehabilitation, closure and post closure of the proposed operations. In view of the above, a rehabilitation plan for the proposed project has been compiled and detailed below:

In order to obtain a self-sustainable and stable closure plan, the following will be done where natural grassland had been disturbed during the mining process.

a. Rehabilitation and Closure

The clearing of soil surface areas would be restricted to what is really necessary for mining permit purpose. During the closure of these sites, or where vegetation is lacking or compacted, the areas would be ripped or ploughed and levelled in order to re-establish a growth medium and if necessary, appropriately fertilised to ensure the regrowth of vegetation and the soil ameliorated based on a fertilizer recommendation (soil sample analysed).

As the project progresses there will be an increase in the topsoil surface area disturbed initially but also at the same time concurrent rehabilitation will take place which involves the replacement of topsoil on backfilled mining permit area.

i. Rehabilitation of access roads

- Whenever a mining permit is suspended, cancelled or abandoned or if it lapses and the holder does not wish to renew the right, any access road or portions thereof, constructed by the holder and which will no longer be required by the landowner/tenant, shall be removed and/or rehabilitated to the satisfaction of the Regional Manager.

- Any gate or fence erected by the holder which is not required by the landowner / tenant, shall be removed and the situation restored to the pre-mining permit situation.
- If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining permit operation, be corrected and the area be seeded with a seed mix to the Regional Manager's specification.

ii. Rehabilitation of the surface mining permit site

On completion of operations, all buildings, structures or objects on the office site shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), which states:

1. When a prospecting right, mining right, retention permit or mining permit lapses, is cancelled or is abandoned or when any prospecting or mining operation comes to an end, the holder of any such right or permit may not demolish or remove any building, structure, object -
 - A & b. which may not be demolished in terms of any other law;
 - c. which has been identified in writing by the Minister for purposes of this section; or
 - d. which is to be retained in terms of an agreement between the holder and the owner or occupier of the land, which agreement has been approved by the Minister in writing.
2. The provision of subsection (1) does not apply to bona fide mining equipment which may be removed after all the foreign matter has been removed from the sites, the excavations shall be backfilled with subsoil, compacted and levelled with previously stored topsoil. No foreign matter such as cement or other rubble shall be introduced into such backfilling.

All rescued plants should be bagged and kept on a designated on-site nursery and should be returned to site once all mining permit operation is completed and rehabilitation of disturbed areas is required. Replanting should only occur in springs or early summer (September to November), once the first rains have fallen, in order to facilitate establishment.

Seed should be collected from plants earmarked for removal prior to disturbance, in order to reduce the impact on plants. If seeds are collected from nearby seedbanks, it may indirectly affect the availability of seed as a source of food for a variety of animals and birds.

On completion of the mining permit operation, the above areas shall be cleared of any contaminated soil. The surface shall then be ripped or ploughed to a depth of at least 300mm and the topsoil previously stored adjacent the site, shall be spread evenly to its original depth over the whole area. The area shall then be fertilised if necessary (based on a soil analysis). The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora. Where the site has been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.

Photographs of the office sites and mining sites, before and during the operation and after rehabilitation and closure, shall be taken at selected fixed points and kept on record for the information of the Regional Manager.

Photographs of the demarcation site, before and during the mining permit activities, after rehabilitation and closure, shall be taken at selected fixed points and kept on record for the regional manager's information and annual reporting.

Rehabilitation of the new topographical landscape in such a way that it would blend in with the surrounding landscape and allow normal (controlled) surface drainage to continue.

Implement water control systems in order to prevent erosion.

Visual impact would be addressed by means of:

- Re-vegetation (grasses);
- Removal of any building, scrap, domestic waste, etc. that would otherwise contribute to a negative visual impact.

iii. Fertilising of Areas to be rehabilitated

If a reasonable assessment indicates that the re-establishment of vegetation is unacceptably slow, the Regional Manager may require that the soil be analysed and any deleterious effects on the soil arising from the mining operation be corrected and the area be seeded with a seed mix to his or her specification.

iv. Seeding of Grass Seed Mixture and planting of Woody Species

The eventual seed mixture takes into account the availability of seed, different soil situations and the prevailing climatic conditions of the area. The following mixture will be applicable to the mining permit site:

- *Cenchrus ciliaris*
- *Cynodon dactylon*
- *Digitaria eriantha*
- *Heteropogon contortus*
- *Panicum maximum*

b. Demolition of infrastructure/buildings

On completion of operations, all structures on the mining permit terrain shall be dealt with in accordance with section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).

c. Invasive and alien control programme

Develop and implement an invasive and alien control programme to control the spread of weeds and other invasive species. Eradicate exotic weeds and invader species if it invades the terrain. All illegal invader plants and weeds shall be eradicated as required in terms of Regulation 15 & 16 of the Act on Conservation of Agricultural Resources, 1983 (Act no. 43 of 1983) which list the plants.

d. Final Land use after rehabilitation

The land use within the proposed mining permit project area will have to be rehabilitated to the landowner's satisfaction. However, for the first 3 years the area will need to be monitored every second month and more of agriculture activities will need to be conducted to bring the land to its original state.

