

ENVIRONMENTAL AUTHORISATION APPLICATION – MINING PERMIT

Name of Applicant: Mosikwe Investments (Pty) Ltd

DMR Reference No: NW30/5/1/3/3/2/1/10846MP

Bakhoutrantje 205JP

North West







BASIC ASSESSMENT REPORT & ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

BASIC ASSESSMENT REPORT FOR A MINING PERMIT, COMBINED WITH A WASTE LICENCE APPLICATION FOR THE MINING OF CHROME ORE, PGM, GEMSTONES, COPPER ORE, DIAMOND, DIAMOND (ALLUVIAL), DIAMOND (GENERAL), DIAMOND (IN KIMBERLITE) AND NICKLE ORE ADJACENT TO WITRANDJE ON A CERTAIN PORTION OF PORTION 1 OF THE FARM BAKHOUTRANTJE 205, REGISTRATION DIVISION: JP, NORTH WEST PROVINCE.

NAME OF APPLICANT	Mosikwe Investments (Pty) Ltd			
PREPARED BY	Kuhle Environmental Consult (Pty) Ltd			
TEL NO	073 006 0249			
SAMRAD REF NUMBER:	NW30/5/1/3/3/2/1/10846MP			



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1. IMPORTANT NOTICE

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

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

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

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

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



2. ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

- (1) The environmental impact assessment process must be undertaken in line with the approved plan of study for environmental impact assessment.
- (2) The environmental impacts, mitigation and closure outcomes as well as the residual risks of the proposed activity must be set out in the environmental impact assessment report.

3. OBJECTIVE OF THE ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

- 2. The objective of the environmental impact assessment process is to, through a consultative process-
- (a) determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
- (b) describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- (c) identify the location of the development footprint within the preferred site based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- (d) determine the--
- (i) nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
- (ii) degree to which these impacts-
- (aa) can be reversed;
- (bb) may cause irreplaceable loss of resources, and
- (cc) can be avoided, managed or mitigated;
- (e) identify the most ideal location for the activity within the preferred site based on the lowest level of environmental sensitivity identified during the assessment;
- (f) identify, assess, and rank the impacts the activity will impose on the preferred location through the life of the activity;
- (g) identify suitable measures to avoid, manage or mitigate identified impacts; and
- (h) identify residual risks that need to be managed and monitored.



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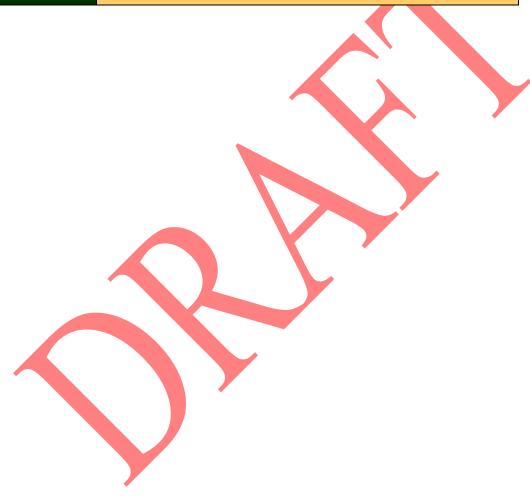
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Tables of acronyms

AIS:	Alien Invasive Species
	•
BAR:	Basic Assessment Report
CARA:	Conservation of Agricultural Resources Act
CBA:	Critical Biodiversity Area
DEDECT:	Department of Economic Development, Environment, Conservation and Tourism
DMR:	Department of Mineral Resources
EA	Environmental Authorisation
EAP:	Environmental Assessment Practitioner
EIA:	Environmental Impact Assessment
ECO	Environmental Control Officer
EMPr:	Environmental Management Program
На:	Hectares
IDP:	Integrated Development Plan
I&AP:	Interested and affected Parties
LCZ	Lower Critical Zone
MP:	Mining Permit
MPRDA	Mineral and Petroleum Resources Development Act
NDP:	National Development Plan
NEMA:	National Environmental Management Act
NEM:BA	National Environmental Management: Biodiversity Act
NEM:WA	National Environmental Management: Waste Act
NWA	National Water Act
PGM:	Platinum Group of Metals



PPP:	Public Participation Process
	Table Faracipation Frocess
READ:	Department of Rural, Environmental and Agriculture Development
SANBI:	South African National Biodiversity Institute
SAHRA:	South African Heritage Resources Agency
SCC:	Species of Conservation Concern
SFSD:	Strategic Framework for Sustainable Development
UCZ	Upper Critical Zone
WUA:	Water Use Application



PART A: SCOPE OF ASSESSMENT AND BASIC ASSESSMENT

a) Contact Person and correspondence address

i) Details of the EAPs

Table 1: Details of EAPs

Name of Practitioner	Danie Labuschagne
Contact details	Cell No.: (061) 970 2449 Email address: danie.kuhle@outlook.com
Name of Practitioner	Miané Swanepoel
Contact details	Email adress: miane.kuhle@outlook.com

ii) Expertise of the EAP

1) Qualifications of the EAPs (with evidence as Appendix 1)

Table 2: Qualifications of EAPs

Name of Practitioner	Danie Labuschagne
Qualifications	Master's Degree in Geography and Environmental Management. EAPASA: 2019/1122 Pr.Sci.Nat: 117285
Name of Practitioner	Miané Swanepoel
Qualifications	Completing Master's in Environmental Health

2) Summary of EAPs past experience

(In carrying out the Environmental Impact Assessment Procedure)

Kuhle Environmental Consult (Pty) Ltd was appointed by **Mosikwe Investments (Pty)** Ltd as an independent environmental consultant to commence with the Basic Assessment (BA) Process for a mining permit (MP) application for the mining of Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore near Witrandje on a certain portion of Portion 1 of the farm Bakhoutrantje 205, Registration Division: JP, North West Province.

Kuhle Environmental Consult (Pty) Ltd is a professional environmental consultancy company with experience in the mining and non-mining industry which provides a complete environmental management service. Our Environmental management services include environmental assessment and planning which ensures compliance with relevant environmental and mining legislation/regulations.



Kuhle Environmental Consult (Pty) Ltd benefits from the combined resources, various skills and experience in the environmental and mining field held by its team and outsourced specialists. These benefits are actively involved in undertaking environmental and specialist studies for a wide variety of projects throughout South Africa. Kuhle Environmental Consult (Pty) Ltd does not have any interest in secondary developments that may arise out of the approval of the proposed mining project.

Danie Labuschagne and Miané Swanepoel have experience in the environmental consulting and management field. Their main focus is on environmental impact assessment, management and ensuring compliance to legislation/regulations and guidelines. They are currently undertaking several Environmental Impact Assessments (EIAs) for mining and non-mining projects across South Africa.

CVs attached as Appendix 1

b) Location of the overall activity

The proposed site is located adjacent to the community of Witrandje, under the Moses Kotane Local Municipality (LM), in the North West Province. The application area is made up of a certain portion of Portion 1 of the farm Bakhoutrantje 205 (as seen in **Table 3** below) and the total area that will be affected is approximately 5 Ha.

Table 3: Farm Included in the Application Area.

Name of the proposed farm:	A certain Portion of Portion 1 of the farm Bakhoutrantje 205 JP
Application area (Ha) - Extent	5 Ha
Magisterial district:	Bojanala Platinum District Municipality
Local Municipality	Moses Kotane Local Municipality
Distance and direction from nearest town	The property is adjacent to Witrandje
21-digit Surveyor General Code for each farm portion	T0JP0000000020500001

Table 4: Farm Co-ordinates

Farm portion description	Longitude (East) (Degrees, Minutes,Seconds)	Latitude (South) (Degrees, Minutes,Seconds)
	26°53'10.287"E	25°17'49.233"S
A certain portion of 1 of the farm Bakhoutrantje 205	26°53'09.560"E	25°17'54.895"S
A certain portion of 1 of the farm bakhoutrange 200	26°53'20.883"E	25°17'49.639"S
	26°53'21.097"E	25°17'54.425"S

c) Locality Map

(show nearest town, scale not smaller than 1:250000 attached as Appendix 2).

A Locality Map is attached in **Appendix 2** and on figure 1 below.



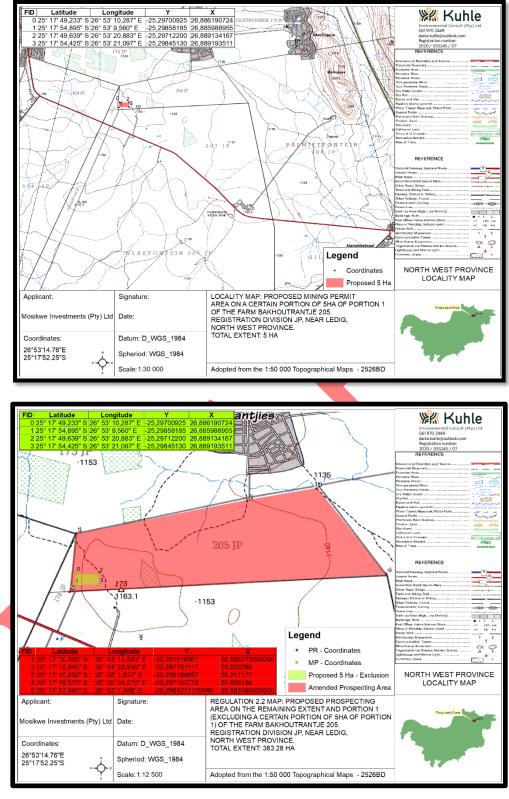


Figure 1: Locality Map



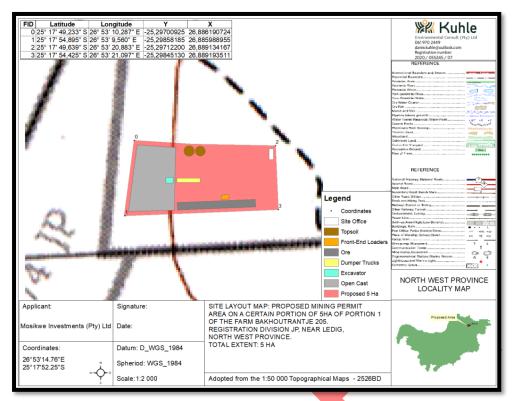


Figure 2: Site Plan Map

d) Description of the scope of the proposed overall activity

(Attach 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 Site Plan Map is attached in **Appendix 3** and on figure 3 below.



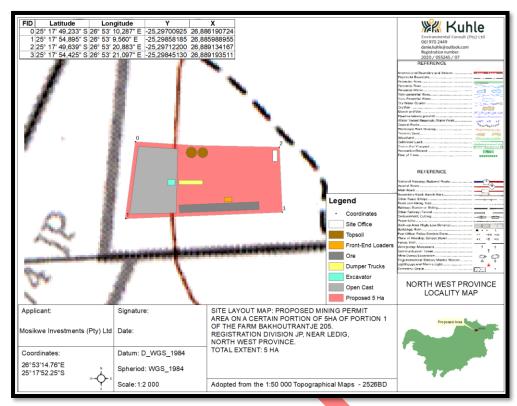


Figure 3: Site Plan Map

i) Listed and specified activities

Table 5: Listed and Specified Activities

AERIAL EXTENT OF THE ACTIVITY HA OR M ²	ACTIVITY (Mark with an X where applicable or affected).	APPLICABLE LISTING NOTICE (GNR 983, GNR 984 or GNR 985) As Amended	WASTE MANAGEMENT AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste Management Act).
THE ACTIVITY	(Mark with an X where applicable or	NOTICE (GNR 983, GNR 984 or GNR 985) As	AUTHORISATION (Indicate whether an authorisation is required in terms of the Waste
ACTIVITY	an X where applicable or	(GNR 983, GNR 984 or GNR 985) As	(Indicate whether an authorisation is required in terms of the Waste
	an X where applicable or	GNR 984 or GNR 985) As	an authorisation is required in terms of the Waste
HA OR M²	an X where applicable or	GNR 984 or GNR 985) As	an authorisation is required in terms of the Waste
			(Mark with an X)
5ha	х	GNR. 327 (As Amended)	-
	5ha	5ha X	5ha X



Clearance of indigenous vegetation to prepare the application area for mining: GNR 327, Activity 27	5ha	x	GNR. 327 (As Amended)	-
Residue stockpiles or residue deposits	5ha		NEM:WA 59 of 2008 (Category A: (15))	X

Table 6: Listed Activities

DESCRIPTION OF THE OVERALL ACTIVITY.

(Indicate Mining Right, Mining Permit, Prospecting right, Bulk Sampling, Production Right, Exploration Right, Reconnaissance permit, Technical co-operation permit, Additional listed activity)

Under NEMA:

1.Listing Notice GNR 327, Activity 27 (As Amended): "The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation." - 5 Hectares of indigenous vegetation will be cleared.

Under NEMA:

2.Listing Notice GNR 327, Activity 21 (As Amended): "Any activity including the operation of that activity which requires a MP in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including —

- (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource[,]; or [including activities for which an exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)]
- (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening or washing; but excluding the secondary processing of a mineral resource, including the smelting, beneficiation, reduction, refining, calcining or gasification of the mineral resource in which case activity 6 in Listing Notice 2 applies. MP for the mining of Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore, including associated infrastructure, structure and earthworks.





Under NEM:WA

Residue stockpiles or residue deposits

Category A: (15) The establishment or reclamation of a residue stockpile or residue deposit resulting from activities which require a prospecting right or MP, in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).

ii) Desrciptrion of the activities to be undertaken

(Describe Methodology or technology to be employed, and for a linear activity, a description of the route of the activity)

The applicant, **Mosikwe Investments (Pty) Ltd**, commissioned a BA process as required by the National Environmental Management Act (NEMA) (Act No.107 of 1998) for a MP combined with a Waste Licence Application for the mining of Chrome Ore and PGMs near Witrandje on a certain portion of Portion 1 of the farm Bakhoutrantje 205, Registration Division: JP, North West Province.

This portion is proposed due to the expected Chrome Ore and PGMs mineral resources/reserves. **Mosikwe Investments (Pty) Ltd** requires a MP in terms of the NEMA and the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA) to mine Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore within the Moses Kotane LM, North West Province (refer to a Locality Map attached in **Appendix 2**).

Methodology and technology to be employed

(These activities do not disturb the land where prospecting will take place e.g. aerial photography, desktop studies, aeromagnetic surveys, etc)

The proposed mining activities will be a combination of both non-invasive and invasive techniques. A suitable level of a feasibility study (technical and economic evaluation) will also be undertaken.

- Mining will be done by means of drilling and excavating using the single benching method.
- The mining bench will be planned at ±3-5m intervals with a catchment berm at ±6m intervals, making the effective bench stack height ±4m.
- The first ±18m bench will be mined or excavated in four half benches or interim benches of ±4m each. Thereafter the second bench of ±12m will be mined or excavated in three ±4m benches. The final bench will be ±10m and will be mined or excavated in three half benches of ±3m each.
- Typically, the first bench will be mined to the ±18m depth out after several cuts, the second bench will be mined to a depth of ±12m, and this bench will be mined out after several cuts to the final bench. The final bench will be drilled and mined to a depth of ±10m, which will be the final depth of the opencast pit.
- The beforementioned bench will be mined out, after which the opencast will be rehabilitated. It is important to note that the opencast will not be completely rehabilitated, since various geological layers will be removed and sold. Topsoil and overburden removal and mining of the Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore will be done by means of the truck and shovel method. Topsoil and overburden will be stockpiled separately.
- The rollover mining method will be implemented, whereby the topsoil and overburden from the
 first cut of the opencast mine are stockpiled at the position of the last cut. As the opencast mine
 progresses, the overburden and topsoil from each successive cut are backfilled into the void from
 the previous cut, the surface is shaped to be free draining, the topsoil should then be analysed and
 treated appropriately and then the surface shall be re-vegetated.
- At the end of the life of the opencast mine, the final void will be backfilled with the overburden
 from the final cut of the last remaining pit. It is important to note that the opencast will not be
 completely rehabilitated, since various geological layers will be removed and sold. The Chrome



Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore will be sold and transported by truck to various locations.

- Other surface infrastructure will include a power supply (generator), a workshop, a mobile container for office space.
- No blasting will occur on site. A specialist should be consulted before any blasting activities occur on site. Also, the surrounding community should be consulted with before any blasting occurs.
- Ore recovery from the opencast mining operation is expected to be between 85% and 95%. The
 process of dry crushing and screening is expected to be done, with dust control. The use of gravity
 or spiral separation will not occur on site, which means that the process will not produce any
 tailings. This method has been tested and proven successful in a similar type of opencast design
 adjacent to the application area.

List of equipment & infrastructure

List of planned equipment to be used

- 1. Excavators
- 2. Front end loaders
- 3. Articulated dump trucks (ADT)

Other activities which will be undertaken

Access roads: A new gravel road needs to be constructed and existing access roads will be used as far as possible.

Water Supply: Additional water (portable water) will be supplied, as required for dust suppression and water consumption by employees and workers.

Water uses: Water uses under the NWA: section 21 a-k of might be triggered, thus a Water Use Licence Application (WULA) might be lodged with the Department of Water & Sanitation (DWS) when needed.

Ablution: Only chemical toilets shall be permitted on site, no french drains and pits shall be used.

Blasting: No blasting will occur. A specialist must be consulted before any blasting activities are commenced. Also, the surrounding community should be consulted with before any blasting occurs.

Storage of dangerous goods: The mining activities may require limited quantities of diesel and fuel, oil and lubricants to be stored on site. However, these will be below the threshold. If any storage occurs, these goods should be placed in a bunded area one and a half times the volume of the total amount of goods to be stored.

e) Policy and legislative context

Table 7: Summary of Applicable Legislation.

identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process);	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLIY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT. E.g. In terms of the National Water Act a Water Use License has/ has not been applied for
The Constitution of South Africa (Act No. 108 of 1996)	-	



	S24(1) of the	EA being applied for
The National Environmental Management Act (Act No.	NEMA	Lit being upplied for
107 of 1998)	S28(1) of the	
107 01 1770)	NEMA	
The National Water Act (Act No. 36 of 1998)	S21 of the NWA	
Management: Air Quality Act (Act No. 39 of 2004)	S21	
The National Heritage Resources Act (Act No. 25 of 1999)	-	
Conservation of Agricultural Resources Act (Act No. 85 of 1983)	-	
Mineral and Petroleum Resources Development Act (Act No. 28 of 2002)	-	MP being applied for
National Infrastructure Plan	-	
National Forests Acts, Act 84 of 1998	Chap 3 (Part 1) 1998 S12(1) S15(1)	
Mine, Health and Safety Act 29 of 1996		
National Environmental Management: Waste Act 59 of 2008		
National Environmental Management: Biodiversity Act (NEM:BD) 10 of 2004		
Bojanala District Municipality Integrated Development Plan (IDP)	-	
Moses Kotane Local Municipality Integrated Development Plan (IDP) Review	-	



POLICY AND LEGISLATIVE CONTEX

Table 8: Description of Applicable Legislation.

Legislation/Policy	Description
South African Constitution No. 108 of 1996	The South African Constitution is the supreme law of the Republic of South Africa and includes the Bill of rights, which is the cornerstone of democracy in South Africa. It enshrines the rights of all the people in the country and affirms the democratic values of human dignity, equality and freedom. Under Section 24 it is included that everyone has the right to an environment which is not harmful to our human health or well-being; and to ensure that the environment is protected, for the benefit of current and future generations through, reasonable legislative and other measures that: (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. The project will ensure that the environment is not harmful to anyone during construction and operational as everyone has the right to a healthy environment.
Strategic Framework for Sustainable Development (SFSD) in South Africa	A development of a broad framework for sustainable development was initiated to provide an overarching and guiding National Sustainable Development Strategy (NSDS). The Draft Strategic Framework for Sustainable Development (SFSD) in South Africa (September 2006) is a goal orientated policy framework aimed at meeting the Millennium Development Goals (MDG). Biodiversity has been identified as one of the main crosscutting trends in the SFSD. The lack



	of sustainable practices in managing natural resources, climate change effects, loss of habitat and poor land management practices were raised as the main threats to biodiversity.
National Environmental Management Act (NEMA) No. 107 of 1998	The NEMA is an important piece of legislation, which effectively promotes sustainable development and entrenches principles such as the 'precautionary approach', 'polluter pays' principle, and requires responsibility for impacts to be taken throughout the life cycle of a project. The NEMA provides the legislative backing (including Environmental Impact Assessment Regulations) for regulating development and ensuring that a risk-averse and cautious approach is taken when making decisions about planned activities. The project triggers activities listed in the 2014 EIA NEMA regulations (As Amended) and the activities should be approved prior to construction.
2014 Environmental Impact Assessment (EIA) regulations (As Amended)	These purpose of these Regulations s is to regulate the procedure and criteria as contemplated in Chapter 5 of the Act relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto. The project is being applied for.
National Environmental Management: Biodiversity Act (NEM:BA) No. 10 of 2004	The purpose of this act is to ensure the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith. This Act lists threatened and/or protected



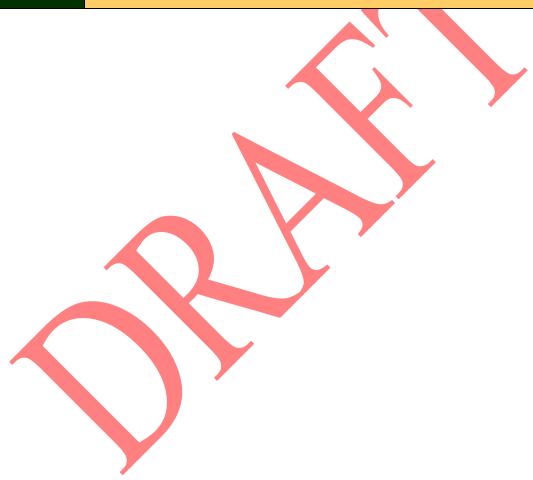
	ecosystems, in four categories: Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Protected
	(Government Gazette, 2011). The main purpose of this listing is to ensure that the rate of ecosystem and species extinction
	is reduced and that the further degradation and loss of structure, function and composition of threatened ecosystems is
	prevented.
Conservation of Agricultural Resources Act (CARA) No. 43 of 1967	The main aim of this Act is to manage the over-utilization of South Africa's natural agricultural resources, and to promote the conservation of soil and water resources as well as natural vegetation. This Act has categorised a large number of invasive plants together with associated obligations of the land owner, including the requirement to remove categorised invasive plants and taking measures to prevent further spread of alien plants.
	The purposes of this Act are to-
	(a) promote the sustainable management and development of forests for the benefit of all;
	(b) create the conditions necessary to restructure forestry in State forests;
	(c) provide special measures for the protection of certain forests and trees;
National Forest Act (NFA) No. 84 of 1998	(d) promote the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes;
	(e) promote community forestry;
	(f) promote greater participation in all aspects of forestry and the forest products industry by persons disadvantaged by unfair discrimination.



	Prohibition on destruction of trees in natural forests	
	(1) No person may -	
	(a) cut, disturb, damage or destroy any indigenous tree in a natural forest; or	
	(b) possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any tree, or any forest product derived from a tree contemplated in paragraph (a), except in terms of-	
	(i) a licence issued under subsection (4) or section 23; or	
	(ii) an exemption from the provisions of this subsection published by the Minister in the <i>Gazette</i> on the advice of the Council.	
National Environmental Management: Protected Areas Act (NEM:PA) No. 57 of 2003	The Act allows for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national register of all national, provincial and local protected areas; for the management of those areas in accordance with national norms and standards; for intergovernmental co-operation and public consultation in matters concerning protected areas; for the continued existence, governance and functions of South African National Parks; and for matters in connection therewith.	
Mine, Health and Safety Act (MHSA) No. 29 of 1996	For the purpose of executing the statutory mandate of the Department Mineral Resources and Energy to safeguard the health and safety aspect of mine employees and communities affected by mining operations.	
National Environmental Management: Waste Act (NEM:WA) No. 59 of 2008	The Act reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and	



standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste management activities; to provide for the remediation of contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith.





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

For more than a 100 years mining has played a very important vital role in the economy of South Africa. The mining industry contributed approx. R286 billion towards South African Gross Domestic Product (GDP) in 2015, representing approx. 7.1% of the overall GDP. Mining is known to be significant contributor when it comes to employment in South Africa, with approx. 457 698 individuals being directly employed by the sector in the year of 2015. This represents just over 3% of all employed nationally. (Chamber of Mines, South Africa, 17:2016)

This proposed activity aligns with the National Development Plan (NDP) of 2030 which strives to create better lives for South African citizens. This plan places great emphasis on growing an inclusive economy, improving the capabilities of the state together with leaders to ultimately solve complex problems. One aspect of this plan focuses on the importance of employment to generate poverty alleviation, restorations of livelihood and to reduce inequality in South Africa. This plan sets out the goal to reduce unemployment from 24,9% (2012) to 6% by 2030.

The establishment of the Mosikwe mine means that employment opportunities will be created and also the social infrastructure will be improved which aligns with the NDP. As well as the establishment of any future mine would provide job opportunities for unskilled, and potentially skilled, labour from the surrounding areas contributing further to the NDP. During the proposed activities, local services such as a drilling company and excavator services will be utilised as far as possible.

This is further substantiated by the fact that According to the Chamber of mines: Facts and Figures, 2016: Employment figures for chrome mining was 15,514 in 2016 (Chamber of Mines, South Africa, 35:2017)

Chrome is known for its high corrosion resistance and hardness. It is essential in the production of stainless steel, which accounts for 85% of its commercial use. Around 70% of the world's chrome resources can be found in South Africa. South Africa is also the largest producer of chrome globally. (Chamber of Mines, South Africa, 16:2016)

Prospecting and mining activities for Chrome ore and PGM takes place in the vicinity of the proposed area which suggests the possibility of encountering further chrome deposits.

The North West Province is known as a main supplier of chrome ore to the international market.

g) Motivation for the overall perferred site activities and technology alternative

(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.)

The specific site location is adjacent to the Witrandje community. Which will ensure additional job opportunities and prevent illegal mining activities.

The mining of Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore is one of the ideal preferred activities for the proposed site and the other being livestock farming.

Surrounding the proposed area of Witrandje there are numerous legal and illegal mining activities.



The applicant believes that especially Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore are present on the proposed area

The proposed mine will provide additional job opportunities to the surrounding Witrandje community. As of yet no issues have been raised by I&APs.

