BASIC ASSESSMENT REPORT FOR THE PROPOSED ESTABLISHMENT OF A BORROW PIT REQUIRED TO PROVIDE AGGREGATE MATERIAL FOR PAVING OF THE 1.7 KM MOTUPA ROAD, 0.92 KM SELOKWANENG ROAD AND 0.7KM MASETLHENG (CEMETERY) ROAD IN TLOKWENG VILLAGE WITHIN MOSES KOTANE LOCAL MUNICIPALITY

REFERENCE NO: NW30/5/1/1/2/00099BP

DATE: 18 MARCH 2021

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MOSES KOTANE
LOCAL MUNICIPALITY

Lesekha consulting

mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

BASIC ASSESSMENT REPORT

AND

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

THE PROPOSED ESTABLISHMENT OF A BORROW PIT REQUIRED TO PROVIDE AGGREGATE MATERIAL FOR PAVING OF THE 1.7 KM MOTUPA ROAD, 0.92 KM SELOKWANENG ROAD AND 0.7KM MASETLHENG (CEMETERY) ROAD IN TLOKWENG VILLAGE WITHIN MOSES KOTANE LOCAL MUNICIPALITY.

NAME OF APPLICANT	Moses Kotane Local Municipality
POSTAL ADDRESS	Private Bag X1011, Mogwase,
PHYSICAL ADDRESS	Stand No.933, Railway Road, Unit 3, Mogwase, 0314
TEL NO	014 555 1300
FILE REFERENCE NUMBER SAMRAD	NW30/5/1/1/2/00099BP

1. IMPORTANT NOTICE

In terms of the Mineral and Petroleum Resources Development Act (Act 28 of 2002 as amended), ("MPRDA") 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 identified activities will not result in unacceptable pollution, ecological degradation or damage to the environment.

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

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

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

2. OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

(a) Determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context.

(b) identify the alternatives considered, including the activity, location, and technology alternatives.

(c) describe the need and desirability of the proposed alternatives,

(d) through the undertaking of an impact and risk assessment process inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine:

(i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

(ii) the degree to which these impacts—

(aa) can be reversed.

(bb) may cause irreplaceable loss of resources; and

(cc) can be managed, avoided or mitigated.

(e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—

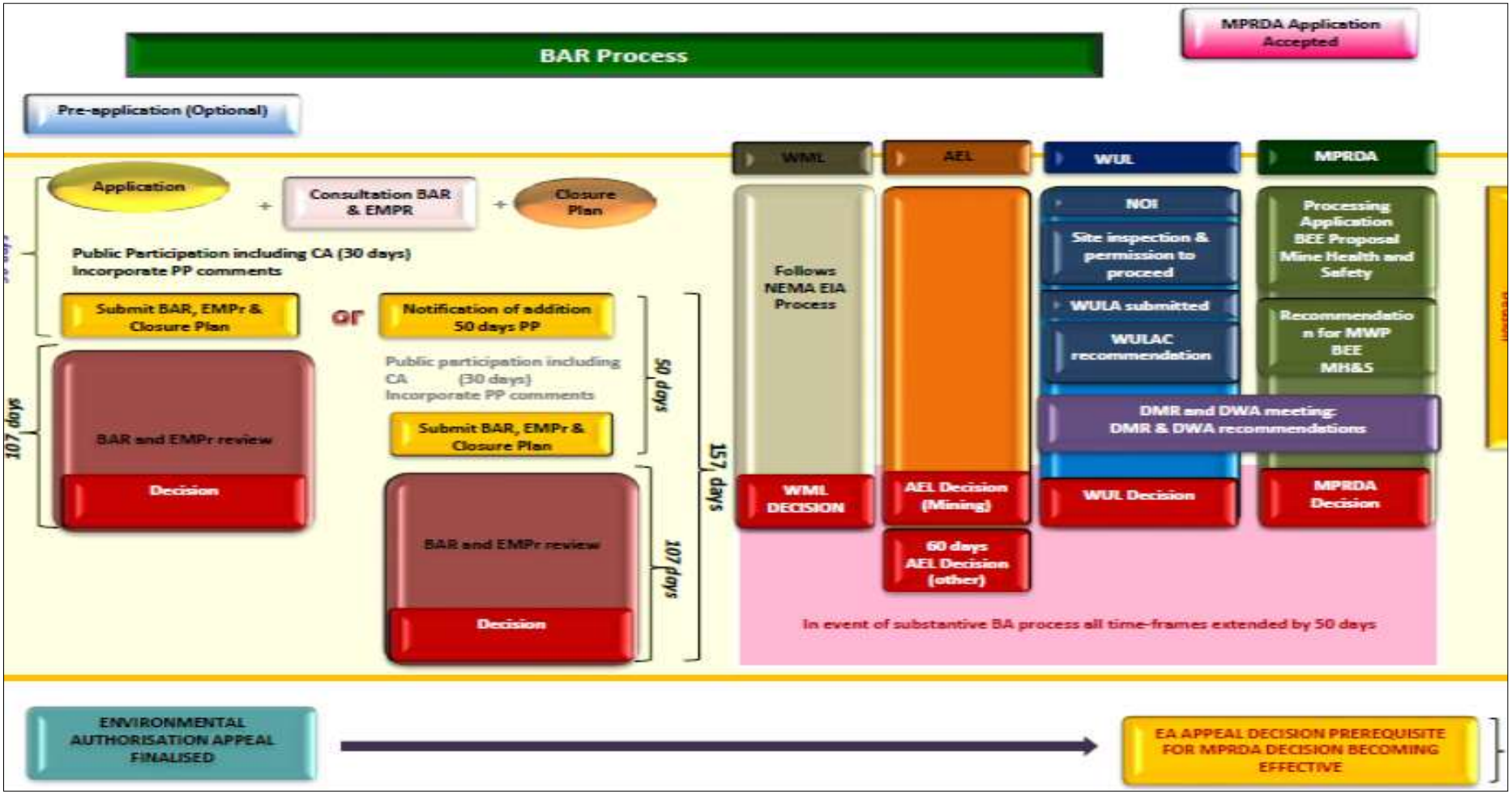
(i) identify and motivate a preferred site, activity and technology alternative.

(ii) identify suitable measures to manage, avoid or mitigate identified impacts; and

(iii) identify residual risks that need to be managed and monitored.

BASIC ASSESSMENT PROGRESS ORGANOGRAM

The Basic Assessment Process should be undertaken for project activities that are included Listing 1 and 3. Impacts of these activities are more generally known and can often be mitigated or easily managed. The Ba process must follow the procedure as prescribed in Regulations 19 to 20. The following diagram outlines the steps that should be followed in undertaking a BA process.


BAR Process
MPRDA Application Accepted
Pre-application (Optional)
WML
AEL
WUL
MPRDA
Application
Consultation BAR & EMPR
Closure Plan
Public Participation including CA (30 days)
Incorporate PP comments
Submit BAR, EMPr & Closure Plan
or
Notification of addition 50 days PP
Public participation including CA (30 days)
Incorporate PP comments
Submit BAR, EMPr & Closure Plan
50 days
107 days
157 days
BAR and EMPr review
Decision
BAR and EMPr review
Decision
Follows NEMA EIA Process
WML DECISION
AEL Decision (Mining)
60 days AEL Decision (other)
NOI
Site inspection & permission to proceed
WULA submitted
WULAC recommendation
DMR and DWA meeting: DMR & DWA recommendations
WUL Decision
Processing Application BEE Proposal Mine Health and Safety
Recommendation for MWP BEE MH&S
MPRDA Decision
In event of substantive BA process all time-frames extended by 50 days
ENVIRONMENTAL AUTHORISATION APPEAL FINALISED
EA APPEAL DECISION PREREQUISITE FOR MPRDA DECISION BECOMING EFFECTIVE

BAR process

3. CONTACT PERSON AND CORRESPONDENCE ADDRESS

A. DETAILS OF

i. Details of the EAP

CONTACT PERSON AND CORRESPONDENCE ADDRESS	
Contact Person	Lesego Senna
Address	25 Caroline Close Rowlands Estate Mafikeng, 2745
Tel No	018 011 0002/083 763 7854
Fax No	086 541 6369
E-mail address	lesego@lesekha.co.za

ii. Expertise of the EAP

a) The qualifications of EAP

Lesego Senna is a qualified Environmental Practitioner who managed and coordinated the EIA study of the project in discussion. Lesego holds the Bachelor Degree: in Natural Science majoring in Microbiology and Biochemistry. She also holds an Honours Degree: Environmental Sciences, Majoring in Environmental Impact Assessment and Earth Sciences – North West University (Potchefstroom Campus).

Lesego holds a certificate in Environmental Law (NQF level 7) with the following courses: Waste Management, Biodiversity Management, Waste Management, Heritage Assessment, Environmental law & Environmental Impact Assessment obtained from the Centre of Environmental Management at Potchefstroom University). She also holds a certificate in GIS and GPS course (NQF level 5) from the Free State University, with the following Modules: Spatial data Structures; Spatial data symbolisation and analysis and interpretation Map design. Lesego is a registered Environmental Scientist registered with the ***South African Council of Natural Scientific Profession SACNASP (Reg.No.400165/17).*** The acquired qualifications and experience demonstrated that we are uniquely qualified to undertake this Environmental Impact Assessment Study.

b) Summary of EAP's past experience

(In carrying out the Environmental Impact Assessment Procedure)

Lesego compiled the EMPr for obtaining the mining permit for all the roads projects for application of the mining permit as contemplated in Section 27 of the Mineral and Petroleum Resources Development Act, 2002 MPRDA (Act 28 of 2002).

Please refer to the attached details of the practitioner attached as appendix A

c) Technical Team.

Team member	Qualifications	Occupation
B.L. Senna	BSc. (Honours) Environmental Sciences	Project Manager
J. Sakaunda	BSc. (Honours) Environmental Sciences	Environmental Assessment Practitioner
K.F.S. Mohaswa	BSc. Environmental Sciences	Environmental Assessment Practitioner

B. Location of The Overall Activity

Farm name:	Grootfotein 224 JP
Application area:	4.0 ha
Magisterial district:	Moses Kotane Local Municipality within Bojanala District Municipality
Distance and direction from nearest Town:	the site is located about 83km South East of Rustenburg in the North West Provence.
21-digit surveyor general code for each farm portion	T0JP00000000000022500000

Table 2: coordinated of the borrow pit

REFERENCE POINT	LONGTUDE	LATITUDE
A	25°30'0.94"S	26°39'17.49"E
B	25°30'6.21"S	26°39'17.46"E
C	25°30'7.28"S	26°39'9.48"E
D	25°30'2.27"S	26°39'7.93"E

C. LOCALITY MAPS

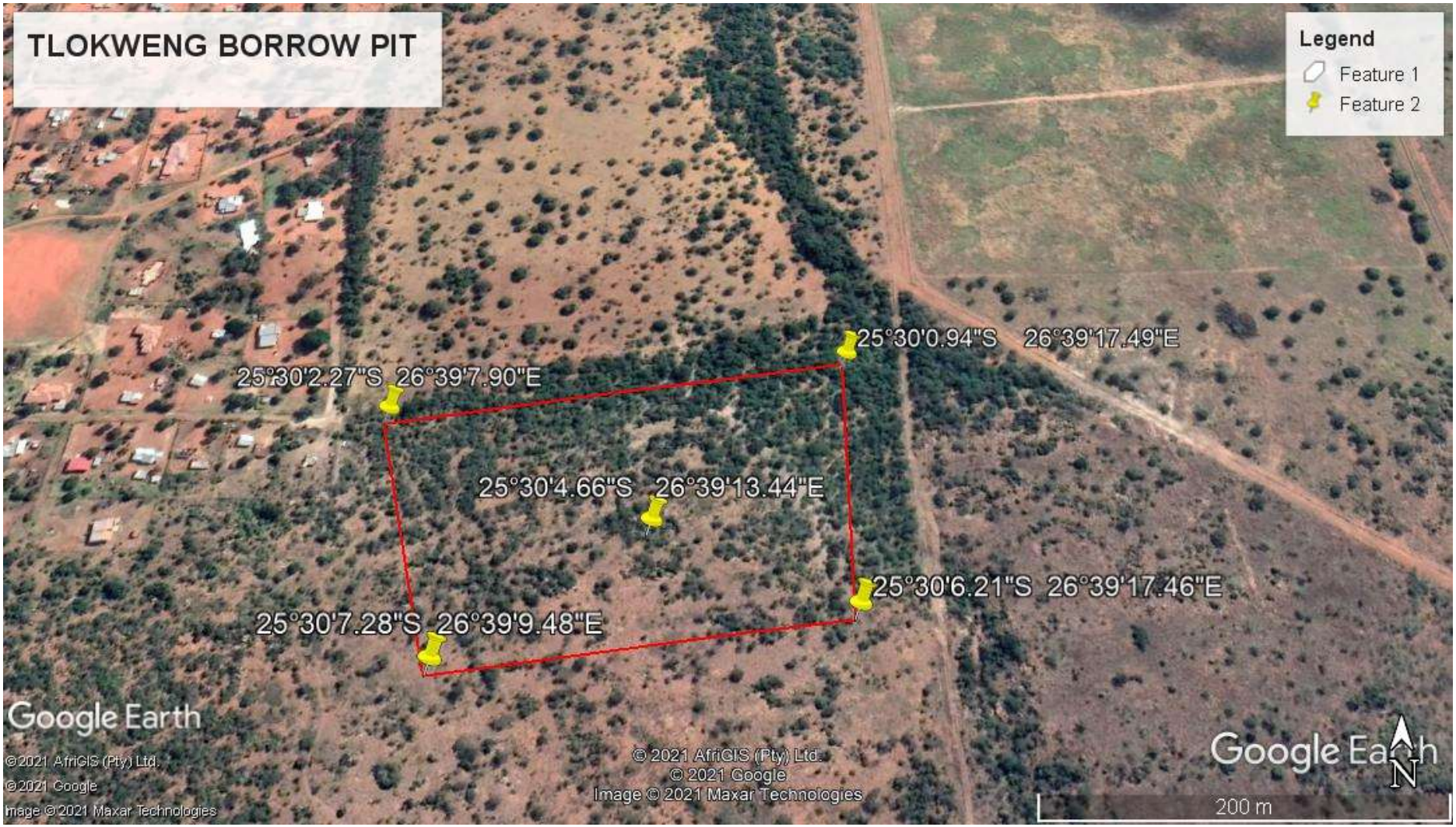


Figure 1: Locality map of the proposed borrow pit.

d) Description of the scope of the proposed overall activity.

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

The Moses Kotane Local Municipality intends to commence with mining of the gravel material from the borrow pit located on Grootfotein 224 JP. The Borrow pit will be used during the road establishment phase. The gravel material will be used as surface material for the proposed paving of a 1.7 km Motupa Road, 0.92 km Selokwaneng Road and 0.7km Masetlheng Cemetery Road in Tlokweng Village within Moses Kotane Local Municipality in North West Province. The total mining area identified for the borrow pit is 4.0 ha, however clearance of vegetation will only confine to 0.4ha footprint to mine the gravel material. The estimated volume of the gravel materials to be mined on borrow pit is about 25 000m^3. No infrastructure will be placed on site; once the gravel material has been mined it will be hauled to the road construction site.

The borrow pit is located on Grootfotein 224 JP is found behind of Tlokweng Village. The Chief of the Village has given consent for the use of the borrow pit. The site of the borrow-pit is close to the roads therefore the borrow-pit will be at a strategic position location. The site of the borrow-pit has already been disturbed by the gravel mining activities that took place during the road establishment phase. The contractor will after completion of the road rehabilitation will rehabilitate the borrow pit site.

Listed and specified activities

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY Ha or m²	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
Any activity including the operation of that activity which requires a mining permit in terms of section 27 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including — (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	4.0 ha	**X**	Listing Notice 1.GN R. 327, 07 April 2017. Activity 21

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY Ha or m²	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)] This project will include the open cast/trenching (earthworks) method of extraction.			
The clearance of an area of 1 hectare or more, but less than 20 hectares, of Indigenous vegetation, except where such clearance of indigenous vegetation is required for-(i) The undertaking of a linear activity. (ii) Maintenance purposes undertaken in accordance with a maintenance management plan.	4.0 ha	**X**	Listing Notice 1. GN R. 327, 07 April 2017 Activity 27

(ii) Description of the activities to be undertaken

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

The Moses Kotane Local Municipality is proposing a small-scale mining of a borrow pit for gravel material. The borrow pit contains gravel material that is required as surface material for the proposed paving of three roads in the village. The estimated quantity of material to be mined is approximately 25 000m^3 of gravel material. The project will entail an open cast/surface method of excavation; mined gravel material will be hauled using trucks to the construction site. The proposed project will include the application for a mining permit which triggers a listed activity in terms of the Environmental Impact Assessment (EIA) Regulations, Government Notice Regulations GN R. 327, 07 April 2017 promulgated under the National Environmental Management Act (NEMA) (Act no 107 of 1998).

The surface area will be rehabilitated by establishing the general topography of the surrounding area, ensuring that there are no remnants of the gravel material. Closure and rehabilitation of pits will be undertaken when the activities are completed in that pit. Post-closure monitoring will assist in determining the success of the rehabilitation and also identify whether any additional measures need to be taken to ensure the area is restored to a reasonable and acceptable condition.

Figure 2: Overview of the borrow pit.