7.6.4 COMPATIBILITY OF THE REHABILITATION PLAN WITH THE CLOSURE OBJECTIVES

The rehabilitation plan has been drafted to be compatible with the closure objectives.

7.6.5 DETERMINATION OF THE QUANTUM OF THE FINANCIAL PROVISION REQUIRED TO MANAGE AND REHABILITATE THE ENVIRONMENT

The proposed project is for Coal mining project. The closure components have been determined based on the DBAR and EMPr to be submitted and the generally accepted closure methods. Areas and distances were determined with the aid of visual observations and the proposed surface layout plans. The latest Master rates for the different components were obtained from the DMR. Weighting factors were applied based on the nature of the terrain (undulating) and the proximity to urban areas (remote). The determination of the financial provision for the proposed project is expanded in Table below. Based on the calculations indicated in **Table 7-2**, the quantum of pecuniary provision required for the proposed mining permit project is **R 195 173.00** (One hundred and ninety five thousand, one hundred seventy three Rands).

7.6.6 METHOD OF PROVIDING FOR THE FINANCIAL PROVISION

According to Regulation 8 pertaining to the pertaining to the financial provision for mining, exploration, mining or production operations (GNR 1147), an applicant or holder of a right or permit must make financial provision by one or a combination of the following:

- Financial guarantee from a bank registered in terms of the Banks Act, 1990 (Act No. 94 of 1990) or from a financial institution registered by the Financial Services Board as an insurer or underwriter;
- deposit into an account administered by the Minister responsible for mineral resources; or;
- contribution to a trust fund established in terms of applicable legislation.

Ericure, has opted to use a financial guarantee to provide for the determined quantum for financial provision.

Table 7-2: Assessment of the quantum for financial provision for mining project, 2019

No.	Description	Unit	A	B	C	D	E=A*B*C*D
			Quantity	Master Rate	Multiplication factor	Weighting factor 1	Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0,2	14,05	1	1	2,81
2 (A)	Demolition of steel buildings and structures	m2	0	195,76	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	288,49	1	1	0
3	Rehabilitation of access roads	m2	0,2	35,03	1	1	7,006
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	340,01	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	185,46	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	391,53	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0,4	205242,16	1	1	82096,864
7	Sealing of shafts adits and inclines	m3	0	105,09	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0,02	136828,1	1	1	2736,562
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	170416,93	1	1	0

8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	494971,55	1	1	0
9	Rehabilitation of subsided areas	ha	0	114572,93	1	1	0
10	General surface rehabilitation	ha	0,5	108390,94	1	1	54195,47
11	River diversions	ha	0	108390,94	1	1	0
12	Fencing	m	0	123,64	1	1	0
13	Water management	ha	0	41213,28	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0,005	14424,65	1	1	72,12325
15 (A)	Specialist study	Sum				1	0
15 (B)	Specialist study	Sum				1	0
Sub Total 1							139110,8353
1	Preliminary and General		16693,30023		weighting factor 2		16693,30023
							1
2	Contingencies			13911,08353			13911,08353
Subtotal 2							169715,22
VAT (15%)							25457,28
Grand Total							195173

7.7 MECHANISM FOR MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREOF

7.7.1 INSPECTIONS AND MONITORING

During the impact assessment, potential impacts on the environment were identified. Mitigation measures were also specified for prevention and management of the impact so as to minimise their effect on the environment. This section will describe how the mine intends to ensure that the mitigation measures are being undertaken and that their effectiveness is proven.

A monitoring programme has been developed for the identified impacts and their mitigation measures. This monitoring programme will be undertaken, and results thereof used to determine the effectiveness of the mitigation measures. The ECO will have an overall responsibility for ensuring that all monitoring is conducted according to the approved EMPr.

7.7.2 MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE ENVIRONMENTAL MANAGEMENT PROGRAMME AND REPORTING THEREOF

As part of the general terms and conditions for an environmental authorisation and in order to ensure compliance with the EMPr and to assess the continued appropriateness and adequacy of the EMPr, Ericure will:

- Conduct monitoring on a continuous basis (see EMPr).
- Conduct performance assessments of the environmental management programme once in every two years.
- Compile and submit a performance assessment report to the minister in which compliance with the approved Environmental Management Programme is demonstrated.
- The performance assessment report will as a minimum contain the following:
 - Information regarding the period applicable to the performance assessment
 - The scope of the assessment.
 - The procedure used for the assessment.
 - The interpreted information gained from monitoring the approved environmental management programme.
 - The evaluation criteria used during the assessment.
 - The results of the assessment.
- Recommendations on how and when non-compliance and deficiencies will be rectified.