The technologies proposed, which includes open cast mining with an excavator, have been chosen based on the long-term success in small scale mining history. Furthermore, this method of mining is considered to have low environmental impact, when managed correctly. The mining activities proposed is dependent on the preceding phase as previously discussed, thus no alternatives are indicated or considered, but rather a phased approach of trusted mining techniques. Technological alternatives are therefore also not assessed further.

h) Full description of the process followed to reach the proposed development footprint within the site

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

i) Details of the development footprint alternatives considered;
 With reference to the site plan as provided above and the location of the individual activities on site, provide details of the alternatives considered with respect to:

The guidelines on 'Assessment of alternatives and impacts', by the Department of Environmental Affairs and Tourism (2006), proposed that four types of alternatives of namely, the no-go, site, activity, and technology alternatives should be considered.

However, it is important to note that it is explicitly referred to by the regulation and guidelines that only 'feasible' and 'reasonable' alternatives should be considered. The guideline further acknowledges that the consideration of alternatives is an iterative process of feedback between the applicant, the EAP and I&APs, which in some instances results in a single preferred project proposal. The sections below will explore each type of alternative concerned.

a) The property on which or location where it is proposed to undertake the activity;

It is evident from personal geological maps that Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore occur on this farm portion. Therefore, the applicant would like to commence with their mining activities on the proposed farm potion near the community of Witrandje..

The proposed development falls within Land in Class IV (4), which have very severe limitations that restrict the choice of plants, require very careful management, or both. It may be used for cultivated crops, but more careful management is required than for Class III (3) and conservation practices are more difficult to apply and maintain. Restrictions to land use are greater than those in Class III and the choice of plants is more limited. (AGIS, 2016). As seen in the Land capability map, **figure 4**, and attached as **Appendix 4**).



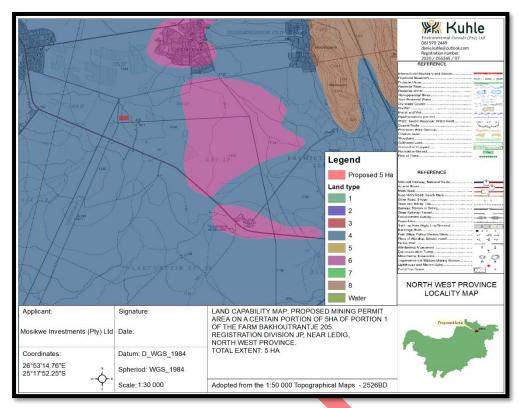


Figure 4: Land Capability Map

b) The type of activity to be undertaken;

The EIA process has to consider if the proposed development of a Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore mine would be the best land use option for the proposed site area.

<u>Mining perspective</u> – it is evident from personal geological maps that Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore occur on this farm portion. Therefore, the applicant would like to commence with their proposed mining activities.

<u>Agriculture perspective</u> – Due to the site being Class IV - arable, it may be used for cultivated crops, but more careful management is required than for Class III and conservation practices are more difficult to apply and maintain.

Restrictions to land use are greater than those in Class III and the choice of plants is, thus more limited.

It may be well suited to only two or three types of the common crops or the produced harvest may be lower concerning inputs over a long period.

In sub-humid and semiarid areas, land in Class IV may produce good yields of adapted cultivated crops during years of above-average rainfall and failures during years of below-average rainfall. (AGIS, 2016)

It is advised that Mosikwe Investments (Pty) Ltd should take precautionary measures that will promote conservation of the natural resources, to ensure that food security/food production of the surrounding community is not affected by any of the planned mining activities. Therefore, the applicant should note that it is important to ensure that the negative impact on agricultural resources is minimized for sustainable utilization.



It is advised that the applicant should appoint an ECO to ensure that continuous monitoring takes place of the disturbed area and to ensure conservation of the natural resources.

c) The design or layout of the activity;

Discussion between the EAP and the applicant were held throughout the planning and design phase to discuss the design and layout alternatives.

The proposed mining activity's site layout is created in such a way to ensure the avoidance of potential identified sensitive areas and to avoid any unnecessary clearing of any natural indigenous vegetation **Appendix 3**.

d) The technology to be used in the activity

The proposed method of mining (opencast mining using an excavator) is proven to be a successful mining method for Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore, especially for this type of small scale mining. This mining method is also considered to have a low environmental impact, if managed correctly.

However, there are a number of operational alternatives when it comes to opencast mining e.g.:

- The removal of topsoil, overburden and sometimes ore can be done by employing draglines, bucket wheel excavators or bowl scrapers.
- In some opencast operations, the ore is crushed in the pit and transported to a processing plant by utilizing conveyor belts or trains.
- Sometimes opencast mines are not backfilled. Instead, the void is allowed to fill with water, while the overburden and waste rock dumps and the tailings dams are re-vegetated.

No permanent services in terms of water supply, electricity, or sewerage services are not required.

The lifetime of the project is expected to be approximately 3 years. During this time **Mosikwe Investments (Pty) Ltd** will undertake a detailed assessment of the viability of mining, which could increase the life of mine.

e) The operational aspects of the activity;

The operational aspects of the proposed Mosikwe Mine involve the mining of Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore from the proposed 5 Ha area. This is the preferred operational alternative assessed in this BAR. Opencast mining is the preferred mining method for these type of materials and for this proposed small scale mining operation (as discussed in Section "d" seen above). It is important to note that only 1 Ha of surface area will be disturbed at any one time of the project, the lifetime of the project is approximately 3 years.

f) the option of not implementing the activity.

Should the proposed activity not proceed, the site will remain unchanged and illegal mining will continue to rise in the surrounding environment.

Should the no-go alternative be implemented, the following disadvantages will be associated

- 1. There will be a loss of direct and indirect opportunities for employment in the surrounding community.
- 2. Unutilised mineral resources will be lost which will lead to no additional income to the surrounding community.
- 3. This will ultimately cause a negative impact on the South Africa economy for the mining industry contributes greatly to our local economy.
- 4. Illigal mining activities will continue to rise in the area of Witrandje.



ii) Details of the Public Participation Process Followed

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

The Public Participation Process (PPP) according to Chapter 6 of the NEMA guidelines include the following processes.

- 1. Identification of the key Interested and Affected Parties ("I&APs") such as the affected and adjacent landowners and other stakeholders which includes organs of state and other parties.
- 2. The placement of site notices on farms, and within a 100m radius
- 3. The formal and direct notification of the application to key Interested and Affected Parties (all adjacent landowners) and other stakeholders
- 4. Consultation and correspondence with I&AP's and Stakeholders.
- 5. Public meetings at a central accessible location identified by I&AP and the addressing of their comments they might have.
- 6. Newspaper advertisements.

1.Identification of key Interested and Affected Parties

The principal objective of public participation is to inform and enrich decision-making. This is also a key phase in this Environmental Impact Assessment ("EIA") process.

Landowners (affected and adjacent) were identified through a search conducted via online search engines accessing the Title Deed office database. In addition to landowners, other relevant organisations were identified and notified of the application. This includes Municipal and Governmental Departments with jurisdiction in the project area and Non-Governmental Organisations (NGOs) with an interest. I&AP's representing the following sectors of society were identified:

- National, provincial and local government;
- Agriculture, including local landowners;
- Community Based Organisations
- Non-Governmental Organisations;
- Department of Water and Sanitation
- Industry and Mining;
- Other stakeholders

2. Placement of site notices

Numerous site notices were placed (as anticipated on the coordinates below) on site in English on **24 March 2021** to inform the surrounding communities and immediately adjacent landowners of the proposed development. I&APs were given the opportunity to raise comments within thirty (30) days of placing the site notices. Photographic evidence of the site notices are included in **Appendix 5**. Below are the coordinates where the site notices were placed.





Figure 5: Site Notice Co-ordinates

3. Formal and Direct notification and circulation of BAR to identified I&APs

The Identified I&APs and key stakeholders representing various Departments, were directly informed of the proposed mining development and the availability of the **BA Report** via registered post and emails on **25 March 2021** and were requested to submit comments by **26 April 2021**. For a complete list of stakeholder details and for proof of registered post see **Appendix 5**.

I&APs were expected to provide their inputs and comments within 30 days after receipt of the notification or BA Report. When the comment period ended, all comments received were included in the final BA Report & EMP Report.

Direct notification of surrounding landowners and occupiers

Notices and the availability of the BA Report were also provided to all the identified surrounding landowners and land occupiers on 25 March 2021. The identified surrounding landowners were given the opportunity to raise comments by 26 April 2021. For a list of surrounding landowners see Appendix 5.

Table 9: Summary of Stakeholders, Landowners and Surrounding Landowners.

Identified Stakeholders	Identified Landowners / Occupier	Identified Surrounding Landowner / Occupier
Department of Agriculture and Rural Development (DARD)	National Government Of The Republic Of South Africa Belfast Land Development Co (Pty) Ltd	Republic of Bophuthatswana
Department of Economic Development, Environment, Conservation and Tourism (DEDECT)		National Government of the Republic of South Africa
The Department of Human Settlements, Water & Sanitation (DHSWS)		Vlakfontein Nickel (Pty) Ltd



Identified Stakeholders	Identified Landowners / Occupier	Identified Surrounding Landowner/ Occupier
Provincial Heritage Resources Agency (PHRA) North West		Bapolomiti Communal Prop Assoc
Department of Community Safety and Transport Management		Minister in Trust for Batthaleroa Tribe
Department of Public Works, Roads and Transport in NW (DPWRT)		
Department of Agriculture Forestry, and Fisheries (DAFF)		
Department of Environment, Forestry, and Fisheries (DEFF)		
Department of Agriculture, Land Reform and Rural development		
Bojanala District Municipality		
Municipal councilor of the ward & Municipal Manager for Moses Kotane LM		
North West Department: Economy and Enterprise Development		
South African Heritage Resources Agency (SAHRA)		
South African National Roads Agency (SANRAL)		
WESSA (National Office)		
Eskom		
Transnet		

4. Public meetings at a central accessible location identified by I&AP and the addressing of their comments they might have.

1. Public Meeting

The Public Meeting was scheduled for **21 April 2021 at 13:00am-14:00pm** at the Witrandjie Tribal Village Hall in the village of Witrandjie. However, this meeting was rescheduled by the Traditional Council and took place at **16:00pm** at one of the Tribal Offices.

The public meeting was an opportunity to provide information regarding the proposed development and to provide I&APs with an opportunity to raise any issues and provide comments regarding the proposed project. The identified key stakeholders and surrounding landowners were also directly informed of the public meeting via registered post **25 March 2021**.

Please note that the Stakeholders & Interested and Affected Parties were informed about the proposed project with the use of press advertisement, emails and registered letters.

2. <u>Issues Raised by I&APs</u>

The comments received are captured in the comments and response table/form (See **Appendix 5** for comments and response form).



6. Newspaper Notice

A notice was placed in English in the local newspaper (Rustenburg Herald) on 26 March 2021 (see Appendix 5) notifying the public of the proposed mining application and its associated EIA process and to allow Interested and Affected Parties (I&APs) to register with, and submit their comments to Kuhle Environmental Consult (Pty) Ltd. I&APs were given the opportunity to raise comments and concerns within 30 days of the notice.



iii) Summary of the issues raised by the I&APS

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

Table 10: Summary of the Issues Raised by I&APs

INTERESTED AND A List the names of persons co Mark with an X where those were in fact consulted.	nsulted in this column, and	ISSUES RAISED	EAPS RESPONSE TO ISSUES AS MANDATED BY THE APPLICANT	SECTION AND PARAGRAPH REFERENCE IN THIS REPORT WHERE THE ISSUE AND OR
Organisation	Owner & Contact person			RESPONSE WHERE INCORPORATED
Land Owner				
Bakhoutrantjie 1/205	Belfast Land Development Co (Pty) Ltd	None received to date		
Bakhoutrantjie 0/205	National Government of South Africa	None received to date		
Surrounding Land Owners				
Bultfontein RE/204 Vogelstruisnek 6/173 Tweelaagte 4/175	Republic of Bophuthatswana	None received to date		
Kleingenoeg RE/174 Vlakfontein 29/207 Vlakfontein 56/207 Vlakfontein 57/207 Vlakfontein 58/207	National Government of the Republic of South Africa	None received to date		
Vlakfontein 18/207	Vlakfontein Nickel (Pty) Ltd	None received to date		
Palmietfontein RE/5/208	Bapolomiti Communal Prop Assoc	None received to date		
Tweelaagte 2/175	Minister in Trust for Batthaleroa Tribe	None received to date		
The Municipality in which ju	risdiction the development is	located		

Moses Kotane LM	Municipal Manager: Mr Valtein Mokopane Letsoalo	None received to date		
Municipal councilor of the w	ard in which the site is locate	ed .		
Moses Kotane LM	Ward 30 Councillor	None received to date		
Organs of state having juris	diction			
Department of Economic, Development, Environment, Conservation and Tourism (DEDECT)	Ouma Skosana	In numerous emails, the Department requested that Draft documents should be submitted to their EIA and Waste Departments.		
Department Mineral Resources & Energy	Ms. Matodzi Ramboho	In an email dated 04/03/2021, an acceptance letter was received. In an email dated 15/06/2021, the Department accepted the timeframe extension.	In an email dated 17/05/2021, the EAP requested timeframe extension. In an email dated 14/06/2021, the EAP followed-up on the email sent.	
The Department of Human Settlements, Water & Sanitation (DHSWS)	Mr K. Mudau Mr Chadwick Lobakeng Dr Tseliso Ntili	None received to date		
NW Agriculture and Rural Development (DARD)	Ms. Bonolo Mohlakoana	None received to date		
Provincial Heritage Resources Agency (PHRA) North West	Mr. Motlhabane Mosiane	None received to date		
Department of Public Works, Roads and Transport in NW (DPWRT)	HOD: Mr P Mothupi	In an email dated 25/03/2021, it is stated that the request for comments is acknowledged. In a letter dated 26/03/2021, the Department advices that the EAP should liase with the Department of Agriculture, Land Reform and Rural Development. In an email and letter dated 23 and 26/04/2021, it is stated that the Department has no objection.		

Department of Agriculture, Forestry, and Fisheries (DAFF)	Mr. Maurice Vukeya & Mrs Mpho Gumula	None received to date		
North West Department: Economy and Enterprise Development	HOD Mr L Tshikovhi	None received to date		
Department of Agriculture, Land Reform and Rural Development	Land Claims Commissioner: Regional Offices, Chief Director: Mr Lengane Bogatsu	In a letter attached to an email dated 29/03/2021, it is stated that the request for comments is acknowledged. In a letter attached to an email dated 01/04/2021, it is stated that no land claim exists.	In an email dated 30/03/2021, the EAP provided the Department with the deed searches that are within his possession.	
South African Heritage	Ms. Natasha Higgitt	None received to date		
Resources Agency (SAHRA)				
South African National Roads Agency (SANRAL)	Ms. Nicole Abrahams	In an email dated 16/04/2021, the enquiry from the EAP was acknowledged.		
Other-				
Bojanala District	Municipal Manager: Mr P Shikwane	None received to date		
Municipality	Secretary: Tsholofelo B Dikgole			
WESSA (National Office)	To whom it may concern	None received to date		
North West Parks and Tourism Board	Mr. Wilfred Seitlhamo	Acknowledged the request for comments email on 16/04/2021.		
Eskom	Vuyokazi Dlulane Katlego Hungwane	None received to date		
	Transnet Ltd	None received to date		
Transnet	Norman Papenfus Real Estate Management			



iv) The environmental attributes associated with the site

1) Baseline Environment

The baseline environment is described with specific reference to geotechnical conditions, ecological habitat and landscape features, Soil, land capability and agricultural potential, climate and the visual landscape.

a) Type of environment affected by the proposed activity

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

Geographical Environment

The proposed site falls within the Moses Kwatane LM, located in the North West Province of South Africa. The proposed site is 5 Ha in extent and is adjacent to Mohobieskraal.

Physical Environment

A. Geology and Soils

Bushveld Complex

The 1:250 000 geological map compiled by the Council for Geoscience (2526 Rustenburg) shows that the rocks of the Bushveld complex exist on the proposed prospecting site in green (VI & Vcm) comprising mainly of pyroxenites, Norite and Anorthosite.

The Bushveld Complex is the world's largest layered mafic intrusion, covering an area of about 67 000km², comprising of a broad compositional range of rock types, from ultrabasic to acid represented by the three lithological subdivisions: Rustenburg Layered Suite, Lebowa Granite Suite and the Rashoop Granophyre Suite. The Rustenburg Layered Suite is subdivided into the marginal, lower, critical, main and upper zones. The Critical Zone is characterised by a regular rhythmic layering of cumulus chromitite within pyroxenites, anorthosites, norites and olive-rich rocks.

The Critical Zone virtually hosts all the economic mineralisation encountered in the Bushveld Complex. It also contains a substantial proportion of the world's chromite and PGEs reserves. Several major Chromitite seams (at least 14) occur within the Critical Zone of the Bushveld Complex and these are subdivided into three groups termed the Lower Group (LG1 to LG7), the Middle Group (MGO to MG4), and the Upper Group (UG1 to UG3).

The Critical Zone can be subdivided into two sub-zones: 1) Lower and 2) the Upper Critical zone. These zones display excellent layering from chromitite, pyroxenite, and norite to anorthosite, in what is termed cyclic units. Chromitites are restricted to the Critical zone. Two stratigraphically delineated groups contain these chromitite layers and they are listed below.

- 1) Lower Critical Zone (LCZ): ca 800m thick layers of feldspathic pyroxenite and chromite with minor olivine, It can also contain up to seven layers of chromitite (LG1-LG7) which can reach up to 1m in thickness as well as MG 1-2 chromitites.
- 2) Upper Critical Zone (UCZ): Comprises of chromitite, pyroxenite, norite and anorthosite. Up to 7 cyclic units are recognized. Near the top of the UCZ the MG 3-4 occur as well as two thick chromitite layers namely the UG1 and UG2 (whereas the UG3 is restricted to the Eastern Bushveld). The Merensky cyclic unit and the Bastard cyclic unit are the top 2 cyclic units in the UCZ. The boundary between the LCZ and the UCZ is at the base of the MG2 chromitite layer where plagioclase- 5 rich rocks manifest. Between the MG2 and MG3 plagioclase becomes cumulus as opposed to inter-cumulus.

Historic and active mining operations in the vicinity of the study area exist with current data indicating the occurrence of Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore in this area.

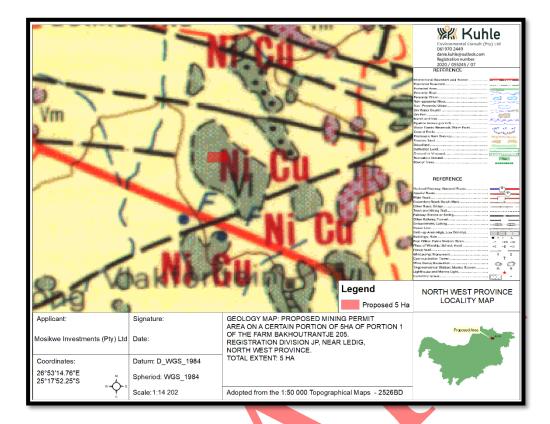


Figure 6: Geology Map

The area is characterised by sediments of mostly shale with less quartzite and conglomerate. Carbonates, volcanic rock, breccias and diamictites also occur. Bronzite, harzburgite, gabbro and norite are also found in the area. Soils are mostly deep, redyellow, apedal and freely drained with high base status and with some vertic or melanic clays. The land types of the area are mainly Ae and Ea (Mucina & Rutherford, 2006).

The following soil types are found on the farms:

- Black and red, strongly structured clayey soils with high base status (association of Vertisols, Phaoezems, Kastanozems and Nitisols. In addition one or more Leptosols, Calcisols and Cambisols may be present).

B. Climate and water availability

Rustenburg normally receives about 513mm of rain per year, with most rainfall occurring mainly during mid-summer. The chart below (lower left) shows the average rainfall values for Rustenburg per month. It receives the lowest rainfall (0mm) in June and the highest (101mm) in January. The monthly distribution of average daily maximum temperatures (centre chart below) shows that the average midday temperatures for Rustenburg range from 19.3°C in June to 29.4°C in January. The region is the coldest during July when the mercury drops to 1.7°C on average during the night. Consult the chart below (lower right) for an indication of the monthly variation of average minimum daily temperatures. (SAExplorer, 2014).

C. Wetlands and Rivers

Wetland Areas

Wetlands are defined as land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil (from the South African National Water Act; Act No. 36 of 1998).

The maps below illustrate all the possible wetland areas on the proposed portion. The proposed 5 Ha area consists of no wetlands.

A Wetland Map is attached in **Appendix 6** and on figure 7 below.

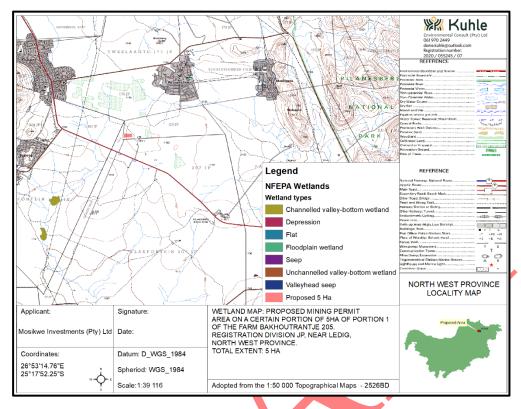


Figure 7: Wetland Types Present on Site

River Ecosystem Status

No major river occurs on or adjacent to the proposed application area. Only tributaries occur in the vicinity.

A Rivers Map is attached in **Appendix 6** and on figure 8 below.

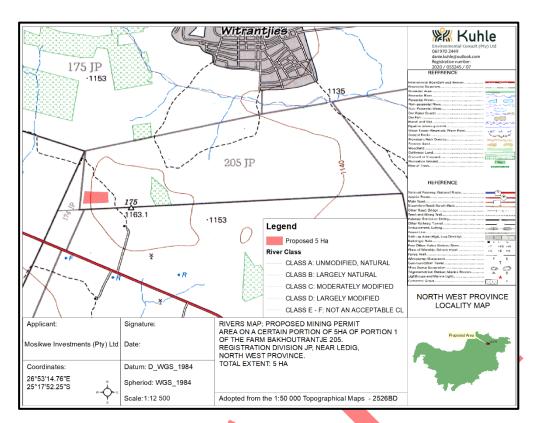


Figure 8: River Ecosystem Status

D. Natural Vegetation and floristics

The proposed mining area is found within vegetation unit SVcb 3, which is known as the Zeerust Thornveld. The Zeerust Thornveld is part of the Central Bushveld Bioregion, which is a sub-bioregion for the Savanna Biome.

According to Mucina and Rutherford (2006:460), the Zeerust Thornveld covers the North-West Province: Extends along the plains from the Lobatsi River in the west via Zeerust, Groot Marico and Mabaalstad to the flats between the Pilansberg and western end of the Magaliesberg in the east (including the valley of the lower Selons River). Altitude 1 000-1 250 m.

The vegetation & landscape features can be described as Deciduous, open to dense short thorny woodland, dominated by *Acacia* species with herbaceous layer of mainly grasses on deep, high base-status and some clay soils on plains and lowlands, also between rocky ridges of SVcb 4 Dwarsberg-Swartruggens Mountain Bushveld (Mucina and Rutherford, 2006:461).

Important Taxa: Tall Trees: Acacia burkei (d), A. erioloba (d). Small Trees: Acacia mellifera subsp. detinens (d), A. nilotica (d), A. tortilis subsp. heteracantha (d), Rhus lancea (d), Acacia fleckii, Peltophorum africanum, Terminalia sericea. Tall Shrubs: Diospyros lycioides subsp. lycioides, Grewia flava, Mystroxylon aethiopicum subsp. burkeanum. Low Shrubs: Agathisanthemum bojeri, Chaetacanthus costatus, Clerodendrum ternatum, Indigofera filipes, Rhus grandidens, Sida chrysantha, Stylosanthes fruticosa. Graminoids: Eragrostis lehmanniana (d), Panicum maximum (d), Aristida congesta, Cymbopogon pospischilii. Herbs: Blepharis integrifolia, Chamaecrista absus, C. mimosoides, Cleome maculata, Dicoma anomala, Kyphocarpa angustifolia, Limeum viscosum, Lophiocarpus tenuissimus.

Endemic Taxon: Low Shrub: Rhus maricoana

Conservation: Least threatened. Target 19%. Less than 4% statutorily conserved, spread between four reserves including the Pienaar and Marico Bushveld Nature Reserves. Some 16% transformed mainly by cultivation, with some urban or built-up. A few areas with scattered plants of the alien *Cereus jamacaru* and several other AIS very scattered elsewhere. Erosion is mainly very low to low.

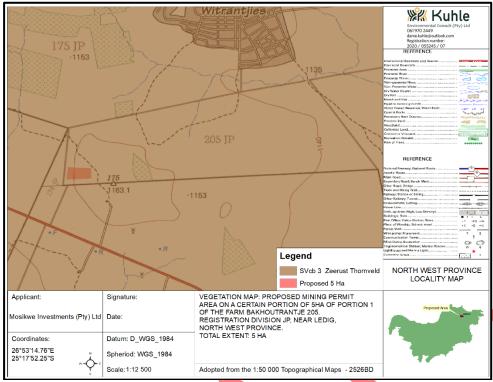


Figure 9: Vegetation Unit Map

Protected Areas

According to the data for protected areas from SANBI, the proposed mining area does not fall within a Formally Protected Area, nor a Threatened Ecosystem. However, the Pilanesberg Game Reserve is found a few kilometres away. A Protected Areas Map is attached in **Appendix 6** and on figure 10 below.

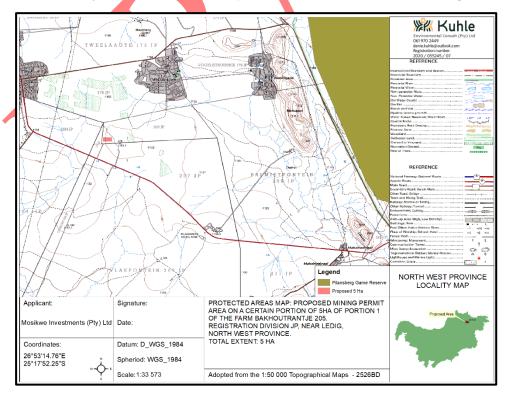


Figure 10: Protected Area Map

Protected tree species

Protected tree species trees may be found in the proposed area. Such trees are protected under the National Forests Act No. 84 of 1998 are listed in Table 4.9. In terms of a part of section 51(1) of Act No. 84 of 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree, except under a license granted by the Minister.

In cases where the trees will need to be cut, disturbed, damaged or destroyed or possessed, collected, removed, transported, exported, purchased, sold or donated a flora permit will be applied for.

