mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

DRAFT BASIC ASSESSMENT REPORT

And

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

SUBMITTED FOR ENVIRONMENTAL AUTHORIZATIONS IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 AND THE NATIONAL ENVIRONMENTAL MANAGEMENT WASTE ACT, 2008 IN RESPECT OF LISTED ACTIVITIES THAT HAVE BEEN TRIGGERED BY APPLICATIONS IN TERMS OF THE MINERAL AND PETROLEUM RESOURCES DEVELOPMENT ACT, 2002 (MPRDA) (AS AMENDED).

NAME OF APPLICANT: Ziphatheni Holdings Pty Ltd
TEL NO: 011 038 0131
FAX NO: (086) 480 7682
POSTAL ADDRESS: PostNet Suite #157, Private Bag X121, Halfway House, 1685.
PHYSICAL ADDRESS:
FILE REFERENCE NUMBER SAMRAD: NW30/5/1/3/2/11144MP

Date: 05 November 2022

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IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), the Minister must grant a mining or mining right if among others the mining "will not result in unacceptable pollution, ecological degradation or damage to the environment".

Unless an Environmental Authorisation can be granted following the evaluation of an Environmental Impact Assessment and an Environmental Management Programme report in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), it cannot be concluded that the said activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

In terms of section 16(3)(b) of the EIA Regulations, 2014, any report submitted as part of an application must be prepared in a format that may be determined by the Competent Authority and in terms of section 17 (1) (c) the competent Authority must check whether the application has taken into account any minimum requirements applicable or instructions or guidance provided by the competent authority to the submission of applications.

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

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

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.

PART A

SCOPE OF ASSSSMENT AND BASIC ASSESSMENT REPORT

1. SCOPE OF ASSSSMENT AND BASIC ASSESSMENT REPORT

1.1 Contact Person and correspondence address

a) Details of

1.1.1 Details of the EAP

Table 1: Details of the EAP

Company	Crysbol (Pty) Ltd
Contact Person	Gumisai Charles Chigurah
EAPASA Reg. No	2019/727
SACNASP Reg. No	300001/15
Tel No	+27 (011) 038 0131
Cell No	+27 (073) 227 0782
Fax No	+27 (086) 710 2600
E-mail address	admin@crysbol.co.za
Address	Unit A31, Innovation Worx, Conner of 16th Road and Scale End Road

1.2 Expertise of the EAP.

The qualifications of the EAP (with evidence).

BSc Hons in Mining and Environmental Geology.

Summary of the EAP's past experience.
(In carrying out the Environmental Impact Assessment Procedure)

Mr Gumisai Charles Chigurah has over 15 years of experience in the environmental management field. He started his career in the area of Environmental Impact Assessment (EIA) as a provincial Environmental officer at Environmental Management agency, Mutare, Zimbabwe. Mr Chigurah offer technical input for projects in the environmental management field, specialising in Strategic Environmental Advice, Environmental Impact Assessment studies, environmental permitting, public participation, Environmental Management Plans and Programmes, environmental policy, strategy and guideline formulation, and integrated environmental management.

Mr Chigurah place attention on integration of the specialist environmental studies, strategic assessment, and providing practical and achievable environmental management solutions and mitigation measures. Responsibilities for environmental studies include project management; review and manipulation of data; identification and assessment of potential negative environmental impacts and benefits; review of specialist studies; and the identification of mitigation measures. Compilation of the reports for environmental studies is in accordance with all relevant environmental legislation.

1.3 DETAILS OF THE APPLICANT

Table 2: Details of the Applicant

Company	Ziphatheni Holdings (Pty) Ltd
Name of the Project	Syferkuil Mining Project
Responsible Person	Mtshali, Nozipho Mbali
Tel No.	061 426 2220
E-mail address	mxolisi762@gmail.com
Postal Address	25 Van Aardt Road, Selection Park, Springs, Gauteng 1559

1.4 PROPERTY DESCRIPTION (LOCATION OF THE PROJECT)

Location of the overall Activity.

Table 3: Details of the Mining Permit Application

Farm Name:	Portion 4 of Syferkuil 9 JQ
Application area (Ha)	4.87 Ha
Magisterial district:	Bojanala Platinum
Distance and direction from nearest town	Approximately 70 km Northwest of Rustenburg town
21-digit Surveyor General Code for each farm portion	T0JQ00000000000900004

1.1.1 Land Tenure and Use of Immediate and Adjacent Land

Land use is determined by several factors. These include the land use determined for the Syferkuil Mining Project as a whole, the portion 4 of Syferkuil 9 JQ land use and adjacent land specifically, and the associated issues of climate, resources, economic activity, topography, etc. Land use for the properties within and around the proposed project includes but not limited to agricultural farming (grazing).

1.5 LOCALITY MAP

(Show nearest town, scale not smaller than 1:250000). Attached to Appendix A

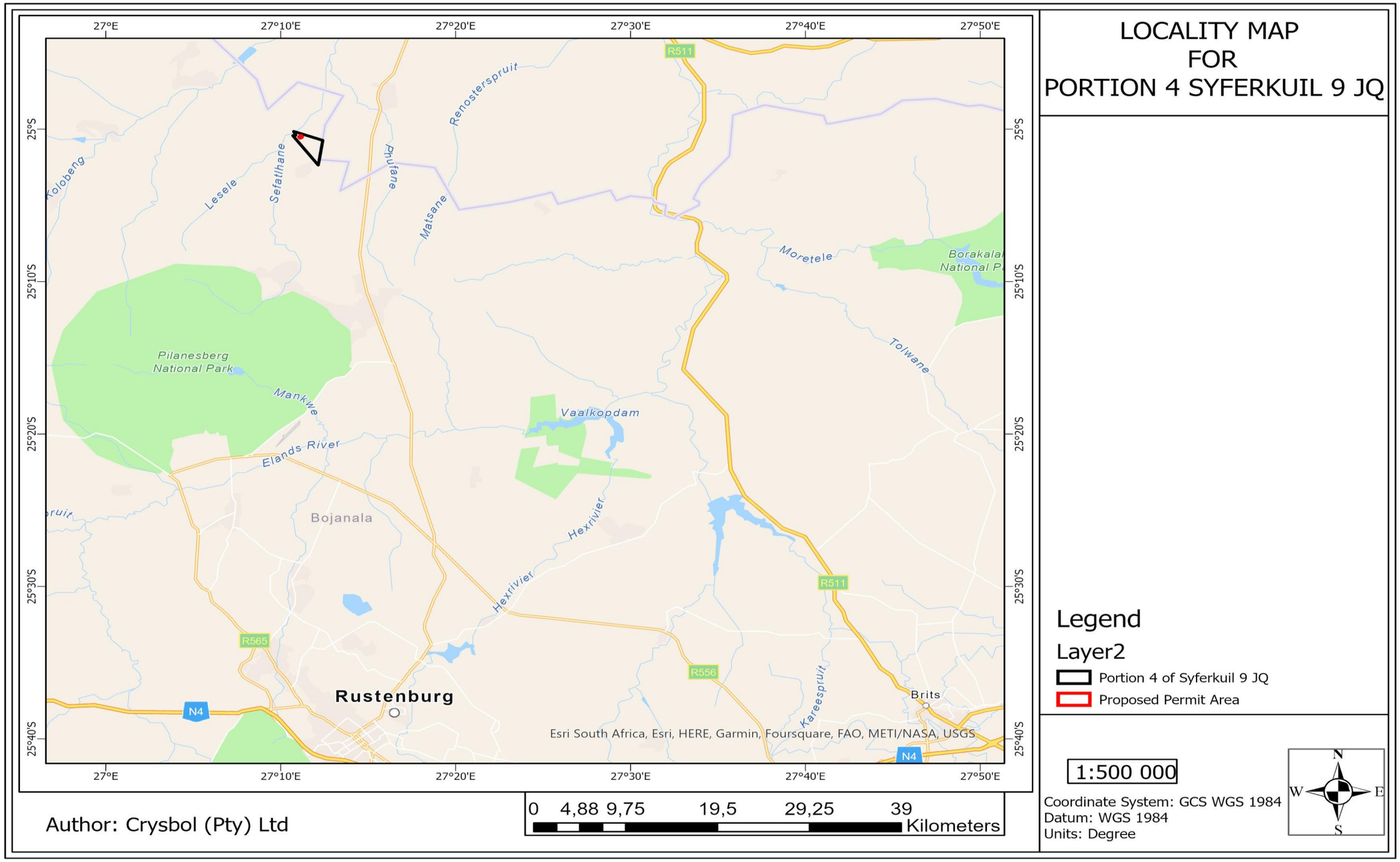

Figure 1: Locality Map showing the study area

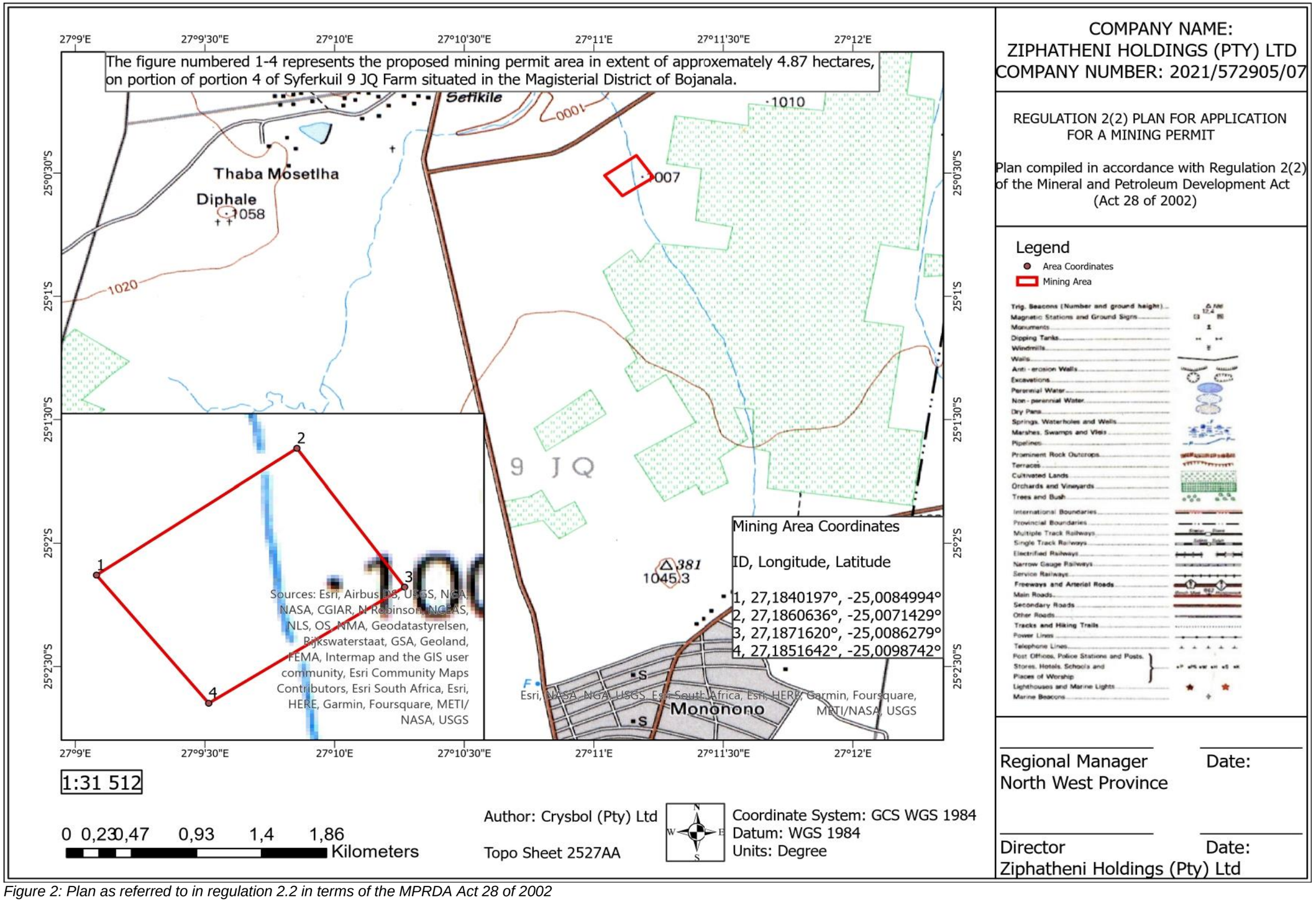

Figure 2: Plan as referred to in regulation 2.2 in terms of the MPRDA Act 28 of 2002

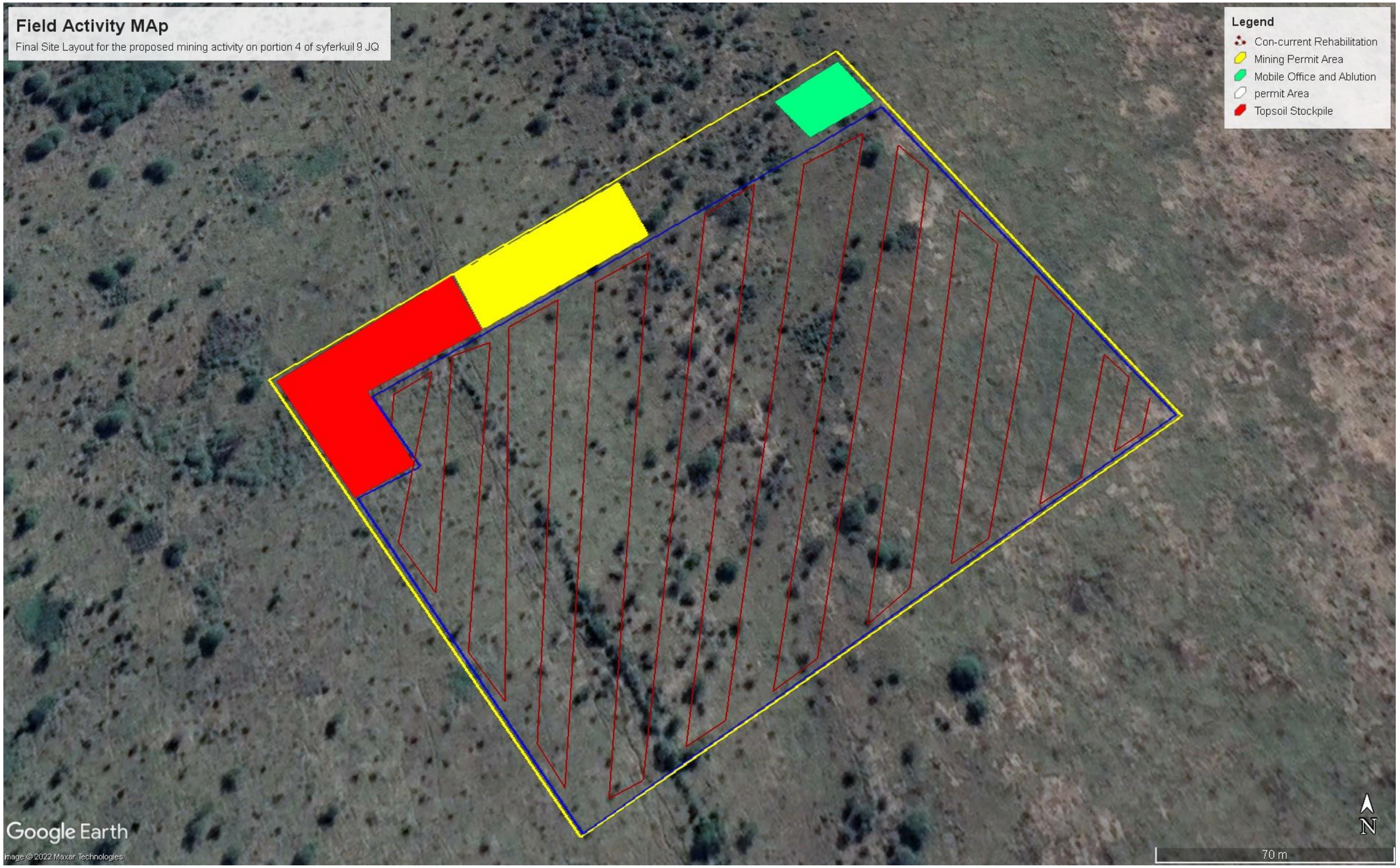

Figure 3: Proposed mining infrastructure designs

1.6 Description of the scope of the proposed overall activity.

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

A mining permit is required for the Chrome (4.87 ha) at Bojanala platinum municipality on Portion 4 of the farm Syferkuil 9 JQ. The Proposed mine involves open cast extraction of Chrome in an Area is situated 70 km Northwest of Rustenburg town. The mining methods will make use of blasting (some Chrome will require ripper since it is close to the surface) by means of explosives to loosen the hard rock (overburden) when necessary; the material will then be loaded with excavators and hauled to the mobile crushing and screening plants that will be established within the boundaries of the used for mining purposes. The Chrome will be stockpiled and transported to clients via trucks and trailers.