D. Policy and legislative context

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT?
The Constitution of South Africa (No108 of 1996)	Section 24 of CSA	The Constitution, which is the cornerstone of the democracy in South Africa, lays the foundation of a more just and equitable society. It guarantees everyone the right to an environment that is not harmful to their health or wellbeing and guarantees the right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures. The proposed project will not have great impacts on the well being of the people. Mitigation measures will be put in place for the identified impacts. The upgraded road will be safer for travelling and it will be an easy access to the nearest town and the desired destinations of the community.
National Environmental Management Act (Act 107 of 1998), as amended	S24(1) of NEMA S28(1) of NEMA	This Basic Assessment is being undertaken in terms of the National Environmental Management Act (No. 107 of 1998). This is in order to determine any possible impacts on the environment and to propose sufficient mitigation in order to not harm the environment. Assessment and analysis were done on the proposed project to identify the environmental impact in relation to the project. Mitigation measures will be put in place for impacts identified.
National Mineral and Petroleum Resources Development Act (Act No 28 of 2002)	Section 10 Section 37	Section 10 outlines the need for consultation with the interested and affected Parties. Section 37 outlines the environmental management principles that must adhered to in order to ensure sustainability by integrating social, economic and environmental factors into the planning and implementation of prospecting and mining projects in order to ensure that exploitation of mineral resources serves present and future generations. The act makes provision for equitable access to and sustainable development of the nation's mineral and petroleum resources. An application for the mining permit to use the borrow pit has been lodged with the DMRE.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT?
National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Mining Activities	The potential impact on Conservation Important Floral and faunal species in the Study Area, and the management thereof is addressed in this BAR. No protected tress or species on red data list were observed on site during the site visit.
National Environmental Management Air Quality Act (Act No. 39 of 2004, Government Gazette No. 27318) (NEMAQA)	Mining Activities	To reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and ecologically sustainable development while promoting justifiable economic and social development. Standards for particulates and dust are used to regulate the concentration of a substance that can be tolerated without any environmental deterioration.
The National Heritage Resources Act (No. 25 of 1999)	Management/ monitoring measures	The National Heritage Resources Act legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 hectares (ha). The proposed borrow pit mining operations will not have any impact on Heritage resources, as no resources of significance were identified within the footprint of the proposed development. Should the be any resource found, relevant consultation will be done with the North West SAHARA.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT?
National Forests Act (Act 84 of 1998) (NFA)	Section 3 of NFA	The principles of the National Forests Act (Act 84 of 1998) (NFA) pertain to; • The protection of natural forests (except under exceptional circumstances when the Minister determines that the proposed development is preferable in terms of its economic, social or environmental benefits) • The conservation of a minimum area of each woodland type; and • The management of forests to ensure sustainability of resources (wood, soil, biological diversity, etc) No person may cut, disturb, damage or destroy any indigenous living tree in, or destroy any indigenous living tree in, or remove or receive any such tree from, a natural forest except in terms of- (a) A license issued under section 7; or (b) An exemption from the provisions of this subsection published by the Minister in the Gazette on the advice of the Council. No protected trees were observed during site visit, an application will be done for the clearing of indigenous vegetation. Revegetation will be done during rehabilitation to using indigenous vegetation.
The Occupational Health and Safety Act, 1993 (No 85 of 1993)	Section 8 of OHSA	The Occupational Health and Safety Act, 1993 (No 85 of 1993) provides for the health and safety of persons at work; for the health and safety of persons in connection with the use of plant and machinery at the borrow pits, and the protection of plant and machinery; and the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work. A number of regulations are published under this

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT?
		Act including: • Environmental Regulations for Workplaces (GN R2281 of 1987-10-16) • Regulations for Hazardous Chemical Substances (GN R179 of 1995-08-25) • Asbestos Regulations (GN R109 of 2003-01-17) • COVID -19 Regulations
The Mine Health and Safety Act, 1996 (No 26 of 1996)	Mining Activities	The Mine Health and Safety Act, 1996 (No 26 of 1996) provides for the protection of health and safety of employees and other persons at mines and serves- • To promote a culture of health and safety. • To provide for the enforcement of health and safety measurements. • To provide for appropriate systems for employee, employer and state participating in health and safety matters. • To provide effective monitoring systems and inspections, investigations and inquiries to improve health and safety. • To promote training and human resource of development. • To regulate employers' and employees' duties to identify hazards and eliminate, control and minimise the risk to health and safety. • To entrench the right to refuse to work in dangerous conditions.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED	HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT?
		A workshop will be done to inform Employees with safety measures to be taken when working in a mining area.
North West Provincial Development Plan	Needs and desirability of the proposed activities	Municipal plans were used to identify relevant socio-economic information and spatial development information with regards to the area relevant to the project site.
Promotion of Access to Information Act (Act No2 of 2000)	Public Participation	The Act aims to give effect to the constitutional right of access to any information held by the State and any information that is held by another person and that is required for the exercise or protection of any right; and to provide for matter connected therewith BID was compiled and send to all the identified infected and affected partied. Adverts and Onsite notices were placed in prominent places within the area. Community meeting was convened to inform the community bout the development and to allow them to give their inputs regarding the project.

E. NEED AND DESIRABILITY OF THE PROPOSED ACTIVITIES

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

The proposed paving of the roads will positively contribute to the social, safety and economic environment of the Tlokweng village and the neighbouring communities. The proposed development forms part of the projects and programs identified as priorities at both local and district municipality to develop environmentally sound and safe roads to the community.

The proposed upgrade of the road will contribute to the safety of the pedestrians most especially school children using the road. Pedestrian crossing and pavements will be done on the road and this will keep them safer as they use the road. Dust emissions form the gravel road poses a health and environmental effect to the community, thus upgrading of the road to a surfaced road will eliminate the impact.

Gravel roads are considered to be less safe and are most likely to experience accidents than surfaced roads. Safety in general will be improved, especially during rainy seasons where accidents percentages tend to be higher due to wet, slippery and degraded roads. Gravel roads also tend to have a degrading effect on the condition of the cars, most especially if you drive regularly on the road. Most community members use public transportation, and some use their cars to get to get to their desired destinations.

The economic status of the community will be elevated as there will be job creation once the project commences. This project will also benefit the Small, Medium and Micro-sided Enterprises (SMMEs) most especially those whom their business is based on construction. Tlokweng Village is considered to be rural with less developed status, the success of this development in the community will create a vibrant, equitable and sustainable rural development which provides employment to the people, thus declining the poverty rates at both district and municipal level.

Desirability of the proposed project

Mining gravel material to upgrade the road in Tlokweng Village is focused on unlocking economy of scale to the advantages of all stakeholders and the surrounding community; whilst being BBBEE compliant and aligning to the National Development Plan. This will be achieved through sound commercial mining practices and effective management. The project for the establishment of the borrow pit will contribute to the development of environmentally sound and safe roads in South Africa for the benefit of the community and other stakeholders.

Community development and participation:

- Contributing to environmentally sound and safe roads and serving historically disadvantaged communities.
- Finding creative ways of using our resources and skills to contribute to development.

The need for environmentally sound and safe roads has therefore significantly increased as the economic development has diversified. The establishment of the borrow pit and the upgrade of the roads will therefore address economic diversification, employment opportunities and the need for community safety area.

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

Tests were done on gravel samples from the borrow pit, situated in Grootfotein 224 JP and it was approved that it is the one they will take aggregate material to be used in the proposed upgrading of the road. The aggregate material will be excavated using construction machinery like excavators, put on the side to be hauled, loaded and transported using trucks to the road and stock piled to be used during construction. The proposed method is opencast mining which allows easy access of machinery to the site and does not require extensive machinery as other methods, making it feasible for gravel mining. It reduces the overall costs associated with the mining process. There will be no need to assess an alternative borrow pit, since this one has enough material to be used for the entire 3 km road. Therefore, the proposed borrow pit is the preferred site with the good quality material needed for the construction of the road.

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

i. Details of The Development Footprint Alternatives Considered

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

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

a) Activity location

The site is located on Grootfotein 224 JP which is approximately 80 km South East of Rustenburg in the North West Province. The farm is on a communal land under the administration of Batlokwa Ba Ga Bogatsu Traditional council. Mining permit application that was done at Department of Mineral Resources for this borrow pit is for an extent of approximately 4.0 ha.

b) Types of activity to be undertaken

The mining permit is only required for excavating gravel material to be used in the paving of of the 1.7 km Motupa Road, 0.92 km Selokwaneng Road and 0.7km Masetlheng (Cemetery) Road in Tlokweng Village within Moses Kotane Local Municipality. No other infrastructure will be required for this project, the aggregate material will be excavated using construction machinery like excavators, put on the side to be hauled, loaded and transported using trucks to the road and stockpiled to be used during construction.

c) Design or layout of activity

The borrow pit was designed to optimally mine the desired amount of material needed keeping in mind the possible environmental effects associated with the proposed activities. TLB, trucks, shovels and excavators will be used to mine the gravel material and the material will further be hauled by trucks to the construction site. No other alternative technologies can be used because of the nature of the mineral. The total surface area applied for miming is 4.0 ha, however proposed clearing of vegetation will only be minimal, as they will only clear where they need to mine.

d) Technology alternatives

There are no technology alternatives since the proposed one for the borrow pit is considered to have a low environmental impact if managed correctly and comply with standard practice of open cast mining operations. They will only use construction trucks which will only be at the borrow pit during operations.

e) Operational alternative

Procedure to be used during the implementation of the construction phase of the road is the one whereby gravel material will be mined from the borrow pit and transported to the road by trucks. No other alternative infrastructure will be required.

f) Option of not implementing the activity.

The option of not implementing the activity is referred to as a no-go alternative. Should the borrow pit not be implemented, the applicant will import material which will result in the increase in costs. Without the implementation to utilize the borrow pit, there will be no construction of the road, since it is depended on material from the borrow pit. A socio-economic problem will be experienced if the proposed activity does not proceed. The economic status of the community will either stay at a constant level or degrade, since there will be no job creation for the people and business opportunities for the SMME's and other businesses in the village. The safety of the pedestrians most especially school children will still be in danger in cases where drivers will be ignoring the rules of the road, looking at the fact that there are no speed humps, pedestrian crossings and side walk pavement for them to walk in. Dust emissions from the gravel road will continue, putting the people's health at risk, especially those residing closer to the road.

Not allowing the project to proceed will leave the road the at state prone to accidents, resulting from wet, slippery and degraded road during rainy seasons. The village is about 110km away from the nearest town and the access road to the main roads leading to the town in mainly gravel road. If the implementation of the project could be stopped, it will deprive the community easy access to their desired destinations.

The option of not implement the project and utilisation of the borrow pit for upgrading of the road will put the drivers at the risk of regularly driving their cars in a road that will increase the rate at which the condition of the car is degrading. Amongst all the poverty status of the community will not degrade as job creation will not be implemented. Therefore, the no-go option will not be taken forward into the assessment phase.

ii. **Details of The Public Participation Followed.**

Identified interested and affected parties

The authorities for this project were identified. The authorities contacted with regards to this project include:

- The Department of Mineral Resources and Energy (DMRE)
- Department of Agriculture, Forestry and Fisheries (DAFF)
- Department of Economic Development Environment Conservation and Tourism (DEDECT)
- Moses Kotane Local Municipality
- Bojanala District Municipality
- Eskom
- North West - SAHRA

Participation Process Followed.

Community engagement

Engagement with the community leaders was done to be able arrange meeting with the community. Meeting was convened to give them the opportunity to raise concerns regarding the proposed activities.

Adverts

Advertisements to inform people about the proposed activity were done on the local newspapers in English in the Rustenburg Herald (English). Make appendix with newspaper article.

INVITATION FOR PUBLIC PARTICIPATION NOTICE OF ENVIRONMENTAL AUTHORISATION AND APPLICATION FOR A MINING PERMIT.

REFERENCE NO: NW/30/5/1/1/2/0099BP

NOTICE: Notice is hereby given in terms of the following legislation for the aforementioned project.

Relevant Act	Relevant Section in terms of the Act	Triggered Activities	Competent authority
National Environmental Management Act, NEMA (Act. No. 107 of 1998) and Environmental Impact Assessment Regulation.	GN. No.327 of 07 April 2017.	Activity No: 27	Department: Economic Development Environment Conservation and Tourism.
Mineral Petroleum Resources Development Act (MPRDA) Act 28 of 2002), 2002.	Section 27	Activity No: 21	Department of Mineral Resources

PROJECT NAME: The proposed mining of gravel material on Grootfontein Farm No:224 JP within the Mosses Kotane Local Municipality.

PROJECT DESCRIPTION: The Moses Kotane Local Municipality is applying for a mining permit for a borrow pit (less than 5ha in extent) in order to provide aggregate material for the proposed paving of a 1.7 km Motupa Road, 0.92 km Selokwaneng Road and 0.7km Masetlheng Cemetery Road in Tlokweng Village within Moses Kotane Local Municipality.

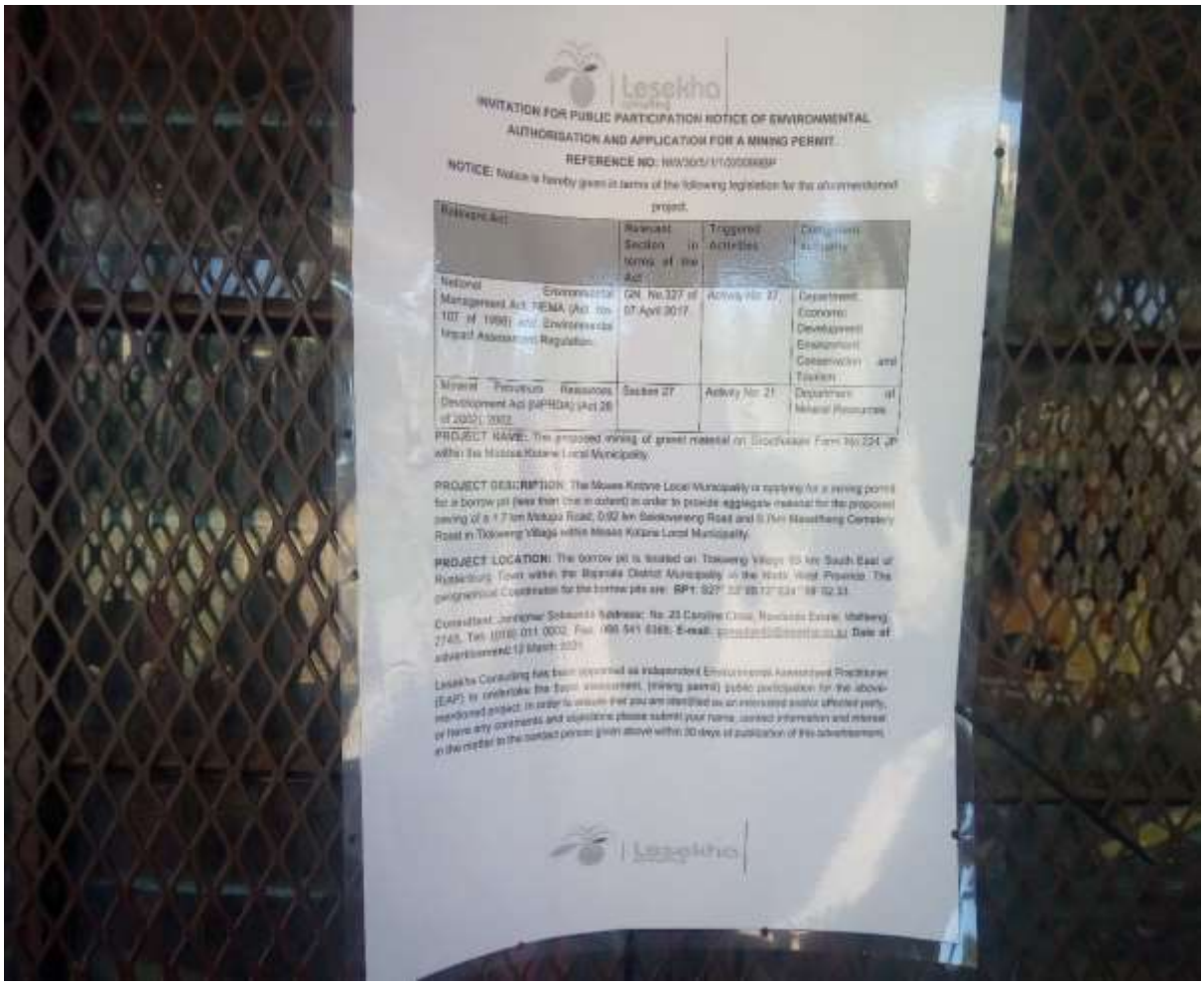
PROJECT LOCATION: The borrow pit is located on Tlokweng Village 83 km South East of Rustenburg Town within the Bojanala District Municipality in the North West Province. The geographical Coordinates for the borrow pits are: **BP1**: S27° 33' 09.72" E24° 59' 52.33.

Consultant: Jennipher Sakaunda **Address:** No. 25 Caroline Close, Rowlands Estate, Mafikeng, 2745. **Tel:** (018) 011 0002; **Fax:** 086 541 6369; **E-mail:** consultant2@lesekha.co.za **Date of advertisement:** 3 March 2021.

Lesekha Consulting has been appointed as independent Environmental Assessment Practitioner (EAP) to undertake the basic assessment, (mining permit) public participation for the above-mentioned project. In order to ensure that you are identified as an interested and/or affected party, or have any comments and objections please submit your name, contact information and interest in the matter to the contact person given above within 30 days of publication of this advertisement.

Onside notices

A2 onsite notices were placed in five prominent places within the community to inform the people about the project and allows gave then period of 30 days to give their comments and concerns. The notices where place in prominent places in the village.