Critical Biodiversity Area

The Department of Rural, Environmental and Agriculture Development (READ) defines CBA and Ecological Support Areas as follows:

CBA are terrestrial and aquatic areas of the landscape that need to be maintained in a natural or nearnatural state to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. In other words, if these areas are not maintained in a natural or near-natural state then biodiversity targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses.

Ecological Support Areas (ESAs) are terrestrial and aquatic areas that are not essential for meeting biodiversity representation targets (thresholds), but which nevertheless play an important role in supporting the ecological functioning of CBA and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree or extent of the restriction on land use and resource use in these areas may be lower than that recommended for CBAs.

According to the data for CBAs, the proposed area falls within CBA 2. A CBA Map is attached in **Appendix** 6 and on figure 11 below.

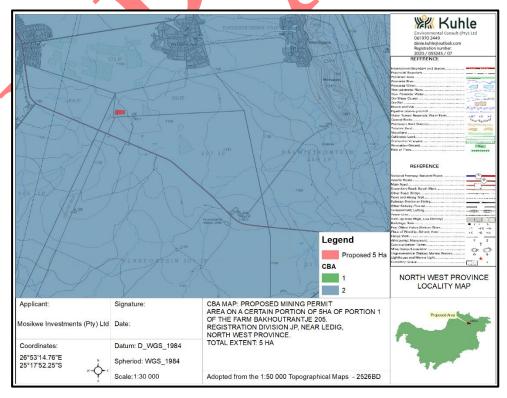


Figure 11: Critical Biodiversity Areas Map

Sensitive area for Mine

The Mining of Biodiversity Guidelines, biodiversity priority areas sensitive to the impacts of mining are categorized into four categories (please see the table 9 below).

Table 11: 4 Categories of biodiversity guidelines

Category	Category Description
A	Legally protected Areas
В	Highest Biodiversity Importance Areas
С	High Biodiversity Importance Areas
D	Moderate Biodiversity Importance Areas

The purpose of this guide is to assist in identifying and categorizing the biodiversity priority areas that are sensitive to the impacts associated with mining activities, in order to support mainstreaming of biodiversity issues in decision making in the mining sector.

According to the map and mine guide map, the proposed 5 Ha mining area does not fall within any category.

A Mining Guide Map is attached in **Appendix 6** and on figure 12 below.

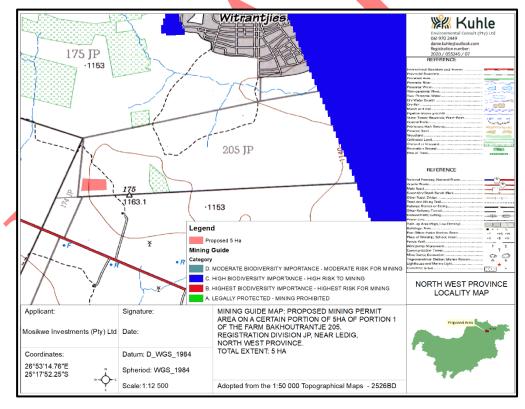


Figure 12: Sensitive Area for Mine Map

E. Cultural and Heritage Environment

According to the Phase 1: Heritage Impact Assessment (2019) (**Appendix 9**), the following sites, features or objects of cultural significance were identified on the whole farm of Bakhoutrandjes 205 JP:

- 7.2.1 7.2.5: A number of similar type of stone walled sites dating to the Late Iron Age (from c. 1600 to 1800), that can be linked to Tswana (Tlokwa) occupation of the larger region. It is probably a continuation of the main settlements known as Marathodi, located some distance to the south on the farm Vlakfontein. It seems as if the sites are concentrated on outcrops forming low ridges. These locations were chosen as it supplied a ready source of building material (stone), but it is also away from the turf soil which is to unstable to build on.
- 7.3.1: Informal burial site with approximately seven graves. These graves probably originated from people that stayed in the larger region as farm labourers. The graves seem to be very old and has not been visited or cleared of vegetation in a very long time. It is difficult to establish a definite number as all of them are marked only with stone cairns and is currently overgrown with shrubs and aloes.

However, it is important to note that the above-mentioned identified sites do not occur within the 5Ha Mining Permit Area applied for.

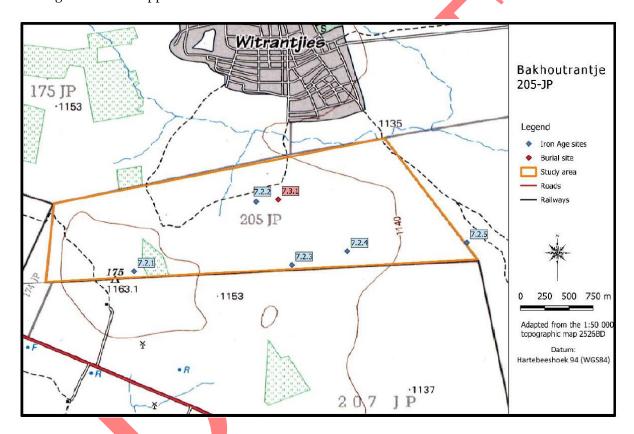


Figure 13: Location of the identified heritage sites in the study region

F. Socio-economic profile

Moses Kotane LM is part of Bojanala Platinum District Municipality.

MDB code: NW375

Description: The Moses Kotane LM is a Category B municipality located within the Bojanala District in the North West Province. It is the largest of the five municipalities that make up the district, accounting for a third of its geographical area. It was established after redemarcation of municipal boundaries and subsequent municipal elections in 2000. The municipality has a predominantly black african population, with fewer indian, coloured and white groups, mostly residing in Sun City residence and Mogwase Unit 2. The type of economy is owed to its location within the major tourism and mining belt of the North West Province, Pilanesberg and Sun City.

Area: 5 726km²

Cities/Towns: Madikwe

Main Economic Sectors: Tourism, manufacturing, agriculture, mining

b) Description of the current land uses.

The land uses currently on this site and its surroundings include:

- Degraded areas
- Natural area
- Cultivation areas

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

No infrastructure is found on the proposed 5Ha. However, the following are found in close proximity:

- Major road
- A community (Witrandje)
- Major powerline
- Farm kraals

d) Environmental and current land use map.

(Show all environmental, and current land use features).

A Land Cover Map is attached in **Appendix 6** and on figure 14 below

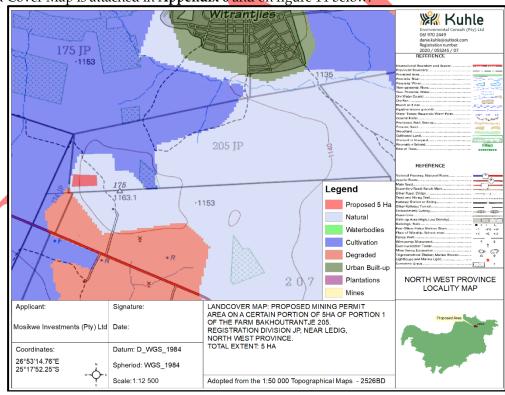


Figure 14: Land Cover Map

G. Topography

The topography of the area applied for is relatively flat.

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

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

- (aa) can be reversed;
- (bb) may cause irreplaceable loss of resources; and
- (cc) can be avoided, managed or mitigated;

Take note: The assessment on the significance of the potential identified impacts are subject to change, as specialist studies still needs to be conducted and assessment of impacts are dependent on their findings.

The significance of the potential impacts

The sections below present the outcome of the significance rating exercise. The outcome suggests that the proposed mining activities will have an impact on the natural vegetation and the agricultural activities, even if properly mitigated and managed.



Table 12: Significance of Potential Impacts and Mitigation

POTENTIAL ASPECT AND/OR IMPACT	P	EFO	RF	SIGNIFICANCE	MITIGATION AND MANAGEMENT MEASURES	AFTER	SIGNIFICANCE
TOTENTIAL ASTECT AND ON INTACT			TION		MITIGATION AND MANAGEMENT MEASURES	MITIGATION	RATING (AFTER
	E X T E N T	D U R A T	I F N F T C E F N A SI E T I Y I	MITIGATION)		E D I P X U N R T R T O E A E B N T N A T I SI B O T I N Y L	MITIGATION)
			J		CONSTRUCTION PHASE	1	
Traffic Impacts					CONTROCTION TIMES		
The movement of heavy vehicles during the clearance of vegetation and topsoil has the potential to damage local farm roads and create dust and safety impacts for other road users in the area. Traffic on the road is generally low, thus the impact would not be significant.		3	2 3	Negative Medium (-16)	 The potential impacts associated with heavy vehicles can be effectively mitigated. The mitigation measures include: The contractor must ensure that damage caused by construction on the off gravel roads. The costs associated with the repair must be borne by the contractor; Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers; All vehicles must be road-worthy and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits. Also refer to the EMPr. For mitigation measures related to traffic. However, notice of construction work should be placed with speed limit of 30 km/h 	1 3 1 1	Negative Low (-5)
Soil Erosion and Surface runoff							
Considering the slope angle, parental rock, depositional environment and grading of the upper soils inspected on site, an intermediate to high erodibility is assigned to the site; Loss of soil resources as a result of soil stripping of the construction footprint; Sterilisation of soil resources as a result of hydrocarbon/chemical/waste contamination;		3	3 4	Negative High (-27)	 Clearing activities and earth scraping should preferably be restricted to the dry season in order to prevent erosion and siltation. The dry months are also the period when the majority of species are either dormant or finished with their breeding activities. Future soil stockpiling areas must follow environmentally sensitive practices and be situated a sufficient distance away from drainage areas. The careful position of soil piles, and runoff control, during all phases of development, and planting of some vegetative cover after completion (indigenous groundcover, grasses etc.) will limit the extent of erosion occurring on the site. Sufficient measures must be implemented to prevent the possible contamination of the surface water and surrounding groundwater from runoff. The use of water on the site must be carefully monitored to ensure that erosion on slopes does not take 	1 3 2 2	Negative Low (-12)
Possibility of erosion as a result of runoff from cleared and compacted areas resulting in the soil instability and loss of soil resources; Soil contamination as a result of uncontrolled sewage handing;					 Any erosion channels developed during the construction period shall be backfilled and compacted and the areas restored to a proper condition. All disturbed areas that will require rehabilitation must be mulched to encourage vegetation regrowth Installation of silt fences and erosion berms as necessary to minimize erosion. Stabilisation of cleared areas to prevent and control erosion shall be actively managed. The method of stabilisation shall be determined in consultation with the ECO. 		

POTENTIAL ASPECT AND/OR IMPACT		BEF(SIGNIFICANCE RATING (BEFORE		AFTER FIGATION	SIGNIFICANCE RATING (AFTER
	E X T E N T	D U R A T I O N	I N T E N SI T	P R O B A B I L	MITIGATION)		D I P U N R R T O A E B T N A I SI B O T I N Y L T	MITIGATION)
Indirect impact on the loss of micro habitats following soil removal; and Erosion due to floods. This will result in grazing and cultivation potential being lost.				1		 Erosion control measures include use of sand bags, erosion berms and straw bales placed across overland stormwater flow to reduce runoff rate and sedimentation. Traffic and movement over stabilised areas shall be restricted and controlled, and damage to stabilised areas shall be repaired and maintained to the satisfaction of the ECO. Include periodical site inspection in environmental performance reporting that inspects the effectiveness of the run-off control system and specifically records the occurrence any erosion on site or downstream - refer to the EMPr. 		
Waste management								
Mixing of waste and uncontrolled disposal; Pollution and aesthetical impacts as a result of uncontrolled waste storage; Uncontrolled storage of waste leading to pollution; Impact on groundwater as a result of uncontrolled waste handling; Impact on surrounding environment as a result of sewage control and waste water generation; and	2	3	3	3	Negative High (-27)	 Portable sanitation facilities should be erected for construction personnel. Use of these facilities should be enforced (these facilities should be kept clean so that they are a desired alternative to the surrounding vegetation). These facilities should also be monitored and serviced regularly so as to prevent contamination of the water resources. All solid waste generated during construction, other than natural materials such as soil and rock, shall be disposed of off-site to the landfill site. Separation and recycling of different waste materials is supported. Refuse collection and storage must be done in a way that will not cause a health nuisance. Construction personnel should be instructed not to dump any building materials on the untransformed vegetation around the site. All waste is to be disposed of at the local landfill site Waste Bins should be positioned around the site for use by construction personnel. These bins should be emptied and waste transported to the landfill site. 	1 1 1	Negative Low (-3)
Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal.						 Hazardous waste (Dead livestock) is not to be mixed or combined with general waste earmarked for disposal at the municipal landfill site. Under no circumstances is waste to be burnt or buried on site. 		
Fauna and Flora Impacts			_					
During the construction phase of the project there will be disturbance and destruction of habitats, faunal species and vegetation. Impacts on fauna species of conservation importance (including suitable habitat)	2	4	4	4	Negative Very High (-40)	 Appoint an ECO to oversee the activities and ensure that ecological aspects are kept in mind. All AIS must be removed and should be replaced with indigenous vegetation. No animals should be intentionally killed or destroyed and poaching and hunting should not be permitted on the site. All informal fires on the property shall be prohibited specifically during the construction phase of the proposed development. The applicant shall be responsible for informing all employees about the need to prevent any harmful effects on natural vegetation on or around the construction sites as a result of their activities. The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the construction activities must not be disturbed. 	3 2 2	Negative Medium (-12)

POTENTIAL ASPECT AND/OR IMPACT		BEF	ORE		SIGNIFICANCE	MITIGATION AND MANAGEMENT MEASURES	AFTER	SIGNIFICANCE
	E	ITIG D	I	P	RATING (BEFORE MITIGATION)		MITIGATION E D I P	RATING (AFTER MITIGATION)
	X	U R	N T	О			X U N R T R T O	
	N	A T	E N	B A			N T N A	
	T	I O	SI T	B			T I SI B O T I	
		N	Y	L T			N Y L T	
				Y		All construction areas must be demarcated prior construction to ensure that the footprint of impacts	Y	
						are limited organic materials are removed from the area to be cleared.		
						 Fencing should not impact on indigenous plants. All indigenous plant material removed from the cleared areas shall be stockpiled and mulching. All 		
						remaining vegetation shall be removed and disposed-off in a landfill site. Rubble or waste that could accompany the construction effort, if the development is approved, should		
						be removed during and after construction. Measures should be taken to avoid any spills and infiltration		
						 of petroleum fuels or any chemical pollutants into the soil during construction phase. No domestic pets are permitted on site during construction. 		
						• Structures (e.g. gutters, drains, sumps, ditches) must be designed, as far as possible, so that they do not act as pitfall traps for small creatures, i.e. they should either have gently sloping edges or be adequately		
						covered to prevent creatures from falling into them.		
Noise Impacts During the construction phase there is likely to be an	2	2	2	4	Negative Medium	All construction activities should be undertaken according to daylight working hours between the	1 2 2 3	Negative Medium
increase in noise pollution from construction vehicles		-				hours of 07:00 – 17:00 on weekdays and 7:30 – 13:00 on Saturdays.		J
and construction staff.					(-16)	 No construction activities may be undertaken on Sunday. Provide all equipment with standard silencers. Maintain silencer units in vehicles and equipment in 		(-12)
						good working order.		
						 All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. 		
						 Construction staff working in area where the 8-hour ambient noise levels exceed 60 dBA must have 		
						 the appropriate Personal Protective Equipment (PPE). All operations should meet the noise standard requirements of the Occupational Health and Safety 		
						Act (Act No. 85 of 1993).		
Safety and security								
Safety risk of contractors, due to increased construction activity;	2	2	2	2	Negative Medium	• Clear sign boards should be erected at the entrance to the site to indicate that a construction area is being entered and safety precautions should be followed.	1 1 1 1	Negative Low
					(-12)	Notification signs must be posted around the site warning residents and visitors about the hazards		(-3)
Health risks as a result of waste generation and storage; and	;					around the construction site.		
						 See waste management mitigations. The proponent of the development should appoint the services of a security company that will monitor 		
Possible increase in criminal activity.						the proposed development activity on a 24-hour 7-days per week basis.		
						Any construction personnel found to be trespassing must be subjected to a disciplinary hearing. Magiltana Investments (Ptv.) Ltd. should enter into an agreement with the local formary in the area.		
						• Mosikwe Investments (Pty) Ltd should enter into an agreement with the local farmers in the area whereby damages to farm property etc. during the construction phase will be compensated for. The		
						agreement should be signed before the construction phase commences;		

POTENTIAL ASPECT AND/OR IMPACT		BEFC	ORE	SIGNIFICANCE	MITIGATION AND MANAGEMENT MEASURES	AFTER	SIGNIFICANCE
			ATIO			IGATION	RATING (AFTER
	Е	D	I	P MITIGATION)		O I P	MITIGATION)
	X	U	N	R	$x \mid v$	J N R	,
	Т	R	T	0	$oldsymbol{T} oldsymbol{R}$	R T O	
	E	Α	E	В	E A	A E B	
	N	T	N	A	m N $ m T$	N A	
	T	I	SI	В	T I	SI B	
		О	T	I		I T C	
		N	Y	L	N N	N Y L	
				T		T	
			_	Y		Y	
					The construction area should be fenced off prior to the commencement of the construction phase. The		
					movement of construction workers on the site should be confined to the fenced off area;		
					Contractors appointed by Mosikwe Investments (Pty) Ltd should provide daily transport for low and		
					semi-skilled workers to and from the site. This would reduce the potential risk of trespassing on the		
					remainder of the farm and adjacent properties;		
					Mosikwe Investments (Pty) Ltd should hold contractors liable for compensating farmers in full for This is the standard of the standard forms in full standard for the standard forms. This is the standard forms in full forms in full standard forms in full forms in full standard forms.		
					any stock losses and/or damage to farm infrastructure that can be linked to construction workers. This		
					should be contained in the Code of Conduct to be signed between the proponent, the contractors and		
					neighbouring landowners. The agreement should also cover loses and costs associated with fires		
					caused by construction workers or construction related activities (see below);		
					The EMPr should outline procedures for managing and storing waste on site, specifically plastic waste that pages a threat to livestack if in gested.		
					that poses a threat to livestock if ingested;		
					• Contractors appointed Mosikwe Investments (Pty) Ltd must ensure that all workers are informed at the outset of the construction phase of the conditions contained on the Code of Conduct, specifically		
					 consequences of stock theft and trespassing on adjacent farms. Contractors appointed by Mosikwe Investments (Pty) Ltd must ensure that construction workers who 		
					are found guilty of trespassing, stealing livestock and/or damaging farm infrastructure are dismissed		
					and charged. This should be contained in the Code of Conduct. All dismissals must be in accordance		
					with South African labour legislation;		
					 The housing of construction workers on the site should be strictly limited to security personnel (if any). 		
Air quality					The flowing of construction workers on the site should be strictly inflitted to security personner (if ally).		
Impact on air quality as a result of the dust generation	2	2	2	4 Medium High	• The speed of vehicles within the site to be strictly controlled to between 20 - 30km/h.	2 2 2	Negative low
from cleared areas;					Areas generating dust particles should be sprinkled with water to reduce dust blowing out over the		
				(-16)	area and should be enclosed where possible to mitigate effects of wind on them.		(-10)
Impact on air quality as a result of emissions from					The clearing of vegetation should be limited to the development area and should be undertaken prior		
machinery and increased vehicle usage;					to the commencement of construction activities.		
					The Contractor shall be solely responsible for the control of dust arising from the Contractor's		
Odour emissions					operations and for any costs against the applicant for damages resulting from the dust.		
					The Contractor shall take all reasonable measures to minimise the generation of dust as a result of		
					construction activities to the satisfaction of the ECO. This applies particularly to the dust which may		
					affect owners and occupiers of the surrounding areas.		
					Excavation, handling and transport of erodible materials shall be avoided under high wind conditions		
					or when a visible dust plume is present.		
					See waste management mitigations.		

POTENTIAL ASPECT AND/OR IMPACT	I	BEF	ORE		SIGNIFICANCE	MITIGATION AND MANAGEMENT MEASURES	AFTER		SIGNIFICANCE
	MITE X T E N T	D U R A T I O N	I N T E N SI T Y	P R O B A B I L T	RATING (BEFORE MITIGATION)		MITIGATION E D I X U N T R T E A E N T N T I SI O T N Y	P R O B	RATING (AFTER MITIGATION)
Land Use and Land Capability Impacts		4	4	4	NT				NT (* NA 1*
Permanent loss of land use and land capability as a result of the clearance of land; and Sterilisation of land as a result of mining, soil pollution and erosion.	2	4	4	4	Negative Very High (- 40)	See soil and vegetation mitigation measures.	1 3 2	2	Negative Medium (-12)
Groundwater Impacts									
Impact on groundwater quality as a result of soil pollution due to the usage of hazardous substances on site; Impact on groundwater as a result of uncontrolled waster handling; and Hydrocarbon contamination is possible due to accidental spills of diesel/oils, etc. from the usage of heavy machinery and construction vehicles on site.		3	3	3	Negative High (-24)	 Appropriate stormwater / surface water management measures must be put in place before construction commences and maintained throughout the lifetime of the development. An appropriate number of toilets (1 toilet for every 20 workers) must be provided for labourers during the Construction Phase. These must be maintained in a satisfactory condition and a minimum of 100 m away from any water resources and outside of the 1:100-year floodline. Any contaminated water associated with construction activities must be contained in separate areas or receptacles such as Jo-Jo tanks or waterproof drums, and must not be allowed to enter into drainage lines. Should any excavations require dewatering, this is to occur through an adequately designed silt trap prior to discharge. All silt traps are to be regularly monitored and maintained to ensure efficient and effective use. Line all potential contamination sources with an impermeable liner. Groundwater monitoring should be conducted quarterly. An annual compliance report should be compiled and submitted to the authorities for evaluation and comment. The monitoring network should be updated annually, and this report should be submitted annually. The site must develop a monitoring response protocol. This protocol will describe procedures if groundwater monitoring information indicates that action is required. See soil and vegetation mitigation measures. 	1 1 1	2	Negative Low (-4)
Surface Water Impacts									
Possible contamination of surface water resources as a result of contaminated runoff; Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal; Sedimentation of surface water resources as a result of runoff from cleared areas;	2	3	3	2	Negative High (-21)	 Appropriate stormwater / surface water management measures must be put in place before construction commences and maintained throughout the lifetime of the development. An appropriate number of toilets (1 toilet for every 20 workers) must be provided for labourers during the Construction Phase. These must be maintained in a satisfactory condition and a minimum of 100 m away from any water resources and outside of the 1:100-year floodline. Any contaminated water associated with construction activities must be contained in separate areas or receptacles such as Jo-Jo tanks or waterproof drums, and must not be allowed to enter into drainage lines. 		2	Negative Low (-4)

POTENTIAL ASPECT AND/OR IMPACT]	BEFC	ORE	SIG	NIFICANCE	MITIGATION AND MANAGEMENT MEASURES	AFTER	SIGNIFICANCE
	MI	TIGA	ATIO		NG (BEFORE		MITIGATION	
	E X T E N T	D U R A T I O N	N T E N SI T Y	P MI'R OBA B I L T Y	ΓΙGATION)		E D I P X U N R T R T C E A E B N T N A T I SI B O T I N Y L	
Contamination of surface water resources as a result of						Should any excavations require dewatering, this is to occur through an adequately designed silt trap		
uncontrolled waste handling and disposal;						prior to discharge. All silt traps are to be regularly monitored and maintained to ensure efficient and		
						effective use.		
The development will increase storm water runoff						Line all potential contamination sources with an impermeable liner.		
resulting in erosion and possible sedimentation.								
						See soil and vegetation mitigation measures.		
Cultural and Heritage Impacts		4	2	2 37	(; II; 1 (20)			
Destruction of cultural and heritage artefacts found	3	4	3	3 Nega	tive High (-30)	Should be clearly marked in order that they can be avoided during construction activities	1 4 1 1	Negative low (-6)
underground; and						• The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.		
Destruction of alternation of buildings older than 60						 Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were 		
vears.						discovered, shall cease immediately and the ECO shall be notified as soon as possible.		
y case.						All discoveries shall be reported immediately to a heritage practitioner so that an investigation and		
						evaluation of the finds can be made. Acting upon advice from these specialists, the ECO will advise		
						the necessary actions to be taken.		
						Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and		
						• Contractors and workers shall be advised of the penalties associated with the unlawful removal of		
						cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage		
						Resources Act (Act No. 25 of 1999), Section 51. (1).		
						• Known sites should be located and isolated, e.g. by fencing them off. All construction workers should		
						be informed that these are no-go areas, unless accompanied by the individual or persons representing the ECO.		
						• In areas were the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it		
						should be removed, byt only after permission for the methods proposed has been granted by SAHRA.		
						A heritage official should be part of the team executing these measures.		
						Although none of the identified heritage objects or sites occur within the proposed 5Ha application area,		
						the following mitigation measures and recommendations should be adhered to, as captured within the		
						Phase 1: Heritage Impact Assessment (2019) (Appendix 9):		
						- Known sites should be clearly marked in order that they can be avoided during construction activities.		
						- The contractors and workers should be notified that archaeological sites might be exposed during		
						the construction activities.		

POTENTIAL ASPECT AND/OR IMPACT			ORE		SIGNIFICANCE	MITIGATION AND MANAGEMENT MEASURES	AFTER	SIGNIFICANCE
	E X T E N T	D U R A T I O N	I N T E N SI T Y	P R O B A B I L T	RATING (BEFORE MITIGATION)		Name	RATING (AFTER MITIGATION)
						 Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible; All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken; Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1). In order to achieve this, the following should be in place: A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage. Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above. In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures. 		
						 Conditions for inclusion in the environmental authorisation: The Palaeontological Sensitivity Map (SAHRIS) indicate that a portion of the study area has sections that has a high sensitivity of fossil remains to be found, whereas the largest section has a moderate sensitivity. Both these areas require palaeontological studies. The section indicated in grey do not require any palaeontological study. The boundaries of the areas marked as highly sensitive for the presence of cultural heritage sites (LIA sites) should not be taken as final and should be confirmed when the vegetation cover has gone down by the end of the winter season. A heritage assessment should be conducted over each identified localised drill site in order to identify any cultural, heritage and or archaeological features which may be impacted on. 		