1.7 Listed and specified activities

Ziphatheni Holdings (Pty) Ltd has applied for Activity 21 of the NEMA, EIA Regulations 2014 as amended, which falls under Listing Notice 1 (GNR 983) to undertake mining activities in a form of a mining permit for Chrome on a 4.87ha of Portion 4 of Syferkuil 9 JQ within the magisterial district of Bojanala, in North West Province. The proposed project entails mining for Chrome.) using excavator and dump trucks. Access to the mining area will be via existing roads and private farms roads in agreement with owners.

Ziphatheni Holdings (Pty) Ltd must obtained environmental authorisation before the commencement of the proposed mining activities. As stated above, Ziphatheni Holdings (Pty) Ltd has applied for an environmental authorisation for listed activities within the proposed project area. The table 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 4: Listed and specified activities

NAME OF ACTIVITY	Aerial extent of the Activity Ha or m²	LISTED ACTIVITY	APPLICABLE LISTING NOTICE (
Open cast mining and crushing to produce Chrome specs required by clients	5 ha	X	GNR 983 (327) (Listing Notice 1) Activity 21
Topsoil stripping	362 m^2	X	GNR 983 (LN 1) Activity 21
ROM Stockpile	0.2 Ha	X	Not Listed

2. Description of the activities to be undertaken

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

The type of mineral to be mined is Chrome. The method that will be employed is a very basic form of open cast mining, and a 5-ha area will be demarcated for mining activities. Blasting and subsequent mining of the orebody utilising a truck and shovel operation will be conducted. The mined ore will be crushed and screened utilising a mobile crushing and screening plant. A front-end loader will be utilised to load the material into haulage trucks. The ore will be processed off-site. The project infrastructure and activities will include site clearance, removal of topsoil and overburden and stockpiling, site establishment, mobilisation of equipment and preparation of area for mining, excavation of an open pit, blasting, loading zone, loading and dust control, crushing and screening of ore, hauling and transporting of ore, ablution facilities and waste storage area and rehabilitation of site.

2.1 Description of Site Activities

2.1.1 Truck and shovel operation

The Open pit mine will be done using the truck and shovel method. In general, the overburden and inter-burden are mined by electric hydraulic shovels and the Chrome is mined primarily by electric rope shovels. The front-end loaders will be used to mine Chrome mainly from benches that do not have high mining faces. These loaders also provide extra capacity to Chrome benches as they can be moved to assist in case a rope shovel breaks down. The **figure 4 below** show the shovel and truck demonstration.

Figure 4: Demonstrating the truck and shovel method.

2.1.2 Access Roads

No additional road will be constructed on site. The project will use existing access roads as much as possible.

If there is a need to establish access roads, they will be constructed in such a way that minimal vegetation/bushes/trees are removed and existing structures such as fence lines shall be followed as far as possible. If required, topsoil will be removed and protected. Topsoil removed will be used during rehabilitation process. If there is a need to erect gate in fence lines the applicant will consult and reach an agreement with the landowner/s and other affected parties before erecting a gate. The opening and closing status of gates shall be clarified with the landowner and other affected parties.

2.1.3 Water Supply

No water extraction & diversion will be done from any water source. All water which will be used will be brought on site by a water tank for the sole purpose of this project. Water will be bought from a licenced water supplier who sells potable water or treated industrial water for which a water sale agreement will be provided before work commences and is submitted to the DMR. Water will also be used for dust suppression in order to prevent dust pollution on the untarred roads.

2.1.4 Ablution

Ablution facilities will be required on site. This may involve the installation of drum or tank type portable toilets. The toilets should be emptied twice every week through the services of a registered sewage waste service provider. The ablution facilities must be provided at a ratio of 15: 1, i.e. 15 people per 1 toilet.

2.1.5 Temporary Office Area

A temporary site office area may be erected on site. This will be used for the day-to-day administration of the project.

2.1.6 Accommodation

Accommodation for staff and workers will be provided off-site. However, 24-hour security staff may be stationed on-site. No fires will be allowed on-site.

2.1.7 Storage of Dangerous Goods

Limited quantities of diesel fuel, oil and lubricants may be stored on-site. A maximum amount of 60 m3 may be stored in above ground diesel storage tanks with elevated bunded walls.

2.1.8 Waste

Waste generated from the mining areas will include minimal construction and domestic waste, some hydrocarbon and explosive waste and sewage. These will be collected and disposed of as part of the waste management plan and/or wil be managed by contractors. Waste will be recycled as far as possible. Portable toilets will be used at the mining areas.

2.1.9 Stockpiles

Various stockpiles will be required on site. Long-term stockpiles will include topsoil, subsoil, soft overburden and hard overburden stockpiles, all of which will be erected as close as possible to the final void to aid in infilling and rehabilitation of final voids. In addition, the mine will have product and RoM stockpiles which will be temporary in nature.

2.1.10 Explosives

During the mining operation blasting will be undertaken to break the hard overburden and the ore. Explosives for blasting will be kept safe on site.

The explosives that are not being transported or prepared for use will be stored in explosive stores, silos or containers which are securely locked or, as far as reasonably practicable, designed and located so as to facilitate the safe and secure receipt, storage and issuing of

explosives by an authorised person. The applicant will take measures to ensure that every container used for the storage of explosives is of robust construction; provided with an effective lock and the key kept only by an authorised person, clearly marked to indicate the type of explosives to be placed therein, of a capacity determined by the employer in consultation with the explosive manufacturer or supplier; spaced apart from any other container used for storage of explosives, at a distance determined by the employer after consultation with the explosive manufacturer or supplier, approved in writing for that purpose by the employer. Storage of explosives on site as well as an authorised person will be as stimulated in MINE HEALTH AND SAFETY ACT, 1998 (ACT N029 OF 1996).

2.1.11 Decommissioning

The closure objectives are for the Chrome pit to be made safe and the remainder of the site to be returned to the current land use. The Chrome pit will be incorporated into the closure objectives of the proposed extension area and will entail the benching of the site. Benches will be built with overburden, top-dressed with topsoil and vegetated with an appropriate grass mix if vegetation does not naturally establish in the area within six months of the replacement of the topsoil.
The decommissioning activities will consist of the following:

- Sloping and landscaping during rehabilitation
- Replacing of topsoil
- Implementation of an alien invader plant management plan

The proposed Chrome pit triggers GNR 983 Listing Notice 1 Activities 21 as:

- Activity 21: the project requires a mining permit in terms of the MPRDA,

3. Policy and Legislative Context

The proposed Mining Permit application requires authorisation in terms of the following interlinked pieces of legislation:

- The Mineral and Petroleum Resources Development Act, 2002 (MPRDA, Act 28 of 2002), as amended.
- The National Environmental Management Act, 1998 (NEMA, Act 107 of 1998), as amended.

These pieces of core legislation stipulate the required studies, reports and legal processes to be conducted and the results thereof are to be submitted to the relevant authorities for approval prior to commencement. In addition to the above, there are various pieces of legislation which govern certain aspects of the mining operations and these are summarised in Table 5, together with the main legislative requirements mentioned above.

Table 5: Policy and Legislative Context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLIY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.
Mineral and Petroleum Resources Development Act, 2002, (Act No. 28 of 2002)	Application for a mining permit DMRE Reference: NW30/5/1/3/2/11144MP	Section 21
National Environmental ManagementAct,1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014	Application for environmental authorisation Ref No.: NW30/5/1/3/2/11144MP	GNR 983 Listing Notice 1 Activity 21 and 22
National Environmental Management Act: Biodiversity Act, 2004 (Act No. 10 of 2004) and amendments	Biophysical Environment	No aspects of the project could be identified that triggers the NEMA:BA
Mine Health and Safety Act, 1996 (Act No 29 of 1996)	The mitigation measures proposed for the site includes specifications of the MHSA	The operational phase of themine will trigger the MHSA
National Heritage Resources Act No 25 of 1999	Cultural and HeritageEnvironment	No aspects of the project could be identified that triggers the NHRA.

4. Need and desirability of the proposed activities.

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

In terms of the EIA Regulations the need and desirability of any development must be considered by the relevant competent authority when reviewing an application. The need and desirability must be included in the reports to be submitted during the environmental authorisation application

processes. This section of the BAR and EMPr will indicate the need and desirability for the proposed mining permit project.

The Chrome is the key materials used in the production of electricity. The mining operation will help the Bojanala Municipality's achieve the 2022/2027 IDP which plans to meet the key challenges facing the area including housing. Challenges specifically relating to housing include expanding informal settlements, land invasion, dilapidated hostels, informal dwellings and backyard shacks, a need for rental housing stock, the illegal occupation of houses, illegal dumping, and the non-availability of land for low and middle-income housing. Chrome mining can thus help meet demands of the Municipality in terms of service delivery and promoting development of the area by the provision of chrome plating and alloying for production of corrosion resistant superalloys, nichrome, and stainless steel.

The broader socio-economic benefits of the project include employment, skills development, local economic development through the availability and affordability of the Chrome, and increased business development for the area generally. While the project is small in operation, the providing of high-quality Chrome to be used will aid the manufacturing of bricks sector in the area in terms of service delivery and local economic development.

As the housing forms a complex problem in part of the municipalty. Challenges specifically relating to housing include expanding informal settlements, land invasion, dilapidated hostels, informal dwellings and backyard shacks, a need for rental housing stock, the illegal occupation of houses, illegal dumping, and the non-availability of land for low and middle-income housing. Ziphatheni Holdings (Pty) Ltd expects that substantial benefits from the project will accrue to the immediate project area, the sub-region and the province of North West. Further to the above, it has been determined that the mining project activities will not have a conflict with the spatial development plans, the integrated Development Plans, the Environmental Management framework, existing industrial and commercial development of the Local Municipality.

The applicant further commits to ensure their contribution to environmental education and 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, 1999 (Act 25 of 1999) and their 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.

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

The proposed site was identified as the preferred alternative due to the following reasons:

- Part of the area is covered by natural grass and also was used for farming,
- The mining impact can be contained to one area on the property that was historically disturbed,
- Vegetation will be disturbed to establish the mining area as most of the area has been disturbed with farming.
- The mining area can be reached by an existing access road from the provincial road to the farm road and tracks exist in the property. No new road infrastructure needs to be constructed.
- The open cast mining of the Chrome has been identified as the most effective method to produce the desired Chrome. Due to the remote location of the pit the potential impacts on the surrounding environment, associated with open cast mining, is deemed to be of low significance.

5. Full description of the process followed to reach the proposed preferred alternatives within the site.

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

5.1 Details of the development footprint alternatives considered.

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

(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.

The company identified the need for Chrome in the area due to an increase in Chrome usage. In this light the applicant identified the proposed area as preferred and only viable site alternative. This land may contain levels of contamination on the property is believed to have a higher significance without the need or motivation to justify it.
Various project alternatives were considered during the planning phase of the project. These included the following:

a. Open Cast mining (Preferred Alternative) vs Underground Mining:

- The open cast mining method is used when deposits of commercially useful minerals or rock are found near the surface where the overburden is relatively thin or where the material is structurally unsuitable for tunnelling.
- Underground Mining is used where the mineral occurs deep below the surface and where the overburden is thick.

b. Temporary Infrastructure (Preferred Alternative) **vs** Permanent Infrastructure:

The use of temporary infrastructure will entail the use of infrastructure and machinery that is either track-based or can be removed without difficulty. Temporary infrastructure to be used in the mining method will entail a mobile crusher plant, temporary weigh bridge and chemical toilet, with

servicing of vehicles and equipment being done off-site at the existing workshop of the applicant. The off-site office will also be used for all administration purposes relating to the project.

Positive Aspects:

The positive aspects associated with the use of temporary infrastructure firstly enable the applicant to move the infrastructure within the boundaries of the mining area as mining of the mineral progresses, lessening the distance material has to be transported from the crusher plant to the stockpile area. Secondly, the crusher plant and other equipment can move out of the mining area, staying on the existing road, during a blast to prevent potential flyrock damage. Thirdly, the decommissioning phase is facilitated, as the removal of infrastructure from the mining area during the rehabilitation of the site is easy and highly effective.

- Infrastructure lengthen the period required for rehabilitation as well as increase the rehabilitation amount as the permanent infrastructure will either must be decommissioned or be maintained after the closure of the site.
- Due to the small size of the mining area the infrastructure may also be exposed to fly rock damage during blasting events.
- The construction of permanent infrastructure at the site will also increase the visual impact of the proposed project on the surrounding environment and additional mitigation measures will have to be implemented to address the impact.
- In the light of the above the use of temporary infrastructure is deemed to be the most viable preferred alternative.

c. Access on to Provincial Road (Preferred Alternative) **vs** Access on to National Road:

Provincial Road: The existing gravel access road from the farm connects to the provincial roads on the eastern and western direction of the application area. It has been proposed that trucks transporting material from the pit to the clients, as it will prevent trucks having to turn from a farm entrance onto the local road there by lessening the potential impact on traffic, use this road.

d. No-go Alternative:

The no-go alternative entails no change to the status quo and is therefore a real alternative that needs to be considered. The Chrome to be mined at the site will be used to manufacture molds for the firing of bricks, as a catalyst in dyeing and tanning of leather, to produce synthetic rubies, As dyes and paints, in chrome plating and in metal ceramics. If, however, the no-go alternative is

implemented the applicant will not be able to develop the mine, not being able to utilize the mineral present in the area. This could have major impacts on aspects such as transporting of material to clients from far off mining areas, cost effectiveness of material, impact on roads and road users due to long distance hauling of Chrome and loss of income to the business area.

The no-go alternative was not deemed to be the preferred alternative as:

- The applicant will not be able to supply in the demand.
- The application, if approved, would allow the applicant to utilize the available Chrome as well as provide employment opportunities to local employees. Should the no-go alternative be followed these opportunities will be lost to the applicant, potential employees and clients.
- The applicant will not be able to diversify the income of the property,

6. Details of the Public Participation Process Followed

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

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, 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 each of the basic assessment reports, EMPr, scoping report and environmental impact assessment report, and where applicable the closure plan. In this case a Basic Assessment Report (BAR) is considered.

This section of the DBAR and EMPr will explain the public participation process to be taken 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.

Ziphatheni Holdings (Pty) Ltd is applying 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. The abovementioned regulations require that an applicant for an environmental authorisation submit a BAR 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 has been initiated 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 is being conducted in undertaking of the public participation process for the proposed mining permit project.

Identification of Interested and Affected Parties

There are farmstead houses in the proposed farm vicinity identified during the site visits. Other I&APs identified, include Organs of State, who have jurisdiction over, or might have an interest in the proposed protect activities, adjacent and other landowners, non-governmental organisations and other organisations and/ private persons.

Adjacent and non-adjacent landowners were identified through the review of property databases and deed searches, natural person (s) contact databases, and expanded through queries and recommendations made by identified stakeholders and general internet-based searches.

a. Methodology of Notification:

- Cadastral search and Deeds search to identify farm portions
- Adverts and Site Notices to notify stakeholder
- Distribution of BIDs with comments sheet requesting the recommendation of any other stakeholders
- Site Visit to consult with stakeholder
- Community or Communities Identified and whether these parties are the landowners.

b. Land Claims

The request for a Land Claim Letter will e-mailed to Mr Harry Maphutha to Department of Rural Development and Land Reform.

c. Traditional Authorities

There are no traditional authorities identified during the the distribution of Background Information Documents and identification of stakeholders.

d. Municipalities

The project is located within the BOjanala District municipality, under the jurisdiction of the Moses Kotane Local Municipality. The Moses Kotane Local Municipality was informed via word of mouth, BID and site notice were also provided.

e. Landowners and Notification Methodology

The Landowner involved are all private. Ziphatheni Holdings Pty Ltd obtained the details for the landowner from windeed search for tittle deeds. Landowner was contacted and informed of the said application. BIDs were also sent where applicable. The following method was applied in informing relevant stakeholders.

- Advert was placed in the Brits Pos Newspaper,
- BAR document and Registration Sheet with a Locality map was sent to all interested and affected parties via e-mail on.
- A site visit will be conducted.
- All Government department were informed of the said application via e-mail and phone.
- A3 Site Notices were placed at the site boundary, Local municipality and local libraries.
- BIDs were printed and made available within the study area, local libraries and local municipality.

- A copy of the Draft BAR & EMPr was provided to all I&APs registered on the project database for a period of 30 days to allow I&APs the opportunity to comment on the findings of the BAR & EMPr.

6.1 Registration and BAR phase

The public participation process commenced by compiling the database of all 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. Note that all parties will be provided with enough time to comment on the proposed project.

6.2 Registered Interested and affected parties

The following table shows the identified and registered interested and affected parties for the Mining project (database of IAPs will be updated at all times).

Table 6: List of Registered Interested and Affected Parties

Full Names	Farm/Organisation	Email Address	Contact Details

6.3 Proof of Consultation

Proof of the above-mentioned consultation will be attached as appendixes on the final BAR that will been submitted to the Department of Mineral Resources and Energy (North West Province).