Background information document

Background information document (BID) was compiled and sent to all the interested and affected parties through an email. The document also requested them to send in their comments and concerns with the proposed project

Notification regarding the decision by DMR

All the registered interested and affected parties will be notified of the decision made by the DMR on the application.

iii. Summary of issues raised by I&AP

Interested and Affected Parties	Organization	Date of comments received	Issues raised	EAP's response to issues as mandated by the applicant
AFFECTED PARTIES				
Mr. Andrew Lesele	Tlokweng Village	05 February 2021	The community of Tlokweng experiences storm water problems which in most cases damage the roads. When designing the roads, it is very crucial to take in consideration this matter. Some of the stormwater channels are blocked with the soil resulting in localized flooding.	The roads have already been designed and approved and the issue of storm water management has been addressed. Thank you for mentioning, it is very important that the community alert us of the challenges faced which we might have not anticipated. The design has already taken into account the stormwater challenge. The pipe system which may result in blockages by the soil will not be used.
Mr. L. Motsatsi			Normally, prior to the commencement of the project a notice board is placed at the entrance of the village or where the construction starts	There were delays with the project notice designs. The notice will be placed as soon as the designers are done working on them.

			however, for this construction there is no notice place. Is there any reason for this?	
Mrs. Sennelo			We are happy about the project; the community will benefit through employment opportunities and improvement of business opportunities through improved road access.	Noted, employment is one of the positive contributions of this project. First preference for Employment opportunities will be to the local communities and extended to other villages should the skill be not available in the village.
Mr. Lebotse			Please provide details of the roads that will be constructed.	Three roads to be paved that is 1.7 km Motupa Road, 0.92 km Selokwaneng Road and 0.7km Masetlheng Cemetery Road.
Mrs. L. Taukobong			The project must employ skilled people to ensure good quality roads.	Noted, a qualified engineer will be appointed and as the project managers will be ensure that the construction of the road will be as per the design.
Mr. Mabothe			What will be done to ensure that the borrow pit is safe for the community?	During construction, the borrow pit must be fenced and be lockable. Access to the borrow pit must only be permitted to the workers. A security must be appointed to control access to

				the borrow pit and ensure safety. Once the project has been completed, the contractor is obliged to rehabilitate the borrow pit and leave it in a state that will allow revegetation and no water ponding.
s Koboyankwe			Can the topsoil that will be removed from that borrow pit to be used to fill other borrow pit in the village.	The top soil from the borrow pit can't be used to fill the other borrow pit. The top soil will be used to rehabilitate the borrow pit. Top soil has essential nutrients essential for revegetation.
Mr. Rakuba			Previously the royalties were paid per load extracted from the borrow pit, however these days things are done differently. How will this be done on this project?	Royalties are paid as a way of showing gratitude to the community for granting permission use the borrow pit in their land. Negotiations will be done between the project client, contractor and the community on how the royalties will be paid.
INTERESTED PARTIES				
DAFF Mr Lufuno Nevhufumba NevhufumbaL@daff.gov.za	Department of Forestry and Fisheries	N/A	No comments received	N/A
K Mmope kmmope@moseskotane.gov.za	Moses Kotane Municipality	N/A	No comments received	N/A

Ramaroki Ntale rkntale@gmail.com	Moses Kotane Municipality	N/A	No comments received	N/A
Mbengeni Tshidumba TshidzMD@eskom.co.za	Eskom	N/A	No comments received	N/A
Mbulelo Dala DalaME@eskom.co.za	Eskom	N/A	No comments received	No comments received

iv. The environmental attributes associated with the alternatives

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

Baseline environment

a) The type of environment affected by the proposed activity

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

3.1 Bio-Physical Environment

31.1 Climate

The MKLM can be described as a semi-arid area, with average annual precipitation in the region ranging between 300mm and 500mm. The annual evaporation rate ranges between 1800mm to 1900mm. The wettest month of the year is January, with an average monthly total rainfall of 132 mm. The driest month is July, with an average monthly total rainfall of 2 mm (Weather Bureau, 1997).Mean annual air temperatures range from 11,8°C in June/July to 23,8°C in January. Average daily maxima range from 20,4°C to 30,3°C, and minima from 2,8°C to 17,2°C (Weather Bureau, 1997).The Lightening Ground Flash Density in the study area is between 5 to 7 strikes/km^2/year on a scale of 0 to 19 (2001 Eskom's LPATS system; Clara, 2001).

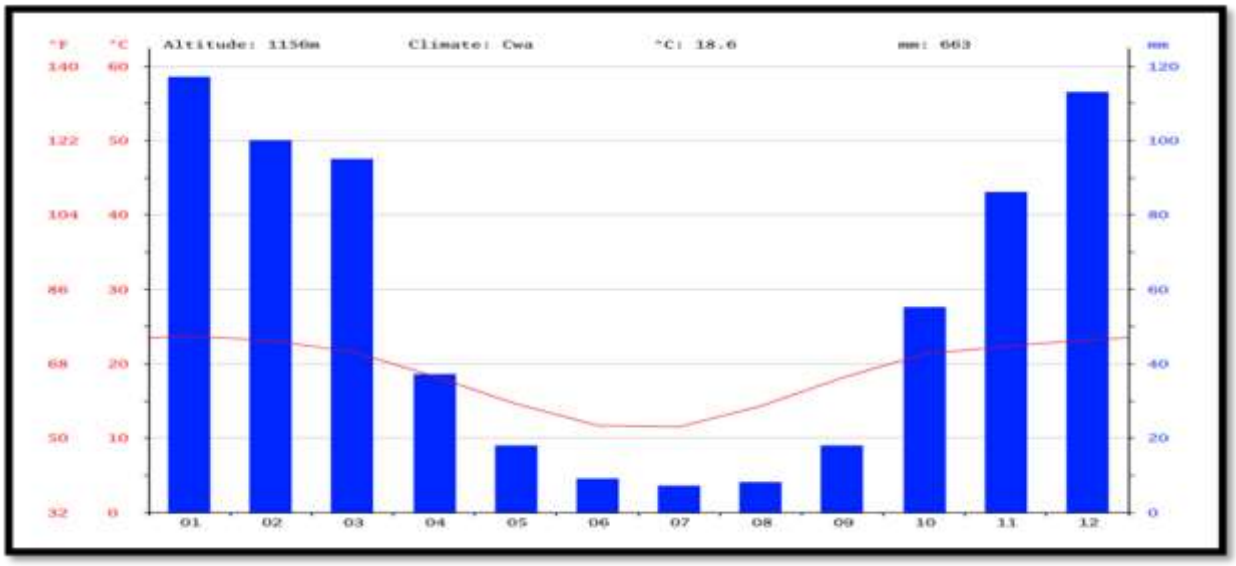


Figure 3: Rainfall data (average) for Moses Kotane local Municipality, North West Province (200-2012

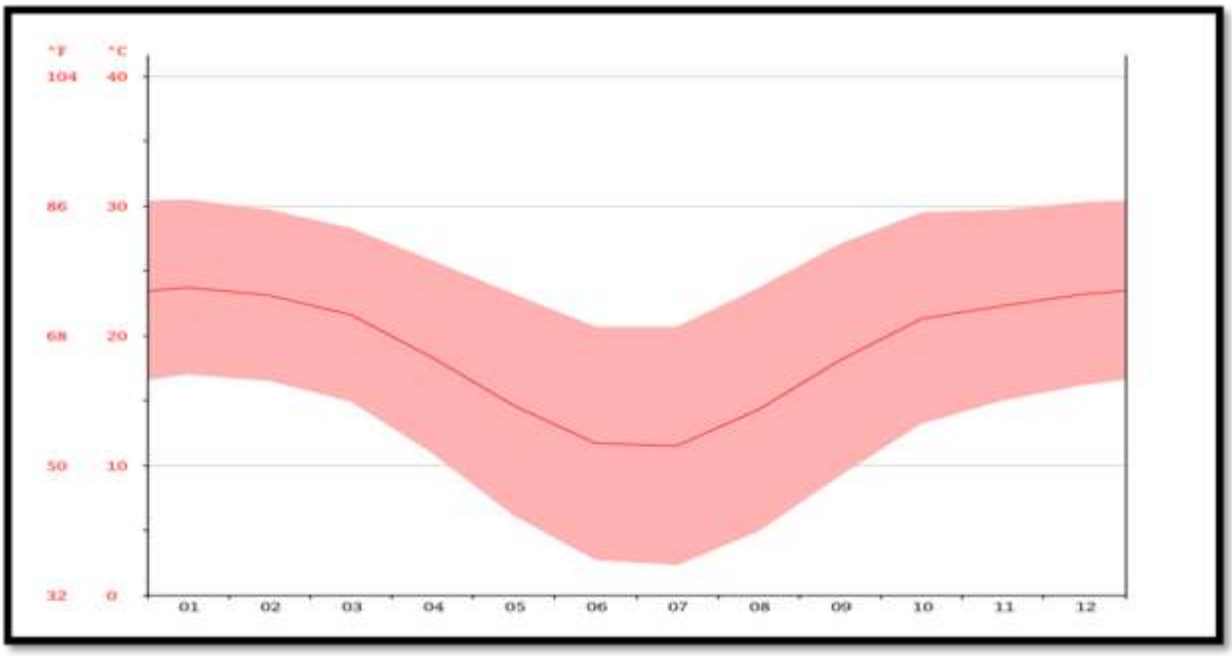


Figure 4: Temperature data (averages) for MKLM, North West Province (200-2012)

3.1.2 WIND

The predominant wind direction recorded at Rustenburg is from the south west. Wind speed is generally slow to moderate with wind speed exceeding 6m/s recorded infrequently. Calm conditions which are defined as wind speeds less than 1m/s occur frequently

According to Rayten Engineering Solutions, 2014, local meteorological data was obtained from a meteorological station operated by the South African Services in Rustenburg for the period January 2010- December 2012. Data collected include wind speed, wind direction, temperature, pressure, humidity and precipitation.

Table 1.0: Data Captured from the Rustenburg Meteorological Centre

Parameter	Data capture (%)
Wind direction	89.97
Wind Speed	89.97
Temperature	90.88
Pressure	90.40
Humidity	90.87
Precipitation	91.34

3.1.3 Soil and Land capacity

The Eastern extents of the MKLM are dominated by the Pilanesberg complex which consists of gabbro, alkali-feldspar syenite, and lava. The western extents are dominated by sedimentary formations and clinopyroxenite. Mineral deposits include platinum group metals, chrome, gold, diamond, limestone, nickel and manganese. The majority of the study area consist of red massive or weak structures soils with a high base status (accounting for 48.4% of the total area), and black and red strongly structured clay soils with a high base status (accounting for 27.8%) of land area. Both these soil types cover the vast majority of the central and western parts of the study area. The eastern parts mainly consist of soils of minimal development, usually shallow on hard or weathering rock with or without intermittent diverse soils.

Areas are classified into land types based on the slope, soil type and depth and underlying geology. The project area is characterized with slopes ranging from 0-9% and there are strongly structured soils mainly dark coloured dominated by swelling clays. The clay content in this area is greater than 35%. These may occur associated with one or more melanic and red structured soils with a water holding capacity of 0-20mm making them difficult to cultivate due to the narrow range of available moisture. Though the soils are highly fertile, the land capability class of the area is classified as moderate agriculture potential. This is mainly due to the shallow depth of the soils which limits the range of crops that can be grown on such soils

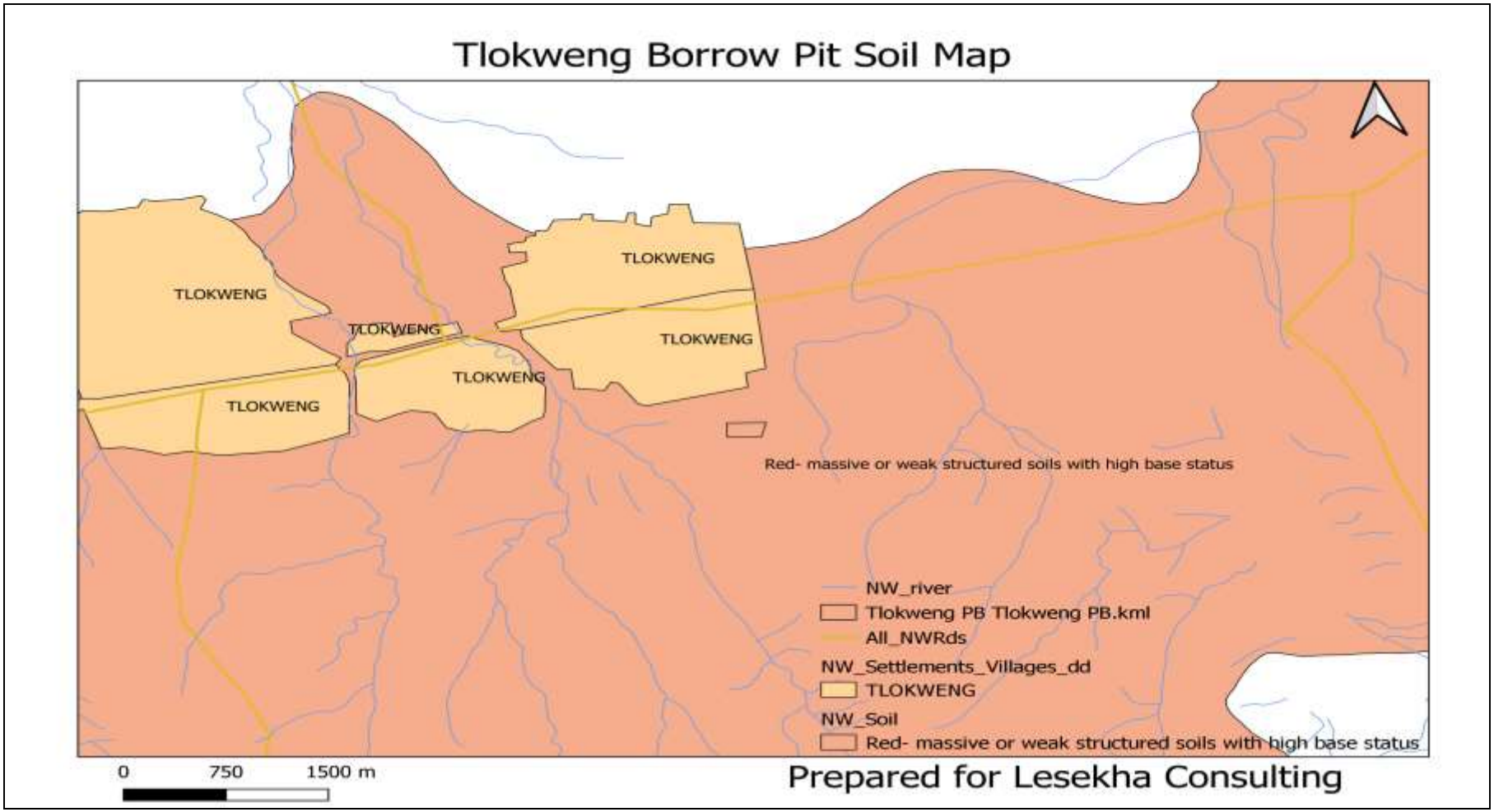


Figure 5: Soil Map

3.1.4 Geology and Soil Type

The Bojanala Platinum District Municipality in general, is showing signs of increased land and soil degradation and desertification, with the most severely affected being those that are communally managed. This could have negative consequences for agriculture in the BPDM such as decreased productivity of the croplands. Soil degradation and desertification is most present in the Moses Kotane LM, where it is classed as severe. The geology is underlain by mafic intrusive rocks of the Rustenburg Layered suite of the Bushveld Igneous rocks that include gabro, norite, pyroxenite and anorthosite. Some quartzites and shales associated with the Pretoria group part of the Transvaal supergroup.

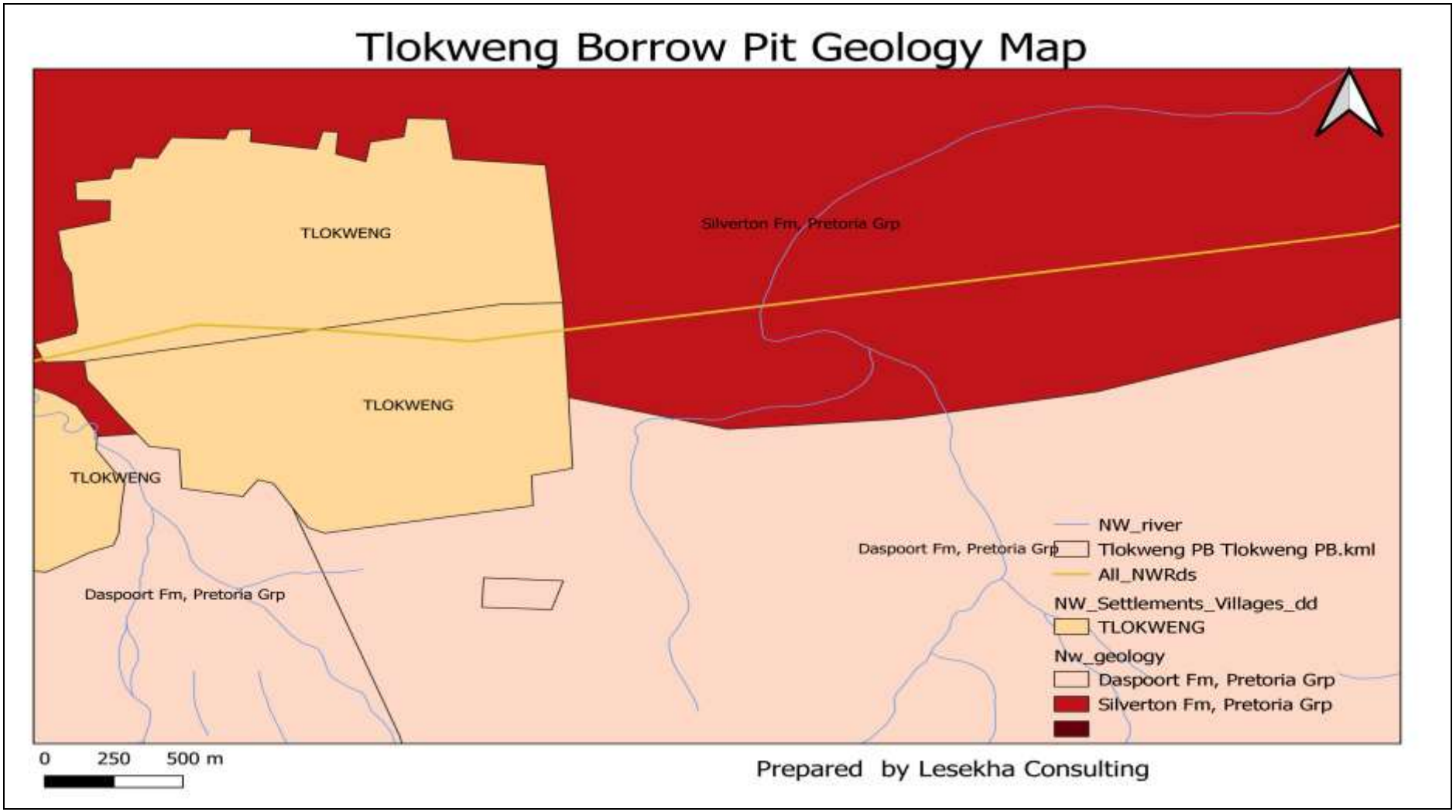


Figure 6: Geology map

3.1.5 Vegetation

The dominant vegetation types that characterise MKLM Western Transvaal accounting for 36% of the total land area of Moses Kotane. Zeerust Clay Thornveld is mainly concentrated in the extreme western parts of Moses Kotane, and represents approximately 12.7% of the total land area. Central broadleaved sandy bushveld mainly occurs in the eastern parts (east of the Pilanesberg National Park), and covers just over 12% of the land area of Moses Kotane. Protected tree species were observed during the site however, no evidence of faunal species was observed during the site visit.