7.7.3 ENVIRONMENTAL AWARENESS PLAN

An Environmental Awareness and Risk Assessment Schedule have been developed and is outlined below. The purpose of this schedule is to ensure that employees are not only trained but that the principles are continuously re-enforced.

Table 7-3: Environmental Awareness and Risk Assessment

Frequency	Time Allocation	Objective
Induction (all staff and workers)	1-hour training on environmental awareness training as part of site induction	<ul style="list-style-type: none"> • Develop an understanding of what is meant by the natural environmental and social environment and establish a

		<p>common language as it relates to environmental, health, safety and community aspects.</p> <ul style="list-style-type: none"> • Establish a basic knowledge of the environmental legal framework and consequences of non-compliance. • Clarify the content and required actions for the implementation of the Environmental Management Plan. • Confirm the spatial extent of areas regarded as sensitive and clarify restrictions. • Provide a detailed understanding of the definition, the method for identification and required response to emergency incidents.
Monthly Awareness Talks (all staff and workers)	30-minute awareness talks	Based on actual identified risks and incidents (if occurred) reinforce legal requirements, appropriate responses and measures for the adaptation of mitigation and/or management practices.
Risk Assessments (supervisor and workers involved in task)	Daily task-based risk assessment	Establish an understanding of the risks associated with a specific task and the required mitigation and management measures on a daily basis as part of daily tool box talks.

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

As prescribed in above table, Task/Issue Based Risk Assessments must be undertaken with all worker involved in the specific task in order to establish an understanding of the risks associated with a specific task and the required mitigation and management measures.

7.7.3.2 Environmental Awareness Training Content – Induction Training

The following environmental awareness training will be provided to all staff and workers who will be involved in mining activities.

- Description of the approved mining activities and content of the mining right;
- An overview of the applicable legislation and regulations as it relates to environmental, health, safety and community including (but not limited to):
 - General Environmental Legal Principles and Requirements
 - Air Quality Management
 - Water and Wastewater Management
 - Hazardous Substances
 - Non-Mining-Related Waste Management
 - The Appropriate Remediation Strategies & Deteriorated Water Resources
 - Biodiversity

- Weeds and Invader Plants
- Rehabilitation
- Contractors and Tenants
- Energy & Conservation
- Heritage Resources
- General Health and Safety Matters
- Basic Conditions of Employment
- Compensation for Occupational Injuries and Diseases
- General Mine Health and Safety Matters
- Smoking in the Workplace
- Noise & Hearing Conservation
- Handling, Storage and use of Hazardous Substances
- Weapons and Firearms
- Content and implementation of the approved Environmental Management Plan
- All located responsibilities and functions
- Management and Mitigation Measures
- Identification of risks and requirements adaptation
- Sensitive environments and features
- Description of environmentally sensitive areas and features
- Prohibitions as it relates to activities in or in proximity to such areas
- Emergency Situations and Remediation
- Methodology to the identify areas where accidents and emergency situations may occur, communities and individuals that may be impacted
- An overview of the response procedures,
- Equipment and resources
- Designate of responsibilities
- Communication, including communication with potentially Affected Communities
- Training schedule to ensure effective response.

7.7.3.3 Development of procedures and checklists

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

7.7.3.4 Emergency Preparedness and Response

The procedure will be developed to specifically include risk identification, preparedness, response measures and reporting. The procedure will specifically include spill and fire risk, preparedness and response measures. The appropriate emergency control centers (fire department, hospitals) will be identified and the contact numbers obtained and made available on site. The procedure must be developed in consultation with all potentially affected landowners.

In the event that risks are identified which may affected adjacent landowners (or other persons), the procedure will include the appropriate communication strategy to inform such persons and provide response measures to minimize the impact.

7.7.3.5 Incident Reporting Procedure

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

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

7.7.3.6 Environmental and Social Audit Checklist

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

8. UNDERTAKING

The EAP herewith confirms

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



Signature of the environmental assessment practitioner:

TSHIFCOR INVESTMENT AND RESOURCES (PTY) LTD

Name of company:

11 August 2020

Date:

END-

APPENDIX 1: EAP CV

APPENDIX 2: PROOF OF LAND OWNERSHIP

APPENDIX 3: NEWSPAPER ADVERT

APPENDIX 4: MEETING DETAILS

APPENDIX 5: SPECIALIST STUDIES