6.4 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 will be listed on the final IAPs database that will also be attached on the FBAR 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 interested and affected parties.

Draft Basic Assessment Report

The DBAR and EMPr was made available for comment to all relevant stakeholders during the abovementioned registration and comment phase of the proposed project. DBAR was, emailed all identified IAPs.

6.5 Issues and Response Register

All comments received by Stakeholders are included in the table below.

6.6 Summary of issues raised by I&Aps

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

Table 7: Summary of issues raised by I&Aps

Name	Farm/Organization	Date Comments Received	Comment	Response by EAP

7. The Environmental attributes associated with the alternatives.

(The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)

7.1 Baseline Environment

7.1.1 Type of environment affected by the proposed activity.

(Its current geographical, physical, biological, socio- economic, and cultural character).

7.1.1.1 Socio-Economic

Each community is unique as it is shaped by social networks, cultural influences, norms and values, politics, and the infrastructure in the area. The proposed mining permit area is located within Bojanala platinum district Municipality of North West province. Bojanala Platinum District Municipality (BPDM) is one of 4 district municipalities in the North West province and is situated to the east of the province. The BPDM is a category C municipality in terms of the Municipal Structures Act, Act No 58 of 1999, and also in terms of section 152 of the Constitution of the Republic of South Africa, Act No 108 of 1996.

The BPDM is surrounded by Waterberg District Municipality (Limpopo Province) to the north, Tshwane Metropolitan Municipality (Gauteng Province), and West Rand District Municipality (Gauteng Province) to the Southeast, Dr. Kenneth Kaunda District Municipality to the south, and Ngaka Modiri Molema District Municipality to the west. The seat of the Bojanala District Municipality is in Rustenburg City, which is in the Rustenburg Local Municipality.

The size of the Bojanala District of the North West Province is 18 300 km² and comprises 17% of the total area of the province with a population of 1 671 586 comprising 44% of the population of the province. The district includes five local municipalities namely; Rustenburg (Marikana, Mooinooi, Phatsima and Tlhabane), Madibeng (Brits and Hartebeespoort), Moses Kotane (Mogwase and Madikwe), Kgetlengrivier (Derby, Koster and Swartruggens) and Moretele.

With 1.81 million people, the Bojanala Platinum District Municipality housed 3.1% of South Africa's total population in 2018. Between 2008 and 2018 the population growth averaged 2.64% per annum which is close to double the growth rate of South Africa as a whole (1.61%). Compared to North-West's average annual growth rate (1.97%), the growth rate in Bojanala Platinum's population at 2.64% was slightly higher than that of the province.

Table 8: Bojanala Platinum, North-West and National Total, 2008-2018 [Numbers percentage]

	Bojanala Platinum	North-West	National Total	Bojanala Platinum as % of the province	Bojanala Platinum as % of national
2008	1,400,000	3,350,000	49,500,000	*41.7%*	*2.8%*
2009	1,440,000	3,410,000	50,300,000	*42.1%*	*2.9%*
2010	1,480,000	3,480,000	51,100,000	*42.5%*	*2.9%*
2011	1,530,000	3,560,000	52,000,000	*42.9%*	*2.9%*
2012	1,570,000	3,630,000	52,900,000	*43.3%*	*3.0%*
2013	1,620,000	3,710,000	53,700,000	*43.6%*	*3.0%*
2014	1,660,000	3,780,000	54,600,000	*43.8%*	*3.0%*
2015	1,700,000	3,850,000	55,500,000	*44.1%*	*3.1%*
2016	1,740,000	3,930,000	56,400,000	*44.3%*	*3.1%*
2017	1,780,000	4,000,000	57,200,000	*44.4%*	*3.1%*
2018	1,810,000	4,070,000	58,100,000	*44.5%*	*3.1%*
Average Annual growth					
2008-2018	***2.64%***	***1.97%***	***1.61%***		

When compared to other districts, the Bojanala Platinum District Municipality accounts for a total population of 1.81 million, or 44.5% of the total population in the North-West Province, which is the most populous district in the North-West Province for 2018. The ranking in terms of the size of Bojanala Platinum compared to the other District remained the same between 2008 and 2018. In terms of its share, the Bojanala Platinum District Municipality was significantly larger in 2018 (44.5%) compared to what it was in 2008 (41.7%). When looking at the average annual growth rate, it is noted that Bojanala Platinum ranked highest (relative to its peers in terms of growth) with an average annual growth rate of 2.6% between 2008 and 2018.

Within Bojanala Platinum District Municipality, the number of people without any schooling decreased from 2008 to 2018 with an average annual rate of -1.53%, while the number of people within the 'matric only' category, increased from 228,000 to 377,000. The number of people with 'matric and a certificate/diploma' increased with an average annual rate of 3.71%, with the number of people with a 'matric and a Bachelor's degree increasing with an average annual rate of 5.51%. Overall improvement in the level of education is visible with an increase in the number of people with 'matric' or higher education.

The number of people without any schooling in Bojanala Platinum District Municipality accounts for 30.93% of the number of people without schooling in the province and a total share of 3.06% of the national. In 2018, the number of people in Bojanala Platinum District Municipality with matric only was 377,000 which is a share of 52.49% of the province's total number of people that have obtained a matric. The number of people with matric and a Postgrad degree constitutes 39.83% of the province and 1.68% of the national.

The working-age population in Bojanala Platinum in 2018 was 1.25 million, increasing at an average annual rate of 2.69% since 2008. For the same period, the working-age population for North-West Province increased by 1.79% annually, while that of South Africa increased by 1.65% annually.

Bojanala Platinum District Municipality's economic active people was 653 000 in 2018, which is 36.00% of its total population of 1.81 million, and roughly 47.89% of the total EAP of the North-West Province. From 2008 to 2018, the average annual increase in the EAP in the Bojanala Platinum District Municipality was 1.88%, which is 0.392 percentage points higher than the growth in the EAP of the North-West for the same period. In 2008, 38.8% of the total population in Bojanala Platinum District Municipality was classified as economically active which decreased to 36.0% in 2018. Compared to the other District in North-West Province, Bojanala Platinum District Municipality had the highest economic active people as a percentage of the total population within its District relative to the other District. On the other hand, Dr. Ruth Segomotsi Mompati District Municipality had the lowest economic active people with 28.4% of people classified as the economically active population in 2018.

In 2018, there were a total number of 180 000 people unemployed in Bojanala Platinum, which is an increase of 44 900 from 135 000 in 2008. The total number of unemployed people within Bojanala Platinum constitutes 48.66% of the total number of unemployed people in the North-West Province. The Bojanala Platinum District Municipality experienced an average annual increase of 2.91% in the number of unemployed people, which is worse than that of the North-West Province which had an average annual increase in unemployment of 2.21%.

7.1.1.2 Geology

The Rustenburg Layered Suite (RLS) of the Bushveld Complex of South Africa is a vast layered accumulation of mafic and ultramfaic rocks. The layers are widely assumed to result from fractional crystallization from a melt-dominated magma chamber.

Layered mafic intrusions represent portions of the plumbing systems of many large igneous provinces and are principal repositories of several critically important ore elements, including Cr, Ti, V and the platinum-group elements (PGE). Layered mafic intrusions such as the iconic Rustenburg Layered Suite (RLS) of South Africa have historically been considered to represent the solidified remnants of vast liquiddominated reservoirs of magma called magma chambers where crystallization-differentiation has occurred by fractional crystallization.

The Paleoproterozoic (~2.056 Ga10, 24) RLS is the world's largest layered ma□c intrusive complex, containing ~600,000 km3 of mafic-ultramafic cumulates and extensive reserves of platinum-group elements (PGE), chromium and vanadium that dominate global resources of these elements.

The rusternburg layered suite intruded the 2.6–2.3 Ga sedimentary Pretoria Group and 2.061 Ga felsic lavas of the Rooiberg Group at upper crustal levels (~0.06–0.24 GPa)21, 25. In conjunction with the overlying Rashoop Granophyre and Lebowa Granite Suites, they together constitute the Bushveld Complex, comprising an enormous bimodal continental large igneous province in the Kaapvaal Craton.

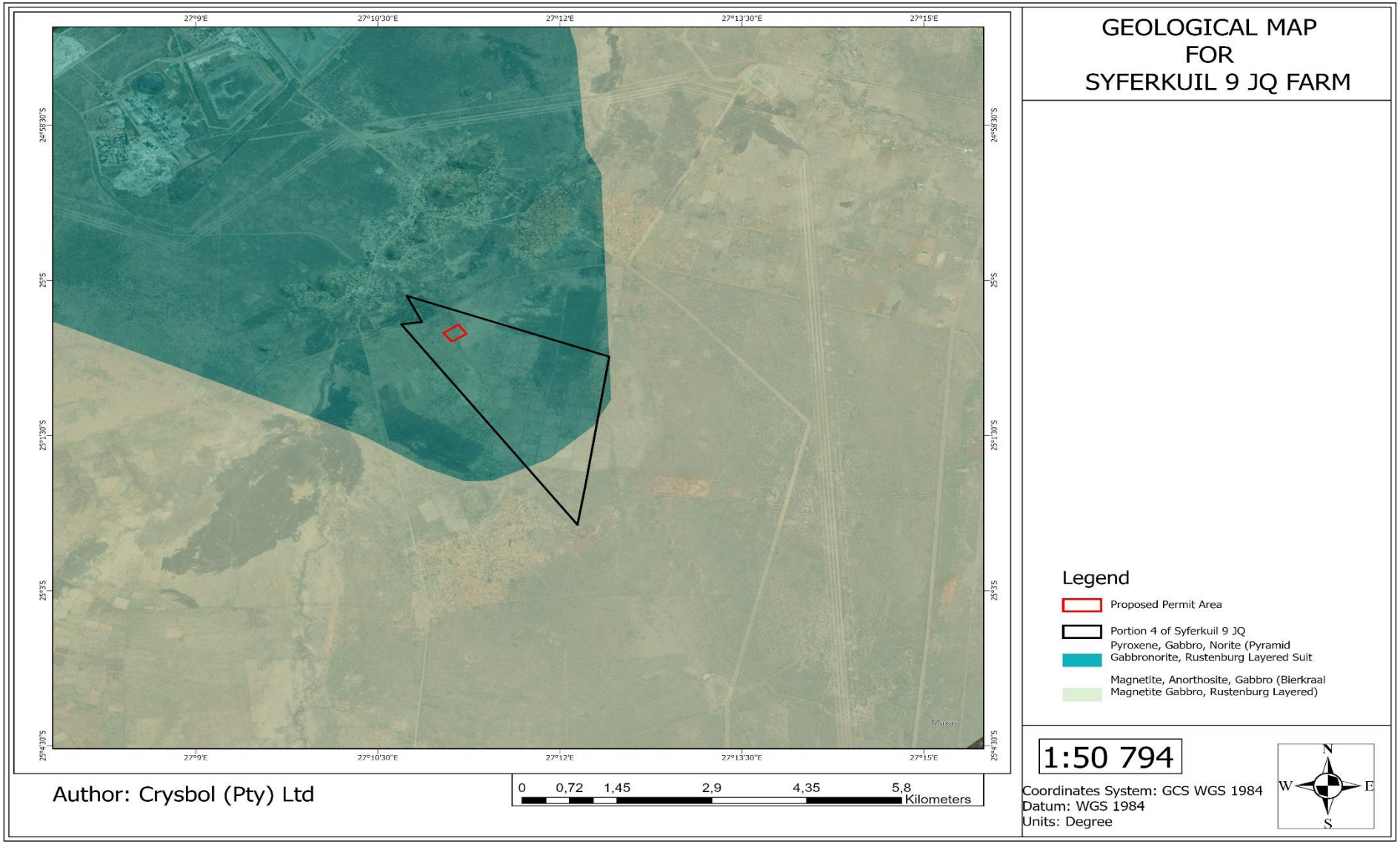

Figure 5: Geological Map covering the Mining permit area

7.1.1.3 Geohydrology

- a) Surface water

The proposed project situated within the Crocodile river catchment which forms part of quaternary catchment A24E See (**Figure 6 below**).

There are no wetlands or rivers within the proposed mining perrmit area. The closest river to the application area is The Diphiri river which flows past the northwestern side of the proposed mining permit area. Diphiri river is a non- perennial river and no mining activity will take place within 100m of the river.

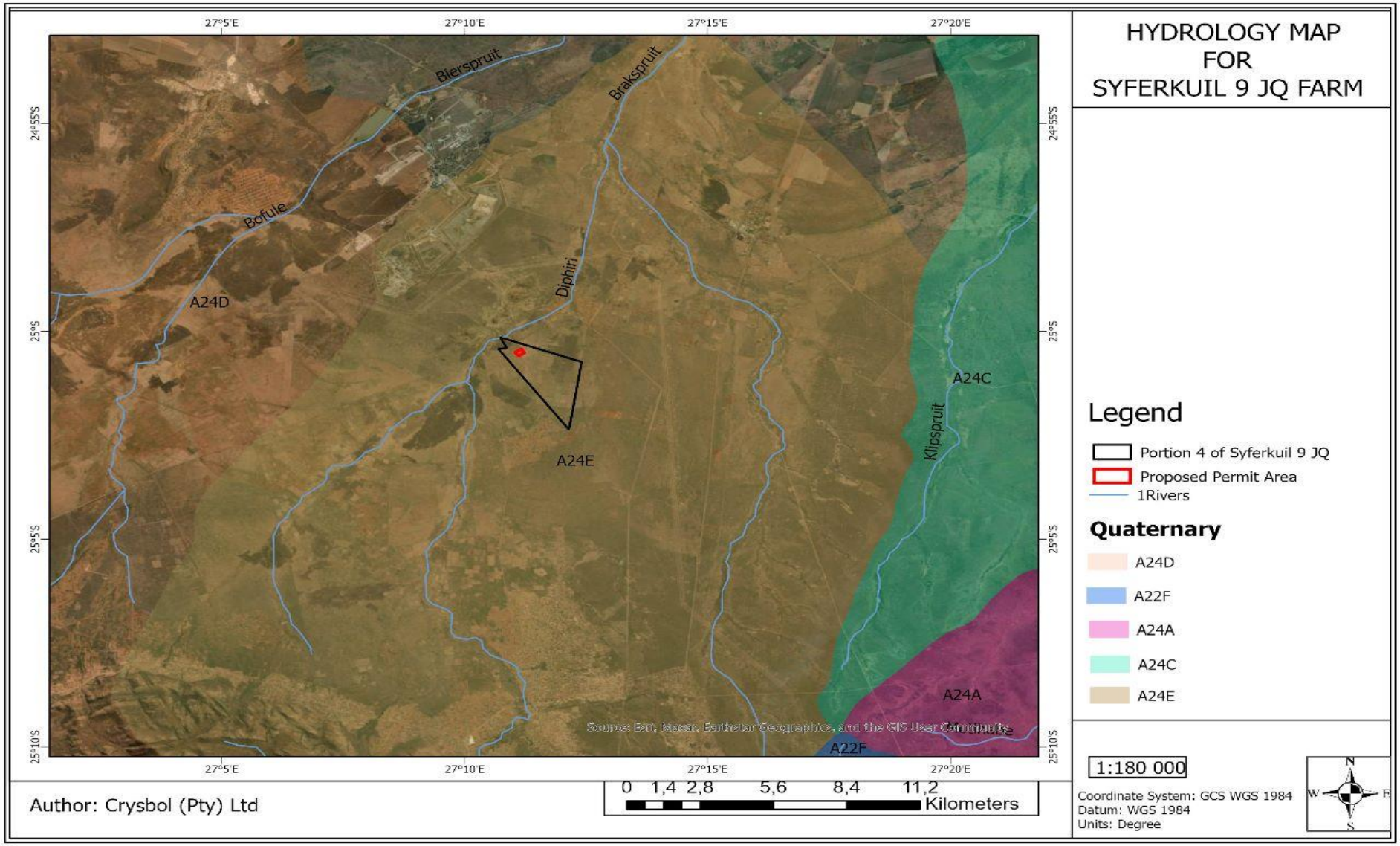

Figure 6: Hydrology map within the proposed mining permit project.

b) Groundwater

The Syferkuil project area groundwater flow regime falls across one catchment areas, namely A24E (**Figure 6 above**).

Groundwater in the project area varies between 8.14 and 33.8 m below ground level (mbgl) with an average of 22.5 mbgl. The overall water quality of the area is characterised by higher than average magnesium concentrations and high fluoride concentrations. The latter is expected due to runoff and groundwater through-flow from the neighboring alkaline complex of the Pilanesberg. The majority of the communities in the area rely on groundwater for domestic purposes.