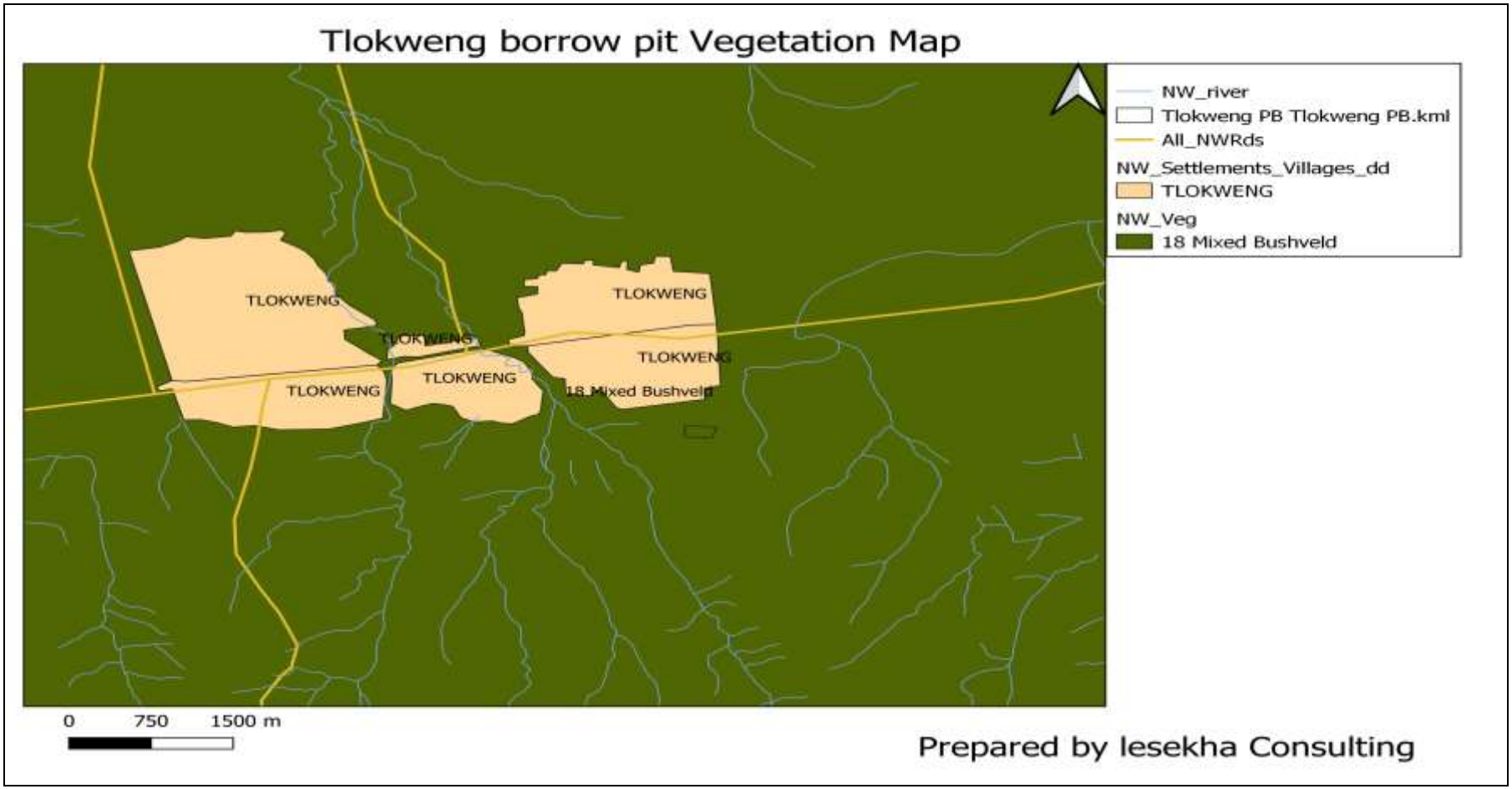


Figure 7: Vegetation map

3.1.6 Hydrology

The purpose of this study was to identify any issues pertaining to surface aquatic environments on the property that may influence, impede or preclude any or all aspects of the proposed development. The site is situated within the Crocodile (west) & Maricoarea.

3.1.6.1 Water Supply

According to the Moses Kotane Water Services Development Plan (2006 / 2007), the MKLM currently receives water from boreholes, a number of local supply schemes (Madikwe, Pella and Molatedi), and the Vaalkop Supply Scheme . Although the greater part of the MKLM is serviced through boreholes, the underground water supply is often unreliable mainly due to insufficient underground supply. The local supply schemes of Madikwe, Pella and Bakgatla receive their water from the Madikwe, Pella and Bakgatla Dams respectively. There is a heavy reliance on ground water resources to meet domestic, agricultural, mining, and industrial needs. Unfortunately, these users are also responsible for the contamination of groundwater resources.

3.1.6.2 Surface Water Sources

There are four driving forces affecting surface water resources in the MKLM area. These include climatic conditions, increased population growth, increases in mining and industrial demand for water, policy and legislation issues. For the purposes of formulating the SDF, pressures impacting on surface water resources should also be identified.

An increase in population exerts pressure on the environmental quality and quantity of water resources. It results in greater demand for water as well as an increase in the discharge of used water through sewerage systems and other effluents. The pressures exerted on the water resources include changed hydrology patterns in the major river. The amount of available surface water decreases from east to west in the MKLM area. The eastern portions have higher surface water flows than the western portions. The primary and secondary catchments of MKLM partly fall within the boundaries of the study area. There are 8 large impoundments (dams) within the study area. These impoundments provide water for domestic supply, mining industry, agriculture and recreation. Although the majority of consumers in MKLM are reliant on groundwater sources, there are however also a number of significant surface water sources that are being utilised.

3.1.6.3 Groundwater Sources

Ground and surface water are integrated and interdependent as dolomitic eyes or springs are the sources of several of the major river systems. Groundwater is of vital importance in the study area as it is in many instances the only source of water for the rural population particularly in the more arid and western region. More than 82% of the rural communities in the MKLM depend on groundwater supply for domestic purposes.

3.1.7 Topography

The MKLM lies on a fairly flat but undulating landscape intercepted by mountain ranges, hills and rocky outcrops (koppies). The Pilanesberg and Dwarsberg Mountains serve as the two prominent topographical features in MKLM. The two main drainage systems in the area are the Thulane and Kolobeng Rivers. Thulane River drains in a northerly direction from Madikwe Dam in the south-west of MKLM, to Bakgatla Dam in the north-west of MKLM. Kolobeng River drains in a north-easterly direction. The secondary and tertiary drainage system consists of a number of other small rivers such as the Sehubyane, Pitsedisulejang, Sedutlane, Metselodi, Motlhabe, Lesobeng, Sandspruit, Mogoditshane, Mankwe, and Phulane.

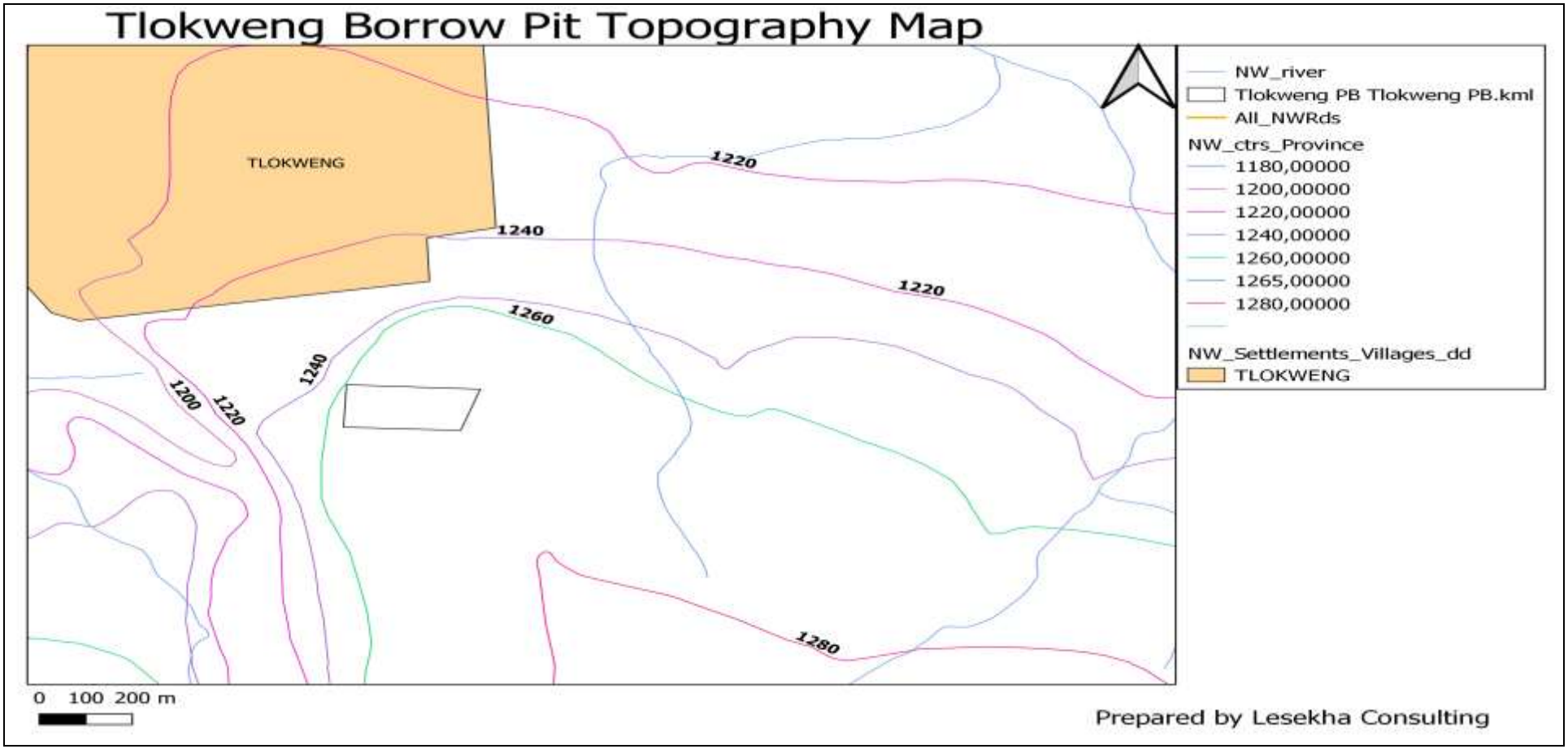


Figure 8: Topography Map

3.1.8 Air Quality

Air quality in settlements and houses that using wood as a source of fuel for heating and cooking is a cause of concern.Dust from theMKLM's extensive network of gravel roads impacts on air quality. Smoke from veld fires which are common in the dry winter months also impact on local air quality.

3.2 The social economic environment

Moses Kotane Local Municipality is a category B4 municipality located within the Bojanala District Municipality in the North West Province. channel has a total population of 243 643, a population density of 42/km^2 The Municipality covers an area of approximately 5220km^2 and is mostly rural in nature comprising 107 villages and two formal towns of Mogwase and Madikwe. Moses Kotane Local Municipality population was estimated at 242 553 by 2011 and has population growth of 0.10 % per annum. Moses Kotane LM has been identified as a 'poverty pocket' in the district, and as such the upgrading and formalization of the Mabele a Podi will help to address the problem of housing [problems that exists in the LM. The administrative centre of the municipality is in the town of Mogwase.

3.2.1 Demographic Profile

Moses Kotane Local Municipality population was estimated at 242 553 by 2011 Census compared to 237 175 by Census 2001. It should be noted that the recognized legal statistics to be used in developing IDP's is from Census 2011. Geographic information of households by 2011 was estimated at 75 195 compared to 61 759 by Census 2001 with the same total number of demarcated wards.

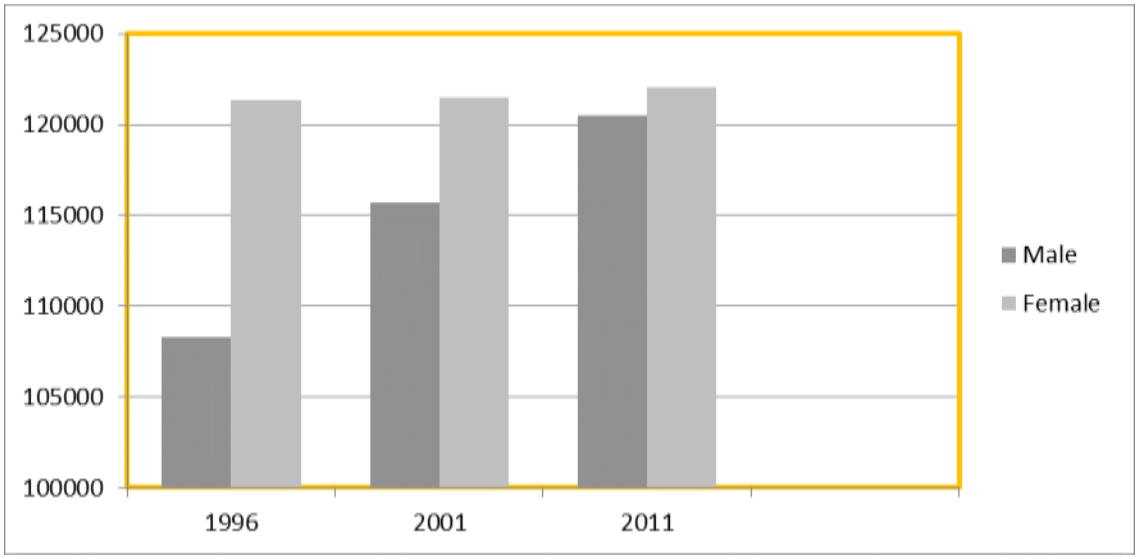


Figure 9: Demographic Indicators

Moses Kotane features a widely dispersed settlement structure that is characterised by poor accessibility, low density, and large distances between settlements. The Municipality has a predominantly African population with fewer Indian, Coloured and White groups who are mostly residing in Sun City residence and Mogwase Unit 2.

Table 1.2: population by ethnic group

Population group	Percentage
Black African	97%
Coloured	0,20%
Indian / Asian	0,60%
White	1,10%

3.2.3 Age and gender profile

The table below utilized to reflect the Age profiles of Moses Kotane Local Municipality area. About 102987 people of the total population fall within the age category of 15 – 34 years. This implies a very young population for the Moses Kotane Local Municipality. The gender profile for the Municipal area indicates a slightly higher proportion of females than males in the area (51% females to 49% males) in terms of gender break down of the total population.

Table 1.3: Age and gender profile

Age and Gender Distribution					
Age	**Male**	**Male (%)**	**Female**	**Female (%)**	**Total**
0 – 4	16173	51	15798	49	31971
5 – 14	34624	52	32351	48	66975
15 – 34	47075	46	55913	54	102987
35 – 64	42400	46	36829	54	79229
65 – 105	4611	38	7378	62	11989

3.2.4 Economic activity

According to Rustenburg Local Municipality (RLM) LED, the main contributor towards total exports within the district municipality is platinum in a semi-manufactured form. Platinum is the largest contributor to exports followed by ferro-chromium (28.2%), rhodium (8.9%) and palladium (6%). Due to the high concentration of platinum mining within RLM, a high concentration occurs within the local municipality. The Local Municipality is too dependent on the mining sector which could cause major problem if the mines are closed or when the strikes persist. The mining sector employs more than half of the economically active people followed by trade (15.3%) and community services (8.3%). The electricity sector employs the least people accounting for 0.2%.

3.2.5 Employment

An overview and analysis of the current workforce is provided in employment profile of the municipality. Information on the profile indicates that the total number of employees in Moses Kotane Local Municipality in 2016 is 811, this number include both permanent and non-permanent employees. A total of 621 males, 190 females are employed. The number of personnel at top management is 1 and senior management level is 54. The total number of professionally qualified and experienced specialists and mid-management is 58. The proportion of the workforce in the management or professionally qualified component is thus only 58.