POTENTIAL ASPECT AND/OR IMPACT	M	BEF ITIG	ORE		SIGNIFICANCE RATING (BEFORE	MITIGATION AND MANAGEMENT MEASURES	AFTER MITIGATION	SIGNIFICANCE RATING (AFTER
	E X T E N T	D U R A T I O N	I N T E N SI T	P R O B A B I L T	MITIGATION)		E D I P X U N R T R T O E A E B N T N A T I SI B O T I N Y L T Y	MITIGATION)
Climate Change						 Should archaeological sites or graves be exposed in other areas during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made. 		
Utilisation of non-renewable energy sources resulting in the increased project carbon footprint; and	2	4	3	3	Negative High (-27)	 See all mitigation measures. It is recommended that renewable energy options and/or alternative energy sources be listed as the preferred options. 	1 1 1 1	Negative Low (-3)
Change in land use to accommodate the development.						preferred options.		
Visual Impacts								
Visual disturbance on adjacent land and road users as a result of the use of construction equipment, excavation and building material;	2	3	3	3	Negative High (-24)	 See Air Quality to minimize dust. See Waste Management mitigations to limit untidy housekeeping. Introduce visual screening (e.g. plant trees and shrubs and earthen berms) if needed. 	1 3 1 1	Negative Low (-5)
Aesthetic impact as a result of litter dispersion and untidy housekeeping from contractors; and								
Visual impact as a result of the development (change of sense of place).								
Air Quality						OPERATIONAL PHASE		
Impact on air quality as a result of increased mining activities;	2	2	2	4	Medium High (-16)	 The speed of vehicles within the site to be strictly controlled to between 20 - 30km/h. Areas generating dust particles should be sprinkled with water to reduce dust blowing out over the area and should be enclosed where possible to mitigate effects of wind on them. 	1 2 2 2	Negative Low (-10)
Impact on air quality as a result of emissions from machinery and increased vehicle usage;						The clearing of vegetation should be limited to the development area and should be undertaken prior to the commencement of construction activities.		
Odour emissions due to uncontrolled waste disposal;						Excavation, handling and transport of erodible materials shall be avoided under high wind conditions or when a visible dust plume is present.		
Impact on air quality as a result of exhaust emissions and dust generation. Climate Change						See waste management mitigations.		

POTENTIAL ASPECT AND/OR IMPACT		BEF	FORE	3	SIGNIFICANCE	MITIGATION AND MANAGEMENT MEASURES	AFTER	SIGNIFICANCE
	M		ATI		RATING (BEFORE		MITIGATION	RATING (AFTER
	E	D	I	P	MITIGATION)	E	D I P	MITIGATION)
	X	U	N	R	ŕ	X	U N R	,
	Т	R	Т	О		T	R T O	
	E	A	E	В		E	A E B	
	N	T	N	A		${f N}$	TNA	
	Т	I	SI			T	I SI B	
		O	Т	I			ОТІ	
		N		L			N Y L	
				T			T	
				Y			Y	
Energy consumption.	2	4	3	3	Negative High (-27)	• It is recommended that renewable energy options and/or alternative energy sources be listed as the	1 1 1	Negative Low (-3)
						preferred options.		
 Utilisation of non-renewable energy sources resulting 						Quarterly water-monitoring tests should be conducted on the water quality.		
in the increased project carbon footprint;								
Safety and security				<u> </u>				
Health risks as a result of waste generation and storage;	2	2	1	2	Negative Low	See waste management mitigations.	1 1 1	Negative Low (-3)
and						The proponent of the development should appoint the services of a security company that will monitor		
					(-6)	the proposed development activity on a 24-hour 7-days per week basis.		
Possible increase in criminal activity.								
Traffic Impacts								
Increase in vehicular traffic.	2	3	2	3	Negative Medium	• The potential impacts associated with heavy vehicles can be effectively mitigated. The mitigation 1	3 1 1	Negative Low
						measures include:		
					(-16)	• The contractor must ensure that damage caused by construction on the off gravel roads. The costs		(-5)
						associated with the repair must be borne by the contractor;		
						Dust suppression measures must be implemented for heavy vehicles such as wetting of gravel roads		
						on a regular basis and ensuring that vehicles used to transport sand and building materials are fitted		
						with tarpaulins or covers;		
						All vehicles must be road-worthy and drivers must be qualified and made aware of the potential road		
						safety issues and need for strict speed limits.		
						Also refer to the EMPr. For mitigation measures related to traffic.		
						However, notice of construction work should be placed with speed limit of 30 km/h		
Solid Waste Management								
Approximately 15 Workers will be present on site from	2	2	2	2	Negative Medium	Use an integrated waste management approach and ensure that all solid waste is disposed of / 1	1 1 1	Negative low
7:00 - 17:00, Monday to Saturday. Sources of general						recycled legally. Encourage implementation of the waste hierarchy by reducing waste generated,		
waste will be waste food, packaging, paper, etc. General					(-12)	re-using wherever possible, recycling recyclables, and disposing only as a final resort.		(-3)
waste will be stored on the site and removed on a						Non-hazardous waste generated during operation, must be disposed-off site at the landfill site.		
weekly basis by a contractor						No on-site dumping of any waste materials, vegetation, litter or refuse shall occur.		
						Refuse collection and storage must be done in a way that will not cause a health nuisance.		
						Bins should not be allowed to become overfull and shall be emptied at least once a week by the		
						applicant.		
						No hazardous chemical must be discarded in the sewage or storm water system.		
						Proper storage of cleaning materials in a lockable, well ventilated building.		
Soil Erosion and Surface runoff								
The largest risk factor for soil erosion will be during the	2	3	3	4	Negative High	1	3 2 2	Negative Medium
operational phase when the mining activity ensues and						Implement stormwater management plan		
soil is left bare until rehabilitation is initiated. Erosion					(-27)			(-12)

POTENTIAL ASPECT AND/OR IMPACT		BEFO	RF		SIGNIFICANCE	MITIGATION AND MANAGEMENT MEASURES	AFTER	SIGNIFICANCE
TOTENTIAL MOTECT MADJOR INITACT		TIGA)N	RATING (BEFORE	MITOMION MINIMAGEMENT MENOURED	MITIGATION	RATING (AFTER
	E	D	I	P	MITIGATION)		E D I P	MITIGATION)
	x			R			X U N R	
	T	R		О			T R T O	
	E	A	E	В			E A E B	
	N		N	A			N T N A	
	1	0	SI T	В			T I SI B	
		N	$\frac{1}{Y}$	I.			N Y L	
		- 1		T			T	
				Y			Y	
will be localised within the site. This will ultimately lead						The storm water system, especially the discharge points, must be inspected and damaged areas		
to the irretrievable commitment of this resource. The						must be repaired if required.		
measurable effect of reducing erosion by utilizing						Discharge points must be inspected for blockages of any kind; these must be removed timeously		
mitigation measures may reduce possible erosion						to ensure the efficient operation of the storm water management system.		
significantly						to electe the emission of emission of the storm mater management of sterm		
						Storm water should be channelled to avoid ponding on-site.		
						Any erosion channels developed during the operational period shall be backfilled and compacted		
						and the areas restored to a proper condition.		
						All disturbed areas that will require rehabilitation must be mulched to encourage vegetation re-		
						growth.		
						No unnecessary or un-permitted clearance of vegetation during the operational phase.		
						Please note: The open cast area can't be completely backfilled since the rock layer will be removed, crushed		
						and the Chrome ore and PGM will be sold. Therefore, benches will be blasted at closure to create sloped		
						sides. The topsoil and overburden will be backfilled to the open cast area. The area will be sloped as far as		
						possible. Furthermore, as an open cast will be still left behind, the area will be fenced in order to avoid injuries to animals or humans.		
						injuries to arithais of rumans.		
Fauna and Flora Impacts								
During the operational phase of the project there will be	2	4	4	4	Negative very high (-	Appoint an ECO to oversee the activities and ensure that ecological aspects are kept in mind.	1 3 2 2	Negative low (-12)
disturbance and destruction of habitats, faunal species					40)	All AIS must be removed and should be replaced with indigenous vegetation.		
and vegetation.						No animals should be intentionally killed or destroyed and poaching and hunting should not be		
Impacts on fauna species of conservation importance						permitted on the site.The applicant shall be responsible for informing all employees about the need to prevent any		
(including suitable habitat)						harmful effects on natural vegetation on or around the mining sites as a result of their activities.		
						Reseed cleared areas to prevent soil erosion.		
						Fencing should not impact on indigenous plants.		
						No unnecessary or un-permitted clearance of vegetation during the operational phase.		
						All informal fires on the property shall be prohibited specifically during the construction phase of		
						the proposed development.		
						The clearance of vegetation must be conducted in a phased manner and vegetation not interfering		
						with the mining activities must not be disturbed		
Noise Impacts								
Mining activities will result in the generation of noise	2	2	2	4	Negative Medium (-	Loud noises are prohibited on Sunday.	1 2 2 3	Negative Medium
over a period of 3-5 years. Sources of noise are likely to					16)	Internal road speed limits must be enforced with a speed limit of 30 km/h.		(-12)

POTENTIAL ASPECT AND/OR IMPACT	E	BEFC	ORE		SIGNIFICANCE	MITIGATION AND MANAGEMENT MEASURES	AFTER	SIGNIFICANCE
	X T E N T	D U R A T I O N	I N T E N SI T Y	P R O B A B I L	RATING (BEFORE MITIGATION)		MITIGATION E D I P X U N R T R T O E A E B N T N A T I SI B O T I N Y L T	RATING (AFTER MITIGATION)
include vehicles, the use of machinery such as backactors, crushers and screeners and people working on the site, as well as occasional blasting; but mining activities should be limited to normal working days and some Saturdays and hours (7:00 – 17:00).				Y		 All mining activities should be undertaken according to daylight working hours between the hours of 07:00 - 17:00 on weekdays and 7:30 - 13:00 on Saturdays. No mining activities may be undertaken on Sunday. Provide all equipment with standard silencers. Maintain silencer units in vehicles and equipment in good working order. All earth moving vehicles and equipment must be regularly maintained to ensure their integrity and reliability. Mining staff working in area where the 8-hour ambient noise levels exceed 60 dBA must have the appropriate Personal Protective Equipment (PPE). All operations should meet the noise standard requirements of the Occupational Health and Safety Act (Act No. 85 of 1993). 	Y	
Groundwater Impacts								
Impact on groundwater quality as a result of soil pollution due to the usage of hazardous substances on site; Impact on groundwater as a result of uncontrolled waste handling; and Hydrocarbon contamination is possible due to accidental spills of diesel/oils, etc. from the usage of heavy machinery and construction vehicles on site.	2	3	3	3	Negative High (-24)	 Appropriate stormwater / surface water management measures must be put in place before mining commences and maintained throughout the lifetime of the development. An appropriate number of toilets (1 toilet for every 20 workers) must be provided for labourers during the mining phase. These must be maintained in a satisfactory condition and a minimum of 100 m away from any water resources and outside of the 1:100-year flood line. Any contaminated water associated with mining activities must be contained in separate areas or receptacles such as Jo-Jo tanks or waterproof drums, and must not be allowed to enter into drainage lines. Should any excavations require dewatering, this is to occur through an adequately designed silt trap prior to discharge. All silt traps are to be regularly monitored and maintained to ensure efficient and effective use. Line all potential contamination sources with an impermeable liner. Groundwater monitoring should be conducted quarterly. An annual compliance report should be compiled and submitted to the authorities for evaluation and comment. The monitoring network should be updated annually, and this report should be submitted annually. The site must develop a monitoring response protocol. This protocol will describe procedures if groundwater monitoring information indicates that action is required. See soil and vegetation mitigation measures. 	1 1 1 2	Negative Low (-4)
Surface Water Impacts								
Possible contamination of surface water resources as a result of contaminated runoff;	2	3	3	3	Negative High (-24)	 Appropriate stormwater / surface water management measures must be put in place before mining commences and maintained throughout the lifetime of the development. 	1 1 1 2	Negative Low (-4)

POTENTIAL ASPECT AND/OR IMPACT	BE	FORE	Ξ	SIGNIFICANCE	MITIGATION AND MANAGEMENT MEASURES	AFTER	SIGNIFICANCE
	MITION E DO NO	I N N E N SI T	P R O B A B I L T	RATING (BEFORE MITIGATION)		MITICATION E	RATING (AFTER MITIGATION)
Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal; Sedimentation of surface water resources as a result of runoff from cleared areas; Contamination of surface water resources as a result of uncontrolled waste handling and disposal; The development will increase storm water runoff resulting in erosion and possible sedimentation. Cultural and Heritage Impacts			Y		 An appropriate number of toilets (1 toilet for every 20 workers) must be provided for labourers during the mining phase. These must be maintained in a satisfactory condition and a minimum of 100 m away from any water resources and outside of the 1:100-year flood line. Any contaminated water associated with construction activities must be contained in separate areas or receptacles such as Jo-Jo tanks or waterproof drums, and must not be allowed to enter into drainage lines. Should any excavations require dewatering, this is to occur through an adequately designed silt trap prior to discharge. All silt traps are to be regularly monitored and maintained to ensure efficient and effective use. Line all potential contamination sources with an impermeable liner. See soil and vegetation mitigation measures. 	Y	
Destruction of cultural and heritage artefacts found underground; and Destruction of alternation of buildings older than 60 years.	3 4	3	3	Negative High (-30)	 Should be clearly marked in order that they can be avoided during mining activities The contractors and workers should be notified that archaeological sites might be exposed during the mining activities. Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the ECO shall be notified as soon as possible. All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the ECO will advise the necessary actions to be taken. Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or paleontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1). Known sites should be located and isolated, e.g. by fencing them off. All mining workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the ECO. In areas were the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures. Although none of the identified heritage objects or sites occur within the proposed 5Ha application area, the following mitigation measures and recommendations should be adhered to, as captured within the Phase 1: Heritage Impact Assessment (2019) (Appendix 9): 	1 4 1 1	Negative low (-6)

POTENTIAL ASPECT AND/OR IMPACT		EFOF		SIGNIFICANCE	MITIGATION AND MANAGEMENT MEASURES	AFTER	SIGNIFICANCE
	X II I I I I I I I I I I I I I I I I I	D I I I I I I I I I I I I I I I I I I I	I P N R Γ O E B N A GI B Γ I	RATING (BEFORE MITIGATION)		MITIGATION E	RATING (AFTER MITIGATION)
					 Known sites should be clearly marked in order that they can be avoided during construction activities. The contractors and workers should be notified that archaeological sites might be exposed during the construction activities. Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible; All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken; Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1). 		
					 In order to achieve this, the following should be in place: A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage. Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above. In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures. 		
					 Conditions for inclusion in the environmental authorisation: The Palaeontological Sensitivity Map (SAHRIS) indicate that a portion of the study area has sections that has a high sensitivity of fossil remains to be found, whereas the largest section has a moderate sensitivity. Both these areas require palaeontological studies. The section indicated in grey do not require any palaeontological study. The boundaries of the areas marked as highly sensitive for the presence of cultural heritage sites (LIA sites) should not be taken as final and should be confirmed when the vegetation cover has gone down by the end of the winter season. 		

POTENTIAL ASPECT AND/OR IMPACT		BEFC	ORE		SIGNIFICANCE	MITIGATION AND MANAGEMENT MEASURES	AFTER	SIGNIFICANCE
			TIO	N	RATING (BEFORE		MITIGATION	RATING (AFTER
	E X T E N T	D U R A T I O N	N T E N	P R O B A B I L	MITIGATION)		E D I P X U N R T R T O E A E B N T N A T I SI B O T I N Y L T	MITIGATION)
				Y		 A heritage assessment should be conducted over each identified localised drill site in order to identify any cultural, heritage and or archaeological features which may be impacted on. Should archaeological sites or graves be exposed in other areas during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made. 	Y	
Visual Impacts Visual disturbance on adjacent land and road users as a	2	3	3	3	Negative High (-24)	• See Air Quality to minimize dust	1 3 1 1	Negative Low (-5)
Visual disturbance on adjacent land and road users as a result of the use of construction equipment, excavation and building material; Aesthetic impact as a result of litter dispersion and untidy housekeeping from contractors; and Visual impact as a result of the development (change of sense of place).	2	3	3	3	Negative High (-24)	 See Air Quality to minimize dust. See Waste Management mitigations to limit untidy housekeeping. Landscape the public open spaces and road verges with appropriate vegetation to soften the built form of the development. Introduce visual screening (e.g. plant trees and shrubs and earthen berms) if needed. Lighting must be kept to a minimum and restricted to low level, downward facing lights to reduce light spill. Lighting must be inward and downward pointing to reduce glare in surrounding areas. Security lighting should make use of down-lights to minimize light spill, and motion detectors where possible so that lighting at night is minimized. Mitigation of lighting impacts includes the pro-active design, planning and specification lighting for the facility by a lighting engineer. The area cleared during construction will be landscaped and vegetation establishment encouraged reducing landscape scarring. Rehabilitation of surrounding areas must take place with indigenous species. 	1 3 1 1	Negative Low (-5)
						DECOMMISSION		
Rehabilitation of the physical environment The physical environment will benefit from the closure of the mining area. Please note: The open cast area can't be completely backfilled since the rock layer will be removed, crushed and the Chrome ore PGM will be sold. Therefore, benches will be blasted at closure to create sloped sides. The topsoil and overburden will be backfilled to the open cast area. The area will be sloped as far as possible. Furthermore, as an open cast will be still left behind, the area will be fenced in order to avoid injuries to animals or humans. Loss of Employment	2	4	3	4	Negative High (-30)	 No mitigation measures required. Sloping of the edges. benches will be removed by creating sloped sides. For this reason, the topsoil and overburden will be backfilled to the opencast area and the area will be sloped as far as possible. Furthermore, as an opencast will be still left behind. The area will also be fenced to avoid any injuries to animals or humans. 	2 4 3 2	Negative High (-24)

POTENTIAL ASPECT AND/OR IMPACT		BEF	ORE		SIGNIFICANCE	MITIGATION AND MANAGEMENT MEASURES	A	FTER	SIGNIFICANCE
	M		ATIO	N	RATING (BEFORE			GATION	
	E	D		P	MITIGATION)		E D		MITIGATION)
	v	U		R	WIIIIGATION		X U		WITIGATION
	7 T	D	T				T D		
	1	K	T	0			IK	ТО	
	E	A	E	В			E A	E B	
	N	T	N	A			N T	N A	
	T	I	SI	В			TI	SI B	
		О	T	Ι			О	TI	
		N	Y	L			N	Y L	
				T				T	
				Y				Y	
Given the relatively large number of people employed	N	N	N	N		The following mitigation measures are recommended:	N N	N N	
during the operational phase, the decommissioning of	Α	Α	A	Α		All structures and infrastructure associated with the proposed facility should be dismantled and	A A	AA	
the facility has the potential to have a negative social						transported off-site on decommissioning;			
impact on the local community.						Mosikwe Investments (Pty) Ltd should establish an Environmental Rehabilitation Trust Fund to			
-						cover the costs of decommissioning and rehabilitation of disturbed areas. Please note: The open			
						·			
						cast area can't be completely backfilled since the rock layer will be removed, crushed and the			
						Chrome ore and PGM will be sold. Therefore, benches will be blasted at closure to create sloped			
						sides. The topsoil and overburden will be backfilled to the open cast area. The area will be sloped			
						as far as possible. Furthermore, as an open cast will be still left behind, the area will be fenced in			
						order to avoid injuries to animals or humans.			



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

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

METHODOLOGY

The potential environmental impacts associated with the project will be evaluated according to its nature, extent, duration, intensity, probability and significance of the impacts, whereby:

- **Nature:** A brief written statement of the environmental aspect being impacted upon by a particular action or activity.
- **Extent:** The area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment phase of a project in terms of further defining the determined significance or intensity of an impact. For example, high at a local scale, but low at a regional scale;
- **Duration:** Indicates what the lifetime of the impact will be;
- Intensity: Describes whether an impact is destructive or benign
- **Probability:** Describes the likelihood of an impact actually occurring; and
- **Cumulative:** In relation to an activity, means the impact of an activity that in itself may not be significant but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.

Impact Rating System

Impact assessment must take account of the nature, scale and duration of impacts on the environment whether such impacts are positive or negative. Each impact is also assessed according to the following project phases:

- Construction Phase
- Operational Phase
- Decommissioning Phase

Where necessary, the proposal for mitigation or optimisation of an impact should be detailed. A brief discussion of the impact and the rationale behind the assessment of its significance should also be included. The rating system is applied to the potential impacts on the receiving environment and includes an objective evaluation of the mitigation of the impact. In assessing the significance of each impact the following criteria is used:

Table 13: Criteria of each significant impact

EXTENT									
	Site (1)	Local (2)	Regional (3)	National (4)					
		20011 (2)	2108201111 (0)	(1)					

The whole of South	Provincial and parts of	Within a radius of 2	Within the
Africa	neighbouring provinces	km of the	construction site
		construction site	
	ON		
Permanent (4)	Long-term (3)	Medium-term (2)	Short-term (1)
Mitigation either by	The impact will continue	The impact will last	The impact will either
man or natural process	or last for the entire	for the period of the	disappear with
will not occur in such a	operational life of the	construction phase,	mitigation or will be
way or in such a time	development, but will be	where after it will be	mitigated through
span that the impact can	mitigated by direct	entirely negated	natural process in a
be considered transient	human action or by	entirely negated	-
be considered transferit	natural processes		span shorter than the construction phase
	-		construction phase
	thereafter. The only class		
	of impact which will be		
	non-transitory INTENS	TT V	
Very High (4)			I (4)
V CI V IIIZII ITI			L OXA7 (I)
(-)	High (3)	Moderate (2)	Low (1)
Natural, cultural and	Natural, cultural and	Affected	Impact affects the
Natural, cultural and	Natural, cultural and	Affected	Impact affects the
Natural, cultural and social functions and	Natural, cultural and social functions and	Affected environment is	Impact affects the environment in such a
Natural, cultural and social functions and processes are altered to	Natural, cultural and social functions and processes are altered to	Affected environment is altered, but natural,	Impact affects the environment in such a way that natural,
Natural, cultural and social functions and processes are altered to extent that they	Natural, cultural and social functions and processes are altered to extent that they	Affected environment is altered, but natural, cultural and social	Impact affects the environment in such a way that natural, cultural and social
Natural, cultural and social functions and processes are altered to extent that they	Natural, cultural and social functions and processes are altered to extent that they	Affected environment is altered, but natural, cultural and social functions and	Impact affects the environment in such a way that natural, cultural and social functions and
Natural, cultural and social functions and processes are altered to extent that they	Natural, cultural and social functions and processes are altered to extent that they	Affected environment is altered, but natural, cultural and social functions and processes continue	Impact affects the environment in such a way that natural, cultural and social functions and processes are not
Natural, cultural and social functions and processes are altered to extent that they	Natural, cultural and social functions and processes are altered to extent that they	Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way	Impact affects the environment in such a way that natural, cultural and social functions and processes are not
Natural, cultural and social functions and processes are altered to extent that they	Natural, cultural and social functions and processes are altered to extent that they temporarily cease	Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way	Impact affects the environment in such a way that natural, cultural and social functions and processes are not
Natural, cultural and social functions and processes are altered to extent that they permanently cease Definite (4)	Natural, cultural and social functions and processes are altered to extent that they temporarily cease PROBABILTY OF COMMISSION Highly Probable (3)	Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way OCCURANCE Possible (2)	Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected Improbable (1)
Natural, cultural and social functions and processes are altered to extent that they permanently cease Definite (4) Impact will certainly	Natural, cultural and social functions and processes are altered to extent that they temporarily cease PROBABILTY OF Company of the probable (3) Most likely that the	Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way CCURANCE Possible (2) The impact may	Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected Improbable (1) Likelihood of the
Natural, cultural and social functions and processes are altered to extent that they permanently cease Definite (4)	Natural, cultural and social functions and processes are altered to extent that they temporarily cease PROBABILTY OF COMMISSION Highly Probable (3)	Affected environment is altered, but natural, cultural and social functions and processes continue albeit in a modified way OCCURANCE Possible (2)	Impact affects the environment in such a way that natural, cultural and social functions and processes are not affected Improbable (1)

Table 14: Criteria for Rating of Classified Impacts

	CRITERIA FOR THE RATING OF CLASSIFIED IMPACTS
Low impact	A low impact has no permanent impact of significance. Mitigation measures are feasible
(3 -10 points)	and are readily instituted as part of a standing design, construction or operating procedure.
Medium impact	Mitigation is possible with additional design and construction inputs.
(11 -20 points)	
High impact	The design of the site may be affected. Mitigation and possible remediation are needed
(21 -30 points)	during the construction and/or operational phases. The effects of the impact may affect the broader environment.
Very high impact	Permanent and important impacts. The design of the site may be affected. Intensive
(31 - 48 points)	remediation is needed during construction and/or operational phases. Any activity which results in a "very high impact" is likely to be a fatal flaw.
Status	Denotes the perceived effect of the impact on the affected area.
Positive (+)	Beneficial impact.
Negative (-)	Deleterious or adverse impact.
Neutral (/)	Impact is neither beneficial nor adverse.

It is important to note that the status of an impact is assigned based on the status quo – i.e. should the project not proceed. Therefore, not all negative impacts are equally significant.

Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required.

The calculation of the significance of an impact uses the following formula: (Extent + duration + probability) x magnitude/intensity.

vii) The positive and negative impacts that the proposed activity (in terms of the initial site layout) and alternatives will have on the environment and the community that may be affected.

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

The main impacts associated with the proposed project include:

Socio - Economic Impacts

- The construction phase will result in additional temporary job opportunities;
- The proposed project will increase the local Gross Domestic Product (GDP) through the provision of employment and support to other businesses in the area;
- Auxiliary services required for the construction will be sourced from local businesses;
- Possible inflow of migrant workers;

• Nuisance to surrounding landowners as a result of noise, dust and emissions.

Soil Impacts

- Collapsible Soil
- A low to moderate soil compressibility is anticipated, probably secondary to the collapse potential.
- Considering the slope angle, parental rock, depositional environment and grading of the upper soils inspected on site, an intermediate to high erodibility is assigned to the site.
- Loss of soil resources as a result of soil stripping of the construction/mining footprint;
- Sterilisation of soil resources as a result of hydrocarbon/chemical/waste contamination;
- Possibility of erosion as a result of runoff from cleared and compacted areas resulting in the soil instability and loss of soil resources;
- Soil contamination as a result of uncontrolled sewage handing;
- Indirect impact on the loss of micro habitats following soil removal.
- Erosion due to floods;

Surface Water Impacts

- Possible contamination of surface water resources as a result of contaminated runoff;
- Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal;
- Sedimentation of surface water resources as a result of runoff from cleared areas;
- Inadequately designed greywater and wash water disposal systems could result in overflow (due to increase in wastewater volume) and the subsequent contamination of surface water;
- Contamination of surface water resources as a result of uncontrolled waste handling and disposal;
- The development will increase storm water runoff resulting in erosion and possible sedimentation.