7.1.1.4 Habitat/Vegetation Types

The project site falls within the Dwaalboom Thornveld of the Central Bushveld. The western Central Bushveld is counted among the various landscapes found on the extensive, undulating interior Plateau of South Africa. Encircled by the Great Escarpment in the east, south and west, the Central Plateau gradually loses altitude towards the northwest where the Transvaal Bushveld Basin is found.

The 'Dwaalboom Thornveld' is the most widespread vegetation unit of the western Central Bushveld, occupying the flat terrain of the central and northern areas and dominated by soils of varying clay content that creates a mosaic of different vegetation patches. It consists mainly of deciduous microphyllous tree species with only a few mesophyllous trees scattered in a continuous herbaceous layer dominated by grass species. Species diversity is rather low, especially on the black, vertic ultramafic clay soils, owing to their strong shrinking and swelling capacity.

Dominant forbs are for example Heliotropium ciliatum, Kohautia caespitosa and Nidorella hottentotica, while dominant grass species include Aristida biparta, Bothrichloa insculpta, Digitaria eriantha and Panicum maximum. The climber Rhynchosia minima is locally found. The tree-shrub layer shows a low to medium high growth habit with different tall-growing Acacia species as the most dominant. But broad-leaved species are found among the shrubs: tall shrubs such as Combretum hereroense, Diospyros lycioides and Euclea undulata, as well as the low-growing shrubs Abutilon austro-africanum and Hirpicium bechuanense are important taxa. Succulent shrubs such as Kalanchoe rotundifolia and Talinum caffrum are common.

Conservation status is medium-low with only about 6% of the vegetation conserved, mainly within the Madikwe Game Reserve. Although classified as least threatened, the vegetation is under pressure by cattle grazing and especially cultivation

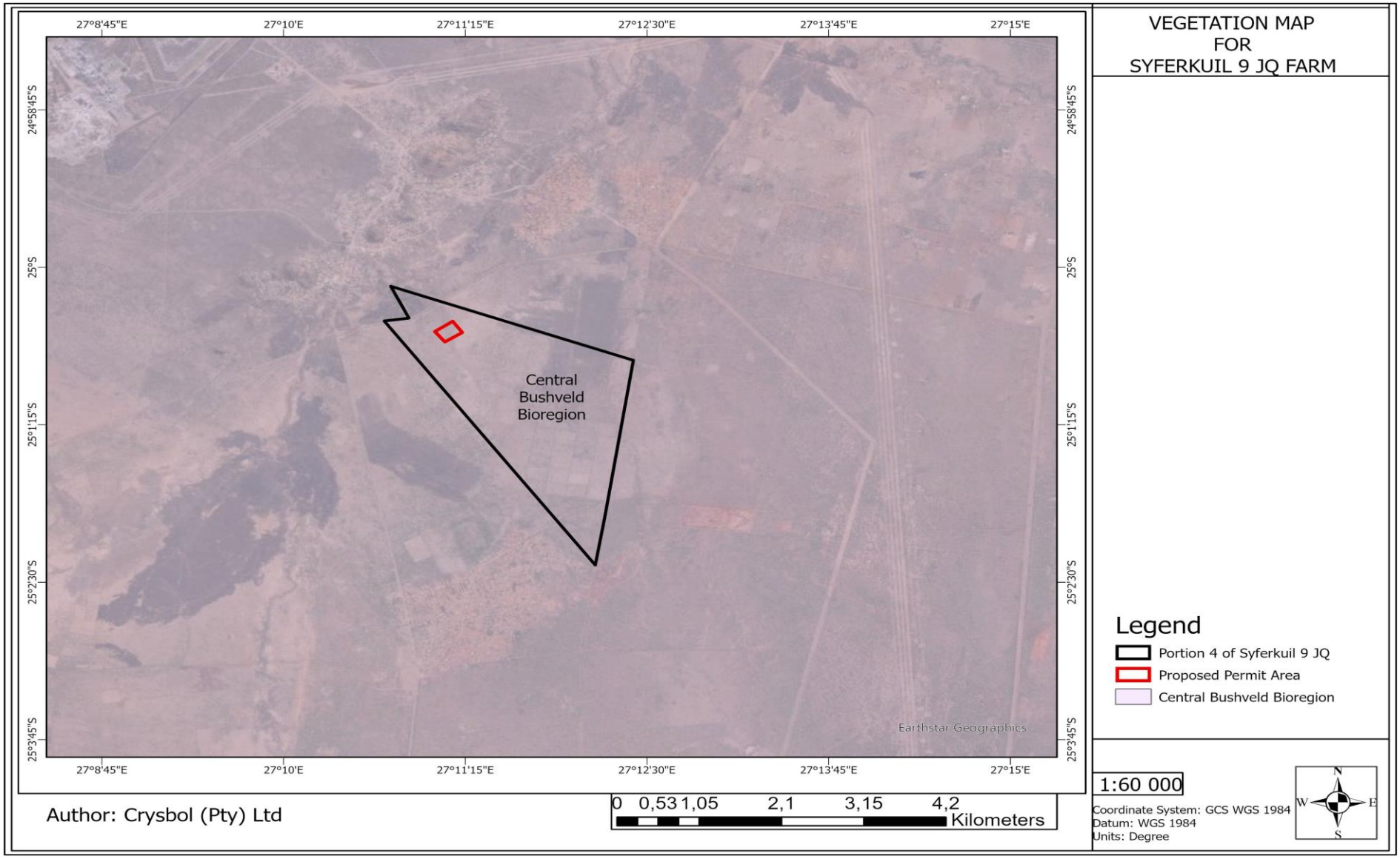

Figure 7: Vegetation map within the proposed mining permit project.

7.1.1.5 Soils

Soil forms found within the mining permit area are predominately highly structured, relatively shallow soils with a high clay content which allows for high water retention. These soil forms are therefore not highly erodible but are susceptible to compaction as a result of water retention and swelling clays. Poor drainage capacity of these soil forms reduces the dry agricultural production potential as well as the irrigation potential.

7.1.1.6 The Mining and Biodiversity Guidelines

The Mining and Biodiversity Guidelines (2013) was developed by the Department of Mineral Resources, the Chamber of Mines, the South African National Biodiversity Institute and the South African Mining and Biodiversity Forum, with the intention to find a balance between economic growth and environmental sustainability. The Guideline is envisioned as a tool to "foster a strong relationship between biodiversity and mining which will eventually translate into best practice within the mining sector. In identifying biodiversity priority areas, which have different levels of risk against mining, the Guideline categorizes biodiversity priority areas into four categories of biodiversity priority areas in relation to their importance from a biodiversity and ecosystem service point of view as well as the implications for mining in these areas:

- Legally protected areas, where mining is prohibited.
- Areas of highest biodiversity importance, which are at the highest risk for mining.
- Areas of high biodiversity importance, which are at a high risk for mining.
- Areas of moderate biodiversity importance, which are at a moderate risk for mining.

According to the Mining and Biodiversity Guidelines (2013), the project area is not classed as being of significant biodiversity importance and does not represent a risk to mining.

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

a. Climate

The mean annual rainfall at the site area is 401 – 600mm per annum (AGIS, 2007). According to the AGIS Comprehensive Atlas, 2007, the maximum mean annual temperature for the site is between 29.1°C and 31°C and the minimum mean annual temperature for the site area is between 2.1°C and 4°C.

b. Topography

The topography of the proposed mining permit project is slightly flat. The proposed mining permit farm has the minimum elevation of 1003m and maximum elevation of 1036m. See Figure 7.

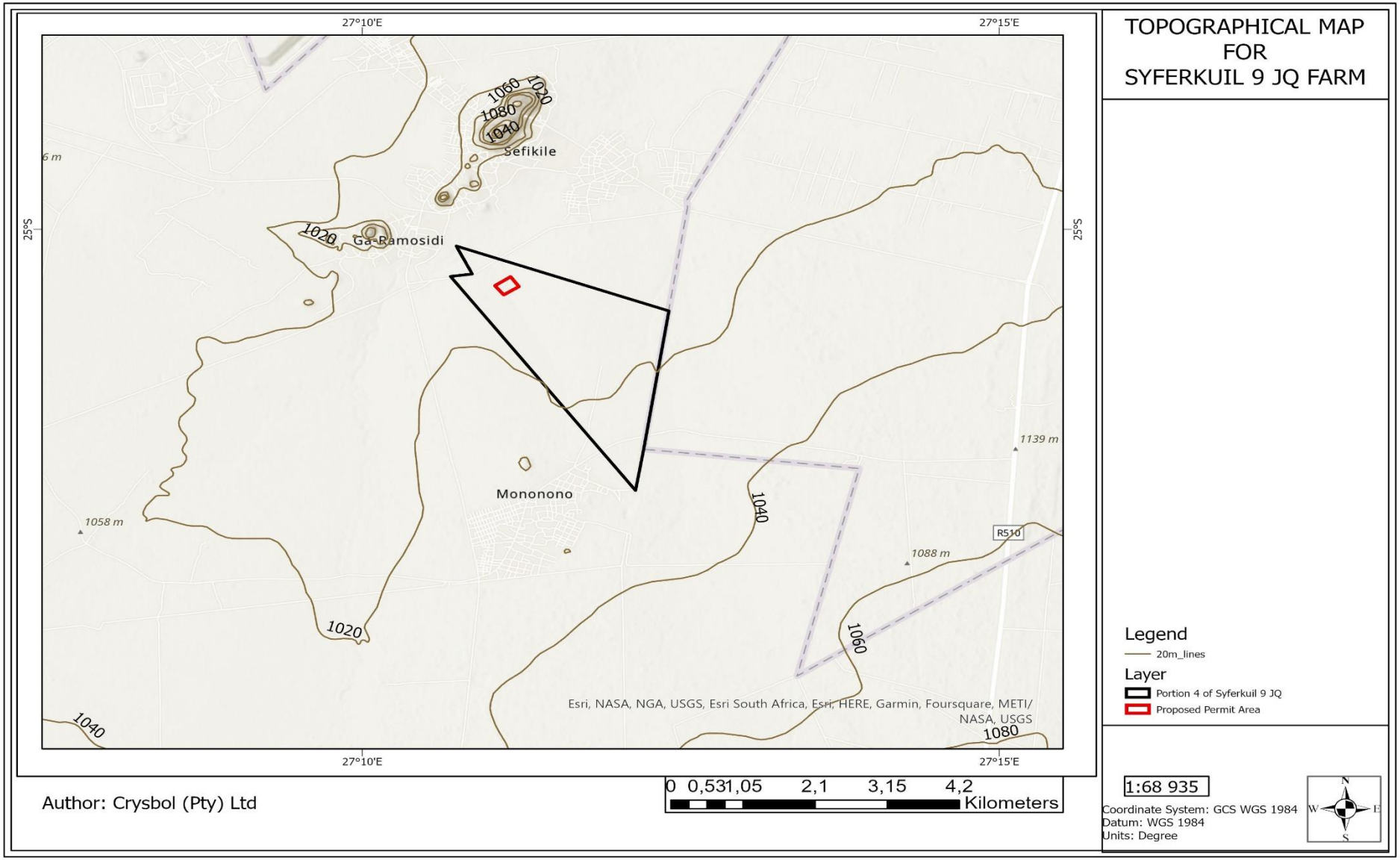

Figure 8: Topography map within the proposed project

c. Demographics and Geographic Setting

South Africa is a constitutional democracy with an independent judiciary.

Although South Africa and its neighbours have a large and experienced workforce of skilled and semi-skilled mining labour, this labour pool is ageing rapidly. In addition, the high incidence of HIV/AIDS is likely to have a marked impact on the future availability of skilled labour. Nonetheless, a high number of job-seekers, coupled with a good training infrastructure, should ensure an adequate supply of skilled mineworkers.

South Africa has sophisticated financial infrastructure, with a world-respected banking system. The country possesses an efficient transport infrastructure, which has for many years also been utilised by other countries in Africa, as far north as the Democratic Republic of the Congo and Tanzania. The rail and port system are run by a parastatal company, Transnet Limited. The rail network extends over 22,000km and seven major harbours are utilised. The national and provincial road networks consist of some 73,500km of surfaced and 288,000km of unsurfaced roads.

There are major international airports at Johannesburg, Cape Town and Durban, and a total of 727 registered airfields in South Africa. Electricity is generated mainly by parastatal company, Eskom, the country's electricity utility, and is amongst the cheapest in the world. Imaginative agreements between this utility and mineral processor in the past have seen the establishment of world-rated mineral-beneficiation projects, such as the Alusaf Hillside aluminium smelter, as well as the current development of a new deepwater port at Coega in the Eastern Cape.

South Africa possesses a modern telecommunications network, with international links including submarine cables and satellite stations. There are three cellular telephone providers.

The population of South Africa amounts to approximately 46.6 million (mid-2004 estimate), with a population growth rate of -0.31% (2005 estimate). English is widely spoken as a first and second language, with a literacy rate of 86.4%. There are 11 official languages.

d. Air Quality

Potentially air pollution from human activities may arise as a result of particulates entering the atmosphere. The sources of air pollution from human activities comprise of three broad categories i.e. stationary sources (agriculture, mining, quarrying, manufacturing, mineral products, industries and power generation), community sources (homes or buildings, municipal waste and sewage sludge incinerators, fireplaces, cooking facilities, laundry services and cleaning plants) and mobile sources combustion-engine vehicles and fugitive emissions from

vehicle traffic). Air pollutants are generally classified into suspended particulate matter (dust, fumes, mists and smokes), gaseous pollutants (gases and vapours) and odours.

Assessment of the proposed mining project area has determined that all three categories of air pollution sources are found within the proposed project area. The detailed study within the proposed project site and adjacent, is surrounded by several farmstead, mining and agricultural activities. The main sources of pollution include emissions from the surrounding mines, open cast mining activities that emit dust and some hazardous gases. The main sources of pollution include emissions from farmsteads and agricatural and mining activities that emit dust and some hazardous gases. Vehicles emit hazardous gases and particulate matter as they travel in unpaved road.

e. Noise

The surrounding areas are characterised by mining and agricultural setting in which vehicles and farm equipment operate. The traffic on the public roads surrounding the property contributes to the ambient noise of the area. The current ambient noise levels in the area are already significantly impacted on by the prevailing surrounding mines, mining activities and agricultural activies in the surrounding Syferkuil mining permit project. The existing noise sources will typically be the mining and agricultural activities as well as vehicular activity on the unnamed gravel road on the northern side of the site and secondary roads in the area.

The noise to be generated at the proposed operation is expected to temporarily increase the noise levels of the area. Blasting noise will be instantaneous and of short duration occurring only twice a month. Crushing and transportation of the material will generate noise daily. The significance of noise on the surrounding environment is therefore deemed to be of low significance, Mitigation measures should be implemented to ensure employees conducts them in an acceptable manner while on site to lessen the noise impact of the proposed activity on the surrounding environment.

f. Visual Exposure

The proposed mining area will entail the Chrome pit on the farm but will still have a visual impact on the surrounding environment as it is situated the flat top of the ridge. Due to the remote location the mining area will be visible from the farmsteads, but will be noticeable from the surrounding agricultural properties. The applicant should ensure that housekeeping is managed to standard, as this will mitigate the visual impacts during the operational phase of the mine. Upon closure of the mine and decommissioning of the site, the area should be fully rehabilitated, and all exposed

areas should be seeded to enhance vegetation recovery should natural vegetation not establish within six months of completion of rehabilitation

g. Population size and Composition

- Population Size

With 1.81 million people, the Bojanala Platinum District Municipality housed 3.1% of South Africa's total population in 2018. Between 2008 and 2018 the population growth averaged 2.64% per annum which is close to double the growth rate of South Africa as a whole (1.61%). Compared to North-West's average annual growth rate (1.97%), the growth rate in Bojanala Platinum's population at 2.64% was slightly higher than that of the province.

When compared to other districts, the Bojanala Platinum District Municipality accounts for a total population of 1.81 million, or 44.5% of the total population in the North-West Province, which is the most populous district in the North-West Province for 2018. The ranking in terms of the size of Bojanala Platinum compared to the other District remained the same between 2008 and 2018. In terms of its share, the Bojanala Platinum District Municipality was significantly larger in 2018 (44.5%) compared to what it was in 2008 (41.7%). When looking at the average annual growth rate, it is noted that Bojanala Platinum ranked highest (relative to its peers in terms of growth) with an average annual growth rate of 2.6% between 2008 and 2018

Table 9: Total population of Bojanala Platinuma and the rest of North-West Province, 2018 [Number]

	Male	Female	Total
Bojanala Platinum	956,000	857,000	1,810,000
Ngaka Modiri Molema	461,000	486,000	947,000
Dr. Ruth Segomotsi Mompati	247,000	268,000	515,000
Dr. Kenneth Kaunda	390,000	407,000	797,000
North-West	**2,050,000**	**2,020,000**	**4,070,000**

Source: IHS Markit Districtal eXplorer version 1803

- Population Density

In 2018, with an average of 98.9 people per square kilometer, Bojanala Platinum District Municipality had a higher population density than North-West (38.8 people per square kilometer). Compared to South Africa (47.6 per square kilometer) it can be seen that more

people are living per square kilometer in Bojanala Platinum District Municipality than in South Africa.