Table 1.4: Employment

	South Africa	North West Province	Bojanala District Municipality	Moses Kotane local Municipality
Employment status as percentage of economically active population.				
Economically active population	18 412 541	389 843	226 559	33 897
Employed	67%	64%	68%	45%
Unemployed	33%	36%	38%	55%
Total	**100%**	**100%**	**100%**	**100%**

3.2.6 Household Income

The municipality is a predominantly rural municipality and its rural economy is unable to provide individuals with remunerative jobs or self-employment opportunities. An estimated 55% of the people in the municipality had no income in 2007. In general terms, the majority of households in the municipality earns less than the poverty line (about R1, 600 per household per month) and can be considered poor. Those classified as economically active are employed in the services sector. This sector is dominated by the services in terms of the various departments that render services such as health, justice, local government, education, SAPS.

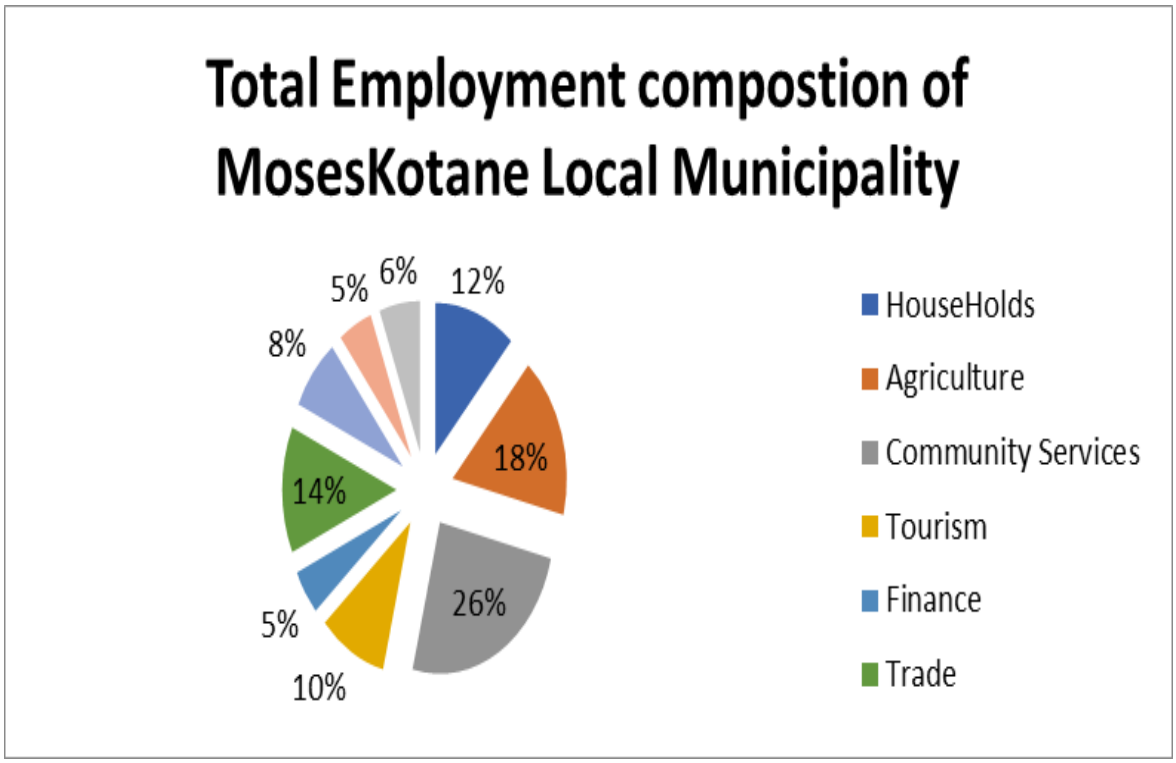


Figure 10: The Employment status for Moses Kotane

3.2.7 Health care facilities

The municipality is served by forty five clinics as well as four heath care centres, mobile clinic services at rural wards, in addition to these clinics; the other associated health services in the area include offices of the North West Department of Health as well as the Moses Kotane Hospital. The challenges facing the community within the boundaries of the municipal are that; people have to travel long distance to access health care facilities; mobile clinics that service the rural areas are not consistent in the visits to these areas, some clinics do not operate 24 hours.

3.2.8 Community safety and security

The whole municipality area is affected by high crime rates which can be addressed by increased visible policing. There are reportedly uncontrollable noises by allegedly unlicensed shebbeens and drinking places in the villages. The Community Policing Forums are identified as one platform that could facilitate the reporting of illegal sale of liquor and criminal activities in our areas. Installation of high mast lighting in rural areas could also reduce darkness during the night.

3.2.9 Education

Unavailability and inadequate educational facilities in some areas of the municipality leads to relocation or migration of learners to assumably better schools, possible closing of some schools and under-utilization of existing ones. Walking long distances to schools in rural

areas contributes to school drop-out rate. There is no university in the Moses Kotane Municipality. There is a need to approach other tertiary institutions to have satellites campuses within the municipal area. The table below shows the levels of education within the municipality in 2016 for people aged above the age of 20. An estimated 7.5 % of the population had no schooling in 2007 with 30.9% of the population having completed matric.

Table 1.5: educational levels in Moses Kotane Local Municipality

EDUCATION LEVELS	TOTAL	PERSONS %
No Schooling	18 256	7.5%
Matric	12 6 624	30.9%
Higher Learning	13 808	4%
TOTAL	**144 072**	**45.4%**

3.2.10 Households by Dwelling Type

According to the Moses Kotane Local Municipality IDP 2013-2014, there are four broad types of settlements within the Local Municipality which are distinguished primarily by the availability of services and the security of tenure. The settlements are described as follows:

3.2.11 Formal Urban Settlements

These have a formal layout, are serviced with a full range of municipal services and the settlement households can obtain security of tenure. These include areas such as Rustenburg, Tlhabane, Boitekong, Rankolenyane, Phatsima, Hartbeesfontein, Kroondal and Marikana.

3.2.12 Tribal Settlements

These are mainly located on Bafokeng tribal land and the households living in these settlements are considered Bafokeng citizens. Although these households do not own title deeds, they have security of tenure through their association with the tribe and are characterised by varying levels of service. Settlements that fall within this category include areas such as Phokeng, Kanana, Luka, Chaneng, Tlaseng, Thekwane and Photsaneng.

3.2.13 Rural Settlements

These are settlements that are similar in nature to the tribal settlements with regard to the residential densities and functions, but they are not located on Bafokeng tribal land. iv. Informal Settlements these have mainly developed along the mining belt. These include areas such as Wonderkoppies, Nkaneng, Zakhele, Mabele a Podi, Popo Molefe and Freedom Park. The informal settlements are characterised by a lack of security of tenure

and a lack of basic municipal services. Some of these settlements are in the process of being upgraded or relocated.

3.2.14 Land use

Primary economic sectors of mining, agriculture and tourism spatially covers large areas within the Bojanala District Municipality. Agriculture by far the most extensive land used though the conversions of natural fields to cultivation. The borrow pit is situated in farm that is used for animal grazing.

3.2.15 Heritage

Heritage resources include both tangible and intangible resources such as oral histories, traditional knowledge system, cultural practises and folklore. Tlokweng village is a rural area where traditional customs are still practiced. Graves are also considered to be heritage sites. The site is not located closed to the graves. No information was given during the engagement with the community that site is situated in a area that is used to be graves site. during the site visit we did not discover any grave on the site.

b) Description of the current land-use

The proposed borrow pit will be extended from the existing one, which was previously used for excavating gravel material to be used in other projects. the farm where the borrow pit is situated is mainly used by the community for animal grazing. Within the farm where borrow pit is located there are pigs kept in the kraal on the other side of the access road to the existing borrow pit.

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

The farm is located near on of the roads used in the community. the proposed borrow pit is within a certain distance from the road, there will be no mining of gravel material closer to the road. There are no other natural features such as river, streams, dams etc borrow pit. During the site inspection there were no archaeological aspects like graves discovered close to the borrow pit that may be tempered with. The proposed area for mining gravel will not affect the kraal of the pigs situated in the farm.

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

	Impact pathway	Nature of potential impact/risk	Extent	Duration	Consequence	Probability	Significance of impact/ risk = consequence x probability	Reversibility of the impact	Irreplaceability of receiving environment/ resource	Can the impact be avoided?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/impact (after mitigation)	Ranking of impact/ risk
Fauna and Flora	Clearing of vegetation	Habitat and loss of species.	site	Short term	Substantial	Very likely	Moderate	No	Moderate	No	Yes	Clearing of vegetation where there will be excavation. Revegetation of the area during rehabilitation.	low	4
		Exposed soils susceptible to Erosion.	site	Medium term	Moderate	Likely	Low	Yes	Low	No	Yes		Very low	5
	Disturbance of soils	Alien plant invasions in disturbed areas.	site	Long-term	Severe	Very likely	Moderate	Yes (rehab afte	Low	No	Yes	Removal of alien plant to reduce encroachment.	Low	4

	Impact pathway	Nature of potential impact/risk	Extent	Duration	Consequence	Probability	Significance of impact/ risk = consequence x probability	Reversibility of the impact	Irreplaceability of receiving environment/ resource	Can the impact be avoided?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/impact (after mitigation)	Ranking of impact/ risk
								r Decommissioning)						
Geohydrology	Spills, pollution	Contamination of groundwater	site	Long-term	Substantial	Likely	Moderate	No	Low	Yes	Yes	Minimal spillage will be from machines leakages no filing of fuel to be done onsite.	Very low	5
	Water runoff	Altered hydrological regimes and water quality	Local	Long-term	Substantial	unlikely	Moderate	Yes (rehab after r	Moderate	No	Yes	Implementation of storm water management measures	Low	4

	Impact pathway	Nature of potential impact/risk	Extent	Duration	Consequence	Probability	Significance of impact/ risk = consequence x probability	Reversibility of the impact	Irreplaceability of receiving environment/ resource	Can the impact be avoided?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/impact (after mitigation)	Ranking of impact/ risk
								decommissioning)						
	Increase in use of water	Impact on available groundwater resources and water levels in the area.	Local	Short term	Medium term	Unlikely	low	No	Moderate	Yes	Yes	Mining of gravel material does not require the use of water, minimal water will only be used for drinking purpose and dust control.	Very low	5
Social	Labour required	Employment opportunities	Local	Long-term	Moderate	Likely	Moderate	No	Low	No	Yes	Locals first' employment policy considering the skills are adequate	Moderate (positiv	3 (positiv

	Impact pathway	Nature of potential impact/risk	Extent	Duration	Consequence	Probability	Significance of impact/ risk = consequence x probability	Reversibility of the impact	Irreplaceability of receiving environment/ resource	Can the impact be avoided?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/impact (after mitigation)	Ranking of impact/ risk
	for project development												e	e)
	Traffic operations	Increase in traffic and pressure on the road network	Local/regional	Long-term	low	Likely	Moderate	No	Low	No	No	Transportation of gravel material kept to normal operational hours.	low	4
	Injuries to Animals	Animals (cattle goats and sheep) are at risk of injury due to the mining	Local/regional	Long-term	low	Likely	Moderate	No	Low	No	No	The site for mining should be fenced off and the gate be closed after working hours.	low	4

	Impact pathway	Nature of potential impact/risk	Extent	Duration	Consequence	Probability	Significance of impact/ risk = consequence x probability	Reversibility of the impact	Irreplaceability of receiving environment/ resource	Can the impact be avoided?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/impact (after mitigation)	Ranking of impact/ risk
		activities												
	Health and safety of workers	High risk work environment causing injury and/or death	site	Long-term	Moderate	Unlikely	Moderate	No	High	Yes	Yes	Proper training, Health and Safety precautions in place and routing maintenance of equipment as per the EMPr	low	4
Air Quality	Air Quality disturbance due to emissions	Decrease in the quality of the air	Local	Long-term	Substantial	likely	Low	No	Low	No	Yes	Keep within regulated acceptable emissions standards& consider cumulative impacts	Very low	5

	Impact pathway	Nature of potential impact/risk	Extent	Duration	Consequence	Probability	Significance of impact/ risk = consequence x probability	Reversibility of the impact	Irreplaceability of receiving environment/ resource	Can the impact be avoided?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/impact (after mitigation)	Ranking of impact/ risk
	from operations and trucks													
	Dust generation	Increase in road traffic on dirt roads causing dust generation	site	Short-term	Moderate	Very likely	Moderate	No	low	No	Yes	Use of grey water for dust spraying and wetting, proper grading of roads and keeping traffic to a reasonable level	low	4

	Impact pathway	Nature of potential impact/risk	Extent	Duration	Consequence	Probability	Significance of impact/ risk = consequence x probability	Reversibility of the impact	Irreplaceability of receiving environment/ resource	Can the impact be avoided?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/impact (after mitigation)	Ranking of impact/ risk
economic	Project Expenditure (incl. direct capital investment,	Investment and growth in local economy	Regional	Long term	Medium (positive)	Very likely	Moderate (positive)	Yes	Moderate	No	Yes	None	Moderate (positive)	3 (positive)
	Development of the proposed project	Decreased property values	Local	Long-term	Slight	Unlikely	Low	Yes	High	Yes	Yes	The nearest community is approximately 2km away from the mining site. No property value will be encountered.	Very low	5

	Impact pathway	Nature of potential impact/risk	Extent	Duration	Consequence	Probability	Significance of impact/ risk = consequence x probability	Reversibility of the impact	Irreplaceability of receiving environment/ resource	Can the impact be avoided?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/impact (after mitigation)	Ranking of impact/ risk
Noise	Noise disturbance during operation	Disruption to surroundings due to noise levels	Local	Long-term	Moderate	Unlikely	Moderate	No	High	Yes	Yes	The noise expected from the machinery to be utilised onsite will not be a nuisance to the labourers and will be within the required noise ambient. Conversely ear plugs will be provided to the labourers to mitigate the noise impact. The silencer will also be installed on the machines to be used.	Low	4
Heritage	Clearing the site	Destruction of archaeology	site	Permanent	Slight	Unlikely	Low	No	low	No	Yes	There were no graves that were identified, should any unmarked graves be unearthed during the mining process they must be reported to the heritage authorities and may require	Very Low	5

	Impact pathway	Nature of potential impact/risk	Extent	Duration	Consequence	Probability	Significance of impact/ risk = consequence x probability	Reversibility of the impact	Irreplaceability of receiving environment/ resource	Can the impact be avoided?	Can impact be managed or mitigated?	Potential mitigation measures	Significance of residual risk/impact (after mitigation)	Ranking of impact/ risk
												inspection by an archaeologist as appropriate.		
Site camps	Visual and noise impact		site	Medium term	Slight	unlikely		No	low	yes	yes	The site must not be located near public places and not closed to sensitive areas like rivers.	Very Low	5

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 were determined in order to decide the extent to which the initial site layout needs revision).

The assessment methodology that will be utilised in determining the significance of the potential Construction impacts of the existing and planned activities, on the biophysical and socio-economic environment is explained in the following sections. The methodology is broadly consistent to that described in Integrated Environmental Management Series. In order to assess the significance as objectively as possible, the criteria as per the 1998 Department of Environmental affairs and Tourism (DEAT) guidelines and the 2002 DEAT Information Series document will be used as the basis for the assessment methodology adopted by Lesekha Consulting.

Assessment of Potential Impacts

The assessment of impact significance is based on the following conventions:

Nature of Impact - this review the type of effect that a proposed activity will have on the environment and should include "what will be affected and how?"

Spatial Extent - this should indicate whether the impact will be:

- Site specific;
- Local (<2 km from site);
- Regional (within 30 km of site); or
- National.

Duration - The timeframe during which (lifetime of) the impact will be experienced:

- Temporary (less than 1 year);
- Short term (1 to 6 years);
- Medium term (6 to 15 years);
- Long term (the impact will cease after the operational life of the activity); or

Permanent (mitigation will not occur in such a way or in such a time span that the impact can be considered transient).

Intensity - it should be established whether the impact is destructive or innocuous and should be

Described as either:

- High (severe alteration of natural systems, patterns or processes such that they temporarily or permanently cease);
- Medium (notable alteration of natural systems, patterns or processes; where the environment continues to function but in a modified manner); or
- Low (negligible or no alteration of natural systems, patterns or processes); can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision making.

Probability - this considers the likelihood of the impact occurring and should be described as:

- Improbable (little or no chance of occurring);
- Probable (<50% chance of occurring);
- Highly probable (50 – 90% chance of occurring); or
- Definite (>90% chance of occurring).

Reversibility - this considers the degree to which the adverse environmental impacts are reversible or irreversible. For example, an impact will be described as low should the impact have little chance of being rectified to correct environmental impacts. On the other hand, an impact such as the nuisance factor caused by noise impacts from wind turbines can be considered to be highly reversible at the end of the project lifespan. The assessment of the reversibility of potential impacts is based on the following terms:

- **High** - impacts on the environment at the end of the operational life cycle are highly reversible;
- Moderate - impacts on the environment at the end of the operational life cycle are reasonably reversible;
- **Low -** impacts on the environment at the end of the operational life cycle are slightly reversible; or

- **Non-reversible** - impacts on the environment at the end of the operational life cycle are not reversible and are consequently permanent.

Irreplaceability - this review the extent to which an environmental resource is replaceable or irreplaceable. For example, if the proposed project will be undertaken on land that is already transformed and degraded, this will yield a low irreplaceability score; however, should a proposed development destroy unique wetland systems for example, these may be considered irreplaceable and thus be described as high. The assessment of the degree to which the impact causes irreplaceable loss of resources is based on the following terms:

- High irreplaceability of resources (this is the least favourable assessment for the environment);
- Moderate irreplaceability of resources;
- Low irreplaceability of resources; or
- Resources are replaceable (this is the most favourable assessment for the environment.