Groundwater Impacts

- Impact on groundwater quality as a result of soil pollution due to the usage of hazardous substances on site;
- Impact on groundwater as a result of uncontrolled waste handling;
- Hydrocarbon contamination is possible due to accidental spills of diesel/oils, etc. from the usage of heavy machinery and construction/mining vehicles on site;

Air Quality Impacts

- Impact on air quality as a result of the dust generation from cleared areas and mining;
- Impact on air quality as a result of emissions from machinery and increased vehicle usage;
- Odour emissions; and
- Impact on air quality as a result of exhaust emissions and dust generation.

Noise Impacts

- Noise emissions as a result of machinery movement around the site; and
- Noise from increased traffic.

Land Use and Land Capability Impacts

- Permanent loss of land use and land capability as a result of the clearance of land;
- Sterilisation of land as a result of soil pollution and erosion.

Waste Impacts

- Mixing of waste and uncontrolled disposal;
- Pollution and aesthetical impacts as a result of uncontrolled waste storage;
- Uncontrolled storage of waste leading to pollution;
- Impact on groundwater as a result of uncontrolled waste handling;
- Impact on surrounding environment as a result of sewage control and waste water generation;
- Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal.

Cultural and Heritage Impacts

- Destruction of cultural and heritage artefacts found underground; and
- Destruction of alternation of buildings older than 60 years.

Visual Impacts

- Visual disturbance on adjacent land and road users as a result of the use of construction and mining
 equipment, excavation and building material;
- Aesthetic impact as a result of litter dispersion and untidy housekeeping from contractors; and
- Visual impact as a result of the development (change of sense of place).

Fauna and Flora Impacts

- Loss of habitat owing to the removal of vegetation at the proposed development;
- Loss of sensitive species (Threatened, Near-Threatened, Rare, Declining or Protected species) during the construction and mining phase;
- Loss of connectivity and conservation corridor networks in the landscape;
- Killing of vertebrate fauna during the construction and mining phase;
- An increased infestation of exotic or AIS owing to disturbance;
- Disturbance of faunal species, including those of adjacent landowners, as a result of noise generation;
- Potential to indirectly increase the risk of the spread of AIS vegetation;
- Potential impact on surrounding fauna and flora as a result of incorrect waste storage and handling; and
- Potential impact on surrounding biodiversity as a result of contaminated runoff;

Safety, Security and Health

- Increased economic activity may lead to the increase in crime;
- Safety risk of contractors, due to increased construction and mining activity;
- Health risks as a result of waste generation and storage;

Possible increase in criminal activity.

Traffic

• Increase in traffic.

Climate Change

- Utilisation of non-renewable energy sources resulting in the increased project carbon footprint;
- Change in land use to accommodate the development.

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

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

Due to the scale of the project, significant environmental and social impacts associated with the proposed activity have been identified through the BAR process. Mitigation measures as set out in the Environmental Management Programme (EMPr) attached in Part B must be implemented in order to minimise any potential impacts.

ix) The outcome of the site selection matrix.

Matrix analysis

The analysis describes the relevant identified listed activities, the various aspects of the proposed development that are applicable to each of the listed activity, description of the identified environmental issues, description of the identified potential impacts, the significance and magnitude of the identified potential impacts, and the mitigation of each identified potential impact. The matrix analysis further brings attention to the areas of particular concern, of which requires a more in depth assessment. Each of the cells are evaluated individually in terms of the nature of the impact, the duration of the impact and the significance of each impact – should no mitigation measures be implemented. This however is very important, since many of the identified impacts would not be able to be considered as insignificant if proper mitigation measures were not to be implemented. The matrix also provides a sample indication if mitigation measures that are applicable.

The different impacts of the the matrix specify the following:

The Stressor:	Indicates the aspect of the proposed activity, which initiates and cause						
	impacts on elements of the environment.						
The Receptor:	Identifies the recipient and the most important components of the						
	environment that will be affected by the stressor.						
The Impacts:	Gives an indication of the net result of the cause-effect between the						
	beforementioned stressor and receptor.						
The Mitigation:	Each of the identified impacts need to be mitigated to minimise the effect on						
	the environment.						

x) If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such

The proposed site is being preferred due to its possibility of having Chrome ore and PGMs resources.

i) Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity. (Including (i) a description of all environmental issues and risks that 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.)

A description of all environmental issues and risks that are identified during the environmental impact assessment process

The process for the identification of key issues

The methodology for the identification of key issues aims, as far as possible, to provide a user-friendly analysis of information to allow for easy interpretation.

Table 15: Process for the Identification of Key Issues

Process for the ident	ification of key issues
Checklist analysis:	The checklist contains a list of properly structured
	questions relating to the environmental
	parameters and specific human actions. These
	questions promote ordering thinking, data
	collection, presentation and alert against the
	omission of possible impacts.
Matrix analysis:	The matrix analysis method provides a complete
	indication of the interaction and relationship
	between the various proposed activities,
	development phases (construction, operational
	and decommissioning) and the impact thereof on
	the applicable environment. This method aims at
	providing a first order cause and effect
	relationship between the environment and the
	proposed activity. The matrix is used to indicate
	the relationship between the various identified
	stressors and receptors which leads to specific
	impacts. The other purpose of the matrix is to
	indicates the various specialist studies that will
	accompanying the Environmental Impact Report
	in order to address the potentially most significant
	impacts.
	impacts.

Checklist analysis

The site visit was conducted on 17/12/2020 (**Appendix 8**) to ensure that a proper analysis of the site-specific characteristics of the proposed application area takes place. The table below provides a proper checklist that was designed to stimulate thought regarding possible consequences of specific actions and so assist in scoping the key issues applicable to the proposed project. The checklist contains numerous structured questions relating to the environmental parameters and specific human actions. These questions promote ordering thinking, data collection, presentation and alert against the omission of possible impacts. The table highlights certain issues, which are further analysed in matrix format.

Table 16: Environmental Checklist

QUESTION	YE S	NO	UN- SURE	DESCRIPTION
1. Are any of the below located on the proposed		_	SUKE	
a. Any waterbodies: river, stream, dam or wetland?	i site:	×		None
b. Any areas of conservation importance or any other open space areas?		×		None
c. An area that is of heritage and/or cultural importance?			×	According to the Phase 1: Heritage Impact Assessment (2019) (Appendix 9), the following sites, features or objects of cultural significance were identified on the whole farm of Bakhoutrandjes 205 JP: • 7.2.1 – 7.2.5: A number of similar type of stone walled sites dating to the Late Iron Age (from c. 1600 to 1800), that can be linked to Tswana (Tlokwa) occupation of the larger region. It is probably a continuation of the main settlements known as Marathodi, located some distance to the south on the farm Vlakfontein. It seems as if the sites are concentrated on outcrops forming low ridges. These locations were chosen as it supplied a ready source of building material (stone), but it is also away from the turf soil which is to unstable to build on. • 7.3.1: Informal burial site with approximately seven graves. These graves probably originated from people that stayed in the larger region as farm labourers. The graves seem to be very old and has not been visited or cleared of vegetation in a very long time. It is difficult to establish a definite number as all of them are marked only with stone cairns and is currently overgrown with shrubs and aloes. However, it is important to note that the above mentioned identified sites do not occur within the 5Ha Mining Permit Area applied for. (See Figure 13)
d. Any sites of geological significance?			×	None
e. Any areas that are of outstanding natural beauty?		×		None

f. Any signs of highly productive agricultural land?			×	The proposed development falls within Land in Class IV (4) has very severe limitations that restrict the choice of plants, require very careful management, or both. It may be used for cultivated crops, but more careful management is required than for Class III (3) and conservation practices are more difficult to apply and maintain. Restrictions to land use are greater than those in Class III and the choice of plants is more limited.
g. Any floodplains?		×		None
h. Any indigenous forest of importance?	×			Not quite indigenous, but undisturbed natural vegetation does occur.
i. Any indigenous grass land?	×			The proposed area falls within vegetation unit SVcb 3, which is known as the Zeerust Thornveld. The Zeerust Thornveld is part of the Central Bushveld Bioregion, which is a sub-bioregion for the Savanna Biome.
j. Any important bird nesting sites?	×			No recorded bird nesting sites, but general bird sites are expected due to trees and river being present.
k. Any occurrence of red data species?			×	An Ecological Assessment is advised
I. Any tourist resort?		×		None.
2. Will the proposed development potentially	result	in?		
a. The removal of people?		×		None.
b. Any type of visual impact?	×			Yes, but not significantly.
c. Any kind of noise pollution?	×			Yes, due to the mining activities and movement of mining vehicles.
d. The construction of any type of access road?	×			Yes. Only a gravel road will be constructed.
e. Any risk to human or valuable ecosystems due to explosion/fire/ discharge of waste into water or air?		×		None, if the mitigation measures are properly implemented.
f. The accumulation of large workforce (>50 manual workers) into the site?		×		Approximately 20 Skilled & Unskilled people employment opportunities will be created during the construction and operational phase of the project.

g. The utilisation of high volumes of local raw materials such as water, wood etc.?		×		None, the water used will be that of portable water.				
h. In Job creation?	×			Approximately 20 Skilled & Unskilled people employment opportunities will be created during the construction and operational phase of the project.				
i. High volume traffic generation?		×		None, the impact is expected to be low due to the project being small scale and basic.				
j. Any type of soil erosion?	×			Yes. Erosion control measures will be required, especially when vegetation is removed and the soil is exposed.				
k. The Installation of additional bulk telecommunication transmission lines or other relevant type of facilities?		×		None				
1. Any type of air pollution?	х			Limited dust will be generated during the construction and operational phase. Also, emissions from vehicles.				
3. Is the proposed development located near any of the below?								
a. Any waterbodies: river, stream, dam or wetland?	×			Tributaries are found around the site.				
b. Any conservation or open space areas?	×			The Pilanesberg Game Reserve is found a few kilometres away.				

c. Any area that is of heritage and/or cultural importance?	×		The Pilanesberg Game Reserve is found a few kilometres away. According to the Phase 1: Heritage Impact Assessment (2019) (Appendix 9), the following sites, features or objects of cultural significance were identified on the whole farm of Bakhoutrandjes 205 JP: • 7.2.1 – 7.2.5: A number of similar type of stone walled sites dating to the Late Iron Age (from c. 1600 to 1800), that can be linked to Tswana (Tlokwa) occupation of the larger region. It is probably a continuation of the main settlements known as Marathodi, located some distance to the south on the farm Vlakfontein. It seems as if the sites are concentrated on outcrops forming low ridges. These locations were chosen as it supplied a ready source of building material (stone), but it is also away from the turf soil which is to unstable to build on. • 7.3.1: Informal burial site with approximately seven graves. These graves probably originated from people that stayed in the larger region as farm labourers. The graves seem to be very old and has not been visited or cleared of vegetation in a very long time. It is difficult to establish a definite number as all of them are marked only with stone cairns and is currently overgrown with shrubs and aloes. However, it is important to note that the above mentioned identified sites do not occur within the 5Ha Mining Permit Area applied for. (See Figure 13)
d. Any sites that are of geological significance?		×	None
e. Any areas that are of outstanding natural beauty?		×	The Pilanesberg Game Reserve is found a few kilometres away.
f. Any highly productive agricultural land?		×	The surrounding areas falls within Land in Class IV (4) has very severe limitations that restrict the choice of plants, require very careful management, or both. It may be used for cultivated crops, but more careful management is required than for Class III (3).

g. Any tourist resort?		×	The Pilanesberg Game Reserve is found a few kilometres away. The Mogokare Lodge (Guest house) is found approximately 2km west of the application area
h. Any formal or informal settlement?	×		The community of Witrandje is adjacent to the application area.



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

Cumulative impacts

Cumulative impacts are those impacts which when assessed in isolation may produce impacts that are environmentally acceptable but which when combined with other impacts, may become significant. The potential cumulative impacts that have been identified for the proposed development are as follows;

• Waste Management

- Increase in Waste Generation. This was considered when determining the impact of the development. The impact was assessed as 'low' with the implementation of the mitigation measures during the construction phase with a short-term duration of the impact. However, during the operational phase the impact was rated as low due to its cumulative effect. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.

• Noise Management

- Increase in noise pollution from construction vehicles and construction staff. This was considered when determining the impact of the development. The impact was still assessed as a 'low' with the implementation of the mitigation measures during the construction phase with a short-term duration of the impact. During the operational phase the impact was rated as low due to its cumulative effect. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.

• Air Quality

- Emissions from vehicles and machinery can alter air quality. This was considered when determining the impact of the development. The impact was still assessed as 'low' with the implementation of the mitigation measures during the construction phase with a short-term duration of the impact. During the operational phase the impact was rated as low. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.

• Surface Water Impacts

- Emissions from vehicles and machinery can alter air quality. This was considered when determining the impact of the development. The impact was still assessed as 'low' with the implementation of the mitigation measures during the construction phase with a short-term duration of the impact. During the operational phase the impact was rated as low. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.

• Soil and land capability

- Loss of topsoil and land capability. The loss of land capability can be seen to be cumulative. The potential impact of the proposed mining on the vegetation would occur at the proposed site and the access routes used to get to these sites. The potential to impact is identified to be low, if mitigation measures are implemented. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.

• Loss of biodiversity

- Impacts to biodiversity can be seen to be cumulative. The removal of vegetation and minimised animal life can occur and may potentially affect the surrounding biodiversity. The potential impact will potentially cease once the mining activities have been completed and the disturbed areas are successfully revegetated. These impacts have been rated as having a low-medium significance, after mitigation have been implemented. Mitigation

measures included in the EMPr and Table 13: Summary of risks identified must be implemented.

• Water Quality and Quantity

– The consumption of groundwater and the pollution thereof can be seen as a cumulative impact as they impact the existing and future use of resources. The significance of the potential impact on the water quality and quantity is low after the implementation of the recommended mitigation measures. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.

• Visual impact

The mining machinery and other visually prominent items on the site and loss of vegetation can have a cumulative impact and cause visual intrusion. By implementing mitigation measures the impact is identified as low. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.

• Traffic Impact

- In terms of traffic disruption, increase in traffic volumes in the vicinity of the mining site can occur. Cumulative impacts have therefore been catered for by ensuring that construction vehicles make trips on/off site only when necessary, as well as other mitigation measures, these impacts can be mitigated to low levels of significance. Mitigation measures included in the EMPr and Table 13: Summary of risks identified must be implemented.

A management plan will have to be enforced through the EMPr to ensure the proper mitigation of impacts.



Table 17: Summary of Cumulative impacts

ASPECTS OF THE DEVELOPMENT		FIED POTENTIAL IMPACTS	MA	GNITUDE	CANCE AND ITUDE OF POTENTIAL IMPACTS	OF POTENTIAL	SPECIALIST STUDIES /
/ACTIVITY	Receptors	Impact description	Minor	Major	Durati on	Possible Mitigation	INFORMATION
		CONSTRUCTION PHASE					
 Removal of vegetation Clearing of areas for infrastructure Hardening of surface areas Management of storm water Site office, laydown and storage areas Operation of equipment and 	Fauna & Flora	 Loss or fragmentation of habitat for faunal and floral species Loss of indigenous faunal and floral species diversity. Loss of faunal and floral species of conservation significance Degradation and/or destruction of natural pans. 		-	L	Yes	-
 machinery Vehicle activity Domestic and industrial waste Storage of chemicals, mixes and fuel Spills and leaks 	Air quality	 Impact on air quality as a result of the dust generation from cleared areas; Impact on air quality as a result of emissions from machinery and increased vehicle usage; Odour emissions 		-	М	Yes	-
	BIOPHYSICAL ENVIRONMENT lioS	 Considering the slope angle, parental rock, depositional environment and grading of the upper soils inspected on site, an intermediate to high erodibility is assigned to the site; Loss of soil resources as a result of soil stripping of the construction footprint; Sterilisation of soil resources as a result of hydrocarbon/chemical/waste contamination; Possibility of erosion as a result of runoff from cleared and compacted areas resulting in the soil instability and loss of soil resources; Soil contamination as a result of uncontrolled sewage handing; Indirect impact on the loss of micro habitats following soil removal; and Erosion due to floods. This will result in grazing and cultivation potential being lost. 		-	L	Yes	-
	Geology	 Hard/compact geology. Steep slopes or areas of unstable natural slopes. Areas subject to seismic activity. Areas subject to flooding. 		-	L	Yes	-
	Existing services infrastructure	 Mixing of waste and uncontrolled disposal; Pollution and aesthetical impacts as a result of uncontrolled waste storage; Uncontrolled storage of waste leading to pollution; 		-	S	Yes	-

		Impact on groundwater as a result of uncontrolled					
		waste handling;					
		• Impact on surrounding environment as a result of					
		sewage control and waste water generation; and					
		 Possible contamination of surface water resources 					
		as a result of uncontrolled waste handling and					
		disposal.					
		• Generation of waste that need to be accommodated					
		at a licensed landfill site.					
		 Generation of sewage that need to be accommodated 					
		by the local sewage plant.					
		 Increase in construction vehicles on existing roads. 					
	Ground water	• Impact on groundwater quality as a result of soil					
		pollution due to the usage of hazardous substances					
		on site;					
		• Impact on groundwater as a result of uncontrolled					
		waste handling; and		_	M	Yes	-
		• Hydrocarbon contamination is possible due to					
		accidental spills of diesel/oils, etc. from the usage					
		of heavy machinery and construction vehicles on					
		site.					
	Surface water	 Increase in storm water run-off. 					
		 Pollution of water sources due to soil erosion. 			M	Yes	_
		• Destruction of watercourses (pans/dams/streams).		_			
	T a sol						
	Local unemployment	• Job creation.					
	rate	Skills development.		+	S	N/A	-
	Visual landscape	Visual disturbance on adjacent land and road users		-			
		as a result of the use of construction equipment,					
		excavation and building material;					
L		Aesthetic impact as a result of litter dispersion and		_	S	Yes	_
M M		untidy housekeeping from contractors; and			S	100	
VIRONME		• Visual impact as a result of the development					
TIR ₀		(change of sense of place).					
	Traffic volumes	• The movement of heavy vehicles during the					
\overline{G}		clearance of vegetation and topsoil has the potential					
MI		to damage local farm roads and create dust and		<mark>/</mark>			
CONOMI		safety impacts for other road users in the area.	-	<mark>/</mark>	M	Yes	-
		Traffic on the road is generally low, thus the impact		<mark>/</mark>			
<u> </u>		would not be significant.		<mark>/</mark>			
SOCIAL/	Health & Safety	Air/dust pollution.					
	J	Road safety.					
		•			s	Yes	_
		 Health risks as a result of waste generation and storage; and 			~		
		 Possible increase in criminal activity. 					
	Noise levels	 During the construction phase there is likely to be 					
		an increase in noise pollution from construction		<mark>/</mark>			
		vehicles and construction staff.	-	<mark>/</mark>	M	Yes	-

		Tourism industry	N. !		<u> </u>			
		Tourism industry	Noise.Dust.	-		S	Yes	-
		Heritage resources	 Destruction of cultural and heritage artefacts found underground; and Destruction of alternation of buildings older than 60 years. 	-	N/A	N/A	N/A	HIA Study to confirm
		D 0 D1	OPERATIONAL PHASE					T
 Removal of vegetation Clearing of areas for mining Hardening of surface areas Management of storm water Operation of equipment and machinery 		Fauna & Flora	 During the operational phase of the project there will be disturbance and destruction of habitats, faunal species and vegetation. Impacts on fauna species of conservation importance (including suitable habitat) 		_	L	Yes	-
 Vehicle activity Domestic and industrial waste Storage of chemicals, mixes and fuel Spills and leaks 		Air quality	 Impact on air quality as a result of the dust generation from cleared areas; Impact on air quality as a result of emissions from machinery and increased vehicle usage; Odour emissions 		_	M	Yes	-
• Mining BIOPHYSICAL ENVIRONMENT	SICAL	Soil	 Considering the slope angle, parental rock, depositional environment and grading of the upper soils inspected on site, an intermediate to high erodibility is assigned to the site; Loss of soil resources as a result of soil stripping of the mining footprint; Sterilisation of soil resources as a result of hydrocarbon/chemical/waste contamination; Possibility of erosion as a result of runoff from cleared and compacted areas resulting in the soil instability and loss of soil resources; Soil contamination as a result of uncontrolled sewage handing; Indirect impact on the loss of micro habitats following soil removal; and Erosion due to floods. This will result in grazing and cultivation potential being lost. 		-	L	Yes	-
		Geology	 Hard/compact geology. Steep slopes or areas of unstable natural slopes. Areas subject to seismic activity. Areas subject to flooding. 		-	L	Yes	-
		Existing services infrastructure	 Mixing of waste and uncontrolled disposal; Pollution and aesthetical impacts as a result of uncontrolled waste storage; Uncontrolled storage of waste leading to pollution; Impact on groundwater as a result of uncontrolled waste handling; Impact on surrounding environment as a result of sewage control and waste water generation; and 		-	S	Yes	-

	 Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal. Generation of waste that need to be accommodated at a licensed landfill site. Generation of sewage that need to be accommodated by the local sewage plant. Increase in construction vehicles on existing roads. 					
Ground water	 Impact on groundwater quality as a result of soil pollution due to the usage of hazardous substances on site; Impact on groundwater as a result of uncontrolled waste handling; and Hydrocarbon contamination is possible due to accidental spills of diesel/oils, etc. from the usage of heavy machinery and construction vehicles on site. 		1	М	Yes	-
Surface water	 Possible contamination of surface water resources as a result of contaminated runoff; Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal; Sedimentation of surface water resources as a result of runoff from cleared areas; Contamination of surface water resources as a result of uncontrolled waste handling and disposal; The development will increase storm water runoff resulting in erosion and possible sedimentation. 			М	Yes	-
Local unemployment rate Visual landscape	 Job creation. Skills development. Visual disturbance on adjacent land and road users as a result of the use of mining equipment, excavation and building material; Aesthetic impact as a result of litter dispersion and untidy housekeeping from contractors; and Visual impact as a result of the development (change of sense of place). 		+	L S	N/A Yes	-
Traffic volumes OUD OUD Traffic volumes	 The movement of heavy vehicles during the clearance of vegetation and topsoil has the potential to damage local farm roads and create dust and safety impacts for other road users in the area. Increase in vehicular traffic 	-		М	Yes	-
Health & Safety	 Air/dust pollution. Road safety. Risks due to mining. Health risks as a result of waste generation and storage; and Possible increase in criminal activity. 		-	М	Yes	-

Noise levels	During the construction phase there is likely to be an increase in noise pollution from mining vehicles and construction staff.		M	Yes	-
Tourism industry	Noise.Dust.Change in land-use/sense of place.	-	S	Yes	-
Heritage resource	 Destruction of cultural and heritage artefacts found underground; and Destruction of alternation of buildings older than 60 years. 	_	N/A N/A	N/A	HIA Study to confirm

(N/A) No impact (+) Positive Impact (-) Negative Impact (S) Short Term (M) Medium Term (L) Long Term



k) Summary of specialist reports.

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

No specialist studies where conducted.

Table 18: Summary of the key findings of the Environmental Impact Assessment

		SPECIALIST	REFERENCE TO
		RECOMMENDATION	APPLICABLE
I IOT OF		S THAT HAVE BEEN	SECTION OF
LIST OF	DECOMPLETE A TRANSPORT OF SPECIAL VICE DEPORTS	INCLUDED IN THE	REPORT WHERE
STUDIES	RECOMMENDATIONS OF SPECIALIST REPORTS	EIA REPORT	SPECIALIST
UNDERTAKEN		(Mark with an X where	RECOMMENDATI
		applicable)	OS HAVE BEEN
			INCLUDED.
Ecological Assessment	Still waiting for the report		
Heritage Assessment	According to the Phase 1: Heritage Impact Assessment (2019) (Appendix 9), the following sites, features or objects of cultural significance were identified on the whole farm of Bakhoutrandjes 205 JP: • 7.2.1 – 7.2.5: A number of similar type of stone walled sites dating to the Late Iron Age (from c. 1600 to 1800), that can be linked to Tswana (Tlokwa) occupation of the larger region. It is probably a continuation of the main settlements known as Marathodi, located some distance to the south on the farm Vlakfontein. It seems as if the sites are concentrated on outcrops forming low ridges. These locations were chosen as it supplied a ready source of building material (stone), but it is also away from the turf soil which is to unstable to build on. • 7.3.1: Informal burial site with approximately seven graves. These graves probably originated from people that stayed in the larger region as farm		

labourers. The graves seem to be very old and has not been visited or cleared of vegetation in a very long time. It is difficult to establish a definite number as all of them are marked only with stone cairns and is currently overgrown with shrubs and aloes.

However, it is important to note that the above mentioned identified sites do not occur within the 5Ha Mining Permit Area applied for.

Although none of the identified heritage objects or sites occur within the proposed 5Ha application area, the following mitigation measures and recommendations should be adhered to, as captured within the Phase 1: Heritage Impact Assessment (2019) (Appendix 9):

- Known sites should be clearly marked in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).

In order to achieve this, the following should be in place:

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go

- areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.
- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

Conditions for inclusion in the environmental authorisation:

- The Palaeontological Sensitivity Map (SAHRIS) indicate that a portion of the study area has sections that has a high sensitivity of fossil remains to be found, whereas the largest section has a moderate sensitivity. Both these areas require palaeontological studies. The section indicated in grey do not require any palaeontological study.
- The boundaries of the areas marked as highly sensitive for the presence of cultural heritage sites (LIA sites) should not be taken as final and should be confirmed when the vegetation cover has gone down by the end of the winter season.
- A heritage assessment should be conducted over each identified localised drill site in order to identify any cultural, heritage and or archaeological features which may be impacted on.
- Should archaeological sites or graves be exposed in other areas during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.



1) Environmental impact statement

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

This section summarises the assessment and conclusions drawn from the proposed small scale mining area. This section draws on the gathered information as part of the EIA process and the knowledge gained by the EAP during the course of the EIA process and presents an informed opinion on the environmental impacts associated with the proposed project. The following conclusions can be drawn for the proposed mining activity:

Potential impacts on biodiversity:

According to the CBA Map, the proposed farm portion fall majorly within CBA2. The following main significant impacts were identified: Habitat loss, loss of indigenous species, Loss of sensitive species (Note no Threatened species). Fragmentation of landscape and loss of connectivity.

• Potential impacts on land use:

From agricultural (currently utilised for livestock grazing (natural)) to mining. Change of sense-of place

• Positive impacts:

The proposed development will have a socio-economic benefit to the area, through providing job opportunities to the local community of Witrandje.

• Potential impacts on land use:

The farm is currently utilised for livestock grazing (natural) by the community of Witrandje and the activity will have an impact on the land use.

Potential negative impacts:

Impact such as noise, dust, soil degradation, storm water, traffic, health and safety have been Identified. The proposed development are expected to be of low-high impact, of medium terms and site specific. These identified impacts can be mitigated or negated through the strict implementation of mitigation measures, as provided for under Part B of this document.