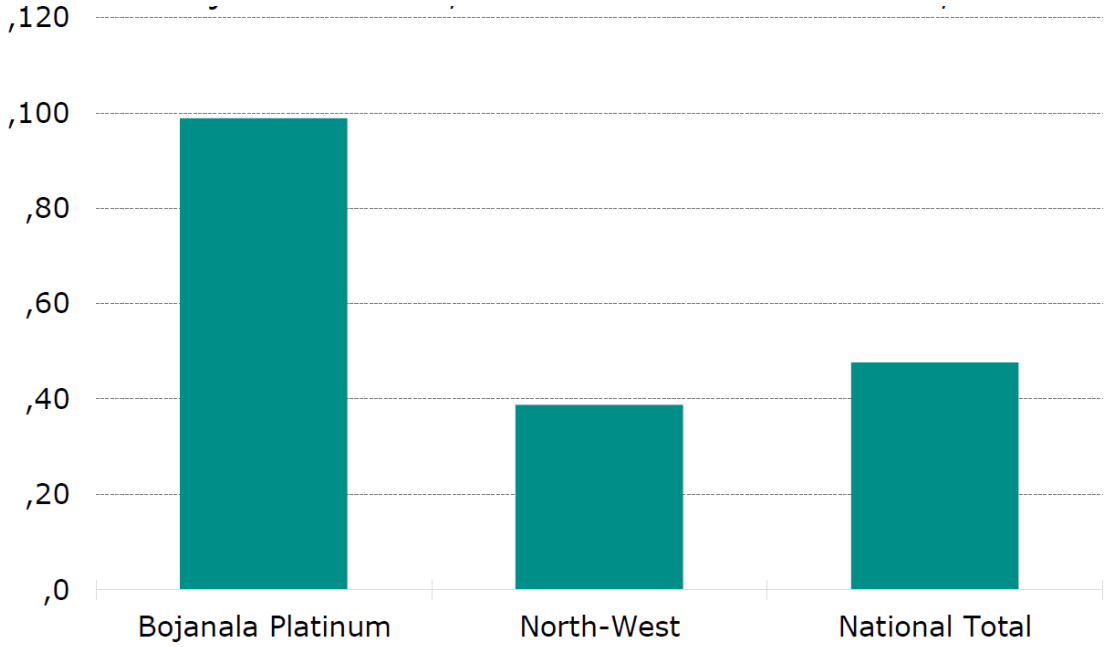

Figure 9: Popolation density- Number of people per kmÂ²

h. Education Levels

Within Bojanala Platinum District Municipality, the number of people without any schooling decreased from 2008 to 2018 with an average annual rate of -1.53%, while the number of people within the 'matric only' category, increased from 228,000 to 377,000.
The number of people with 'matric and a certificate/diploma' increased with an average annual rate of 3.71%, with the number of people with a 'matric and a Bachelor's degree increasing with an average annual rate of 5.51%. Overall improvement in the level of education is visible with an increase in the number of people with 'matric' or higher education.

i. Employment Status

In 2018, there were a total number of 180 000 people unemployed in Bojanala Platinum, which is an increase of 44 900 from 135 000 in 2008. The total number of unemployed people within Bojanala Platinum constitutes 48.66% of the total number of unemployed people in the North-West Province. The Bojanala Platinum District Municipality experienced an average annual increase of 2.91% in the number of unemployed people, which is worse than that of the North-West Province which had an average annual increase in unemployment of 2.21%.

Table 10: Unemployment (official definition) - Bojanala platinum, North-West, and national total, 2008-2018 [number percentage]

	Bojanala Platinum	North-West	National Total	Bojanala Platinum as % of the province	Bojanala Platinum as % of national
2008	135,000	297,000	4,340,000	*45.5%*	*3.1%*
2009	139,000	300,000	4,370,000	*46.2%*	*3.2%*
2010	140,000	297,000	4,510,000	*47.1%*	*3.1%*
2011	137,000	287,000	4,600,000	*47.8%*	*3.0%*
2012	134,000	290,000	4,730,000	*46.4%*	*2.8%*
2013	143,000	307,000	4,900,000	*46.4%*	*2.9%*
2014	153,000	328,000	5,110,000	*46.5%*	*3.0%*
2015	159,000	343,000	5,350,000	*46.3%*	*3.0%*
2016	171,000	358,000	5,710,000	*47.7%*	*3.0%*
2017	176,000	368,000	6,020,000	*47.9%*	*2.9%*
2018	180,000	370,000	6,120,000	*48.7%*	*2.9%*
Average Annual growth					
2008-2018	***2.91***%	***2.21***%	***3.48***%		

Source: IHS Markit Districtal eXplorer version 1803

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j. Health

Bojanala District has 125 health care facilities to provide Public Health Care across the District, out of the 125 Health Care Facilities in the District, Only 10 are configured as Community Health Centres and provide 24-hour services including maternity and minor trauma services. An additional 17 Clinic facilities are providing 24-hour services to complement the work of the Community Health Centres.

There is a total of 23 Mobile Clinics servicing 674 service points across the District. The Mobile Clinics are mainly providing preventative and promotive health services with minimum curative services.

The main interventions are done through referral to either the Community Health Centres or District Hospitals. The service in its nature is not dependable as it is not available during bad weather, weekends, and or public holidays. Plans are in place to gradually extend this service to weekends, holidays and the provision of reliable appropriate vehicles

k. Housing

Bojanala Platinum District Municipality had a total number of 118 000 (19.79% of total households) very formal dwelling units, a total of 320 000 (53.62% of total households) formal dwelling units, and a total number of 99 800 (16.73% of total households) informal dwelling units.

When looking at the formal dwelling unit backlog (number of households not living in a formal dwelling) over time, it can be seen that in 2008 the number of households not living in a formal dwelling was 131 000 within Bojanala Platinum District Municipality. From 2008 this number increased annually at 1.95% to 159 000 in 2018

7.1.1.8 Environmental and current land use map.

(Show all environmental and current land use features)

The Land use for the properties within and around the proposed project includes but not limited to mining and agricultural activities, Farmsteads, provincial and private road.

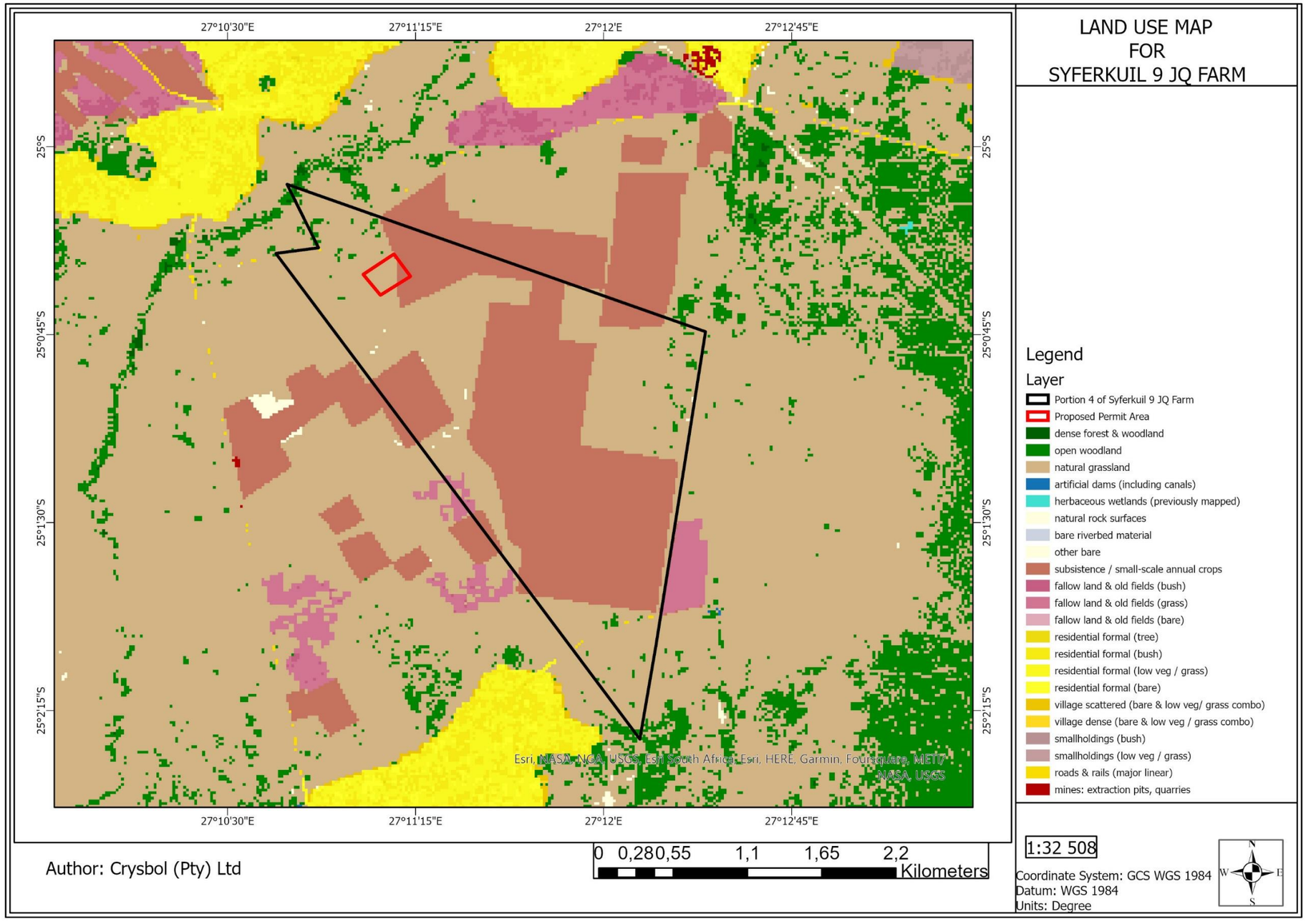

Figure 10: Current land use map for the proposed site

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

The nearest provincial road in the area is more than 1,0 km from the site. The impact of the proposed mining area on the infrastructural features of the surrounding area is deemed to be of low significance as the impact of the mining activities will be concentrated within the 4.87-ha footprint area of the mine. During the period of heavy rainfall storm water will need to be channelled around the mining area to prevent possible contamination of clean water flowing over dirty areas. If this is implemented the proposed activity is not expected to have a negative effect on the surface water of the river.

SECTION EIGHT

ENVIRONMENTAL IMPACT ASSESSMENT

8 ENVIRONMENTAL IMPACT ASSESSMENT

8.1 ENVIRONMENTAL IMPACT ASSESSMENT PROCESS FOLLOWED

8.1.1 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.

8.1.2 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, Ziphatheni Holdings (Pty) Ltd 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 describe below.

8.1.3 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 and

Energy (DMRE), North West province Regional Office for their consideration and decision making. The application for the environmental authorisation was acknowledged by the competent authority.

8.1.4 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 will be included in the impact assessment and measures will be determined on how the comments will be addressed during the life of the proposed project.

The following steps have been conducted during the public participation process:

- An opportunity for the potential interested and affected parties to register,
- Report have been compiled and subjected to the public for review,
- Further to the above, interested and affected parties and the public will be 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 is brought to the attention of interested and affected parties, the public and relevant organs of state including the competent authority.

8.1.5 BAR Phase

In compliance with Regulation 19 of the EIA Regulations of 2014 as amended, the BAR and EMPr will be submitted to the competent authority within 140 days after the acknowledgement of the environmental authorisation application.

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

8.2 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 (**S**) of the impacts is determined through the consideration of the following criteria:

Probability (**P**) : likelihood of the impact occurring

Area (Extent) (**E**) : the extent over which the impact will be experienced.

Duration (**D**) : the period over which the impact will be experienced.

Intensity (**I**) : 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:

Table 11: 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

8.3 RESULTS OF THE ENVIRONMENTAL IMPACT ASSESSMENT

8.3.1 Assessment of the Mining Application Area impacts/risks

8.3.1.1 Construction Phase

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
CONSTRUCTION PHASES							
Table_: 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	
Current land use over the area to be used for site establishment will cease completely for a period of 2 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 conducted to ensure that rocky ridges, sensitive
		S	M	S	M	M	
		With mitigation					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
		S	L	S	L	L	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	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
		S	L	S	L	L	
		With mitigation					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
laborers will result in the loss of wild live and loss of livestock to the land owner.		S	L	S	L	N	discovery. Use sites with most degraded environment for the site development. Poaching will be prohibited at the mining permit site.
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 onstruction 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 establishment will be remediated as soon as possible.
		S	L	S	M	M	
		With mitigation					
		S	L	S	L	L	
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	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
		S	L	S	L	L	
		With mitigation					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
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.		S	L	S	L	N	ensure that dust is controlled.
The noise level generated from the construction activities may exceed the SANS 10103 Levels for Residential 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 equipments 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 roads and properties. However, due to the undulating topography, visibility for the most part will most probably be restricted to short distances.	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 is conducted in manner that will reduce the impacts on visual aspects at night times.
		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	
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, therefore 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 excavated during mining
		S	M	S	H	H	
		With mitigation					
		S	L	S	L	L	
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 its 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. 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	

8.3.1.2 Operational Phase

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
OPERATIONAL PHASE							
Table_: Mining activities, loading, hauling and transportation							
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 use, that equipment is 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 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	
Air blast, Ground vibration and human perception Impact on infrastructure, Noxious fumes	Noise and Increase in dust emissions	Without mitigation					Prior to mining commencing, local infrastructure should be inspected to determine and document the extent of
		S	L	S	M	L	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
		With mitigation					existing damage. These properties will be periodically evaluated to determine any damage. Records of blasting times and distance to properties will also be used to determine likelihood of damage. The reduction of ground vibration is fundamental in different ways and shall include the following measures: • Detailed blast design for each blast with consideration the effects from blasting i.e. ground vibration and air blast. • Calculate expected ground vibration levels for blast to be done and if necessary re-design to reduce charge mass per delay, use of electronic initiation of blast, drilling smaller diameter blastholes that will reduce charge per blasthole and per delay. The reduction of air blast is fundamental in different ways and shall include the following measures: • Detailed blast design for each blast with consideration the effects from blasting i.e. ground vibration and air blast.
		S	L	S	L	L	

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
Current land use over the area to be used for site establishment will cease completely for a period of 2 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 conducted to ensure that rocky ridges, sensitive grass lands, indigenous trees and shrubs, site of farmlands actively used for farming are avoided.
		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	
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
		S	L	S	L	L	
		With mitigation					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
		S	L	S	L	N	mining activities can commence. This will include any other conditions that the landowner may deem necessary for the mining operation.
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 will be 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
		S	M	S	H	H	
		With mitigation					
		S	S	S	L	L	

8.3.1.3 Decommissioning Phase

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
OPERATIONAL PHASE							

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
Table_: 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 EMPr. 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					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 EMPr.
The use of vehicles/machinery during the rehabilitation of the exploration sites may result in compaction of soils and in the spillages of hydrocarbon liquids from the vehicles and machinery. This will result in the	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,
		S	M	S	M	M	
		With mitigation					

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
contamination of and destruction of the vegetation cover and soils.		S	L	S	L	L	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 top registered disposal facilities e.g., sewage treatment plant, sold waste disposal site or hydrocarbon recycling or treatment facilities.
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	
Rehabilitation and removal of the mining permit sites and equipment will require	Air Quality	Without mitigation					Dust suppression must be conducted during the decommissioning phase of the

NATURE OF THE IMPACT	ENVIRONMENTAL ASPECT	IMPACT ASSESSMENT					MITIGATION MEASURES
		E	P	D	I	S	
vehicular movement. This will result in the vehicles 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.		S	L	S	L	L	project whenever excessive dust is generated. Correct speed will be maintained at the proposed project rehabilitation sites. Vehicle maintenance must be conducted regularly to avoid excessive diesel fumes.
		With mitigation					
		S	L	S	L	N	
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.	Noise	Without mitigation					Where necessary, provided employees with ear plugs and employees must be instructed to use the ear plugs. Ensure that equipment is well maintained and fitted with the correct and appropriate noise abatement measures.
		S	L	S	L	L	
		With mitigation					
		S	L	S	L	N	

8. Motivation where no alternative sites were considered.

Ziphatheni Holdings Pty Ltd has identified the need for Chrome in the surrounding business area due to an increase in demand. In this light, the applicant identified the proposed area as preferred and only viable site alternative.