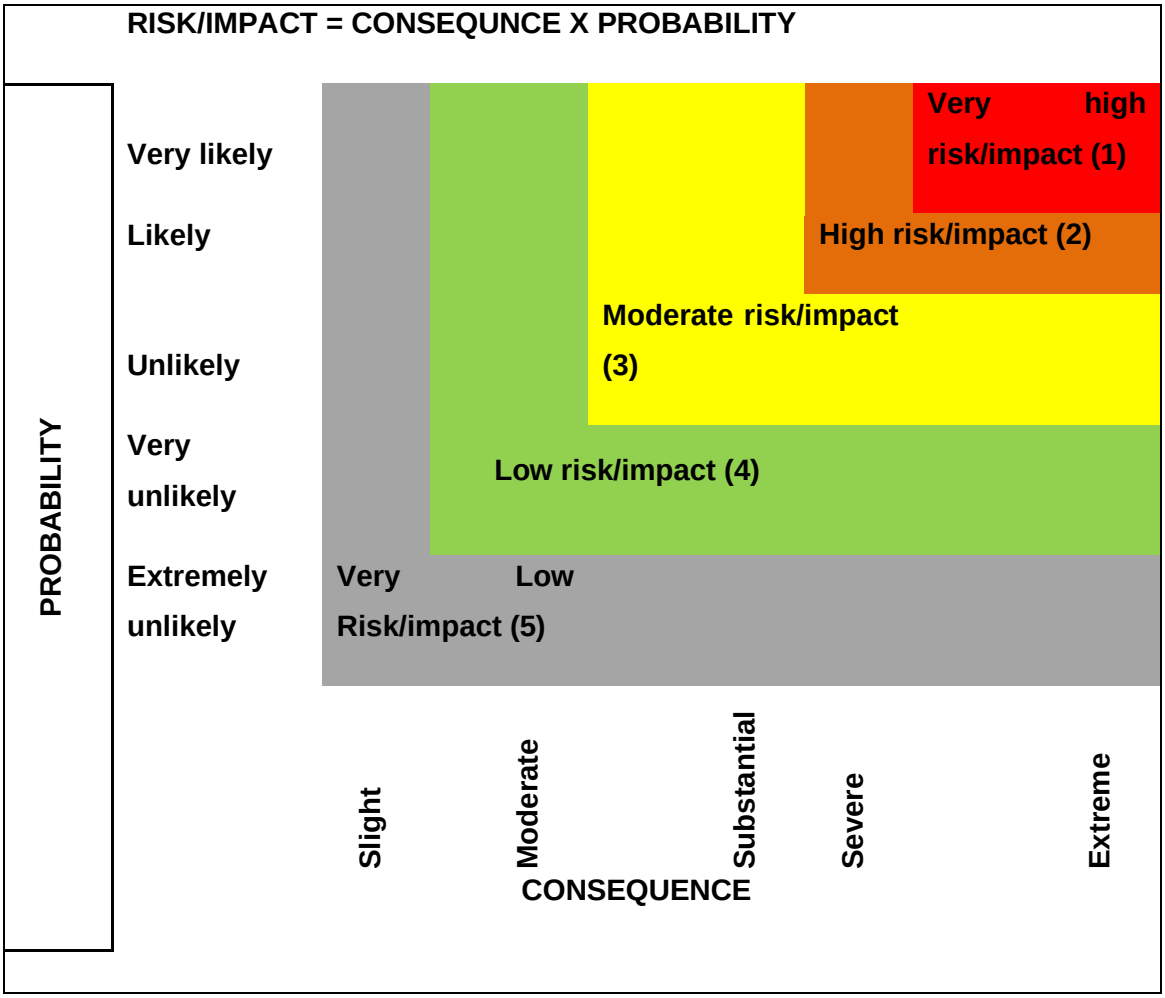


Figure 10: Guide to assessing risk/impact significance as a result of consequence and Probability.

The status of the impacts and degree of confidence with respect to the assessment of the

Significance is stated as follows:

Status of the impact: A description as to whether the impact will be:

- Positive (environment overall benefits from impact);
- Negative (environment overall adversely affected); or
- Neutral (environment overall not affected).

Degree of confidence in predictions: The degree of confidence in the predictions, based on the availability of information and specialist knowledge. This should be assessed as:

- High;
- Medium; or
- Low.

Based on the above considerations, the specialist provides an overall evaluation of the significance of the potential impact, which should be described as follows:

- **Low to very low:** the impact may result in minor alterations of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated.
- **Medium:** the impact will result in moderate alteration of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated; or
- **High:** Where it could have a “no-go” implication for the project unless mitigation or re-design is practically achievable. Furthermore, the following must be considered:
- Impacts should be described both before and after the proposed mitigation and management measures have been implemented.
- All impacts should be evaluated for the construction, operation and decommissioning phases of the project, where relevant.

- The impact evaluation should take into consideration the cumulative effects associated with this and other facilities which are either developed or in the process of being developed in the region, if relevant.

Management Actions:

- Where negative impacts are identified, mitigatory measures will be identified to avoid or reduce negative impacts. Where no mitigatory measures are possible this will be stated.

- Where positive impacts are identified, augmentation measures will be identified to potentially enhance these. Quantifiable standards for measuring and monitoring mitigatory measures and enhancements will be set. This will include a programme for monitoring and reviewing the recommendations to ensure their ongoing effectiveness.

Monitoring:

Specialists should recommend monitoring requirements to assess the effectiveness of mitigation actions, indicating what actions are required, by whom, and the timing and frequency thereof.

Cumulative Impact:

Consideration is given to the extent of any accumulative impact that may occur due to the proposed development. Such impacts are evaluated with an assessment of similar developments already in the environment. Such impacts will be either positive or negative, and will be graded as being of negligible, low, medium or high impact.

Mitigation:

The objective of mitigation is to firstly avoid and minimise impacts where possible and where these cannot be completely avoided, to compensate for the negative impacts of the development on the receiving environment and to maximise re-vegetation and rehabilitation of disturbed areas. For each impact identified, appropriate mitigation measures to reduce or otherwise avoid the potentially negative impacts are suggested. All impacts are assessed without mitigation and with the mitigation measures as suggested

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.

a) Positive impacts.

- Potential job opportunities for the local community.
- Reduced cost as application will not need to import material.
- The highly disturbed site will be rehabilitated upon completion of the project**.**

b) Negative impacts

- Clearance of indigenous vegetation
- Loss of plant species of conservation concern on site
- Localized increase in noise due to blasting, vibrations and excavations.
- Increase in dust generation due to blasting and excavations.
- Increase in traffic due to construction vehicles
- Disturbances/disruptions to surrounding landowners, businesses and affected parties
- Encroachment of alien invasive due to vegetation clearing

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

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

The following mitigation measures are some of the proposed methods to manage the proposed mining of gravel material from the borrow pit in order to prevent and mitigate potential environmental impacts:

1) **Air Quality:** The project's main potential effect on air quality will be dust emission by loading of gravel. Wet suppression will be employed in the borrow pit area, on haul roads at stockpiles areas. The objective will be to maintain a ***low*** risk of exceeding national standards for PM10 concentrations and rates of dust fall.

2) **Soil, Land Capability and Land Use:** The risk of causing a significant degradation of topsoil quality and associated loss of land capability after rehabilitation will be minimised to a ***low*** level by:

a) Taking care to strip and stockpile topsoil, subsoil and overburden layers selectively and to prevent mixing of especially topsoil with any of the other layers;
b) Backfilling the opencast void with discard material, overburden, subsoil and topsoil, in that order;

c) Analysing the topsoil, fertilising it appropriately and re-vegetating it with local indigenous flora to re-establish the pre-project land use, which was natural veld suitable for grazing.

3) **Ecology:** Successful restoration of the land capability will encourage natural re-colonisation of the rehabilitated area by mammals, birds, reptiles and insects, but it may require re-introduction of some species over time in order to reduce the risk of a low-functioning or unbalanced ecosystem to a ***low*** level.

4) **Visual aspects:** The terrain is quite flat and however since the borrow pit is close to the road it will be visible from the local roads. Judicious placement of topsoil and overburden stockpiles can screen the mine from certain view shed areas, but the stockpiles would also be visually prominent and potentially intrusive, unless they were vegetated to mitigate the visual impact. Diligent application of wet suppression would reduce this risk to a ***low*** level.

5) **Cultural and Heritage aspects:** There are no graves identified on the borrow pit site that will be likely affected by the mining activities. Unless unknown graves are unearthed during mining, the expected impact on cultural and heritage resources is likely to be of ***negligible*** significance;

6) **Socio-economics**: The construction of the road and mining of the gravel material will provide, given the levels of unemployment in the area, the impact is expected to be of ***moderate*** significance.

Other methods to manage the proposed gravel mining activities at the site in order to prevent and mitigate potential environmental impacts:

- Spillages must be cleaned appropriately.
- Implement strict housekeeping measures.
- Store raw materials inside a roofed structure that is not prone to wind-blown dust.
- Make staff aware of potential environmental impacts.
- Waste (general and hazardous) must be correctly managed to prevent nuisance conditions or environmental pollution.
- Develop and implement a waste management plan.
- Appropriate bonding and containment measures will be implemented to prevent contamination of stormwater due to spillages of hazardous substances.
- Restrict the area of impact to as small an area as possible.
- Ensure health and safety of employees during the operation, loading and transportation of gravel material.
- Ensure that dust emissions remain within allowable limits; and
- Prevent soil erosion, contamination and undertake appropriate remedial actions.
- Where possible limit the removal of riparian vegetation.

- The haul roads in the area will be made compact. Both sides of the haul roads will be planted with trees to arrest air borne dust.
- Dust mask/Face mask will be provided to all employees working in the likely dusty areas.
- Proper maintenance of vehicles will be done, which minimize the pollutants.
- Cover and/or maintain appropriate freeboard on truck hauling any lose material that could product dust while travelling.
- Vehicles should be covered by tarpaulin to reduce spillage on roads.
- Regular checking & Maintenance of vehicles, trucks, dumpers etc, will be conducted and pollution under control (PUC) vehicle will be used during transportation.
- Periodically, water will be sprinkled on haul roads to wet the surface.
- Overloading of transport vehicles will be avoided to prevent spillage.
- During the mining activities will be confined to footprint of the mining area applied for.
- To minimize the vehicular pollution from the transporting vehicles, the following conditions are insisted to permit the vehicles of the transporters.
- Regular maintenance of transport vehicles and monitoring of vehicular emission levels at periodical intervals.

ix. The outcome of the site selection Matrix. Final site layout Plan

(Provide a finale site layout plan as informed by the process of consultation with interested as affected parties

The investigation is focused on the borrow pit and the gravel road to be upgraded to a surfaced road. The prosed site for the borrow pit is situated in Grootfontein Farm No:224 JP in Tlokweng Village The farm is used by the community for animal grazing.

Site evaluation

- The site is within a stable area, no sinkholes etc
- the is already an established access road to the borrow pit.
- The site is not within a 500m buffer from the water resources.
- The site at a considerable distance away from residential areas

x. Motivating for No alternative on the Development

(If No alternatives, Including Alternative Location for the activity were investigated, the Motivation for not considering such)

The site has been considered to have enough and adequate material for the proposed project. No other alternative areas were assessed as this site is the preferred site. Established of the borrow pit and construction of the road will be of economic benefit to the community of Tlokweng Village as there will be job creation from the project which will decline poverty and unemployment rate.

xi. Statement motivating the preferred site.

(A concluding statement indicating the preferred alternative, including preferred location of the activity')

Tests done in the proposed borrow pit and it was concluded that it has enough and adequate material to be used in the construction of the road. the borrow pit is at a considerable distance from the main road leading to the road that will be constructed. Therefore, the cost for transporting gravel material to the road will be minimal. The borrow pit is situated in the farm that is used by the community for animal grazing, thus there will be no need for creating an access road to the borrow pit since there is a road. Noise and dust impacts is not deemed to be significant, seeing that the proposed Borrow pit is not near any residential areas.

H. FULL DESCRIPTION OF THE PROCESS UNDERTAKEN TO IDENTIFY, ASSESS AND RANK THE IMPACTS AND RISKS THE ACTIVITY WILL IMPOSE ON THE PREFERRED SITE (IN RESPECT OF THE FINAL SITE LAYOUT PLAN) THROUGH THE LIFE OF THE ACTIVITY.

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

i. Description of All Environmental Issues and Risks That Were Identified During the Environmental Impact Assessment Process.

1) Project screening and understanding the baseline environment

Hypothetically using the contextual information of the project to identify all the possible impacts such as socio-economic and environmental impact that the project may encounter. To overcome this, we used the knowledge and concepts relating to the project and performed analysis.

Site visit conducted for further observations and discoveries to support the analysis done during screening. Determine the extent to which the impacts from the proposed project will have socially, economically environmentally etc.

The description of the baseline environmental and socio-economic conditions above provides information on receptors and resources that have been identified as having the potential to be significantly affected by the proposed Project.

2) Public Participation

Public participation conducted to engage and inform the identified interested and affected parties about the proposed project. Allowing them to give feedback in the form of comments and concerns with regards to the project. Engagement is done in the using onsite notices, newspaper adverts, community meetings etc.

3) Assessment of Impacts and Mitigation

Please see **(vi)** for the Impact Assessment Methodology used to identify, assess and rank the potential impacts associated with the development.

The identified risks and impacts for this study, specifically the proposed mining site, were identified in terms of the environmental studies for this site and the socio-economic need of the surrounding area.

Assessment was done on the site for preference checking if it has enough adequate material to be used for the upgrading of the road. all identified impacts are assessed so that they can be avoided or minimized. This is done following the implementation of mitigations towards the impacts

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.

(Refer to (v))

I. Assessment of each identified potentially significant impact and risk

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
Excavations	Loss of vegetation and Faunal habitat	Flora and fauna	Construction phase	Medium	Clearing of vegetation will only be done on areas to be excavated. During rehabilitation site will be levelled and reshaped to allow for vegetation to grow back.	Low
	Dust	Natural Environment, road users and nearby residents.	Construction, commissioning, operational Decommissioning and closure	Medium	Area will be mined in phases to reduce the barren areas. Temporarily halt material handling in windy conditions. Material must be transported to the road immediately after excavation. Drivers must keep to their speed low to minimize emission of dust.	Low
Stockpiles	Dust	Natural Environment, road users and nearby residents	Construction, commissioning, operational Decommissioni	Medium	Reduce drop height of material to a minimum. Temporarily halt material handling in windy conditions. Drivers must keep to their speed low to minimize emission of dust.	Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
			ng and closure			
Emissions	Air quality	Natural resources	Construction, commissioning, operational Decommissioning and closure	Medium	Vehicles and machinery on the site will be monitored for excessive emissions. Vehicles and machinery will be maintained to minimize emissions. A log book will be filled in to keep a record of all maintenance problems encountered and mitigation measures implemented to resolve the problem. Vehicles and machinery emitting excessive emissions will be stopped immediately and not allowed to operate until the necessary repairs have been done.	Low
Waste from chemical toilets and litter	Pollution and nuisance	Natural and agricultural resources	Construction, commissioning, operational Decommissioning and closure	Medium	The toilet is serviced when needed and emptied when almost full. If a leak occurs the correct emergency procedure is to be followed. Litter will be removed from site by the operator daily.	Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
Fire	There is the potential for fire to occur on the site. Veld fires can occur across the vegetated areas of the property.	Natural and agricultural resources	Construction, commissioning, operational Decommissioning, closure and post-closure	High	All employees will be inducted on fire safety and on how to reduce the probability of a fire spreading out of control. Anyone who observes a fire must report it immediately to the fire protection agency/ fire brigade and their supervisor/ mine manager. Fire breaks will be maintained on the boundary of the mine site. No fires or activities that can start a fire will be allowed on site. Vehicles must be parked in an area with no vegetation if a fire occurs.	
Impact on the naturally occurring fauna present in the area	No red data fauna species were identified during the survey. The proposed development will	Natural resources	Construction, commissioning, operational Decommissioning and closure	Medium	Rehabilitate the area after mining process is complete and vegetation will return. Use of topsoil with seeds and roots to rehabilitate the site.	Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
	not impact on any known conservation worthy species.					
Socio-Economic	Job creation	Jobs will be created. Local residents will be employed.	Construction, commissioning, operational Decommissioning and closure	Positive	Local contractors, employing or seeking to employ local (historically disadvantaged individuals (HDIs) from the region who are suitably qualified, should get preference. The municipality, local community and local community organizations should be informed of the project and potential job opportunities by the developer.	Positive
Loading, hauling and transport	Increased traffic due to the construction activities requiring various vehicles to come	Socio Economic Impacts	Construction, commissioning, operational Decommissioning and closure	Medium	A speed limit of 30km/hour will be displayed and enforced through a fining system. All vehicle drivers will be informed of the speed limit. Speed limit will be applicable when delivery trucks drive through residential areas Access road will be maintained while mine is	Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
	onto and leave the site.				in operation and haul road is used.	
Excavations, operations, loading, hauling and transport	Socio Economic impacts	Noise due to mining machinery, trucks and people on site	Construction, commissioning, operational Decommissioning and closure	Medium	The borrow pit is at considerable distance from the village. The construction site of the road must be situated at considerable distance from the public area to avoid noise impacts to the community. Machinery and vehicles should be regularly maintained to prevent excessive noise. All machinery and work activities must adhere to the requirements of the noise regulations.	Low
Gravel material extraction	Impact on the biota and habitat	Environment and Natural Resources Biota	Construction, Operation Decommissioning Phases	Medium	No protected tree or habitat of red data list species where observed, if found during the operation phase, specialist will be consulted to check if it can't be avoided or removed.	Low
	Topography and visual alteration.	Topography and visual environment	Decommissioning Phase	Moderate	Vegetation between the nearest residential area and the borrow pit is dense with tree-	Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
					canopy will level, thus it will help to keep visual impact minimal.	
Rehabilitation and restoration of disturbed Areas	Noise generation.	Noise receptors	Decommissioning Phase	Low	Manage through Noise Reduction Measures and Regular Vehicle Inspections.	Very low
	Air quality and dust emissions.	Air quality	Decommissioning Phase	Low	Road will be grade.	Very low
	Land capability reduction.	Soils	Decommissioning Phase	Moderate	Fill trench with material form grading the road during construction or with unused material. Level and reshape the area to be almost flat to avoid ponding.	Low
	Destruction of vegetation.	Fauna and flora	Decommissioning Phase	Moderate	Return topsoil and allow for vegetation to regrow before grazing.	Low
	Soil	Soil	Decommissioni	Medium	Spills will be removed accordingly, no fuel	Low

NAME OF ACTIVITY	POTENTIAL IMPACT	ASPECTS AFFECTED	PHASE	SIGNIFICANCE if not mitigated	MITIGATION TYPE	SIGNIFICANCE if mitigated
	contamination.		ng Phase		fillings on site.	