Not all the possible negative impacts and risks, like vegetation clearance, that have been identified in this BA Report can be mitigated and managed by implementing the migratory measures as set out in the EMPr attached in Part B.

ii) 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

Refer to Locality Map attached in Appendix 2.

iii) Summary of the positive and negative implications and risks of the proposed activity and identified alternatives

- Noise levels will increase
- Loss of fauna and flora through vegetation clearance
- Soil pollution through spillages and erosion.
- Potential surface and groundwater impacts through surface run-off and spillages.
- Increase in traffic.
- Dust levels will increase due to mining activities and the increase in the movement of vehicles.
- Increase in water consumption and possible depletion of groundwater resources.
- Visual impact due to the increase of dust.

Not all the possible negative impacts and risks, like vegetation clearance, that have been identified in this BA Report can be mitigated and managed by implementing the migratory measures as set out in the EMPr attached in Part B.

m) Proposed impact management objectives and the impact management outcomes for inclusion in the EMPr;

Management objectives and outcomes include:

- Mosikwe Investments (Pty) Ltd shall ensure that the proposed mining activity does not cause any type of pollution which can harm the environment or community.
- Mosikwe Investments (Pty) Ltd shall minimise waste production caused by its workers and the proposed activities.
- Mosikwe Investments (Pty) Ltd shall ensure that all the mining activities are conducted in such a manner that aims to reduce the following impacts: noise impact, litter, environmental degradation and health hazards i.e. injuries.
- Mosikwe Investments (Pty) Ltd shall ensure that the mine is kept neat and tidy during the waste handling activities in order to prevent type unsightliness and accidents.

Expected outcomes include:

- That the impacts, as a result of the mining activities, are low.
- Ensure compliance with the applicable legislative requirements.
- That the mine is neat and tidy and well managed.
 - n) Final Proposed Alternatives

No alternatives exist. The proposed area is preferred due to its possibility of having Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore resources

o) Description of any assumptions, uncertainties and gaps in knowledge (Which relate to the assessment and mitigation measures proposed)

All the data and information supplied by the applicant, Mosikwe Investments (Pty) Ltd, to Kuhle Environmental Consult (Pty) Ltd are assumed to be accurate and reflective of the current condition of the affected area. It is assumed that the baseline information scrutinised and used to explain the environmental profile is accurate. The uncertainties and gaps in results and knowledge are mostly due to the availability of information, time to gather the relevant information as well as the sometimes-subjective nature of the assessment methodology.

The applicant will comply with all legislation pertaining to the activities of the mine establishment and that all permits and licenses that may be required will be identified and applied for prior to commencement of construction activities.

The Stakeholder Engagement Process is deemed sufficiently effective in identifying the critical issues needing to be addressed in the BAR/EMPr by the EAP. The Stakeholder Engagement Process has sought to involve key stakeholders and individual landowners. Wherever possible the information requested and comments raised by Interested and Affected Parties (I&APs) has been sufficiently addressed and incorporated into the BAR for perusal and comment. A monitoring and evaluation system, including auditing, will be established and operationalized to track the implementation of the EMPr (Part B) ensuring that management measures are effective to avoid, minimize and mitigate impacts and that corrective action is being undertaken to address shortcomings and/or non-conformances.

Mosikwe Investments (Pty) Ltd will adopted a process of continual improvement when managing and mitigating negative environmental impacts arising from the project. The EMPr (Part B) will be used as the basis of environmental management and will regularly be improved and refined where applicable.

In terms of addressing the key issues identified, the EAP is satisfied that there is sufficient information for the competent authority to conduct the significance rating and to make an informed decision. If the authority feels that specialists' studies need to be conducted, such will be corresponded to Mosikwe Investments (Pty) Ltd.

- p) Reasoned opinion as to whether the proposed activity should or should not be authorised
- i) Reasons why the activity should be authorized or not.

Due to the small scale nature of this mine and the information contained in this report and its attached specialist studies, it is the opinion of the EAP that it may be considered to authorise the proposed development and its associated activities. 20.8 12 95.4

The proposed area is preferred since further Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore were identified.

The proposed mining area falls within an area known for several Chrome ore and PGM occurrences, and a number of these have been utilized in the past.

Furthermore, the fact that the area will be rehabilitated back to the location's original state means that it is unlikely that the proposed activity will carry any great long-term negative impacts. With the condition that suggested mitigation measures are implemented.

The option of not approving the activities will result in a significant loss to valuable Chrome ore and PGM being exploited. And all economic benefits will be lost.

ii) Conditions that must be included in the authorisation

- There should be strictly adhered to the mitigations set out in the EMPr.
- Monthly audits, on the compliance of the EMPr, should be conducted.
- No blasting shall take place.
- Concurrent rehabilitation should take place as far as possible.
- q) Period for which the Environmental Authorisation is required.

For a minimum of 5 years.

r) Undertaking:

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

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

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I, Dani	e Labuschagne (EAP) herewith confirms
Α.	the correctness of the information provided in the reports \boxtimes
В.	the inclusion of comments and inputs from stakeholders and I&APs ; $\boxed{\ }$
C.	the inclusion of inputs and recommendations from the specialist reports where relevant; \boxtimes and
D.	the acceptability of the project in relation to the finding of the assessment and level of mitigation proposed; \boxtimes
Signature o	of the environmental assessment practitioner:
Kuhle Envi	ronmental Consult (Pty) Ltd – Environmental Consultants
Name of co	ompany:
Date:	

s) Financial Provision:

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

i) Explain how the aforesaid amount was derived.

The Financial Provision cost estimate calculated above is aligned with the Guideline Document for the Evaluation of Quantum of Closure related Financial Provision Provided by a Mine, by the DMR (January, 2005). The amount total was calculated by a registered EAP from Kuhle Environmental Consult (Pty) Ltd.

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

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

Financial Guarantee

The applicable financial guarantee that is being required for rehabilitation, will be submitted by **Mosikwe Investments (Pty) Ltd**.

Rehabilitation Fund

Provision for rehabilitation during closure will be provided for by **Mosikwe Investments (Pty) Ltd Please note:** The open cast area can't be completely backfilled since the rock layer will be

removed, crushed and the Chrome ore and PGM will be sold. Therefore, benches will be sloped. The topsoil and overburden will be backfilled to the open cast area. The area will be sloped as far as possible. Furthermore, as an open cast will be still left behind, the area will be fenced in order to avoid injuries to animals or humans.

- t) Specific Information required by the competent Authority
- i) Compliance with the provisions of sections 24(4)(a) and (b) read with section 24 (3) (a) and (7) of the National Environmental Management Act (Act 107 of 1998). the EIA report must include the:
- 1) Impact on the socio-economic conditions of any directly affected person. (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or Chrome ore and PGM prospecting on any directly affected person including the landowner, lawful occupier, or, where applicable, potential beneficiaries of any land restitution claim, attach the investigation report as **Appendix 2.19.1** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

The following impacts may be regarded as community impacts:

- Noise levels will increase
- Loss of fauna and flora through vegetation clearance
- Soil pollution through spillages and erosion.
- Potential surface and groundwater impacts through surface run-off and spillages.
- Increase in traffic.
- Dust levels will increase due to mining activities and the increase in the movement of vehicles.
- Increase in water consumption and possible depletion of groundwater resources.
- Visual impact due to the increase of dust.
- **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 Chrome ore and PGM prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(*i*)(vi) and (vii) of that Act, attach the investigation report as **Appendix 2.19.2** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

According to the Phase 1: Heritage Impact Assessment (2019) (Appendix #), the following sites, features or objects of cultural significance were identified on the whole farm of Bakhoutrandjes 205 JP:

• 7.2.1 – 7.2.5: A number of similar type of stone walled sites dating to the Late Iron Age (from c. 1600 to 1800), that can be linked to Tswana (Tlokwa) occupation of the larger region. It is probably a continuation of the main settlements known as Marathodi, located some distance to the south on the farm Vlakfontein.

It seems as if the sites are concentrated on outcrops forming low ridges. These locations were chosen as it supplied a ready source of building material (stone), but it is also away from the turf soil which is to unstable to build on.

• 7.3.1: Informal burial site with approximately seven graves. These graves probably originated from people that stayed in the larger region as farm labourers. The graves seem to be very old and

has not been visited or cleared of vegetation in a very long time. It is difficult to establish a definite number as all of them are marked only with stone cairns and is currently overgrown with shrubs and aloes.

However, it is important to note that the above mentioned identified sites do not occur within the 5Ha Mining Permit Area applied for. (See Figure 13)

Although none of the identified heritage objects or sites occur within the proposed 5Ha application area, the following mitigation measures and recommendations should be adhered to, as captured within the Phase 1: Heritage Impact Assessment (2019) (Appendix #):

- Known sites should be clearly marked in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).

In order to achieve this, the following should be in place:

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.
- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

Conditions for inclusion in the environmental authorisation:

- The Palaeontological Sensitivity Map (SAHRIS) indicate that a portion of the study area has sections that has a high sensitivity of fossil remains to be found, whereas the largest section has a moderate sensitivity. Both these areas require palaeontological studies. The section indicated in grey do not require any palaeontological study.
- The boundaries of the areas marked as highly sensitive for the presence of cultural heritage sites (LIA sites) should not be taken as final and should be confirmed when the vegetation cover has gone down by the end of the winter season.
- A heritage assessment should be conducted over each identified localised drill site in order to identify any cultural, heritage and or archaeological features which may be impacted on.

Should archaeological sites or graves be exposed in other areas during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.

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

As mentioned throughout the document, the mining of Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore Kuhle Environmental Consult (Pty) Ltd: BAR010 – Mosikwe Investments (Pty) Ltd.

are one of the optimal preferred activities for the proposed site and the other is livestock grazing. Surrounding the proposed area there are numerous legal and illegal mining activities taking place.

The applicant believes that Chrome Ore, PGM, Gemstones, Copper Ore, Diamond, Diamond (Alluvial), Diamond (General), Diamond (In Kimberlite) and Nickle Ore are present on the proposed mining area. The mine will provide additional job opportunities to the surrounding community of Witrandje.



PART B: ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

- 1) Draft environmental management programme.
 - a) Details of the EAP
 - i) **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).

Name of Practitioner	Danie Labuschagne
Contact details	Cell No.: (061) 970 2449 e-mail address: danie.kuhle@outlook.com
Name of Practitioner	Miané Swanepoel
Contact details	Email adress: miane.kuhle@outlook.com

ii) Expertise of the EAP

Name of Practitioner	Danie Labuschagne
Qualifications	Master's Degree in Geography and Environmental Management. EAPASA: 2019/1122 Pr.Sci.Nat: 117285
Name of Practitioner	Miané Swanepoel
Qualifications	Completing Master's in Environmental Health

b) Description of the Aspects of the Activity

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

It can be confirmed that the requirements to describe the various aspects of the proposed mining activity that are required by the EMP, is already included in Part A, section 1(h) of this BA Report.

c) Composite Map

(Provide a map (Attached as an Appendix 2) 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)

Find the Locality Map, attached as **Appendix 2**.

- d) Description of Impact Management Objectives Including Management Statements
 - i) **Determination of closure objectives.** (ensure that the closure objectives are informed by the type of environment described in 2.4 herein)

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The Mosikwe mine closure objectives will ensure that the remaining post-closure impacts are reduced and are acceptable to the parties involved.

These closure objectives can/will only be achieved if the following is implemented:

- Decommissioning and removal of all mining-related infrastructure, foundations and concrete from the site.
- Metal, electrical installations or equipment that are part of reclaimable structures will be sold for scrap and also for re-use.
- All unvegetated disturbed areas within the site will be re-vegetated with species that are indigenous and ecologically adapted species which are specific to the area as soon as mining activity ceases.
- The growth and establishment of vegetation and stability thereof will be recorded, as well as erosion and drainage. If any adverse trends are identified, implementation of corrective measures will take place.
- Recording of vegetation will consider the infestation of AIS and also the perpetual ground cover.
- Efficient and cost-effective closure is attained with the lowest level of socioeconomic changes.
- The invasion of AIS into the area will aid as an indication if the vegetation is of a stable, self-sustaining nature with little chance of retrogressing to an extent where water pollution and erosion can occur.
- Perturbation of final landforms must not occur for these landforms must be resilient and self-sustaining to forestall ongoing and further interventions by **Mosikwe Investments (Pty) Ltd.**
- The residual impacts must be acceptable with minimal deterioration over time.
- The outcome of rehabilitation of the mine site would be productive systems, where this site can sustain either livestock and/or wildlife.
- The quality of the environment and human quality of life, which includes general health and safety requirements, would not be imperilled.

The above goal is supported by more specific objectives which are described in the table 19 below.

Table 19: Specific Closure Objectives

_	
Specific Closure	Description of each objective
Objective	
The initial planning and development	 This will provide an all-inclusive direction and guidance for successful closure planning and aid in the implementation of measures for progressive closure over the mine lifetime.
Stability of the physical Environment	 This will ensure the stability of the surface infrastructure and mining residue. Furthermore, taking into account any disturbances that are present when plant decommissioning occurs. This will ensure that removal and/or stabilisation will occur in such a manner that no compromise to post-closure land use will occur and will be long-term sustainable landforms. All surface infrastructure with no beneficial post-closure use will be removed and disposed of. The remaining earth causeways, trenches, etc. will be shaped and vegetated aid in stabilising slopes and integrating it with the surrounding topography.
The quality of the environment	 To ensure that there are no local environmental quality adversely affected by the possible physical effects, which arise from the mining operations and the post-closure mining site. The following aspects must be avoided or limited during the mining operations. Dust fall-out areas surrounding the mining area. Limiting the potential for dust generation on the rehabilitated mining site that could cause nuisance and/or health effects to surrounding landowners; Wash-off and/or mobilisation of chemically contaminated soils and sediments from the mining area that could affect the local aquatic health and other water users.
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	 Possible shallow contamination of groundwater can affect the quality of the local water resources.
	 With an increase prevalence of the points could result in adverse effects that could not be readily addressed and/or mitigated once the
	 mine has closed. Also, by limiting the possible adverse water quality and quantity effects arising from the rehabilitated mining site can ensure that the long term beneficial use of local resources are not compromised In addition by conducting soil clean-up and remediation it can ensure that the planned land use can be implemented and maintained
The health and safety aspects	 To limit the possible health and safety threats to humans and animals due to the hazardous terrain by Demonstrating through upfront soil testing that any resultant
	inorganic and organic pollutants are present on the site.Removal of potential contaminants such as hydrocarbons and
	 chemicals off-site. Shaping of causeways and opencast area to ensure safe slopes and integration of these causeways into surrounding topography.
	 Ultimately, ensuring that the quality of the environment as reflected above is achieved.
The capability of the land and land-use	 To ensure that the specific land's capability and to achieve and support the planned land use can be achieved by: Clean-up and reclamation of contaminated soil areas to not
	compromise the above land use planning set aside for implementation purposes o To ensure that the entire rehabilitated mining site is free
	 draining. Transporting all mining-related surface infrastructure to third party companies for beneficial use after closure.
The aesthetic quality of the mining area	To ensure that the rehabilitated mining site will display, at a minimum, an acceptable aesthetic aspect that would not accommodate
	the planned land use depart from: o A mining area that is suitably cleared up with no waste piles present.
	 Rehabilitated mining area that is free of any draining and disrupted areas that are properly vegetated. Rehabilitated mining residues that are properly landscaped,
	and combined with the surrounding environment as far as possible.
	Please note: The opencast area can't be completely backfilled since the removal of the rock layer occurred. The rock layer will be crushed and the Chrome ore and PGM will be sold. Therefore, benches will be removed by creating sloped sides.
	For this reason, the topsoil and overburden will be backfilled to the opencast area and the area will be sloped as far as possible. Furthermore, as an opencast will be still left behind. The area will also be fenced to avoid any injuries to animals or humans.
	 The terrain and hardstand areas are shaped and rehabilitated in such a way that it roughly imitates that of the local natural surface topography.
The viability of the Landscape	To create a self-sustaining landscape that is and over time will evolve and ultimately meet the desired ecosystem structure with its function and composition by:
	 Conduct profiling of the surface, with associated material movement optimisation, to acquire a landscape similar to the natural landscapes. This will ultimately support the sequence trajectory towards a climax ecological system.

	 Forming woody patches and establishing "rough and loose" areas for pioneer species to establish around the respective patches. Establishing pioneer species as follows: Collect and prepare seeds for broadcasting; Seedlings then grow at on-site nursery; Cuttings are then collected from the surrounding veld areas; Conducting monitoring of rehabilitation and corrective action where required.
The quality of Biodiversity	 Where appropriate, the encouragement of the re-establishment of native vegetation on the rehabilitated mine site such the terrestrial biodiversity is to a large extent re-instated over time, by: Stabilising disturbed areas to prevent erosion in the short- to medium term until a suitable vegetation cover has established; and Establishing viable self-sustaining vegetation populations of local fauna, as far as possible.

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

No plant will be constructed on site. The only water to be used is that of portable water, that will be used for consumption and dust suppression.

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

Water uses under section 21 a-k of the NWA may be triggered; thus a Water Use Licence Application (WULA) will be lodged with the department of Water & Sanitation (DWS) if needed.



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iv) Impacts to be mitigated in their respective phases

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

Table 20: Impacts to be Mitigated in their Respective Phases

ACTIVITIES	PHASE	SIZE AND	MITIGATION MEASURES	COMPLIANCE	TIME PERIOD FOR
		SCALE of		WITH	IMPLEMENTATION
(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etcetc E.g. For mining,- excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etcetc.)	(of operation in which activity will take place. State; Planning and design, Pre- Construction' Construction, Operational, Rehabilitation, Closure, Post closure).	disturbance (volumes, tonnages and hectares or m²)	(describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	(A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	Describe the time period when the measures in the environmental management program must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. With regard to Rehabilitation, therefore state either: Upon cessation of the individual activity Or. Upon the cessation of mining, bulk sampling or Chrome ore and PGM prospecting as the case may be.
Vegetation Clearance	Construction and Operation Phase- This includes Drilling, Trenching, pitting and Opencast mining)	The application area of 5 Ha – However, the applicant will only clear the areas where mining takes place.	 Site clearing must take place in a phased manner, as and when required. To ensure that areas aren't disturbed unnecessarily. Areas which are not planned to be mined within two months must not be cleared, this will reduce erosion risks. The area which will be cleared must be demarcated/mapped visibly and this footprint strictly maintained. Also, this 	Compliance with Duty of Care as detailed within NEMA. Meet Rehabilitation standards and objectives	Duration as stipulated within the MP.

		5.	information must be clearly communicated to all employees. Spoil that is removed from the mining area must be moved to an approved spoil or licensed landfill site. Silt fences and erosion control measures must be implemented where areas are prone to erosion.		
Access Roads	Construction and Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	 3. 4. 6. 	The landowner and contractor shall be consulted when planning of the access routes to the site for construction/mining purposes takes place. All the agreements reached shall be documented and records shall be kept. The Contractor shall be responsible to clearly mark all the access roads. Roads that may not be used by mining vehicles shall be marked with a "NO ENTRY FOR MINING VEHICLES" sign. Construction phase and operational phase routes required must be clearly defined. To reduce dust and nuisance, dust suppression measures should be implemented – like damping down of the un-tarred roads. To minimise erosion or undue surface damage. The surfaces compacted during the construction/operational phases shall be deep ripped to loosen up the compacted layers and to allow regrading to even running levels. Dust suppression measures, such as wetting of gravel roads on a regular basis, must be implemented for heavy	Compliance with Duty of Care as detailed within NEMA. Meet Rehabilitation standards and objectives	Duration as stipulated within the MP.

			8.	vehicles. Also, vehicles used to transport the gravel are fitted with tarpaulins or covers; All vehicles must be road-worthy and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits.		
Area where the mining of Chrome ore and Platinum Group of Metals occur.	Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	The application area of 5 Ha – However, the applicant will only clear the areas where mining takes place.	2.	The contractor is responsible to determine the average depth of topsoil (If topsoil exists), prior to the commencement of earthworks. This should then be agreed with the ECO. The full depth of topsoil, as agreed upon, shall be stripped from the affected areas s prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil shall be re-used where possible in order to promote the rehabilitation of disturbed areas. Topsoil and subsoil or any other material, shall not be mixed during stripping. The topsoil must be preserved on site in and around the pit/trench/open cast area. Subsoil and overburden removed from the mining area should be stockpiled separately to be returned for backfilling in the correct soil horizon order upon completion of the mining activities. Please note: The open cast area can't be completely backfilled since the rock layer will be removed, crushed and the Chrome ore and PGM will be sold. Therefore, benches will be	Compliance with Duty of Care as detailed within NEMA. Meet Rehabilitation standards and objectives	Duration as stipulated within the MP.

blasted at closure to create sloped
±
sides. The topsoil and overburden will
be backfilled to the open cast area. The
area will be sloped as far as possible.
Furthermore, as an open cast will be
still left behind, the area will be fenced
in order to avoid injuries to animals or
humans.
5. Stockpiles should be covered either by
vegetation or geofabric, when exposed
to windy conditions or heavy rainfall.
6. Berms, trenches or low brick walls may
also be used to further protect the
stockpiles.
7. Weed and alien vegetation growth
shall not be allowed on stockpiles
8. Where contamination of soil is
expected, a soil analysis must be done
by an accredited laboratory prior to
disposal of soil. This will determine the
appropriate disposal route to be taken.
After dumping, proof from a registered
waste landfill site should be attained
and submitted to the project manager
and ECO.
9. The impact on the geology will be
permanent. There is no mitigation
measure.
10. The mining activities must adhere to
the applicable noise regulations and
limit noise within the standard
working hours in order to reduce
disturbance of
dwellings/communities of the
surrounding area.
11. Mining equipment, pans, workshops
and other noisy fixed facilities should
the other holsy fixed facilities should

be located well away from the identified noise sensitive areas. Once the proposed final layouts are made available by the Contractor(s), the sites must be evaluated in detail and specific measures designed to the system. 12. Heavy vehicles, including transportation trucks, should be routed away from noise sensitive areas, where possible. 13. The operating hours of operations that are very noisy should be combined so that they occur where possible at the same time in order to reduce noise. 14. Mine workers to wear necessary ear protection gear. 15. Noise from labourers must be	
where appropriate fitted with the necessary silencers. Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or equipment from site. 17. It is the contractor's responsibility to discourage labourers from loitering in the area and causing noise disturbance. Where and if possible, labourers shall be transported to and from the mining site. 18. Implementation of enclosure and cladding of processing plants.	

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

Table 21: Impact Management Outcomes

ACTIVITY (whether listed or not listed). (E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etcetc.).	(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etcetc)	ASPECTS AFFECTED	PHASE In which impact is anticipated (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	(modify, remedy, control, or stop) through (e.g. noise control measures, stormwater control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. • Modify through alternative method. • Control through noise control • Control through management and monitoring • Remedy through rehabilitation	STANDARD TO BE ACHIEVED (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
Clearance of vegetation for site preparation	There will be disturbance and destruction of habitats, faunal species and vegetation. Impacts on fauna species of conservation importance (including suitable habitat)	Fauna and Flora Impacts Soil Impacts	Construction and Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	 Appoint an ECO to oversee the activities and ensure that ecological aspects are kept in mind. All AIS must be removed and should be replaced with indigenous vegetation. No animals should be intentionally killed or destroyed 	Minimisation of impacts to acceptable limits. Rehabilitation standards and objectives.

	and passbing and hunting should
	and poaching and hunting should
	not be permitted on the site.
	4. The applicant shall be responsible
	for informing all employees about
	the need to prevent any harmful
	effects on natural vegetation on or
	around the mining sites as a result
	of their activities.
	5. Reseed cleared areas to prevent
	soil erosion.
	6. Fencing should not impact on
	indigenous plants.
	7. No unnecessary or un-permitted
	clearance of vegetation during the
	operational phase.
	8. All informal fires on the property
	shall be prohibited specifically
	during the construction phase of
	the proposed development.
	9. The clearance of vegetation must
	be conducted in a phased manner
	and vegetation not interfering
	with the mining activities must
	not be disturbed
	10. Vegetation removal must be
	limited to the mining area. 11. Exotic and invasive plant species
	should not be allowed to
	establish, if the development is
	approved.
	12. There should be a preconstruction
	walk-through of the development
	footprint/project site in order to
	locate individuals of plant SCC. A

search and rescue exercise must
be done to locate and relocate any
protected species to a suitable and
similar habitat where these plants
can grow without any
disturbance;
13. In case Camel Thorn or
Shepherd's trees are found
permits must be obtained from
DAFF to remove these
individuals. The contractor must
apply for these permits in a
phased manner as mining
proceeds.
14. All damaged areas shall be
rehabilitated upon completion of
the contract. Please note: The
open cast area can't be completely
backfilled since the rock layer will
be removed, crushed and the
Chrome ore and PGM will be
sold. Therefore, benches will be
blasted at closure to create sloped
sides. The topsoil and overburden
will be backfilled to the open cast
area. The area will be sloped as far
as possible. Furthermore, as an
open cast will be still left behind,
the area will be fenced in order to
avoid injuries to animals or
humans.
15. Re-vegetation of the mining site is
aimed to return the vegetation to
the natural vegetative conditions
prevailing prior to construction
(As far as possible).
(ris lat as possible).