The activity or project is solely dependent on the underlying geology, prospecting results and historical mining operations on the property, as well as surrounding areas which indicate that economically viable mineral resources occur within the application area

The establishment of a Chrome pit in the area was found to be the best option regarding sustainable development. In the light of the above the impacts associated with establishing another Chrome pit in a brown field site on the property is believed to have a higher significance without the need or motivation to justify it. Various project alternatives were considered during the planning phase of the project and the preferred alternatives prooved to be:

- The open cast mining of the Chrome has been identified as the most effective method to produce the desired chrome product.
- The use of temporary infrastructure will highly reduce the impact on the environment and decreasing the closure objectives about decommissioning of infrastructure.
- As mentioned earlier in the report it is recommended the existing farm road connected to the provincial road to the north-west of the property be used as access road.

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

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

The open cast mining of the chrome has been identified as the most cost-effective method to produce the desired Chrome product. The proposed method will produce any residual (overburden) waste that must be disposed off. Due to the remote location of the chrome pit the potential impacts on the surrounding environment, associated with open cast mining, is deemed to be of low significance. It is proposed that all mining related infrastructure will be contained within the boundary of the mining area. As no permanent infrastructure will be established on site the layout/position of the temporary infrastructure will be determined by the mining progress and available space within the 4.87-ha mining area

10. Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity.

(Including (i) a description of all environmental issues and risks that erer identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

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

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

A detailed desktop investigation was undertaken to determine the environmental setting in which the project is located. Based on the desktop investigations various resources were used to determine the significance and sensitivity of the various environmental considerations. The desktop investigation involved the use of**:**

- South African National Biodiversity Institute (SANBI) Biodiversity Geographic Database LUDS system;
- Geographic Information System base maps;
- Department of Water Affairs information documents such as the (ISP and Groundwater Vulnerability Reports);
- Municipal Integrated Development Plan;
- Municipal Strategic Development Framework; etc.

A site visit was undertaken. This site visit was utilized to ensure that the information gathered as part of the desktop investigation reflects the current status of the land.

The rating of the identified impacts was undertaken in a quantitative manner as provided from Impact Ratings. The ratings are undertaken in a manner to calculate the significance of each of the impacts. The EAP also assesses the outcomes of the calculation to determine whether the outcome reflects the perceived and actual views.

The identification of management measures is done based on the significance of the impacts and measures that have been considered appropriate and successful, specifically as Best Practical and Economical Options. The baseline studies and impact findings, with strong focus on the views of the stakeholders at that time were incorporated in to the assessment of impacts and the ranking of these, in addition to this, the management measures identified and accepted as part of that study have been assessed for the purposes of this project and incorporated where practically possible.

11. Summary of specialist reports.

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

Table 12: Summary of Specialist reports

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
No studies have been undertaken for this application.	N/A	N/A	N/A

12. Environmental impact statement

Summary of the key findings of the environmental impact assessment;

Based on the impact assessment conducted by the EAP and various specialists, the environmental impacts associated with the mining activities are expected to be localised and of low to medium significance, with one impact (impact on geology) remaining permanently high even if mitigation measures are implemented. Mitigation measures have been recommended by the EAP and specialists in order to eliminate and/or reduce environmental impacts. These mitigation measures and monitoring programmes have been included as commitment in the Environmental Management Programme. The Environmental Management Programme aims to present management measures that will eliminate, offset or reduce adverse environmental impacts, as well as to provide the framework for environmental monitoring. The primary purpose of the Environmental Management Programme is to ensure that negative environmental impacts of the proposed project are effectively managed within acceptable limits and that the positive impacts are enhanced.

Final Site Map

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

The final maps showing the layouts of the proposed project plan are included on this report and attached as appendix A. The map has been developed to superimpose the proposed mining permit project together with the environmental sensitivities within the proposed project site.

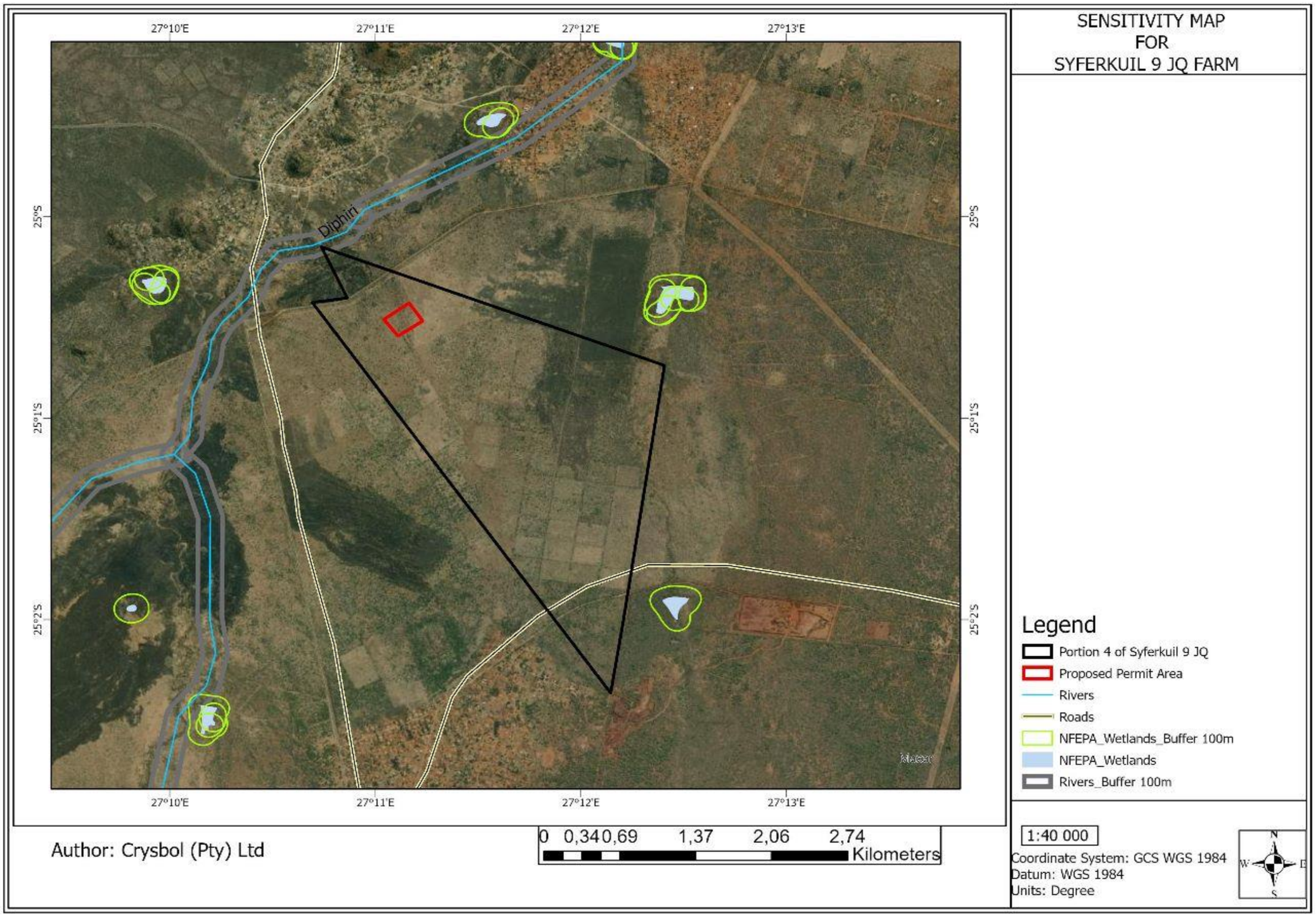

Figure 11: Sensitivity map for the proposed site

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

The positive impacts associated with the project include:

- Economic growth
- Employment
- Chrome supply
- Education
- Skills development
- Training

The negative impacts associated with the project that was deemed to have a Low-Medium or Medium significance includes:

IMPACT	SIGNIFICANCE
Visual intrusion associated with the establishment of the mining area	Low-medium
Visual intrusion associated with the excavation activities	Low-medium
Visual intrusion associated with the stockpiled material and vehicles transporting the material	Low-medium
Dust nuisance caused by blasting activities	Low-medium
Dust nuisance due to the crushing activities	Low-medium
Noise nuisance generated by excavationequipment	Low-medium
Noise nuisance generated by the crushingactivities	Low-medium
Degradation of access roads	Low-medium

14. Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

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

The following potential mitigation measures and residual risks have been provided for each environmental aspect assessed. It is noted that the draft BAR and EMPR report was made available to I&APs for review and comment, and their comments and concerns were addressed in this final report that is submitted to the DMRE for adjudication. Furthermore, it is noted that the results of the public consultation were utilised to update the proposed potential mitigation measures prior to the submission of this finalised BAR and EMPR to the DMRE for decision-making.

As a result of the impact assessment and the specialist studies undertaken, the following principles and objectives have been identified for the management of the Mining Permit:

Socio-Economic

The following socio-economic objectives should be attained during the planning, construction, operation, and decommissioning phases of the mining operations:

- Adhere to an open and transparent communication procedure with stakeholders at all times.
- Ensure that accurate and regular information is communicated to I&APs.
- Ensure that information is communicated in a manner which is understandable and accessible to I&APs.
- Enhance project benefits and minimise negative impacts through intensive consultation with stakeholders.
- Assemble adequate, accurate, appropriate, and relevant socio-economic information relating to the context of the operation.
- Ensure that recruitment strategies for the mine prioritises the sourcing of local labour, and share in gender equality.
- Ensure an atmosphere of equality and non-discrimination among the workforce.
- Contribute to the development of functional literacy and numeracy among employees.
- Empower the workforce to develop skills that will equip them to obtain employment in other sectors of the economy.

Historical and Cultural Aspects

The following objectives should be attained during the planning, construction, operation, and decommissioning phases of the mining operations:

- All heritage sites must be demarcated as No-Go Zones to prevent accidental damage by mining activities.
- A Cultural Heritage Management Plan must be established.

Topography

The following objectives should be attained during the planning, construction, operation, and decommissioning phases of the mining operations:

- Maintain the integrity of the landscape as far as possible by reinstating the topography to match the surroundings.
- Reinstate vegetation cover to match the surroundings.
- Monitor the reinstated areas to ensure that erosion does not occur.
- Ensure drainage lines are not disturbed as far as possible.
- Create pollution control structures to ensure pollution on site is minimised.

Geology

The following objectives should be attained during the planning, construction, operation, and decommissioning phases of the mining operations:

- Stockpile slopes should be kept as flat as possible.
- Areas of high danger should be checked regularly for potential subsidence.

Soil

The following objectives should be attained during the planning, construction, operation, and decommissioning phases of the mining operations:

- Only clear areas needed and keep footprints as small as possible.
- Vegetate topsoil stockpiles as soon as possible. Implement storm water management infrastructures
- Keep active pit area as small as possible and implement continual rehabilitation.
- Conduct waste classification of overburden material. Backfill opencast as soon as possible to reduce volume of overburden stored on site.

Land Use

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- Preserve soil so that land capability class can be re-established post mining (as far as this is possible).

Surface Water

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- Ensure minimal impact to the surface water resources.
- Ensure that the construction activities are carried out so as to aid rehabilitation during decommissioning.

Groundwater

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- Prevent construction material becoming a source for pollution to the local aquifers.
- Ensure effective management of any accidental spills.

Flora

The following objective should be attained during the construction, operation, and ecommissioning phases of the mining operations:

- Ensure awareness amongst all staff, contractors and visitors to site to not needlessly damage flora.
- No foraging, food and wood collecting within the veld should be allowed.
- Eliminate alien invasive and exotic plants.
- Minimise and limit the destruction or disturbance of vegetation of the proposed mining areas and mine infrastructure. The vegetation removal should be controlled and should be very specific.
- Prevent the destruction of natural and/or pasture vegetation of the surrounding areas that will not be mined.
- Prevent heavy machinery and light vehicles driving through natural vegetation that will not be disturbed by the proposed activities.
- Prevent the destruction of vegetation in areas prone to soil erosion.
- Remove and relocate any rare and endangered species within the areas where the natural vegetation will be destroyed.
- Clearly demarcated and kept to a minimum without any exceptions. No vehicles or personnel are permitted outside of these demarcated roads.
- No camping activities or other contractor camps should be allowed and this practice will be a good investment in preventing more impacts, noise and waste or possibly the spread of fires.

Fauna

- The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:
- Fauna (wildlife and domestic animals) may under no circumstances be handled, removed, killed or interfered with by the Contractor, his employees, his Sub-Contractors or his Sub-Contractors' employees.
- Activities on site must comply with the regulations of the Animal Protection Act, 1962 (Act 71 of 1962). Workers should also be advised on the penalties associated with the needless destruction of wildlife, as set out in this act.
- Appoint an ECO to oversee the activities and ensure that ecological aspects are kept in mind.
- Priority species, specifically nests if encountered, should be identified first and a management plan should be established for each of the priority species.
- Continuous rehabilitation and clean-up of the area should be implemented during the operational phase.
- Limit activities (transport etc.) to the smallest area possible. This is to prevent fragmentation that may have irreversible changes to faunal communities. It also increases the invasion of alien/foreign species.

- A management plan for the control of invasive and exotic plant species needs to be implemented (if required).
- Restrict movement to the proposed footprint of the activities. Control of access should be implemented for all other natural areas to prevent unnecessary destruction of habitats or disturbance of species. It is also vital that no additional fragmentation occur and that all roads are clearly demarcated and kept to a minimum without any exceptions. No vehicles or personnel are permitted outside of these demarcated roads.
- No camping activities or other contractor camps should be allowed on groenfontein farm and this practice will be a good investment in preventing more impacts, noise and waste or possibly the spread of fires to around the farm project.

Air Quality

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- Implement dust suppression in and around site as needed.
- Vehicles must be regularly serviced.
- Vehicles utilising public gravel roads must adhere to the speed limits.
- By minimising the removal of vegetation and topsoil in affected area, this will minimise the potential for dusty conditions.

Noise

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- All vehicles and machinery must be maintained in good working order.
- When working or traveling past noise sensitive receptors, no unnecessary hooting or noise should occur.

Visual

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- To limit the visual impact of mining and related infrastructure as far as possible during mining.
- To enhance the visual aspect and maintain the aesthetics of the region post mining.

Transportation, Infrastructure and Traffic

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- Ensure trucks and vehicles remain on roads and areas designated as a construction site to limit disturbance to areas unaffected by construction.

- Ensure drivers are informed that off-road travelling is prohibited except where otherwise not practically feasible.
- Ensure speed limits are set on all roads and enforce speed limits. Ensure all drivers at the site are informed about speed limits.
- Drip trays must be placed under vehicles.
- Any spills or leaks must immediately be cleaned up and the contaminated soil suitably disposed of.
- During refuelling of vehicles or equipment, drip trays must be utilised to prevent spills or leaks.
- Spill clean-up equipment must be available on site at all times.
- In the event of large spills, this must be reported to the authorities and a specialist spill contractor immediately sought to assist with the clean-up
- Create safe entry roads into the construction and mining areas.
- Repair damage to road infrastructure.
- Maintain safety to pedestrians and motorists.

Health and Safety

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- Undertake mining and ancillary activities in safe and responsible manner so as to protect the safety of people and the environment.
- Manage hazardous materials and explosives in a safe and responsible manner so as to protect the safety of people and the environment.

Environmental Pollution

The following objective should be attained during the construction, operation, and decommissioning phases of the mining operations:

- Any excess or waste material or chemicals must be removed from the site and must preferably be recycled (e.g. oil and other hydrocarbon waste products).
- Any waste materials or chemicals that cannot be recycled must be disposed of at a suitably licensed waste facility.
- All permanent facilities must be removed from site upon closure. This will include the associated equipment, material and waste on site.
- Under no circumstances is any form of waste to be disposed of on site.

The objectives of the EMPr will be to:

- Provide enough information to strategically plan the mining activities as to avoid unnecessary social and environmental impacts.
- Provide enough information and guidance to plan mining activities in a manner that would reduce impacts (both social and environmental) as far as practically possible.
- Ensure an approach that will provide the necessary confidence in terms of environmental compliance.
- Provide a management plan that is effective and practical for implementation.

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

- Noise impacts can be managed through consultation and through the restriction of operating hours;
- The pollution of soil and water resources can be effectively managed through containment;
- Ecological impact can be managed through the implementation of pollution prevention measures, minimizing land clearing, restricting working hours (faunal disturbance) and rehabilitation.
- Concerns regarding access control to farms can be managed through the development and ensuring compliance to an appropriate access control procedure.
- Risks associated with crime can be mitigated through avoiding recruitment activities on site, as well as monitoring and reporting.

Management Objective 1: Preserve Biodiversity

Impact Management outcomes: Ensure development is located within demarcated areas, strick control measures must be in place to ensure compliance.

Management Objective 2: Preserve Heritage Resources

Impact Management outcomes: Ensure the responsible Environmental Control Officer (ECO) should monitor all substantial (> 1 m deep) excavations for fossil material. In the case of any significant fossil finds during construction (e.g. vertebrate teeth, bones, burrows, petrified wood, shells), these should be safeguarded - preferably in situ - and reported by the ECO as soon as possible to SAHRA, so that appropriate mitigation can be implemented.