J. 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 contacted.

K. ENVIRONMENTAL IMPACT STATEMENT

i. Summary of the key findings of the environmental impact assessment.

The proposed mining in the borrow pit located in Grootfotein 224 JP may result in potential negative and positive impacts will affect the following environmental components:

- Terrestrial ecology;
- Air quality;
- Heritage;
- Soils and land capability
- Social environment; and
- Visual aesthetics.

However, no impacts which could cause detrimental harm to the environment were identified as part of this assessment, there are proposed mitigation measures for respective impacts. The proposed borrow-pit or mining operation will be established in an area that was already used in previous projects and the farm is currently used by the community for animal grazing.

Key findings of the environmental impact assessment include:

- The significance of potential environmental impacts can be reduced to **low - very low** significance with implementation of mitigation measures and monitoring.
- Impacts on the socio-economic environment and livelihoods of the community of can be mitigated from **very low – low** significance.
- Cumulative noise, visual and air quality (dust) impacts are deemed to **not be significant (low)** when proper mitigation measures are implemented.

The project entails the opencast excavation of gravel material from a borrow pit. The area is dominated by grass, the mining procedure will only entail the mechanical excavation of the gravel material by means of an excavator, after which it will be loaded onto trucks and transported from site.

The No-Go option will result in the site remaining as it is presently, vacant land. The benefits of the project can be divided into social and economic classifications. The mine will provide direct employment to local persons. The operation further creates indirect employment opportunities in equipment, transport and the construction environment.

The objective of Basic Assessment and Environmental management programme, in this case a basic assessment is to find the alternative ways to identify the environmental impact. The assessment and evaluation of potential impacts associated with the proposed development was undertaken in an iterative manner, to inform proactively the 'shaping' of the most favourable development proposal.

The proposed site is considered suitable provided that all the mitigation measures contained in this report are applied.

The construction phase and operational phase have very similar negative impacts. However, the potential impacts identified will be adequately managed and effectively mitigated through the implementation of the recommendations outlined in this report as well as the proposed Environmental Management Programme (EMPr).

Major environmental findings

The following aspects require attention from an environmental management point of view were identified, and are addressed in this document:

Fire

Fire is a real threat thus no open space fires are to be permitted or indeed necessary on site.

Animals

No introduced animals of any kind are permitted on site. Hunting or trapping or interfering with any wildlife is again contractually prohibited.
There are holes that indicate of animal habitat on site. No hunting will be allowed.

A monitoring programme will be implemented for the duration of the construction phase of the project. This programme will include:

- Audits during first month where after monthly audits will be conducted by the Environmental Control Officer, which are according to the EMP and conditions of the Environmental Authorisation.

- These audits can be conducted randomly and do not require prior arrangement with the project manager.
- Compilation of an audit report with a rating of the compliance with the EMP. This report will be submitted to the relevant authorities (DMR).
- Proper and continuous liaison between developer, the Contractor and other stakeholders and members of the public to ensure all parties are appropriately informed at all times.

The impact will not have an influence on the decision for the mitigation

The magnitude of the impacts is low i.e., natural and social functions and process are not affected or minimally affected. From the significance analysis of the impacts, none have higher impacts. This study therefore reflects that no social, environmental, economic or institutional reasons have been identified by this preliminary investigation as to why the proposed development should not proceed. Assuming compliance with the stipulated mitigation measure the perceived negative impacts of the proposed project will be minimized.

A monitoring programme will be implemented for the duration of the construction phase of the project. This programme will include:

- Audits during first month where after monthly audits will be conducted by the Environmental Control Officer, which are according to the EMPr and conditions of the Environmental Authorisation.
- These audits can be conducted randomly and do not require prior arrangement with the project manager.
- Compilation of an audit report with a rating of the compliance with the EMPr. This report will be submitted to the relevant authorities (DMR).
- Proper and continuous liaison between developer, the Contractor and other stakeholders and members of the public to ensure all parties are appropriately informed at all times.
- The impact will not have an influence on the decision for the mitigation.

ii. Final site map

There are no environmental constrains which will result in the mining on the proposed project, not to be authorised.

(Final map: refer to map in part A)

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

a) Positive impacts.

- Potential job opportunities for the local community.
- Reduced cost as application will not need to import material.
- The highly disturbed site will be rehabilitated upon completion of the project.

b) Negative impacts

- Clearance of indigenous vegetation
- Loss of plant species of conservation concern on site
- Localized increase in noise due to blasting, vibrations and excavations.
- Increase in dust generation due to blasting and excavations.
- Increase in traffic due to construction vehicles
- Disturbances/disruptions to surrounding landowners, businesses and affected parties
- Encroachment of alien invasive due to vegetation clearing.

L. PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES FOR INCLUSION IN THE EMPR;

From the findings it is clear that the proposed project of upgrading the roads and the establishing borrow-pit is desirable since the development will contribute positively to the local communities. It is therefore concluded that the proposed project has sufficient merit for its approval. Impacts are localized and mostly associated with proximity to the site, however the overall impacts after implementation of mitigation measures is a medium negative significance. It is believed that the proposed project does not hold a fatal flaw that would restrict the project from taking place. The mitigation measures identified on the above, the development impacts are manageable, and the project can be approved. The contractors on site must comply with the general findings and mitigation measures. The impacts are minimum and insignificant. Vegetation will not be tempered with. Dust depressant will be used to reduce dust generated during construction.

Based on the assessment the recording of proposed impact management objectives, and the impact management outcomes for the development for inclusion as conditions of authorisation.

The following management objectives are prescribed for the proposed borrow-pit mining operation:

- Restrict the area of impact to as small an area as possible.
- Limit the impact on possible archaeological finds.
- Ensure health and safety of employees.
- Limit the visual impact on sensitive visual receptors.
- Ensure that dust emissions remain within allowable limits; and
- Prevent soil erosion, contamination and undertake appropriate remedial actions.
- Use inert construction waste (e.g. old road surface and foundations) as fill material where possible.
- Obtain fill material from existing borrow pits to minimize the impact of creating new borrow pits.
- Re-vegetate and rehabilitate after construction.
- Where possible limit the removal of riparian vegetation.

The following table shows the environmental management objectives that are recommended for the borrow pit gravel mining:

Impact	**Responsibility and Phase**	**Mitigation**
Compliance with relevant environmental legislation and policy	Applicant	All relevant legislation and policy must be consulted and the proponent must ensure that the project is compliant with such legislation and policy. These should include (but are not restricted to): MPRDA, NWA, NEMA)
Visual intrusion associated with mining activities	Site Manager (operation)	Mining activities should only take place during normal work hours (7am to 5pm). Mining activities must be limited to the designated

Impact	Responsibility and Phase	Mitigation
		area and not encroach into surrounding areas.
Demarcation of mining site	Site Manager (Operation)	The boundaries of the mining site must be adequately demarcated to restrict mining and other activities. All plant, equipment and other materials must remain within the demarcated boundaries.
Spillage of hazardous substances	Site Manager (Operation)	All oils, fuel and other maintenance equipment and supplies must be stored in a secure area offsite with a compacted surface. Spill kits must be kept on-site and maintained. All hazardous material must be stored more that 50m away from any water course. Vehicles must be maintained to an acceptable standard to prevent any fuel, oil or lubricant leaks etc).
Dust control	Site manager (Operation)	Only take place during agreed working times and permitting weather conditions to avoid drifting of dust into neighbouring areas. A speed limit of 30km/h must not be exceeded on dirt roads. Any complaints or claims emanating from dust issues must be attended to immediately. During windy periods un-surfaced and un-vegetated areas should be dampened.
Noise	Site manager (Operation)	Movement of heavy machinery should be limited to normal working hours (7 AM to 5 PM). Ensure there is a facility for nearby residents to make complaints. These must be addressed and recorded.
Waste management	Site manager (Operation)	Sufficient waste containers must be available. No waste must be buried or burned on site. Waste must be collected on a regular basis and disposed of at a licensed landfill site.
Final rehabilitation and decommissioning	Decommissioning and Closure	Any remaining gravel stockpiles must be removed or levelled.

Impact	Responsibility and Phase	Mitigation
		Site clean-up must be done. Waste material of any description, including receptacles, scrap, rubble and tyres, will be removed entirely from the mining area and disposed of at a registered landfill site. It will not be permitted to be buried or burned on the site. Mined out areas must be stabilised and profiled (if necessary). The post rehabilitation topography should result in the same slope as prior to mining. Weeds/alien plants growing on site must be manually removed and deposited at a registered landfill site. All equipment and other items used during the mining period must be removed from site. At closure the internal haul road must be left in a good and non-eroded state (as it was prior to mining activities). Rehabilitation must be completed in such a manner that the land can be optimally used post-mining. Final rehabilitation shall be completed within a period specified by the Regional Manager.
Closure	Site Manager (Decommissioning and Closure)	Closure must comply with the MPRDA (Act 28 of 2002), NEMA (Act 107 of 1998) and the NEMA Regulations (2017) requirements for mine closure. The closed site must pose no safety risks. A closure plan must be compiled using the guidelines described in Appendix 5 of the NEMA Regulations (2017) and submitted to DMR.

Impact	Responsibility and Phase	Mitigation
		A closure certificate must be obtained from the Minister of Mineral Resources.

M. ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION.

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

The proposed project be issued a positive environmental authorization; however, this authorization must be accompanied with the following requirements:

- Prior to the construction, the borrow pit must be fenced in such a way that will prevent animals and children from entering the area. The gate must be closed after working hours.
- Dust emissions must be kept at minimal level to ensure that it does not put the lives of people at risk. Water must be used to damp the road and drivers should lower their speed to minimize dust emissions.
- Excavation must be done in phases to avoid clearing of vegetation in a area that will not be excavated, thus leaving the soil exposed.
- Construction employees be educated about the environmental sensitivity of the are and their health and safety in the environment.

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

(Which relate to the assessment and mitigation measures proposed?)

This BAR has identified the potential environmental impacts associated with the proposed activities. The purpose of this section is therefore to highlight gaps in knowledge when the EIA phase of the project was undertaken. Undertaking the EIA process in parallel with the feasibility study does, however have a number of benefits, such as integrating environmental aspects into the layout and design and therefore ultimately encouraging a more environmentally sensitive and sustainable project.

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

From the outcomes of this assessment, it is the view of the EAP that a positive environmental authorization be issued for this project since it will have positive social and economic contribution. It is however acknowledged that there will be impacts on the biophysical environment; conversely with the implementation of the mitigation measures

outlined in this report and the EMPr as well as through adequate environmental monitoring and enforcement those impacts can be successfully mitigated.

From the findings it is clear that the proposed project of establishment of a borrow pit is desirable since the development will contribute positively to the local communities. It is therefore concluded that the proposed project has sufficient merit for its approval. Impacts are localized and mostly associated with proximity to the site, however the overall impacts after implementation of mitigation measures are a low negative significance.

It is believed that the proposed project does not hold a fatal flaw that would restrict the project from taking place. The mitigation measures identified on the above, the development impacts are manageable, and the project can be approved. The contractors on site must comply with the general findings and mitigation measures. The impacts are minimum and insignificant. Vegetation will not be tempered with. Dust depressant will be used to reduce dust generated during construction.

P. Period for which the Environmental Authorisation is required.

The proposed borrow-pit will have a period of approximately five (5) years from the date on which mining commences.

Q. 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 is provided at the end of the EMPr

R. Financial Provision

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

The financial provision for the mining operations was determined based on information currently available. An assessment was conducted of all the activities taking place on site that fall within the properties associated to the mining permit application. The closure liability was calculated at **R317 985.00** on 17 March 2021.

i) Explain how the aforesaid amount was derived

The amount was calculated according to the methodology in the Guideline Documents for the Evaluation of the Quantum of Closure Related Financial Provision Provided by a Mine as published by the DMR.

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).

The Project Applicant the Department of Public Works has confirmed that this amount will be provided for.

S. Specific Information required by the competent authority

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

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

The proposed mining operation is largely proposed on community owned property administered by the tribal authority. It is however, within the boundary of the Moses Kotane Local Municipality.

(2) Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act.
(Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act, attach the investigation report as Appendix 4.4 9.2 and confirm that the applicable mitigation is reflected in 4.4 .3; 4.4 1.6.and 4.4 2.herein).

The area is close to the road, where the land has already disturbed; therefore, no heritage sites of significance were identified within the proposed development/borrow-pit footprint.

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

(The EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub-regulation 22(2)(h), exist. The EAP must attach such motivation as ***Appendix 5)****.*

Alternatives considered for the proposed infrastructure development is limited to an alternative alignment for the borrow-pit development. (*note: the road is below the threshold limits stipulated in the Regulations and is therefore not included as a listed activity and assessed in this application*).

The reason for this is that the mining permit will be obtained for the sole purpose of mining gravel material as in this report. The mining method to be employed (opencast truck and shovel) was assessed for the mine, and no alternatives were considered as part of that application process. Gravel material from the borrow-pit will be transported by truck and stockpiled on the road to be construct

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1. Environmental Management Programme

a. Details of 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).

Details of the EAP are included in Part A of this report. CV's are attached in Appendix A

b. Description of the aspects of the activity

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

The aspects of the activity are covered in Part A of this report.

c. Composite map

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

Please refer to Figure 1.

d. Description of impact management objectives including management statement.

a) Determining of closure objectives.

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

At the end of the project, the closure and decomposition of the borrow pit will involve removal of all debris and rehabilitation of areas not rehabilitated during operation. The process will be composed of the scarification of compacted areas, reshaping of areas within the borrow pit, top soiling and regenerating all prepared surfaces. The rehabilitation plan was developed on the basis that the rehabilitated areas will be made safe, stable, no-polluting and will be able to support self-sustaining ecosystems, like surrounding natural ecosystem.

b) Volumes and rate of water use required for the operation

Water will only be required for dust control. Minimal water will be used and will not be extracted from natural watercourses, thus there will be no need to apply for a water use license.

c) Has a water use license application?

No, the proposed activity does not require water use license application.

d) <u>Impacts to be mitigated in their respective phases</u>

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

ACTIVITIES	PHASE	SIZE AND SCALE of Disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
Construction of 0.5 km wide. Haul Road	Construction	4.0 ha	• Dust suppression • Minimisation of vehicle movement • Monitoring of dust fall to determine if measures are effective	• Conduct dust suppression techniques to ensure that applicable standards for PM10 and $PM_{4.4}$ are not exceeded.	• During construction
			• Restrict the disturbed area • Restrict spillage from haulage vehicles • Removal of all utilisable soil and storage of the same • Implement of storm water management measures • Treat contaminated soils	• Meet rehabilitation standards/objectives	• During construction
			• Vegetating soil stockpiles • Control alien invasive plant species	• Meet rehabilitation standards/objectives	• During construction

ACTIVITIES	PHASE	SIZE AND SCALE of Disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Avoid leaving any building material or waste on site	• Meet rehabilitation standards/objectives	• During construction
			• Report and evaluate any archaeological or heritage features found	• Impact avoided	• During Operation
			• Enforce HSEC management measures	• Objectives of Social & Labour Plan	• During construction
Construction of 2 km wide Void Road	Construction	4.0 ha	• Dust suppression • Minimisation of vehicle movement • Monitoring of dust fall to determine if measures are effective	• Conduct dust suppression techniques to ensure that applicable standards for PM_{10} and $PM_{4.4}$ are not exceeded.	• During construction
			• Restrict the disturbed area • Restrict spillage from haulage vehicles	• Meet rehabilitation standards/objectives	• During construction

ACTIVITIES	PHASE	SIZE AND SCALE of Disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Removal of all utilisable soil and storage of the same • Implement of storm water management measures • Treat contaminated soils		
			• Vegetating soil stockpiles • Control alien invasive plant species	• Meet rehabilitation standards/objectives	• During construction
Clearing of vegetation within Topsoil Stockpile footprint	Construction	100m^2	• Dust suppression • Minimisation of vehicle movement • Monitoring of dustfall to determine if measures are effective	• Conduct dust suppression techniques to ensure that applicable standards for PM_{10} and $PM_{4.4}$ are not exceeded.	• During construction
			• Restrict spillage from haulage vehicles • Removal of all utilisable soil and storage of the same	• Meet rehabilitation standards/objectives	• During construction

ACTIVITIES	PHASE	SIZE AND SCALE of Disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			Implement of storm water management measures • Treat contaminated soils		
			• Vegetating soil stockpiles • Control alien invasive plant species	• Meet rehabilitation standards/objectives	• During construction
			• Avoid leaving any building material or waste on site	• Meet rehabilitation standards/objectives	• During construction
			• Report and evaluate any Archaeological or heritage features found	• Impact avoided	• During construction
			• Enforce HSEC management measures	• Meet objectives of Social & Labour Plan	• During construction
Clearing of vegetation within the footprint of the proposed mini-pit ramps	Construction	1.5 ha	• Dust suppression • Minimisation of vehicle movement • Monitoring of dustfall to determine if measures are effective	• Conduct dust suppression techniques to ensure that applicable standards for PM_{10} and $PM_{4.4}$ are not exceeded.	• During construction