	16. All natural areas impacted during
	the construction/operational
	phase must be rehabilitated with
	locally indigenous grasses typical
	of the representative botanical
	unit.
	17. Rehabilitation must take place in
	a phased approach as soon as
	possible. Please note: The open
	cast area can't be completely
	backfilled since the rock layer will
	be removed, crushed and the
	Chrome ore and PGM will be
	sold. Therefore, benches will be
	blasted at closure to create sloped
	sides. The topsoil and overburden
	will be backfilled to the open cast
	area. The area will be sloped as far
	as possible. Furthermore, as an
	open cast will be still left behind,
	the area will be fenced in order to
	avoid injuries to animals or
	humans.
	18. Rehabilitation process must make
	use of species indigenous to the
	mining area. It is allowed to use
	seeds from surrounding seed
	banks for re-seeding.
	19. Rehabilitation must take place in
	such a manner that no erosion is
	caused by surface run-off.
	20. Planting of indigenous tree
	species in areas not to be
	cultivated or built on must be
	encouraged.
	21. Vegetation not interfering with
	construction/mining operations
	construction, manife operations

shall be left undisturbed and
indicated in the mine plan.
22. The mining area must be well
delineated and no
construction/operational
activities must be allowed to
commence outside of this defined
boundary.
23. The clearance of vegetation must
be conducted in a phased manner
and vegetation not interfering
with the mining activities must
not be disturbed.
24. The site office and laydown areas
must be clearly defined and no
encroachment must occur beyond
demarcated areas.
25. Strict and regular audits should
take place to ensure containment
of the defined mining and
laydown areas.
26. Soils must be kept free of
petrochemical solutions that may
be kept on site during the
construction/operational phase.
Spillage can result in sterilisation
of land as a result of mining, soil
pollution and erosion
27. No animals should be
intentionally killed or destroyed
and poaching and hunting
should not be permitted on the
site.
28. No firewood to be collected. All
informal fires on the property
shall be prohibited specifically

Later than 1 C 1 C
during the construction phase of
the proposed development.
29. Appoint an ECO to oversee the
activities and ensure that
ecological aspects are kept in
mind.
30. All AIS must be removed and
should be replaced with
indigenous vegetation.
31. Alien vegetation on the site will
need to be controlled.
32. The contractor and applicant shall
be responsible for implementing a
programme that will promote
weed control (particularly in
disturbed areas); and grassing of
any remaining stockpiles to
prevent weed invasion.
33. Weed control measures must be
applied to eradicate any noxious
weeds (category 1a &1b species) on disturbed areas.
on disturbed areas. 34. Herbicide use shall only be
allowed according to a qualified
specialist.
35. The use of pesticides shall only be
allowed according to a qualified
specialist.
36. Rehabilitation to be undertaken as
soon as possible after the mining
activities have been completed.
Please note: The open cast area
can't be completely backfilled
since the rock layer will be
removed, crushed and the
Chrome ore and PGM will be

blasted at closure to create sloped sides. The topsoil and overburden will be backfilled to the open cast area. The area will be sloped as far as possible. Furthermore, as an open cast will be still left behind, the area will be tenced in order to avoid injuries to animals or humans. 37. No trapping or snaring to fauna during the construction/operational phase is to be allowed. 38. No faunal species must be disturbed, trapped, hunted or killed during the construction/operational phase. 49. Any fauna threatened by the construction/operational phase. 39. Any fauna threatened by the construction and operation activities should be removed to safety by the ECO or appropriately qualified environmental officer. 40. The speed of vehicles within the site to be strictly controlled to between 20 - 30km/h to avoid collisions with susceptible species such as snakes and tortoises. 41. If trenches need to be dug for electrical cabling or other purposes, these should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which	
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trapped in them. Trenches which	
are exposed should contain soil	
	are exposed should contain soil

				ramps allowing fauna to escape the trench.	
Mining Chrome ore and PGM- excavations	Loss of soil resources as a result of soil stripping of the construction footprint; Sterilisation of soil resources as a result of hydrocarbon/chemical/waste contamination; Possibility of erosion as a result of runoff from cleared and compacted areas resulting in the soil instability and loss of soil resources; Soil contamination as a result of uncontrolled sewage handing; Indirect impact on the loss of micro habitats following soil removal; and Erosion due to floods. This will result in grazing and cultivation potential being lost.	Soil Erosion and Surface runoff Flora	Construction and Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	1. The contractor is responsible to determine the average depth of topsoil (If topsoil exists), prior to the commencement of earthworks. This should then be agreed with the ECO. The full depth of topsoil, as agreed upon, shall be stripped from the affected areas s prior to the commencement of major earthworks. This should include the building footprints, working areas and storage areas. Topsoil shall be re-used where possible in order to promote the rehabilitation of disturbed areas. 2. Topsoil and subsoil or any other material, shall not be mixed during stripping. 3. The topsoil must be preserved on site in and around the pit/trench/open cast area 4. Subsoil and overburden removed from the mining area should be stockpiled separately to be returned for backfilling in the correct soil horizon order upon completion of the mining activities. Please note: The open cast area can't be completely backfilled since the rock layer will be removed, crushed and the Chrome ore and PGM will be sold. Therefore, benches will be blasted at closure to create sloped	Minimisation of impacts to acceptable limits. Rehabilitation standards and objectives.

	sides. The topsoil and overburden	
	will be backfilled to the open cast	
	area. The area will be sloped as far	
	as possible. Furthermore, as an	
	open cast will be still left behind,	
	the area will be fenced in order to	
	avoid injuries to animals or	
	humans.	
	5. Stockpiles should be covered	
	either by vegetation or geofabric,	
	when exposed to windy	
	conditions or heavy rainfall.	
	6. Berms, trenches or low brick walls	
	may also be used to further	
	protect the stockpiles.	
	7. Weed and alien vegetation	
	growth shall not be allowed on	
	stockpiles	
	8. Where contamination of soil is	
	expected, a soil analysis must be	
	done by an accredited laboratory	
	prior to disposal of soil. This will	
	determine the appropriate	
	disposal route to be taken. After	
	dumping, proof from a registered	
	waste landfill site should be	
	attained and submitted to the	
	project manager and ECO.	
	Records should be kept for each area	
	where soil is disturbed during the	
	construction/operational phase.	
	These records should be included in	
	environmental performance	
	assessment reports, and should	
	include the following:	
	·	

O CDC coordinates of cook
9. GPS coordinates of each disturbed area.
10. The date when topsoil stripping
took place. 11. GPS coordinates of where the
topsoil is stockpiled.
12. The date of cessation of the
construction/operational
activities at the particular mining
site.
13. Photographs of the area upon
cessation of the
construction/operational
activities at the particular mining
site.
14. Date and depth of re-spreading of
topsoil.
15. Photographs of the area on
completion of the rehabilitation
phase and on an annual basis
thereafter to show vegetation
establishment and evaluate
progress of restoration over time.
16. Clearing activities and earth
scraping should preferably be
restricted to the dry season in
order to prevent erosion and
siltation.
17. The dry months are also the
period when the majority of
species are either dormant or
finished with their breeding
activities.
18. Future soil stockpiling areas must
follow environmentally sensitive

practices and be situated a
sufficient distance away from
drainage areas.
19. The careful position of soil piles,
and runoff control, during all
phases of development, and
planting of some vegetative cover
after completion (indigenous
groundcover, grasses etc.) will
limit the extent of erosion
occurring on the site. Sufficient
measures must be implemented
to prevent the possible
contamination of the surface
water and surrounding
groundwater from runoff.
20. The use of water on the site must
be carefully monitored to ensure
that erosion on slopes does not
take place.
21. Any erosion channels developed
during the construction period
shall be backfilled and compacted
and the areas restored to a proper
condition.
22. All disturbed areas that will
require rehabilitation must be
mulched to encourage vegetation re-growth
23. Installation of silt fences and
erosion berms as necessary to
minimize erosion.
24. Stabilisation of cleared areas to
prevent and control erosion shall
 William Francisco and Consult (Dec) Ltd. DADO10. Modiling Lineary and (Dec) Ltd.

he estimate memoral The
be actively managed. The
method of stabilisation shall be
determined in consultation with
the ECO.
25. Erosion control measures include
use of sand bags, erosion berms
and straw bales placed across
overland stormwater flow to
reduce runoff rate and
sedimentation.
26. Traffic and movement over
stabilised areas shall be restricted
and controlled, and damage to
stabilised areas shall be repaired
and maintained to the
satisfaction of the ECO.
27. Include periodical site inspection
in environmental performance
reporting that inspects the
effectiveness of the run-off control
system and specifically records
the occurrence any erosion on site
or downstream - refer to the
EMPr.
28. Stockpiles not used in three (3)
months after stripping must be
seeded or backfilled to prevent
dust and erosion. Please note: The
open cast area can't be completely
backfilled since the rock layer will
be removed, crushed and the
Chrome ore and PGM will be
sold. Therefore, benches will be
blasted at closure to create sloped
sides. The topsoil and overburden
will be backfilled to the open cast
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area. The area will be sloped as far

				as possible. Furthermore, as an open cast will be still left behind, the area will be fenced in order to avoid injuries to animals or humans.
Excavations	Impact on air quality as a result of increased mining activities; Impact on air quality as a result of emissions from machinery and increased vehicle usage; Odour emissions due to uncontrolled waste disposal; Impact on air quality as a result of exhaust emissions and dust generation.	Air	Construction and Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	 Un-surfaced and un-vegetated areas should be wheel washing and damping down of. The clearing of vegetation should be limited to the development area and should be undertaken prior to the commencement of construction activities. Excavation, handling and transport of erodible materials shall be avoided under high wind conditions or when a visible dust plume is present. Damping down of all exposed soil surfaces with a water bowser or sprinklers when necessary to reduce dust blowing out over the area. The appointed contractor shall be responsible for dust control on site to ensure no nuisance is caused to the surrounding communities. The Contractor shall take all reasonable measures to minimise the generation of dust as a result of construction activities to the satisfaction of the ECO. This applies particularly to the dust which may affect owners and occupiers of the surrounding areas

7. The speed of vehicles within the site to be strictly controlled to between 20 - 30km/h. 8. Any complaints or claims emanating from the lack of dust control shall be attended to immediately by the Contractor and ECO. 9. Any dirt roads that are utilised by the workers must be regularly maintained to ensure that dust levels are controlled. 10. Vehicles should be serviced regularly in order to limit gaseous emissions. 11. Chemical toilets on site should be regularly serviced to avoid potential odours. 12. The Contractor should commence	
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odours.	
12. The Contractor Should Continents	
rehabilitation of exposed soil surfaces	
as soon as practical after completion of	
earthworks. Please note: The open	
cast area can't be completely	
backfilled since the rock layer will be	
removed, crushed and the Chrome ore	
and PGM will be sold. Therefore,	
benches will be blasted at closure to	
create sloped sides. The topsoil and	
overburden will be backfilled to the	
open cast area. The area will be sloped	
as far as possible. Furthermore, as an	
open cast will be still left behind, the	
area will be fenced in order to avoid	
injuries to animals or humans.	
13. All informal fires on the property shall	
be prohibited specifically during the	
construction/operational phase of the	
proposed development.	

			14. The Contractor shall have operational fire-fighting equipment available on	_
			site at all times. The level of firefighting equipment must be	
			assessed and evaluated through a typical risk assessment process, which	
			is done by a qualified professional specializing in firefighting.	
heritage undergr Destruct	etion of cultural and eartefacts found round; and etion of alternation of gs older than 60 years. Cultural and Heritage Impacts	Construction and Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	 Should be clearly marked in order that they can be avoided during construction activities The contractors and workers should be notified that archaeological sites might be exposed during the construction activities. Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the ECO shall be notified as soon as possible. All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these 	Minimisation of impacts to acceptable limits
			specialists, the ECO will advise the necessary actions to be taken.	
			5. Under no circumstances shall any	
			artefacts be removed, destroyed	

	or interfered with by anyone on
	the site; and
	6. Contractors and workers shall be
	advised of the penalties
	associated with the unlawful
	removal of cultural, historical,
	archaeological or
	palaeontological artefacts, as set
	out in the National Heritage
	Resources Act (Act No. 25 of
	1999), Section 51. (1).
	7. Known sites should be located
	and isolated, e.g. by fencing them
	off. All construction workers
	should be informed that these are
	no-go areas, unless accompanied
	by the individual or persons
	representing the ECO.
	8. In areas were the vegetation is
	threatening the heritage sites, e.g.
	growing trees pushing walls over,
	it should be removed, but only
	after permission for the methods
	proposed has been granted by
	SAHRA. A heritage official
	should be part of the team
	executing these measures.
	Although none of the identified heritage
	objects or sites occur within the proposed
	5Ha application area, the following
	mitigation measures and

recommendations should be adhered to, as captured within the Phase 1: Heritage Impact Assessment (2019) (Appendix #): - Known sites should be clearly marked in order that they can be avoided during construction activities. - The contractors and workers should be notified that archaeological sites might be exposed during the construction activities. - Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as	
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Environmental Control Officer	
shall be notified as soon as	
possible;	
- All discoveries shall be reported	
immediately to a heritage	
practitioner so that an	
investigation and evaluation of	
the finds can be made. Acting	
upon advice from these	
specialists, the Environmental	
Control Officer will advise the	
necessary actions to be taken;	
- Under no circumstances shall any	
artefacts be removed, destroyed	

or interfered with by anyone on
the site; and
- Contractors and workers shall be
advised of the penalties
associated with the unlawful
removal of cultural, historical,
archaeological or
palaeontological artefacts, as set
out in the National Heritage
Resources Act (Act No. 25 of
1999), Section 51. (1).
In order to achieve this, the following
should be in place:
- A person or entity, e.g. the
Environmental Control Officer,
should be tasked to take
responsibility for the heritage
sites and should be held
accountable for any damage.
- Known sites should be located
and isolated, e.g. by fencing them
off. All construction workers
should be informed that these are
no-go areas, unless accompanied
by the individual or persons
representing the Environmental
Control Officer as identified
above.
- In areas where the vegetation is
threatening the heritage sites, e.g.
growing trees pushing walls over,
it should be removed, but only

	often manufaction for the section to	
	after permission for the methods	
	proposed has been granted by	
	SAHRA. A heritage official	
	should be part of the team	
	executing these measures.	
	Conditions for inclusion in the	
	environmental authorisation:	
	- The Palaeontological Sensitivity	
	Map (SAHRIS) indicate that a	
	portion of the study area has	
	sections that has a high sensitivity	
	of fossil remains to be found,	
	whereas the largest section has a	
	moderate sensitivity. Both these	
	areas require palaeontological	
	studies. The section indicated in	
	grey do not require any	
	palaeontological study.	
	- The boundaries of the areas	
	marked as highly sensitive for the	
	presence of cultural heritage sites	
	(LIA sites) should not be taken as	
	final and should be confirmed	
	when the vegetation cover has	
	gone down by the end of the	
	winter season.	
	- A heritage assessment should be	
	conducted over each identified	
	localised drill site in order to	
	identify any cultural, heritage and	
	or archaeological features which	
	may be impacted on.	
	may be impacted on.	

				C1 11 1 1 1 1 1	
				- Should archaeological sites or	
				graves be exposed in other areas	
				during construction work, it must	
				immediately be reported to a	
				heritage practitioner so that an	
				investigation and evaluation of	
				the finds can be made.	
Construction Vehicles,	During the construction phase	Noise	Construction and	The mining activities must adhere to the	Minimisation of
Machinery	there is likely to be an increase		Operation Phase- This	applicable noise regulations and limit	impacts to
	in noise pollution from		includes Drilling,	noise within the standard working hours	acceptable limits
	construction vehicles and		Trenching, pitting and	in order to reduce disturbance of	-
	construction staff.		open cast mining)	dwellings/communities of the	
				surrounding area.	
	Mining activities will result in			2.Mining equipment, pans, workshops	
	the generation of noise over a			and other noisy fixed facilities should be	
	period of 3-5 years. Sources of			located well away from the identified	
	noise are likely to include			noise sensitive areas. Once the proposed	
	vehicles, the use of machinery			final layouts are made available by the	
	such as backactors, crushers and			Contractor(s), the sites must be evaluated	
	screeners and people working			in detail and specific measures designed	
	on the site; but mining activities			to the system.	
	should be limited to normal			3.Heavy vehicles, including	
	working days and some			transportation trucks, should be routed	
	Saturdays and hours (7:00 –			away from noise sensitive areas, where	
	17:00).			possible.	
				4. The operating hours of operations that	
				are very noisy should be combined so that	
				they occur where possible at the same	
				time in order to reduce noise.	
				5. Mine workers to wear necessary ear protection gear.	
				6.Noise from labourers must be	
				controlled.	
				7. Noise suppression measures must be	
				implemented to all mining equipment.	
				Equipment must be serviced regularly	
				Equipment must be serviced regularly	

Waste management	 Mixing of waste and uncontrolled disposal; Pollution and aesthetical impacts as a result of uncontrolled waste storage; Uncontrolled storage of waste leading to pollution; Impact on groundwater as a result of uncontrolled waste handling; Impact on surrounding environment as a result of sewage control and waste 	Pollution	Construction and Operation Phase- This includes Drilling, Trenching, pitting and open cast mining)	and kept in good working order and where appropriate fitted with the necessary silencers. Should the vehicles or equipment not be in good working order, the Contractor may be instructed to remove the offending vehicle or equipment from site. 8. It is the contractor's responsibility to discourage labourers from loitering in the area and causing noise disturbance. Where and if possible, labourers shall be transported to and from the mining site. 9. Implementation of enclosure and cladding of processing plants. 1. Portable sanitation facilities should be erected for construction personnel. Use of these facilities should be enforced (these facilities should be kept clean so that they are a desired alternative to the surrounding vegetation). These facilities should also be monitored and serviced regularly so as to prevent contamination of the water resources. 2. All solid waste generated during	Minimisation of impacts to acceptable limits
	Impact on surrounding			contamination of the water resources.	

packaging, paper, etc.	5. Construction personnel should be
General waste will be stored	instructed not to dump any building
on the site and removed on	materials on the untransformed
a weekly basis by a	vegetation around the site.
contractor	6. All waste is to be disposed of at the
	local landfill site
	7. Waste Bins should be positioned
	around the site for use by construction
	personnel. These bins should be
	emptied and waste transported to the
	landfill site.
	8. Hazardous waste (Dead livestock) is
	not to be mixed or combined with
	general waste earmarked for disposal
	at the municipal landfill site.
	9. Under no circumstances is waste to be
	burnt or buried on site.
	10. All hazardous waste materials must
	be carefully stored as advised by the
	ECO.
	11. Hazardous waste should then be disposed at a licensed landfill site,
	where practical. Incineration may be
	used where relevant.
	12. Contaminants to be stored safely in a
	bunded area to avoid spillage.
	13. Mining equipment shall be be
	properly maintained and serviced to
	keep oil leaks in check. 14. All necessary precaution measures
	shall be taken to prevent soil or
	surface water pollution from
	hazardous materials used during the
	construction/operational phase.

	15. Hazardous spills shall immediately
	be cleaned up and all the identified
	affected areas rehabilitated.
	16. Portable sanitation facilities should be
	erected for construction/operational
	personnel.
	17. Use of these facilities should be
	enforced (these facilities should be
	kept clean so that they are a desired
	alternative to the surrounding
	vegetation).
	18. These facilities should also be
	monitored and serviced regularly so
	as to prevent contamination of the
	water resources.
	19. No indiscriminate sanitary activities
	on site shall be allowed.
	20. Portable sanitation facilities shall be
	serviced regularly and the ECO shall
	inspect toilets regularly.
	21. Toilets should be no closer than 50m
	or above the 1:100 year flood line from
	any natural or manmade water bodies
	or drainage lines or alternatively
	located in a place approved of by the
	Engineer.
	22. The use of open areas, neighbours
	fences or the surrounding bushes as a
	toilet facility is prohibited.
	23. The construction of "Long Drop"
	toilets is forbidden, but rather toilets
	connected to the sewage treatment
	plant.
	24. Potable water shall be provided for all
	construction/operational staff.
	25. Depending on the nature, severity
	and extent of the hazardous spill, the

	contaminated soil must be either
	excavated or treated on-site as
	advised by the ECO or specialist.
	26. Excavation of contaminated soil must
	be supervised by the ECO or
	specialist. Appropriate
	tools/machinery shall be used to
	move contaminated soil to storage
	containers. Soil shall be stored until
	treated or disposed of at a licensed
	hazardous landfill site.
	27. The ECO or specialist must determine
	the precise treatment/handling
	method of the contaminated soil.
	28. If a hazardous spill occurs on an
	impermeable layered surface, such as
	cement or concrete, the spill must be
	contained using an oil absorbent
	material.
	29. Where and if necessary, oil absorbent
	sheets or pads must be attached to
	leaky machinery or infrastructure.
	These machines should then be fixed
	as quickly as possible.
	30. Remediation materials used for
	petrochemical spills must be used
	according to product specifications
	and guidance by the ECO or
	specialist.
	31. The contaminated remediation
	materials should then be removed
	carefully from the area of the spill to
	prevent further contamination, and
	should then be stored in adequate
	containers until appropriate disposal.

Water Use and Quality	Impact on groundwater	Groundwater	(construction and	1.	A specialist should develop a	
- Third Coo and Quality	quality as a result of soil	& Surface	operation phase)		sustainable water supply	
	pollution due to the usage of	Water Impacts	or comment (management plan to minimise the	
	hazardous substances on	1			impact on natural systems through	
	site;				managing water use, and avoiding	
	• Impact on groundwater as a				depletion of aquifers and minimising	
	result of uncontrolled waste				the impacts on surrounding water	
	handling; and				users.	
	Hydrocarbon contamination			2.	It is advised that any water must be	
	is possible due to accidental				reused, recycled or treated where	
	spills of diesel/oils, etc.				possible.	
	from the usage of heavy			3.	The quality and quantity of effluent	
	machinery and				streams discharged to the	
	construction/operation				environment, including stormwater,	
	vehicles on site.				should be managed and treated to	
					meet the applicable environmental	
	Possible contamination of				effluent discharge guidelines and	
	surface water resources as a				regulations.	
	result of contaminated			4.	Discharge to surface water should not	
	runoff;				result in contamination.	
	Possible contamination of			5.		
	surface water resources as a				should be installed and maintained at	
	result of uncontrolled waste				refueling facilities, workshops, fuel	
	handling and disposal;				storage depots, and containment areas	
	Sedimentation of surface				and spill kits should be available with	
	water resources as a result				emergency response plans.	
	of runoff from cleared areas;			6.	The site must be managed in such a	
	Contamination of surface				way that no pollution of drains,	
	water resources as a result				downstream watercourses or	
	of uncontrolled waste				groundwater occur due to suspended solids and silt or chemical pollutants.	
	handling and disposal;			7.	Installation of silt fences and erosion	
	The development will			7.	berms as necessary to prevent any soil	
	increase storm water runoff				entering the stormwater drains.	
	resulting in erosion and			8.	Temporary control measures include	
	possible sedimentation.			0.	use of sand bags, erosion berms and	
					straw bales placed across overland	
					straw bates placed across overland	

	atomic standard and a solution of the solution
	stormwater flow to reduce runoff rate
	and sedimentation.
	9. Promote a water saving mind set with
	construction/operational phase
	workers in order to guarantee less
	water wastage.
	10. Hazardous substances must be stored
	at least 40m from any water bodies on
	site to avoid pollution.
	11. The installation of the stormwater
	system must take place as soon as
	possible to prevent the possible
	contamination of the surface water
	and surrounding groundwater from
	runoff.
	12. Earth, stone and rubble is to be
	properly disposed of, or utilized on
	site so as not to obstruct natural water
	path ways over the site. i.e. these
	materials must not be placed in
	stormwater channels, drainage lines
	or rivers.
	13. Drainage systems should be checked
	quarterly.
	14. If a batching plant is necessary, run-off
	should be managed effectively to
	avoid contamination of other areas of
	the site. Untreated runoff from the
	batch plant must not be allowed to get
	into the storm water system or nearby
	streams, rivers or erosion channels or
	dongas.
	15. Any contaminated water associated
	with construction activities must be
	contained in separate areas or
	-
	receptacles such as Jo-Jo tanks or

waterproof drums, and must not be allowed to enter into drainage lines
16. Process solution storage ponds and other impoundments designed to hold non fresh water or non-treated process effluents should be lined with an impermeable liner and be equipped with sufficient wells to enable monitoring of water quality and quantity.
17. Adequate sanitary facilities and ablutions must be provided for construction workers (1 toilet per every 15 workers). 18. The facilities must be regularly serviced to reduce the risk of surface or groundwater pollution.
19. Concrete contaminated water must not enter soil or any natural drainage system as this disturbs the natural acidity of the soil and affects plant growth.
 20. Food preparation areas should be provided with adequate washing facilities and food refuse should be stored in sealed refuse bins which should be removed from site on a regular basis. 21. The Contractor should take steps to ensure that littering by
construction/mining workers does not occur and persons should be employed on site to collect litter from

		the site and immediate surroundings,	
		including litter accumulating at fence	
		lines.	
		22. No washing or servicing of vehicles on	
		site.	



E. 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 22: Impact Management Actions

ACTIVITY	POTENTIAL IMPACT	MITIGATION	TIME	PERIO	D FOR	COMPLIANCE	WITH
Whether listed or not listed.	(a.g. dust mains durings	ТҮРЕ	IMPLE	MENTATI	ON	STANDARDS	
(E.g. Excavations, blasting, stockpiles,	surface water contamination, groundwater contamination, air	 (modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc) E.g. Modify through alternative method. Control through noise control Control through management and monitoring Remedy through rehabilitation 	Describe the environ program Measure implement With respectifications.	measures mental m must be i res mented wher egard to R cally this mu	period when in the management implemented nust be n required. Rehabilitation ust take place	(A description of of the recommen 2.11.6 read with 2.15.2 herein wi with any environmental mastandards or prahave been ider Competent Autho	2.12 and ill comply prescribed anagement ctices that ntified by
berms, roads, pipelines, power lines, conveyors, etcetc).			.With r therefor Upon individ or. Upo mini Chro	regard to Regressation cessation activity on the coing, bulk some ore	of the		

Clearance of vegetation There will be disturband destruction of habitats, species and vegetation. Impacts on fauna species conservation importance (including suitable habitation).	aunal and ensure that ecological aspects are kept in mind. 2. All AIS must be removed and should be	by NEMA.
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individuals of plant anasiss of savagans time	
individuals of plant species of conservation	
concern (SCC). A search and rescue exercise	
must be done to locate and relocate any	
protected species to a suitable and similar	
habitat where these plants can grow without	
any disturbance;	
13. In case Camel Thorn or Shepherd's trees are	
found permits must be obtained from DAFF	
to remove these individuals. The contractor	
must apply for these permits in a phased	
manner as mining proceeds.	
14. All damaged areas shall be rehabilitated	
upon completion of the contract. Please	
note: The open cast area can't be completely	
backfilled since the rock layer will be	
removed, crushed and the Chrome ore and	
PGM will be sold. Therefore, benches will be	
blasted at closure to create sloped sides. The	
topsoil and overburden will be backfilled to	
the open cast area. The area will be sloped	
as far as possible. Furthermore, as an open	
cast will be still left behind, the area will be	
fenced in order to avoid injuries to animals	
or humans.	
15. Re-vegetation of the mining site is aimed to	
return the vegetation to the natural	
vegetative conditions prevailing prior to	
construction (As far as possible).	
16. All natural areas impacted during the	
construction/operational phase must be	
rehabilitated with locally indigenous	
ş B	
grasses typical of the representative botanical unit.	
17. Rehabilitation must take place in a phased	
approach as soon as possible. Please note:	
The open cast area can't be completely	
backfilled since the rock layer will be	

removed, crushed and the Chrome ore and
PGM will be sold. Therefore, benches will be
blasted at closure to create sloped sides. The
topsoil and overburden will be backfilled to
the open cast area. The area will be sloped
as far as possible. Furthermore, as an open
cast will be still left behind, the area will be
fenced in order to avoid injuries to animals
or humans.
18. Rehabilitation process must make use of
species indigenous to the mining area. It is
allowed to use seeds from surrounding seed
banks for re-seeding.
19. Rehabilitation must take place in such a
manner that no erosion is caused by surface
run-off.
20. Planting of indigenous tree species in areas
not to be cultivated or built on must be
encouraged.
21. Vegetation not interfering with
construction/mining operations shall be left
undisturbed and indicated in the mine plan.
22. The mining area must be well delineated
and no construction/operational activities
must be allowed to commence outside of
this defined boundary.
23. The clearance of vegetation must be
conducted in a phased manner and
vegetation not interfering with the mining
activities must not be disturbed.
24. The site office and laydown areas must be
clearly defined and no encroachment must
occur beyond demarcated areas.
25. Strict and regular audits should take place
to ensure containment of the defined mining
and laydown areas.
und my down areas.