The proposed site must be subjected to a targeted and systematic collection of archaeological remains prior to any construction/mining operations commencing. A permit to collect

archaeological remains must be requested from the South African Heritage Resources Agency (SAHRA).

15. Aspects for inclusion as conditions of Authorisation.

(Any aspects which must be made conditions of the Environmental Authorisation)

In order to minimise potential impacts associated with the establishment and management of the site, the following measures must be implemented and therefore included as conditions of the authorisation:

- Disturbed areas must be rehabilitated to a quality that matches or replicates the surrounding area.
- The EMPr must be implemented fully at all stages of the proposed project
- No activities may take place within 100m from any river or surface water body.
- No trees or shrubs will be felled or damaged for the purpose of obtaining firewood
- The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora.
- Topsoil must be removed from all areas where physical disturbance of the surface will occur.
- All available topsoil must be removed prior to the commencement of any operations.
- All wastes generated must be disposed of at an appropriate registered landfill and disposal certificate be kept on site.
- Creation of new access roads should be minimised as far as possible.
- The speed of haul trucks and other vehicles must be strictly controlled to avoid dangerous conditions; excessive dust or excessive deterioration of the road being used.

16. Description of any assumptions, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

The assumptions made in this document which relate to the assessment and mitigation measures proposed, stem from site specific information gathered from the property owner, as well as site inspections, and background information gathering.

17. Reasoned opinion as to whether the proposed activity should or should not be authorised

This BAR and EMPR has assessed the potential impacts associated with the proposed mining activities and mitigation measures have been developed to address the impacts identified. Furthermore, this BAR and EMPR has been compiled in accordance with the most recent guidelines and legislation. The draft BAR and EMPR was also made available to I&APs review and comments, and appropriate changes have been made to this final BAR and EMPR as a result of I&APs consultation process. A mining permit will ensure that the Chrome mined legally and provisions will be made for the rehabilitation of the disturbed area after Chrome mining has been completed.

Furthermore, appropriate measures are included in the BAR and EMPR wherever possible, to ensure I&APs concerns are addressed. As such, the EAP is of the opinion that the activity should be authorised.

18. Period for which the Environmental Authorisation is required.

The Environmental Authorisation is required for 2 years and may be renewed for three periods of which may not exceed one year.

19. Undertaking

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

The undertaking required to meet the requirements of this section is provided at the end of the EMPr and is applicable to both the Basic Assessment Report and the Environmental Management Programme report.

20. Financial Provision

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

The Regulations pertaining to the Financial Provision for Prospecting, Mining and Production Operations promulgated under Section 44(A) (e), (f), (g), (h) read with sections 24(5)(b)(ix), 24(5)(d), 24N, 24P and 24R of the National Environmental Management Act, 1998 (Act 107 of 1998) (20 November 2015) have been considered and this is anticipated to result in an increase in the rehabilitation costs estimated using the above mentioned quantum. The amount that is required to both manage and rehabilitate the environment in respect of rehabilitation is reflected in the quantum of financial provision in Section 35 (Part B) of the report.

CALCULATION OF THE QUANTUM					Ref No.: NW30/5/1/3/2/11144MP			
Applicant:	**Ziphatheni Holdings (Pty) Ltd**				**05-Dec-2022**			
No.	**Description**	**Unit**	**A** **Quantity**	**B** **Master Rate**	**C** **Multiplication factor**	**D** **Weighting factor 1**	**E=A*B*C*D** **Amount (Rands)**	
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	14,05	1	1	R	-
2 (A)	Demolition of steel buildings and structures	m2	0	195,76	1	1	R	-
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	288,49	1	1	R	-
3	Rehabilitation of access roads	m2	0	35,03	1	1	R	-
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	340,01	1	1	R	-
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	185,46	1	1	R	-
5	Demolition of housing and/or administration facilities	m2	0	391,53	1	1	R	-
6	Opencast rehabilitation including final voids and ramps	ha	0.03	205242,16	1	1	R	6 157 .26
7	Sealing of shafts adits and inclines	m3	0	105,09	1	1	R	-
8 (A)	Rehabilitation of overburden and spoils	ha	0	136828,1	1	1	R	-
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	170416,93	1	1	R	-
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	494971,55	1	1	R	-
9	Rehabilitation of subsided areas	ha	0	114572,93	1	1	R	-
10	General surface rehabilitation	ha	1	108390,94	1	1	R	108 390.94
11	River diversions	ha	0	108390,94	1	1	R	-
12	Fencing	m	10	123,64	1	1	R	1 236. 40
13	Water management	ha	0	41213,28	1	1	R	-
14	2 to 3 years of maintenance and aftercare	ha	0,5	14424,65	1	1	R	7 212.33
15 (A)	Specialist study	Sum	0			1	R	-
15 (B)	Specialist study	Sum				1	R	-
					Sub Total 1		R	122 996.93
1	Preliminary and General		12299.69298		**weighting factor 2** 1		R	14 759.63
2	Contingencies		12299.69298				R	12 299.69
					Subtotal 2		R	150 056.25
					VAT (15%)		R	22 508.44
					Grand Total		**R**	**172 564.69**

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

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

The amount to finance the mining activities have been estimated to **R 52 479.46** (Fifty-two thousand, four hundred and seventy-nine rand and forty-six cents). Financing will be sourced from the capital expenditure as planned by the company; this capital will come from the treasury of the company. As part of the mining permit programme, the applicant has provided the Ziphatheni Holdings (Pty) Ltd annual financial statement for 2021. The annual financial statement for 2021 was also submitted to the DMRE for confirmation that the company has available funding to implement this proposed project.

22. Specific Information required by the competent Authoritys

Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998). The EIA report must include the:

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

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

Potential impacts on communities, individuals or competing land uses in close proximity

The following impacts are regarded as community impacts:

- Potential water and soil pollution resulting from hydrocarbon spills and soil erosion;
- Poor access control resulting in impacts on residentials movements;
- Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime; and
- Visual Impact

Measures to manage the potential impacts on communities, individuals or competing land uses in close proximity

- Pollution Prevention

- ❖ Mitigation and management measures must be implemented to prevent envi ronmental pollution which may impact on environmental resources utilized by communities, ward chancellors and other stakeholders. These mitigation and management measures are discussed in the following section.

- Poor access control resulting in impacts on residentials movements;
  - ❖ Access control procedures must be agreed on with ward chancellor and all staff trained on these procedures.
- Influx of persons (job seekers) to site as a result of increased activity and the possible resultant increase in opportunistic crime;
  - ❖ Casual labour will not be recruited at the site to eliminate the incentive for persons travelling to site seeking employment.
  - ❖ The ward chancellor (since the farm owner is unkonwn) will be notified of unauthorised persons encountered on site.
  - ❖ If deemed necessary, the South African Police Service will be informed of unauthorised persons encountered on site.

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

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

A Paleontological and Archealogical impact assessment was not conducted for this application as there is no significant heritage resources present on the site and significant impacts are thus not expected. However, should there be any artefacts discovered on site during any phase of the mining work, such discovery will be reported to SAHRA and at the mean time all the activities should cease.

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

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

None.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

22.2 Draft environmental management programme.

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

The requirement for the provision of the details and expertise of the EAP are included in PART A, section 1(a).

22.4 Description of the Aspects of the Activity

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

The requirement to describe the aspects of the activity that are covered by the draft environmental management programme is already included in PART A, sect ion (1) (h).

22.5 Composite Map

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

Please refer to Appendix A for the Composite Map.

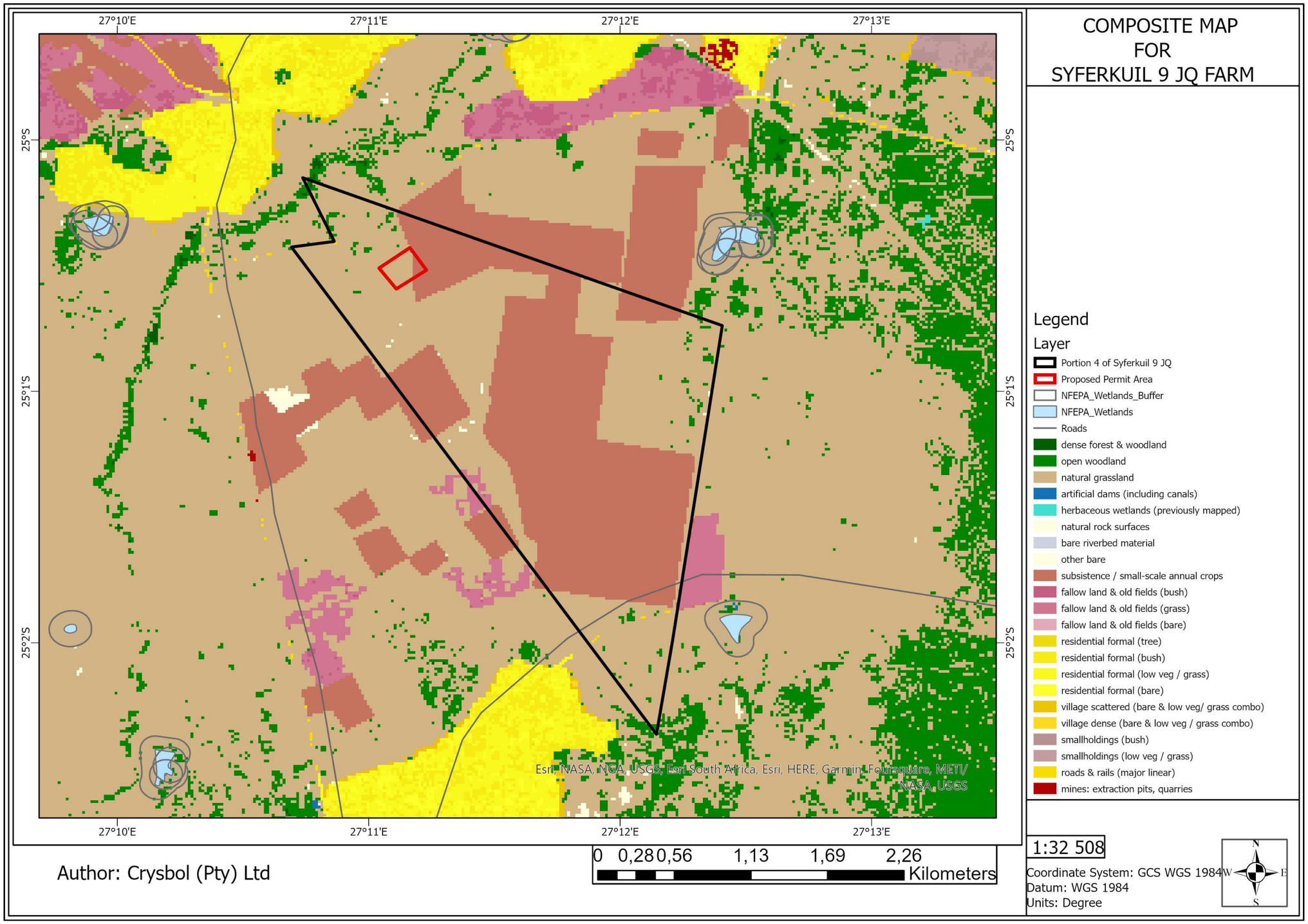

Figure 12: Composite map for the proposed site

22.6 Description of Impact management objectives including management statements

Determination of closure objectives.

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

The decommissioning phase will entail the rehabilitation of the mining site. Upon cessation of the mining activities, the area will be fully rehabilitated. The perimeter walls of the opencast pit will either be sloped at 1:3 to the pit floor to prevent soil erosionor be stepped by creating benches of not more than 3 meters high. The applicant will comply with the minimum closure objectives as prescribed by DMR and detailed below.

a. Rehabilitation of the excavated area:

- Rocks and coarse material removed from the excavation must be dumped into the excavation.
- No waste will be permitted to be deposited in the excavations.
- Once overburden, rocks and coarse natural materials has been added to the excavation and it was profiled with acceptable contours anderosion control measures, the topsoil previously stored shall be returned to its original depth over the area.
- The area shall be fertilized if necessary to allow vegetation to establishrapidly. The site shall be seeded with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within 6 months from closure of the site.
- If a reasonable assessment indicates that the re-establishment ofvegetation 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 vegetation seed mix to his or her specification.

b. Rehabilitation of plant area:

- The compacted areas shall be ripped and the topsoil returned over thearea.
- Coarse natural material used for the construction of ramps shall be removed and dumped into the excavations.
- Stockpiles shall be removed during the decommissioning phase, the area ripped and the topsoil returned to its original depth to provide agrowth medium.

- On completion of operations, all structures or objects shall be dealt within accordance with Section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002):
  - Where sites have been rendered devoid of vegetation/grass orwhere soils have been compacted owing to traffic, the surface shall be scarified or ripped.
  - The site shall be seeded with a vegetation seed mix adapted toreflect the local indigenous flora if natural vegetation does not re-establish within 6 months of the closure of the site.
- Photographs of the mining area and office sites, before and during themining operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the Regional Manager.
- On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 300mm and graded to an even surface condition and the previously stored topsoil will be returned to its original depth over the area.
- Prior to replacing the topsoil, the overburden material that was removed from these areas will be replaced in the same order as it originally occurred.
- The area shall then be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local, adapted indigenous seed mix if natural vegetation does not re-establish within 6months after closure of the site.
- If a reasonable assessment indicates that the re-establishment ofvegetation is unacceptably slow, the Regional Manager may requirethat the soil be analysed and any deleterious effects on the soil arisingfrom the mining operation be corrected and the area be seeded witha seed mix to his or her specification.

c. Final rehabilitation:

- Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding (if required) and maintenance, and weed / alien clearing.
- All infrastructure, equipment, plant, temporary housing and other itemsused during the mining period will be removed from the site (section 44 of the MPRDA).
- Waste material of any description, including receptacles, scrap, rubbleand tyres, will be removed entirely from the mining area and disposed of at a recognized landfill facility. It will not be permitted to be buriedor burned on the site.
- Weed / Alien clearing will be done in a sporadic manner during the life of the mining activities.

- Species regarded as Category 1 weeds according to CARA (Conservation of Agricultural Recourses Act, 1983-Act 43; Regulations15 & 16 (as amended in March 2001) need to be eradicated from the site.
- Final rehabilitation shall be completed within a period specified by the Regional Manager.

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

Water will only be used for dust suppression purposes as the mining method does not require any washing or related process water. Water sprayers will be fixed to the crusher plant and a water truck will be used to spray access roads and stockpile areas to alleviate dust generation. It is proposed that the mining activities will require approximately 10 000L of water per day.

22.8 Has a water use licence has been applied for?

No.

22.9 Impacts to be mitigated in their respective phases

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

Table 13: Impacts to be mitigated in their respective phases.

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Blasting and Vibration					
Topsoil Stripping					
Excavation	Pre-construction/ Operation/ Rehabilitation	3 ha	Any excavations must be undertaken within the confines of the corner coordinates given on the locality map. • The perimeter of the mining area and laydown area shall be fenced with stockpile fencing to keep out animals and to ensure that excavations do not take place in no-go areas or outside of the development footprint. .	Compliance ito NEMA, NEM: WA, NEM:AQ, MPRDA	Demarcations of mining area must take place prior to any operations/ excavations/ site clearing. Excavations are expected to take place whitin a time frame of 5 days. Rehabilitation will consist of lanscaping and shaping of slopes as excavations progress.

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Topsoil stripped from borrow pit site will be stockpiled, stored and protected on site for rehabilitation after the project is completed. Topsoil stripped from borrow pit site will be stockpiled, stored and protected on site for rehabilitation after the project is completed to ensure the site is restored to its natural state as far as possible. • Excavations should be limited to day time hours to minimise noise pollution, although there are no communities in the immediate surroundings.		Topsoil will be replaced as soon as excavations are done. The responsible Environmental Control Officer (ECO) should monitor all substantial (> 1 m deep) excavations for fossil material. In the case of any significant fossil finds during construction (e.g. vertebrate teeth, bones, burrows, petrified wood, shells), these should be safeguarded - preferably in situ - and reported by the ECO as soon as possible to SAHRA by a palaeontological

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			The responsible Environmental Control Officer (ECO) should monitor all substantial (> 1 m deep) excavations for fossil material. In the case of any significant fossil finds during construction (e.g. vertebrate teeth, bones, burrows, petrified wood, shells), these should be safeguarded - preferably in situ and reported by the ECO as soon as possible to SAHRA by a palaeontological specialist can be considered and implemented.		specialist can be considered and implemented.
Access road	Pre-construction/ Operation/ Rehabilitation	less than 4 m wide	The perimeter of the access route will be demarcated and fenced with stockpile fencing to keep out animals and to	Compliance ito NEMA, NEM, NEM:AQ	Topsoil will be stripped and kept on side of the road and will be replaced as soos as the excavations are done.

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			ensure that trucks and vehicles do not tresspass on no-go areas. • Topsoil will be removed when the access route is scraped. Due to the short duration of the project, topsoil stripped from the access route will be kept next to the route, to use for rehabilitation. • Speed limits must be enforced on access routes. Max speed of 40km/h for safety reasons aswell as possible dust pollution.		The Contractor/ Contractor's environmental officer should ensure very strict control measures daily to ensure trucks stay on the access route. Control measures should be in place until excavations are completed.
Laydown area	Operations	1 ha	The laydown area, where trucks will upload gravel material (on previously	Compliance ito NEMA, NEM, NEM:AQ	The Contractor/ Contractors Environmental Officer should do daily inspections

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			desturbed land), will also be fenced with stockpile fencing to ensure trucks stay clear of no-go areas. • In the event of a hydrocarbon spill, the contractor must take the suitable measures to contain the pollution and prevent it from spreading or seepage. Once this spill has been contained, contaminated material (soil, etc) shall be removed and disposed of at a registered hazardous waste disposal site. • Ensure drip trays are available to place under any stationary vehicles/ excavator.		to ensure that stationary vehicles and the excavator have drip trays to prevent hydro carbon or oil spills after excavation is completed for the day. The Contractor/ Contractors Environmental Officer should implement daily, strickt control measures to ensure trucks only turn around in the designated laydown area and do not deviate off the access route.

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Ensure vehicles/ excavator is maintained/ serviced to reduce potential oil/ hydrocarbon spills Ensure vehiclesand machinery are fitted with appropriate emission control equipment.		
Temporary ablution facilities on laydown area	Operations/ Rehabilitation	1 portaloo in the laydown area	Ensure temporary ablution facilities are maintained and serviced and sewage is disposed of at a licensed facility.	NEM: WA	Contractor/ Contractor's Environmental Control Officer should ensure ablution facilities are maintained daily and ensure sewage is disposed of at a licensed facility.

22.10 Impact Management Outcomes

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

Measures to rehabilitate the environment affected b y the undertaking of any listed activity is presented in the following table.

Table 14: Impact Management Outcomes

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
Excavations	Loss of vegetation and flora	Botanical	Construction/ Operations	Remedy through rehabilitation, replace topsoil removed. Ensure excavations only take place within the designated areas (coordinates on layout plan) through management and monitoring Ensure excavations only take place during day time hours through management and monitoring. Ensure permits for the removal of 2 plant species protected ito NCNC is applied for.	Rehabilitation standards, impact avoided, noise levels

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
				Ensure workers are trained to stop all work if any material associated with heritage significance is found during excavation through environmental awareness training.	
Access road	Loss of vegetation and flora Dust control	Botanical	Construction/ Operation	Remedy through rehabilitation, replace topsoil removed Ensure trucks do not deviate from access route through management and monitoring Control dust through management and monitoring, ensure maximum speed of 40km/h is maintained	Rehabilitation standards, impact avoided, dust levels
Laydown area	Contamination of soils	Botanical		Ensure trucks only turn around in laydown area through management and monitoring	Impact avoided

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
				Ensure stationary vehicles, trucks have drip trays to avoid soil pollution through management and monitoring Ensure there are designated dustbins for potential hazardous was (i.e oil spills) and general waste from construction workers through management and monitoring. Ensure workers do not litter through environmental awareness training Ensure sewage from temporary ablution facilities are disposed of in correct manner through manangement and monitoring	
	2. Potential water and soil pollution resulting	Increase in dust emissions	Decommissioning	Control to the implementation of dust suppression methods, when this is required. Dust suppression	Remain within the ambits of the Financial

ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	MITIGATION TYPE	STANDARD TO BE ACHIEVED
	from hydrocarbon spills.			methods could include wet suppression.	and Technical Ability and Environmental Authorisation.
	3. Soil erosion resulting from the re-spreading of topsoil before vegetation is re-established.	Loss of soi l resources	Decommissioning	Control through the clear delineation of the mining area. Control through the implementation of environmental induction and toolbox talks, as well as the implementation of a fine system. Control through the implementation of a soil management programme in terms of the correct topsoil removal, stockpiling and rehabilitation practices as discussed in the EMP.	Remain within the ambits of the Financial and Technical Abillity Mining and Environmental Authorisation.

22.11 Impact Management Actions

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

Table 15: Impact Management Actions

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
Excavations	Loss of vegetation and flora	Remedy through rehabilitation, replace topsoil removed. Ensure excavations only take place within the designated areas (coordinates on layout plan) through management and monitoring Ensure excavations only take place during day time hours through management and monitoring. Ensure workers are trained to stop all work if any material associated with heritage significance is found during excavation	Demarcations of mining area must take place prior to any operations/ excavations/ site clearing Excavations are expected to take place whitin a time frame of 2 months Rehabilitation will consist of lanscaping and shaping of slopes as excavations progress. Topsoil will be replaced as soon as excavations are done. The responsible Environmental Control Officer (ECO)/ Contractor/ Contractor's	Rehabilitation standards will be achieved, environmental impact avoided, noise levels maintained in terms of compliance with NEMA, NEM:WA, NEM:AQ, MPRDA

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		through environmental awareness training.	Environmental Control Officer should monitor all substantial (> 1 m deep) excavations for fossil material. In the case of any significant fossil finds during construction (e.g. vertebrate teeth, bones, burrows, petrified wood, shells), these should be safeguarded - preferably in situ - and reported by the ECO as soon as possible to SAHRA by a palaeontological specialist can be considered and implemented.	
Access road	Loss of vegetation and flora; Dust control	Through monitoring and management, the perimeter of the access route will be demarcated and fenced with stockpile fencing to keep out	Topsoil will be stripped and kept on side of the road and will be replaced as soos as the excavations are done.	Rehabilitation standards will be achieved, environmental impact avoided, noise levels maintained in terms of

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		animals and to ensure that trucks and vehicles do not tresspass on no-go areas. Remedy through rehabilitation, replace topsoil removed Ensure trucks do not deviate from access route through management and monitoring Control dust through management and monitoring, ensure maximum speed of 40km/ h is maintained	The Contractor/ Contractor's Environmental Control Officer should ensure very strict control measures daily to ensure trucks stay on the access route. Control measures should be in place until excavations are completed.	compliance with NEMA, NEM: WA, NEM:AQ
Laydown area	Contamination of soil; loss of vegetation and	Through monitoring and management, the perimeter of the laydown will be demarcated and fenced with stockpile fencing to keep out animals and to ensure that trucks and vehicles do not	The Contractor/ Contractor's Environmental Control Officer should do daily inspections to ensure that stationary vehicles and the excavator have drip trays	Enviromental Impacts will be avoided in term of compliance with NEMA, NEM: WA

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		tresspass on no-go areas like the flood plane. Ensure trucks only turn around in laydown area through management and monitoring Ensure stationary vehicles, trucks have drip trays to avoid soil pollution through management and monitoring Ensure there are designated dustbins for potential hazardous was (i.e oil spills) and general waste from construction workers through management and monitoring. Ensure workers do not litter through environmental awareness training	to prevent hydro carbon or oil spills after excavation is completed for the day. The Contractor/ Contractor's Environmental Control Officer should implement daily, strickt control measures to ensure trucks only turn around in the designated laydown area and do not deviate off the access route. ECO should do environmental awareness training before excavations begin. The Contractor should ensure sewage from temporary ablution facilities are disposed of in correct manner after	

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		Ensure sewage from temporary ablution facilities are disposed of in correct manner through manangement and monitoring	rehablilitation was done on site.	

22.12 Financial Provision

Determination of the amount of Financial Provision.

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

Upon cessation of the mining activities the area will be fully rehabilitated. The perimeter walls of the opencast pit will either be sloped at 1:3 to the pit floor to prevent soil erosion or be stepped by creating benches of not more than 3 meters high.

Compacted soil will be ripped and levelled to re-establish a growth medium. Stockpiles will be removed during the decommissioning phase, the stockpile arearipped and available topsoil that was removed will be spread over worked areas toenhance the establishment of vegetation. All waste materials will be removed fromthe site and dumped at recognised landfill sites. The applicant will comply with the minimum closure objectives as prescribed by DMR.

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

This report, the Basic Assessment Report, includes all the environmental objectives in relation to closure and will be made available for perusal of I&AP's and stakeholders.
Any additional comments received during the commenting period will be added to the Final Basic Assessment Report to be submitted to DMRE for approval.

22.12.1.3 Provide a rehabilitation plan that describes and shows the scale and aerial extent of the main mining activities, including the anticipated mining area at the time of closure.

The site closure objective is to rehabilitate the site so it is as close to its natural state before any operations took place. Rehabilitation of the excavated area will continue as excavations progress and will consist of landscaping and reshaping the slope. Topsoil will be placed over the excavated area, aswell as the access route to provide a source of seed and a seed bed to encourage the re-growth of plant species.

Upon closure of the mine all infrastructure will be removed. The compacted areas will be ripped and levelled upon which the topsoil will be replaced. The sides of the pit will be sloped to ensure safety and prevent erosion. No permanent structures will remain upon closure of the site.

The Independed ECO shall do a final site visit after rehabilitation was completed to ensure compliance with environmental standards.

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

The decommissioning phase will entail the rehabilitation of the mining site. Upon cessation of the mining activities, the area will be fully rehabilitated. The perimeter walls of the opencast pit will be sloped at 1:3 to the pit floor to prevent soil erosion or stepped by creating benches of not more than 3 meters. The rehabilitation of the chrome pit will comply with the minimum closure objectives as prescribed by DMRE and detailed below, and therefore is deemed to be compatible:

Rehabilitation of the excavated area:

- Rocks and coarse material removed from the excavation must be dumped into the excavation.
- No waste will be permitted to be deposited in the excavations.
- Once overburden, rocks and coarse natural materials has been added to the excavation and it was profiled with acceptable contours and erosion control measures, the topsoil previously stored shall be returned to its original depth over the area.
- The area shall be fertilized if necessary, to allow vegetation to establish rapidly. The site shall be seeded with a local or adapted indigenous seed mix to propagate the locally or regionally occurring flora, should natural vegetation not re-establish within 6 months from closure of the site.
- 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 vegetation seed mix to his or her specification.

Rehabilitation of plant area:

- The compacted areas shall be ripped, and the topsoil returned over the area.
- Coarse natural material used for the construction of ramps shall be removed and dumped into the excavations.
- Stockpiles shall be removed during the decommissioning phase, the area ripped, and the topsoil returned to its original depth to provide a growth medium.
- On completion of operations, all structures or objects shall be dealt with in accordance with Section 44 of the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002):
    - Where sites have been rendered devoid of vegetation/grass or where soils have been compacted owing to traffic, the surface shall be scarified or ripped.
    - The site shall be seeded with a vegetation seed mix adapted to reflect the local indigenous flora if natural vegetation does not re-establish within 6 months of the closure of the site.
- Photographs of the mining area and office sites, before and during the mining operation and after rehabilitation, shall be taken at selected fixed points and kept on record for the information of the Regional Manager.
- On completion of mining operations, the surface of these areas, if compacted due to hauling and dumping operations, shall be scarified to a depth of at least 300 mm and graded to an even surface condition and the previously stored topsoil will be returned to its original depth over the area.
- Prior to replacing the topsoil, the overburden material that was removed from these areas will be replaced in the same order as it originally occurred.
- The area shall then be fertilized if necessary to allow vegetation to establish rapidly. The site shall be seeded with a local, adapted indigenous seed mix if natural vegetation does not re-establish within 6 months after closure of the site.
- 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.

Final rehabilitation:

- Rehabilitation of the surface area shall entail landscaping, levelling, top dressing, land preparation, seeding (if required) and maintenance, and weed / alien clearing.

- All infrastructure, equipment, plant, temporary housing and other items used during the mining period will be removed from the site (section 44 of the MPRDA).
- Waste material of any description, including receptacles, scrap, rubble and tyres, will be removed entirely from the mining area and disposed of at a recognized landfill facility. It will not be permitted to be buried or burned on the site.
- Weed / Alien clearing will be done in a sporadic manner during the life of the mining activities.
- Species regarded as Category 1 weeds according to CARA (Conservation of Agricultural Recourses Act, 1983– Act 43; Regulations 15 & 16 (as amended in March 2001) need to be eradicated from the site.
- Final rehabilitation shall be completed within a period specified by the Regional Manager.

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

The calculation of the quantum for financial provision was according to Section B of the working manual.

Mine type and saleable mineral by-product

Commodity	chrome
Sealable mineral by-product	None

Risk ranking

Primary risk ranking	C (Low risk)
Revised risk ranking	N/A

Environmental sensitivity of the mine area

Environmental sensitivity of the mine area	Low

Level of information

Level of information available	Limited

Confirm that the financial provision will be provided as determined.

Herewith I, Gumisai Charles Chigurah the person, whose name is stated below confirm that I am the person authorised to act as representative of the applicant in terms of the resolution submitted with the application. I herewith confirm that the company will provide the amount that will be determined by the Regional Manager in accordance with the prescribed guidelines

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

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

Table 16: Mechanisms for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Vegetation clearning	Loss of vegetation	Demarcation	ECO will do the demarcation of the site with the contracor. Contractor should ensure construction/ operation is only in designated areas. Independent ECO will conduct 2 monthly visits to ensure compliance	Daily inspections to ensure workers are only operating in designated areas.

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Excavations	Loss of Heritage Resources	Visual inspections	Contractor/ contractor's environmental control officer shall monitor all sustantial (>1 m deep) excavations for fossil material. In the case that any significant fossil finds during construction, they should be safeguarded and reported to SAHRA, so that appropriate mitigation (i.e. recording, sampling or collection) by a palaeontological specialist can be considered and implemented.	Daily inspections if excavation is more than 1 m deep. Report to SAHRA immedialty.
Use of excavator, TLB and Trucks	Soil contamination	Spill kits, drip trays	Contractor shall ensure drip trays are placed under stationary excavator, TLB, trucks at all times.	Contractor/ contractor's environmental control officer:weekly inspections, record and remedy spills if any

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
			Contractor's environmental control officer shall do weekly inspection to ensure compliance. Independed ECO shall do monthly inspections to ensure compliance.	Independ ECO shall do monthly audit and inspect if oil spills were recorded and remidied corretly.
Dust pollution	Dust	Visual observations	Contractor/ Contractor's environmmental control officer/ ECO should monitor compliance to dust control	Daily visual observations, work should be stopped under extreme windy conditions.

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

The contractor's environmental control officer should conduct weekly site inspections and write up audit reports. The Independed ECO will conduct monthly audit inspections and write up audit reports.

Environmental Awareness Plan

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

Once mining of the proposed area starts a copy of the Environmental Management Programme report will be handed to the site manager during the site establishment meeting. Issues such as topsoil handling, site clearance, fire principals and hazardous waste handling will be discussed. An induction meeting will be held with all the site workers to inform them of the Basic Rules of Conduct about the environment.

The independent ECO will conduct Environmental Awareness training with the contractor/and staff before excavation commence. Workers will be informed of all environmental riks and how these riks could be mitigated and remedied.

Table 17: Environmental Training and Awareness Schedule

Frequency	Time allocation	Objective
Induction (all staff and workers)	1-hour training on environmental awareness training as part of site induction	1. Develop an understanding of what is meant by the natural environmental and social environment and establish a common language as it relates to environmental, health, safety and community aspects. 2. Establish a basic knowledge of the

		environmental legal framework and consequences of non-compliance. 3. Clarify the content and required actions for the implementation of the Environmental Management Plan. 4. Confirm the spatial extent of areas regarded as sensitive and clarify restrictions. 5. 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 requi rements, 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	Establ ish 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.

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

The independent ECO will conduct Environmental Awareness traing with all workers/ contractors before excavation commence. Workers will be informed of all environmental riks and how these riks could be mitigated and remedied.

- Environmental Awareness Training Content – Induction Training:

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

- 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
  - Hazardous Substances
  - Biodiversity
  - Weeds and Invader Plants
  - Rehabilitation
  - Contractors and Tenants
  - 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 Fire arms

- Content and implementation of the approved Environmental Management Plan
  - Allocated responsibilities and functions
  - Management and Mitigation Measures
  - Identification of risks and requirements adaptation

- Sensitive environments and features
  - Description of environmentally sensitive areas and f eatures
  - Prohibitions as it relates to activities in or in proximity to such areas.

- Emergency Situations and Remediation
  - ❖ Methodology for 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.

- 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.

- 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 have 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.

- Incident Reporting Procedure

Incident reporting will be undertaken inaccordance 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.

- 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.

Specific information required by the Competent Authority

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

No specific information was required by the Competent Authority.

22.15 UNDERTAKING

The EAP herewith confirms

g) the correctness of the information provided in the reports;

h) the inclusion of comments and inputs from stakeholders and I&APs;

i) the inclusion of inputs and recommendations from the specialist reports where relevant; and

j) 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:

Crysbol Pty Ltd

Name of company:

05/12/2021

Date:

-END-