	26. Soils must be kept free of petrochemical	
	solutions that may be kept on site during the	
	construction/operational phase. Spillage	
	can result in sterilisation of land as a result	
	of mining, soil pollution and erosion	
	27. No animals should be intentionally killed	
	or destroyed and poaching and hunting	
	should not be permitted on the site.	
	28. No firewood to be collected. All informal	
	fires on the property shall be prohibited	
	specifically during the construction phase of	
	the proposed development.	
	29. Appoint an ECO to oversee the activities	
	* *	
	and ensure that ecological aspects are kept	
	in mind.	
	30. All AIS must be removed and should be	
	replaced with indigenous vegetation.	
	31. Alien vegetation on the site will need to be	
	controlled.	
	32. The contractor and applicant shall be	
	responsible for implementing a programme	
	that will promote weed control (particularly	
	in disturbed areas); and grassing of any	
	remaining stockpiles to prevent weed	
	invasion.	
	33. Weed control measures must be applied to	
	eradicate any noxious weeds (category 1a	
	&1b species) on disturbed areas.	
	34. Herbicide use shall only be allowed	
	according to a qualified specialist.	
	35. The use of pesticides shall only be allowed	
	according to a qualified specialist.	
	36. Rehabilitation to be undertaken as soon as	
	possible after the mining activities have	
	been completed. Please note: The open cast	
	area can't be completely backfilled since the	
	The state of the s	

		rock layer will be removed, crushed and the Chrome ore and PGM will be sold. Therefore, benches will be blasted at closure to create sloped sides. The topsoil and overburden will be backfilled to the open cast area. The area will be sloped as far as possible. Furthermore, as an open cast will be still left behind, the area will be fenced in order to avoid injuries to animals or humans. 37. No trapping or snaring to fauna during the construction/operational phase is to be allowed. 38. No faunal species must be disturbed, trapped, hunted or killed during the		
Mining of Chrome	Loss of soil resources as a result	construction/operational phase. 39. Any fauna threatened by the construction and operation activities should be removed to safety by the ECO or appropriately qualified environmental officer. 40. The speed of vehicles within the site to be strictly controlled to between 20 - 30km/h to avoid collisions with susceptible species such as snakes and tortoises. 41. If trenches need to be dug for electrical cabling or other purposes, these should not be left open for extended periods of time as fauna may fall in and become trapped in them. Trenches which are exposed should contain soil ramps allowing fauna to escape the trench. • The contractor is responsible to determine the	Duration of operation	The implementation of the
ore and PGM- excavations	of soil stripping of the construction footprint; Sterilisation of soil resources as a result of	average depth of topsoil (If topsoil exists), prior to the commencement of earthworks. This should then be agreed with the ECO. The full depth of topsoil, as agreed upon, shall be stripped from the affected areas s prior to the	•	recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring

hydrocarbon/chemical/waste	commencement of major earthworks. This	compliance with NEMA and
contamination;	should include the building footprints,	Duty of Care as prescribed
Possibility of erosion as a result	working areas and storage areas. Topsoil shall	by NEMA.
of runoff from cleared and	be re-used where possible in order to promote	
compacted areas resulting in the	the rehabilitation of disturbed areas.	
soil instability and loss of soil	Topsoil and subsoil or any other material, shall	
resources;	not be mixed during stripping.	
Soil contamination as a result of	The topsoil must be preserved on site in and	
uncontrolled sewage handing;	around the pit/trench/open cast area	
Indirect impact on the loss of	Subsoil and overburden removed from the	
micro habitats following soil	mining area should be stockpiled separately to	
removal; and	be returned for backfilling in the correct soil	
Erosion due to floods.	horizon order upon completion of the mining	
This will result in grazing and	activities. Please note: The open cast area can't	
cultivation potential being lost.	be completely backfilled since the rock layer	
	will be removed, crushed and the Chrome ore	
	and PGM will be sold. Therefore, benches will	
	be blasted at closure to create sloped sides. The	
	topsoil and overburden will be backfilled to	
	the open cast area. The area will be sloped as	
	far as possible. Furthermore, as an open cast	
	will be still left behind, the area will be fenced	
	in order to avoid injuries to animals or	
	humans.	
	vegetation or geofabric, when exposed to	
	windy conditions or heavy rainfall.	
	Berms, trenches or low brick walls may also be	
	used to further protect the stockpiles.	
	Weed and alien vegetation growth shall not be	
	allowed on stockpiles	
	Where contamination of soil is expected, a soil	
	analysis must be done by an accredited	
	laboratory prior to disposal of soil. This will	
	determine the appropriate disposal route to be	
	taken. After dumping, proof from a registered	

waste landfill site should be attained and submitted to the project manager and ECO. Records should be kept for each area where soil is disturbed during the construction/operational phase. These records should be included in environmental performance assessment reports, and should include the following: GPS coordinates of each disturbed area. The date when topsoil stripping took place. GPS coordinates of where the topsoil is stockpiled. The date of cessation of the construction/operational activities at the particular mining site. Photographs of the area upon cessation of the construction/operational activities at the particular mining site. Date and depth of re-spreading of topsoil. Photographs of the area on completion of the rehabilitation phase and on an annual basis thereafter to show vegetation establishment and evaluate progress of restoration over time. Clearing activities and earth scraping should preferably be restricted to the dry season in order to prevent erosion and siltation.	
 The dry months are also the period when the majority of species are either dormant or finished with their breeding activities. Future soil stockpiling areas must follow environmentally sensitive practices and be 	
situated a sufficient distance away from drainage areas.	

The careful position of soil piles, and runoff
control, during all phases of development, and
planting of some vegetative cover after
completion (indigenous groundcover, grasses
etc.) will limit the extent of erosion occurring
on the site. Sufficient measures must be
implemented to prevent the possible
contamination of the surface water and
surrounding groundwater from runoff.
The use of water on the site must be carefully
monitored to ensure that erosion on slopes
does not take place.
Any erosion channels developed during the
construction period shall be backfilled and
compacted and the areas restored to a proper
condition.
All disturbed areas that will require
rehabilitation must be mulched to encourage
vegetation re-growth
Installation of silt fences and erosion berms as
necessary to minimize erosion.
Stabilisation of cleared areas to prevent and
control erosion shall be actively managed.
The method of stabilisation shall be
determined in consultation with the ECO.
Erosion control measures include use of sand
bags, erosion berms and straw bales placed
across overland stormwater flow to reduce
runoff rate and sedimentation.
Traffic and movement over stabilised areas
shall be restricted and controlled, and damage
to stabilised areas shall be repaired and
maintained to the satisfaction of the ECO.
Include periodical site inspection in
environmental performance reporting that

 	to the dust rubish many effect assessment	
	to the dust which may affect owners and	
	occupiers of the surrounding areas	
8	3. The speed of vehicles within the site to be strictly	
	controlled to between 20 - 30km/h.	
9	Any complaints or claims emanating from the	
	lack of dust control shall be attended to	
	immediately by the Contractor and ECO.	
1	0. Any dirt roads that are utilised by the workers	
	must be regularly maintained to ensure that	
	dust levels are controlled.	
1	1. Vehicles should be serviced regularly in order to	
	limit gaseous emissions.	
1	2. Chemical toilets on site should be regularly	
	serviced to avoid potential odours.	
1	3. The Contractor should commence rehabilitation	
	of exposed soil surfaces as soon as practical after	
	completion of earthworks. Please note: The	
	open cast area can't be completely backfilled	
	since the rock layer will be removed, crushed	
	and the Chrome ore and PGM will be sold.	
	Therefore, benches will be blasted at closure to	
	create sloped sides. The topsoil and overburden	
	will be backfilled to the open cast area. The area	
	will be sloped as far as possible. Furthermore, as	
	an open cast will be still left behind, the area will	
	be fenced in order to avoid injuries to animals or	
	humans.	
1	4. All informal fires on the property shall be	
	prohibited specifically during the	
	construction/operational phase of the proposed	
	development.	
1	5. The Contractor shall have operational fire-	
	fighting equipment available on site at all times.	
	The level of firefighting equipment must be	
	assessed and evaluated through a typical risk	
	assessment process, which is done by a qualified	
	professional specializing in firefighting.	
	Language of comments are an engineering.	

During the construction phase	1. The mining activities must adhere to the Duration of operation	The implementation of the
there is likely to be an increase	applicable noise regulations and limit noise	recommended mitigation
in noise pollution from	within the standard working hours in order	measures will result in the
construction vehicles and	to reduce disturbance of	minimisation of impacts to
construction staff.	dwellings/communities of the surrounding	acceptable standards,
	area.	thereby ensuring
Mining activities will result in	2. Mining equipment, pans, workshops and	compliance with NEMA and
the generation of noise over a	other noisy fixed facilities should be located	Duty of Care as prescribed
period of 3-5 years. Sources of	well away from the identified noise	by NEMA.
noise are likely to include	sensitive areas. Once the proposed final	
vehicles, the use of machinery	layouts are made available by the	
such as backactors, crushers and	Contractor(s), the sites must be evaluated in	
screeners and people working	detail and specific measures designed to the	
on the site, as well as occasional	system.	
blasting; but mining activities	3. Heavy vehicles, including transportation	
should be limited to normal	trucks, should be routed away from noise	
working days and some	sensitive areas, where possible.	
Saturdays and hours (7:00 –	4. The operating hours of operations that are	
17:00).	very noisy should be combined so that they	
	occur where possible at the same time in	
	order to reduce noise.	
	5. Mine workers to wear necessary ear	
	protection gear.	
	6. Noise from labourers must be controlled.	
	7. Noise suppression measures must be	
	implemented to all mining equipment.	
	Equipment must be serviced regularly and	
	kept in good working order and where	
	appropriate fitted with the necessary	
	silencers. Should the vehicles or equipment	
	not be in good working order, the	
	Contractor may be instructed to remove the	
	offending vehicle or equipment from site.	
	8. It is the contractor's responsibility to	
	discourage labourers from loitering in the	
	area and causing noise disturbance. Where	

workers should be informed that these are	
no-go areas, unless accompanied by the	
individual or persons representing the ECO.	
10) In areas were the vegetation is threatening	
the heritage sites, e.g. growing trees pushing	
walls over, it should be removed, byt only	
after permission for the methods proposed	
has been granted by SAHRA. A heritage	
official should be part of the team executing	
these measures.	
Although none of the identified heritage objects or	
sites occur within the proposed 5Ha application	
area, the following mitigation measures and	
recommendations should be adhered to, as captured	
within the Phase 1: Heritage Impact Assessment	
(2019) (Appendix #):	
- Known sites should be clearly marked in	
order that they can be avoided during	
construction activities.	
- The contractors and workers should be	
notified that archaeological sites might be	
exposed during the construction activities.	
- Should any heritage artefacts be exposed	
during excavation, work on the area where	
the artefacts were discovered, shall cease	
immediately and the Environmental	
Control Officer shall be notified as soon as	
possible;	
- All discoveries shall be reported	
immediately to a heritage practitioner so	
that an investigation and evaluation of the	
finds can be made. Acting upon advice from	
these specialists, the Environmental Control	
Officer will advise the necessary actions to	
be taken;	

- Under no circumstances shall any artefacts	
be removed, destroyed or interfered with by	
anyone on the site; and	
- Contractors and workers shall be advised of	
the penalties associated with the unlawful	
removal of cultural, historical,	
archaeological or palaeontological artefacts,	
as set out in the National Heritage	
Resources Act (Act No. 25 of 1999), Section	
51. (1).	
In order to achieve this, the following should be in place:	
- A person or entity, e.g. the Environmental	
Control Officer, should be tasked to take	
responsibility for the heritage sites and	
should be held accountable for any damage.	
- Known sites should be located and isolated,	
e.g. by fencing them off. All construction	
workers should be informed that these are	
no-go areas, unless accompanied by the	
individual or persons representing the	
Environmental Control Officer as identified	
above.	
- In areas where the vegetation is threatening	
the heritage sites, e.g. growing trees pushing	
walls over, it should be removed, but only	
after permission for the methods proposed	
has been granted by SAHRA. A heritage official should be part of the team executing	
these measures.	
Conditions for inclusion in the environmental	
authorisation:	
- The Palaeontological Sensitivity Map	
(SAHRIS) indicate that a portion of the	
study area has sections that has a high	
sensitivity of fossil remains to be found,	
whereas the largest section has a moderate	

		sensitivity. Both these areas require palaeontological studies. The section indicated in grey do not require any palaeontological study. - The boundaries of the areas marked as highly sensitive for the presence of cultural heritage sites (LIA sites) should not be taken as final and should be confirmed when the vegetation cover has gone down by the end of the winter season. - A heritage assessment should be conducted over each identified localised drill site in order to identify any cultural, heritage and or archaeological features which may be impacted on. - Should archaeological sites or graves be exposed in other areas during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.		
Waste Management	 Mixing of waste and uncontrolled disposal; Pollution and aesthetical impacts as a result of uncontrolled waste storage; Uncontrolled storage of waste leading to pollution; Impact on groundwater as a result of uncontrolled waste handling; Impact on surrounding environment as a result of sewage control and waste water generation; and Possible contamination of surface water resources as a 	 Portable sanitation facilities should be erected for construction personnel. Use of these facilities should be enforced (these facilities should be kept clean so that they are a desired alternative to the surrounding vegetation). These facilities should also be monitored and serviced regularly so as to prevent contamination of the water resources. All solid waste generated during construction, other than natural materials such as soil and rock, shall be disposed of off-site to the landfill site. Separation and recycling of different waste materials is supported. 	Duration of operation	The implementation of the recommended mitigation measures will result in the minimisation of impacts to acceptable standards, thereby ensuring compliance with NEMA and Duty of Care as prescribed by NEMA.

 15. Hazardous spills shall immediately be
cleaned up and all the identified affected
areas rehabilitated. 16. Portable sanitation facilities should be
erected for construction/operational
personnel.
17. Use of these facilities should be enforced
(these facilities should be kept clean so that
they are a desired alternative to the
surrounding vegetation).
18. These facilities should also be monitored
and serviced regularly so as to prevent
contamination of the water resources.
19. No indiscriminate sanitary activities on site
shall be allowed.
20. Portable sanitation facilities shall be
serviced regularly and the ECO shall inspect
toilets regularly.
21. Toilets should be no closer than 50m or
above the 1:100 year flood line from any
natural or manmade water bodies or
drainage lines or alternatively located in a
place approved of by the Engineer.
22. The use of open areas, neighbours fences or
the surrounding bushes as a toilet facility is
prohibited.
23. The construction of "Long Drop" toilets is
forbidden, but rather toilets connected to the
sewage treatment plant.
24. Potable water shall be provided for all
construction/operational staff.
25. Depending on the nature, severity and
extent of the hazardous spill, the
contaminated soil must be either excavated
or treated on-site as advised by the ECO or
specialist.

Water Use and	A Impact on groundwater	 26. Excavation of contaminated soil must be supervised by the ECO or specialist. Appropriate tools/machinery shall be used to move contaminated soil to storage containers. Soil shall be stored until treated or disposed of at a licensed hazardous landfill site. 27. The ECO or specialist must determine the precise treatment/handling method of the contaminated soil. 28. If a hazardous spill occurs on an impermeable layered surface, such as cement or concrete, the spill must be contained using an oil absorbent material. 29. Where and if necessary, oil absorbent sheets or pads must be attached to leaky machinery or infrastructure. These machines should then be fixed as quickly as possible. 30. Remediation materials used for petrochemical spills must be used according to product specifications and guidance by the ECO or specialist. 31. The contaminated remediation materials should then be removed carefully from the area of the spill to prevent further contamination, and should then be stored in adequate containers until appropriate disposal. 	
Water Use and Quality	 Impact on groundwater quality as a result of soil pollution due to the usage of hazardous substances on site; Impact on groundwater as a result of uncontrolled waste handling; and 	 A specialist should develop a sustainable water supply management plan to minimise the impact on natural systems through managing water use, and avoiding depletion of aquifers and minimising the impacts on surrounding water users. It is advised that any water must be reused, recycled or treated where possible. 	

- Hydrocarbon contamination is possible due to accidental spills of diesel/oils, etc. from the usage of heavy machinery and construction/operation vehicles on site.
- Possible contamination of surface water resources as a result of contaminated runoff;
- Possible contamination of surface water resources as a result of uncontrolled waste handling and disposal;
- Sedimentation of surface water resources as a result of runoff from cleared areas;
- Contamination of surface water resources as a result of uncontrolled waste handling and disposal;
- The development will increase storm water runoff resulting in erosion and possible sedimentation.

- 3. The quality and quantity of effluent streams discharged to the environment, including stormwater, should be managed and treated to meet the applicable environmental effluent discharge guidelines and regulations.
- 4. Discharge to surface water should not result in contamination.
- 5. Efficient oil and grease traps or sumps should be installed and maintained at refueling facilities, workshops, fuel storage depots, and containment areas and spill kits should be available with emergency response plans.
- 6. The site must be managed in such a way that no pollution of drains, downstream watercourses or groundwater occur due to suspended solids and silt or chemical pollutants.
- 7. Installation of silt fences and erosion berms as necessary to prevent any soil entering the stormwater drains.
- 8. Temporary control measures include use of sand bags, erosion berms and straw bales placed across overland stormwater flow to reduce runoff rate and sedimentation.
- 9. Promote a water saving mind set with construction/operational phase workers in order to guarantee less water wastage.
- 10. Hazardous substances must be stored at least 40m from any water bodies on site to avoid pollution.
- 11. The installation of the stormwater system must take place as soon as possible to prevent the possible contamination of the surface water and surrounding groundwater from runoff.

12. Earth, stone and rubble is to be properly	
disposed of, or utilized on site so as not to	
obstruct natural water path ways over the	
site. i.e. these materials must not be placed	
in stormwater channels, drainage lines or	
rivers.	
13. Drainage systems should be checked	
quarterly.	
14. If a batching plant is necessary, run-off	
should be managed effectively to avoid	
contamination of other areas of the site.	
Untreated runoff from the batch plant must	
not be allowed to get into the storm water	
system or nearby streams, rivers or erosion	
channels or dongas.	
15. Any contaminated water associated with	
construction activities must be contained in	
separate areas or receptacles such as Jo-Jo	
tanks or waterproof drums, and must not be	
allowed to enter into drainage lines	
16. Process solution storage ponds and other	
impoundments designed to hold non fresh	
water or non-treated process effluents	
should be lined with an impermeable liner	
and be equipped with sufficient wells to	
enable monitoring of water quality and	
quantity.	
quartity.	
17. Adequate sanitary facilities and ablutions	
must be provided for construction workers	
(1 toilet per every 15 workers).	
18. The facilities must be regularly serviced to	
reduce the risk of surface or groundwater	
pollution.	

19. Concrete contaminated water must not enter soil or any natural drainage system as this disturbs the natural acidity of the soil and affects plant growth.	
20. Food preparation areas should be provided with adequate washing facilities and food refuse should be stored in sealed refuse bins which should be removed from site on a regular basis.21. The Contractor should take steps to ensure that littering by construction/mining	
workers does not occur and persons should be employed on site to collect litter from the site and immediate surroundings, including litter accumulating at fence lines. 22. No vehicles shall be washed or serviced on site.	

g) Financial Provision

- i. Determination of the amount of Financial Provision.
 - (a) Describe the closure objectives and the extent to which they have been aligned to the baseline environment described under the Regulation.

As seen in Section "d"

The Mosikwe mine closure objectives will aim to ensure that the remaining post-closure impacts are reduced and are acceptable to the parties involved.

These closure objectives will only be achieved if the following is implemented:

- Decommissioning and removal of all mining-related infrastructure, foundations and concrete from the site.
- Metal, electrical installations or equipment that are part of reclaimable structures will be sold for scrap and also for re-use.
- All unvegetated disturbed areas within the site will be re-vegetated with species that are indigenous and ecologically adapted species which are specific to the area as soon as mining activity ceases.
- The growth and establishment of vegetation and stability thereof will be recorded, as well as erosion
 and drainage. If any adverse trends are identified, implementation of corrective measures will take
 place.
- Recording of vegetation will consider the infestation of AIS and also the perpetual ground cover.
- The invasion of AIS into the area will aid as an indication if the vegetation is of a stable, self-sustaining nature with little chance of retrogressing to an extent where water pollution and erosion can occur.
- Perturbation of final landforms must not occur for these landforms must be resilient and self-sustaining to forestall ongoing and further interventions by **Mosikwe Investments (Pty) Ltd.**
- The residual impacts must be acceptable with minimal deterioration over time.
- The outcome of rehabilitation of the mine site would be productive systems, where this site can sustain either livestock and/or wildlife.
- The quality of the environment and human quality of life, which includes general health and safety requirements, would not be imperilled.
- Efficient and cost-effective closure is attained with the lowest level of socioeconomic changes.
 - (b) Confirm specifically that the environmental objectives in relation to closure have been consulted with landowner and interested and affected parties.

This can be confirmed as it was communicated through the public participation process.

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

The Rehabilitation & Closure Plan is attached as **Appendix 7**.

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

The rehabilitation plan is specifically designed to ensure that every closure objective is achieved.

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

XXXXX

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

Rehabilitation's financial guarantee required for the land disturbed by **Mosikwe Investments** (Pty) Ltd, is submitted in conjunction with the application for the MP. In addition provision for rehabilitation during closure through a rehabilitation trust will be established by **Mosikwe Investments** (Pty) Ltd

Please note: The opencast area can't be completely backfilled since the removal of the rock layer occurred. The rock layer will be crushed and the Chrome ore and PGM will be sold. Therefore, benches will be removed by creating sloped sides. For this reason, the topsoil and overburden will be backfilled to the opencast area and the area will be sloped as far as possible. Furthermore, as an opencast will be still left behind. The area will also be fenced to avoid any injuries to animals or humans.



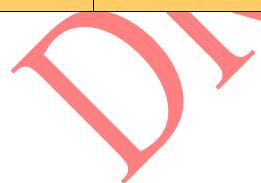
Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

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

Table 23: Mechanisms for Monitoring Compliance

SOURCE ACTIVITY	IMPACTS	FUNCTIONAL REQUIREMENTS	ROLES AND RESPONSIBILITIES	MONITORING AND REPORTING
SOURCE ACTIVITY				
	REQUIRING	FOR MONITORING	(FOR THE EXECUTION OF THE	FREQUENCY and TIME PERIODS
	MONITORING		MONITORING PROGRAMMES)	FOR IMPLEMENTING IMPACT
	PROGRAMMES			MANAGEMENT ACTIONS
Vegetation Clearance	Disruption of habitats	Perform regular internal and external audits.	 Qualified environmental auditor Environmental Manager Environmental Control Officer 	 Monitoring of mining operations should be done frequently At least every 6 months internal audits should be performed. On an annual basis external audits by a suitably qualified auditor should be performed If required, reports should be made available to the competent authority.
Excavations	 Topsoil loss Erosion Air Pollution Dust Pollution Noise Pollution Potential cultural-, heritage artefacts and fossils harm 	Perform regular internal and external audits.	 Qualified environmental auditor Environmental Manager Environmental Control Officer 	 Monitoring of mining operations should be done frequently. At least every 6 months internal audits should be performed. On an annual basis external audits by a suitably qualified auditor should be performed.

Waste management	• Pollution	Perform regular internal and external audits.	 Qualified environmental auditor Environmental Manager Environmental Control Officer 	 If required, reports should be made available to the competent authority. Monitoring of mining operations should be done frequently. At least every 6 months internal audits should be performed. On an annual basis external audits by a suitably qualified auditor should be performed. If required, reports should be made available to the competent authority.
Water quality and use	Water Pollution	Perform regular internal and external audits.	 Qualified environmental auditor Environmental Manager Environmental Control Officer 	 Monitoring of mining operations should be done frequently. At least every 6 months internal audits should be performed. On an annual basis external audits by a suitably qualified auditor should be performed. If required, reports should be made available to the competent authority.



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

A qualified environmental auditor should perform an external audit annually. In addition, monthly audit reports will be composed (by the ECO) and submitted to the applicant and DMR.

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

Mosikwe Investments (Pty) Ltd, the applicant, is committed to advance and implement sustainability throughout their operations.

Together with this commitment the applicant will put forward an Environmental Awareness Plan, which will aid in employees awareness of the potential impacts of the environment which can result from performing their daily jobs. Including, how these potential risks can be reduced through effective training.

This training will include:

- Induction training (full-time staff and all contractors)
- In-house training sessions (relevant employees)
- On the job training regarding the various environmental issues identified.
- Training and skills development through the aid of environmental awareness courses.

The above mentioned will be a focus point of the Environmental Communication Strategy that will be implemented. This will ensure environmental awareness of all personnel and bring under attention what environmental aspects require attention during their day to do work, task and operations.

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

Mosikwe Investments (Pty) Ltd will appoint an ECO that will compile and implement an incident reporting and reporting procedure to identify possible risks throughout the various phases of the project.. In addition to this, the ECO will also implement actions to avoid or reduce environmental impacts.

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

The Competent Authority has of yet not detailed any specific information requirements.

2. 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 Environmental Impact Assessment report and the EMPr report.

I, Danie Labuschagne	(EAP) herewith	confirms
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B. the correctness of the information provided in the reports	\geq	$ \begin{bmatrix} \end{bmatrix} $	
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C. the inclusion of comments and inputs from stakeholders and I&APs;

Kuhle Environmental Consult (Pty) Ltd: BAR010 – Mosikwe Investments (Pty) Ltd.

D.	the inclusion of inputs and recommendations from the specialist reports where relevant; \boxtimes and
Е.	the acceptability of the project in relation to the finding of the assessment and level of mitigation proposed; \square
Signature of th	ne environmental assessment practitioner:
	nmental Consult (Pty) Ltd - Environmental Consultants
Name of comp	pany:
	-END-