ACTIVITIES	PHASE	SIZE AND SCALE of Disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
			• Enforce HSEC management measures.	• Meet objectives of Social & Labour Plan	• During construction

e) Impact Management Outcomes

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

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
Construction of the road	• Dust pollution	• Control through dust suppression • Control through minimisation of vehicle movement • Control through monitoring of dustfall to determine if measures are effective.	Construction	Conduct dust suppression techniques to ensure that applicable standards for PM_{10} and $PM_{4.4}$ are not exceeded
	• Soil erosion, compaction and contamination	• Prevent through restricting the disturbed area • Prevent through restricting spillage from haulage vehicles		Rehabilitation standards/objectives

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
		• Control through removal of all utilisable soil and storage of the same • Control through implementation of storm water management measures • Remedy through treatment of contaminated soils		
	• Loss of vegetation • Invasion by alien invasive species	• Modify by vegetating soil stockpiles • Control though alien invasive eradication programme		Rehabilitation standards/objectives
	• Visual impact	• Avoid/prevent leaving any building material or waste on site		Rehabilitation standards/objectives
	• Heritage	• Prevent through reporting and evaluation of any archaeological or heritage features found		Impact avoided
	• Social impact	• Control through appropriate management measures; • Prevent through HSEC management measures		Objectives of Social & Labour Plan

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
Clearing of vegetation alongside the road for bypass	• Dust pollution	• Control through dust suppression • Control through minimisation of vehicle movement • Control through monitoring of dustfall to determine if measures are effective	Construction	Conduct dust suppression techniques to ensure that applicable standards for PM_{10} and $PM_{4.4}$ are not exceeded
	• Soil erosion, compaction and contamination	• Prevent through restricting the disturbed area • Prevent through restricting spillage from haulage vehicles • Control through removal of all utilisable soil and storage of the same • Control through implementation of stormwater management measures • Remedy through treatment of contaminated soils		Rehabilitation standards/objectives
	• Loss of vegetation	• Control through restricting the footprint to be cleared	Operation	Rehabilitation standards/objectives
	• Visual impact	• Avoid/prevent leaving any building material or waste on site		Rehabilitation standards/objectives
	• Heritage	• Prevent through reporting and evaluation of any archaeological or heritage features found.		Impact avoided

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
	• Social impact	• Control through appropriate management measures; • Prevent through HSEC management measures		Objectives of Social & Labour Plan
Hauling and transport of Gravel during operations	• Dust pollution	• Control through dust suppression • Control through minimisation of vehicle movement • Control through monitoring of dustfall to determine if measures are effective	Operation	Rehabilitation standards/objectives
	• Soil erosion, compaction and contamination	• Prevent through restricting the disturbed area • Prevent through restricting spillage from haulage vehicles • Control through removal of all utilisable soil and storage of the same • Control through implementation of storm water management measures • Remedy through treatment of contaminated soils		Rehabilitation standards/objectives

f) Impact Management Actions

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

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
Construction of a new Haul Road	• Dust pollution	• Control through dust suppression • Control through minimisation of vehicle movement • Control through monitoring of dustfall to determine if measures are effective.	Construction	Conduct dust suppression techniques to ensure that applicable standards for PM_{10} and $PM_{4.4}$ are not exceeded
	• Soil erosion, compaction and contamination	• Prevent through restricting the disturbed area • Prevent through restricting spillage from haulage vehicles • Control through removal of all utilisable soil and storage of the same • Control through implementation of storm water management measures • Remedy through treatment of contaminated soils		Rehabilitation standards/objectives
	• Loss of vegetation	• Modify by vegetating soil stockpiles • Control though alien invasive eradication		Rehabilitation standards/objectives

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
	• Invasion by alien invasive species	programme		
	• Visual impact	• Avoid/prevent leaving any building material or waste on site		Rehabilitation standards/objectives
	• Heritage	• Prevent through reporting and evaluation of any archaeological or heritage features found		Impact avoided
	• Social impact	• Control through appropriate management measures; • Prevent through HSEC management measures		Objectives of Social & Labour Plan

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
Clearing of vegetation within the footprint of the topsoil stockpile and the proposed mini-pit ramps	• Dust pollution	• Control through dust suppression • Control through minimisation of vehicle movement • Control through monitoring of dustfall to determine if measures are effective	Construction	Conduct dust suppression techniques to ensure that applicable standards for PM_{10} and $PM_{4.4}$ are not exceeded
	• Soil erosion, compaction and contamination	• Prevent through restricting the disturbed area • Prevent through restricting spillage from haulage vehicles • Control through removal of all utilisable soil and storage of the same • Control through implementation of stormwater management measures • Remedy through treatment of contaminated soils		Rehabilitation standards/objectives

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
	• Loss of vegetation	• Control through restricting the footprint to be cleared	Operation	Rehabilitation standards/objectives
	• Visual impact	• Avoid/prevent leaving any building material or waste on site		Rehabilitation standards/objectives
	• Heritage	• Prevent through reporting and evaluation of any archaeological or heritage features found.		Impact avoided
	• Social impact	• Control through appropriate management measures; • Prevent through HSEC management measures		Objectives of Social & Labour Plan
Hauling and transport of Gravel during operations	• Dust pollution	• Control through dust suppression • Control through minimisation of vehicle movement • Control through monitoring of dustfall to determine if measures are effective	Operation	Rehabilitation standards/objectives
	• Soil erosion, compaction	• Prevent through restricting the disturbed area • Prevent through restricting spillage from		Rehabilitation standards/objectives

ACTIVITY	POTENTIAL IMPACT	MITIGATION TYPE	TIME PERIOD FOR IMPLEMENTATION	COMPLIANCE WITH STANDARDS
	and contamination	haulage vehicles • Control through removal of all utilisable soil and storage of the same • Control through implementation of storm water management measures • Remedy through treatment of contaminated soils		

i. Financial Provision

Determination of the amount of Financial Provision

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

The borrow pit will be leveled and reshaped during rehabilitation in such a way the rainwater can naturally drain. The rehabilitated areas will be left safe, stable, non-polluting and able to support a self-sustaining ecosystem like the surrounding natural environment. The Moses Kotane Local Municipality undertakes to rehabilitate all areas impacted on by its prospecting activities to allow the land use to return to livestock grazing.

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

Currently, there are no activities present on the proposed borrow pit. The proposed borrow pit is in Grootfotein 224 JP which is owned by the community under the leadership from the tribal council. The draft BAR and EMPr was made available to all registered I&APs. Assurance was made to the community that the site will be rehabilitated, should the contractor leave the site unrehabilitated the retention paid to DMRE will be used for rehabilitation.

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

After all the mining activities are completed, all the stockpile materials will be taken back into the pits. The area will be backfilled and then indigenous trees and grasses will be soon all over the area to avoid erosion and soil removal during rainy seasons. Monitoring of the vegetation will be conducted until the whole area is fully vegetated back to its original state. The seed bank could be enhanced before site clearance by fencing the site off and preventing grazing for as long a period as possible before the start of borrow activities. This would allow for seed production which might be useful for rehabilitation of the site.

During rehabilitation, the topography would be finished off so that the sides of the borrow area are no steeper than 1:5. The slope changes should be finished off so that flowing curves that blend with the surrounding landscape and hill are formed in preference to sharp angles. Unused boulders would be placed back in the deepest areas of the excavated area

and the topsoil and vegetation stripped during site clearance would be spread evenly across the borrow pit area. Introduction of seed of species such as *Sporobolus fimbriatus* (drop seed grass) and *Eriocephalus ericoides* (kapokbos) should also be considered.The site will be revegetated as follows:

Re-vegetation

Contractor shall appoint a suitably experienced Landscaping Contractor/Horticulturist who is familiar with the local vegetation. His/her appointment must be approved by the Department. The Landscaping Contractor/Horticulturist shall compile a vegetation rehabilitation plan that shall detail search and rescue, seed collection, seed mixing, seeding methods, planting and vegetation establishment in all borrow pit areas. For very disturbed areas, the soil can be reseeded with a commercially available reseeding mixture. The Contractor shall submit the vegetation rehabilitation plan to the Department for approval.

The vegetation rehabilitation plan shall include the following:

- Seed requirements, harvesting methods and locations, seed storage methods;
- Search and rescue;
- Handling of plant material rescued (translocation areas, propagation, etc.);
- Establishment and maintenance of a project-specific nursery, if required;
- Topsoil, mulch, fertiliser, soil stabiliser and irrigation requirements and application;
- Landscaping and revegetation methods for each area, i.e. hydroseeding / hydromulching, planting, including locations and timing;
- Procurement requirements and a list of species of plants to be procured, if any;
- Vegetation establishment and maintenance requirements (irrigation, etc.) for all revegetated areas; and
- The use of any herbicides, pesticides and other poisonous substances, if required.

The following general recommendations for rehabilitation should be considered by the appointed horticulturist:

- All proposed borrow pit areas should be fenced off to exclude grazing and allow for seed production for as long as possible for the start of borrow activities;
- Stripped topsoil should be evenly spread across disturbed areas after decommissioning;
- Branches rocks or any other coarse organic material should be scattered over the area to create favorable microclimates for seed germination and seedling establishment;
- Reseeding of cleared areas should take place during autumn of spring when temperatures are not too high and the probability for rainfall is high;
- Rehabilitated areas should be protected from grazing for at least 12 to 18 months to allow for proper revegetation;

d) <u>Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives.</u>

Closure happens only when the mining process cease. This is the stage wherein the area will be cleared off any machines, chemical toilets, waste bins to make way for the rehabilitation stage. The main objective of rehabilitation after mining process is to ensure that the disturbed area is back at the state it was before any mining activity.

All the stockpile materials (soil, rocks) will be put back into the open pits. These will be done using the very same front end-loader to push back all stockpiles into the pits. Other foreign soil materials will be brought into the site to ensure that the pits are fully covered. The end-result of the rehabilitation process will be to take the mined area back to its original state/condition before mining. When all the pits are backfilled, indigenous vegetation will be introduced to these sites to stabilise the soil and prevent erosion by wind and water. The main closure objective will be to get the area back to it's before mined state. When the disturbed areas are fully vegetated and soil in the stability state that is when the project is deemed closed.

<u>Closure objectives:</u>

- The main closure objective of the contractor's planned prospecting operation is to restore the site to its current land capability in a sustainable matter.
- To prevent the sterilization of any ore reserves.

- To manage and limit the impact to the surface and groundwater aquifers in such a way that an acceptable water quality and yield can still be obtained, when a closure certificate is issued.

- The prospecting operation also has the objective to establish a stable and self-sustainable vegetation cover in areas affected by the prospecting activities.

- To limit and rehabilitate any erosion features caused by the prospecting activities and prevent any permanent impact to the soil capability thereof.

- To limit and manage the visual impact of the prospecting activities.

- To safeguard the safety and health of humans and animals on the site.

- To close the mining operation efficiently, cost effectively and in accordance with Government Policy.

Rehabilitation Plan:

Infrastructure areas

- On completion of the mining operation, the various surfaces, including the access roads and the borrow-pit will finally be rehabilitated as follows: All other material on the surface will be removed to the original topsoil level. This material will then be backfilled into the open excavations. Any compacted area will then be ripped to a depth of 300mm, where possible, the topsoil or growth medium returned and landscaped.

- All equipment, plant, and other items used during the operational period will be removed from the site. On completion of operations, all buildings, structures or objects on the office site will be dealt with in accordance with Regulation 44 of the Minerals and Petroleum Resources Development Act, 2002, which states: Regulation 44: *1. When a prospecting right, mining right, retention permit or mining permit lapses, is cancelled or is abandoned or when any prospecting or mining operation comes to an end, the holder of such right or permit may not demolish or remove any building, structure or object.*

- The surface will be ripped or ploughed to a depth of at least 300mm, where possible, and the topsoil, previously stored adjacent the site, distributed evenly to its original depth over the whole area. The site will be seeded, should the need arise, with a

vegetation seed mix adapted to reflect the local indigenous flora. Any other disturbed areas will be rehabilitated as described under the relevant activities.

Long term stability and safety:

It will be the objective of prospecting management to ensure the long-term stability of all rehabilitated areas including the backfilled excavations. This will be done by the monitoring of all areas until a closure certificate has been issued. Final rehabilitation in respect of erosion and dust control self-sustaining vegetation will result in the control of erosion and dust and no further rehabilitation is planned.

Rehabilitation of dangerous excavations

Due to the removal of surface gravel material, excavations will be created that can be classified as dangerous. All available material will be used during backfilling to avoid the existence of dangerous open excavations.

- Final rehabilitation of the borrow pit and roads will be done
- Reports on rehabilitation and monitoring will be submitted to the Department of Mineral Resources -, as described in Regulation 55.
- Maintenance after closure will mainly concern the regular inspection and monitoring and/or completion of the re-vegetation programme. The aim of this Environmental Management Plan is for rehabilitation to be stable and self-sufficient, so that the least possible aftercare is required. The aim with the closure of the prospecting operation will be to create an acceptable post-prospecting environment and land-use.

One of the main aims of any rehabilitated ground will be to obtain a self-sustaining and stable end result. As the open excavations will be backfilled these areas will have long term stability. The closure plan will assist the holder of the licence to achieve the following objectives:

- protect and enhance the reputation of the client as a responsible corporate citizen;
- ensure shareholder value is preserved;
- establish the client management accountability and ownership of closure activity;
- ensure that stakeholders' needs, concerns and aspirations are taken into account when considering closure;

- comply with relevant or applicable legislative requirements;
- ensure the health, safety and welfare of all humans and animals are safeguarded from hazards resulting from mining operations that have been terminated;
- limit or mitigate adverse environmental effects to an extent that it is acceptable by all parties;
- mitigate socio-economic impacts in relation to a particular area in which an operation is located following decommissioning and subsequent closure as far as reasonably possible;
- help protect indigenous values provide a reasonable basis on which the financial consequences of closure can be estimated, recognised and managed including any tax consequences so that mines are closed efficiently and cost effectively;
- avoid or minimise costs and long-term liabilities to the company and to the government and public;
- ensure land is rehabilitated to, as far as is practicable, its natural state, or to a predetermined and agreed standard or land use which conforms with the concept of sustainable development;
- Ensure investment decisions include appropriate consideration of closure, including both quantitative and qualitative impacts of closure.

In terms of the Mine Closure Plans the client requires that planning processes be developed and implemented to ensure that mine disturbance can be satisfactorily rehabilitated and that the residual liability for mine closure is tolerable. Effective planning and final landform design during operations is central to ensuring that cost effective, sustainable objectives can be met. The intent is that the closure phase should be effectively planned, designed, managed and adequately financially provided for. Objectives, strategies and commitments have been identified that meet current stakeholder expectations. The closure plan will be reviewed annually and updated every three years or as significant changes to the mine plan occur, such as nearing closure (AGES, 2013).

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

The closure liability was calculated at R 317 985.00.

CALCULATION OF THE QUANTUM

Applicant:	**Moses Kotane Local Municipality**	**Ref No.:**	**00099BP**
Evaluators:	**Lesekha Consulting**	**Date:**	**08 /02/2021**

No.	Description	Unit	A Quantity	B Master Rate	C Multiplication factor	D Weighting factor 1	E=A*B*C*D Amount (Rands)
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	14,05	1	1	0
2 (A)	Demolition of steel buildings and structures	m2	0	195,76	1	1	0
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	288,49	1	1	0
3	Rehabilitation of access roads	m2	16	35,03	1	1	560,48
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	340,01	1	1	0
4 (A)	Demolition and rehabilitation of non-electrified railway lines	m	0	185,46	1	1	0
5	Demolition of housing and/or administration facilities	m2	0	391,53	1	1	0
6	Opencast rehabilitation including final voids and ramps	ha	0,3	205242,16	1	1	61572,648
7	Sealing of shafts adits and inclines	m3	0	105,09	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0,9	136828,1	1	1	123145,29
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	170416,93	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	494971,55	0	1	0
9	Rehabilitation of subsided areas	ha	0	114572,93	1	1	0
10	General surface rehabilitation	ha	0,4	108390,94	1	1	43356,376
11	River diversions	ha	0	108390,94	1	1	0
12	Fencing	m	0	123,64	1	1	0
13	Water management	ha	0	41213,28	1	1	0
14	2 to 3 years of maintenance and aftercare	ha	0	14424,65	1	1	0
15 (A)	Specialist study	Sum	0			1	0
15 (B)	Specialist study	Sum				1	0
					Sub Total 1		228634,794

1	Preliminary and General	27436,17528	**weighting factor 2** 1	27436,17528
2	Contingencies	22863,4794		22863,4794
			Subtotal 2	278934,45
			VAT (14%)	39050,82
			Grand Total	**317985**

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

g) Monitoring of impact management actions

h) Monitoring and reporting frequency

i) Responsible persons

j) Time period for implementing impact management actions

k) Mechanism for monitoring compliance

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Construction of haul Road	Dust generation	PM_{10} monitoring along the eastern and southern portions of the borrow pit boundary. Continuous or once-off measurements	Environmental Specialist	Weekly in the case of once-off samples. Monthly reports. During construction and operational phases
Clearing of vegetation/disturbance of soil	Alien invasive species	Develop alien invasive species monitoring programme, as well as eradication programme	Environmental Specialist	Within existing programmes.

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

The environmental performance assessment report will be submitted to the DMR every two Years

m) Environmental Awareness Plan

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

Before commencement of any mining on site, all the workers will be inducted, trained and made aware of the environmental risks together with the contents of this EMP. All the employees will sign a contract which binds them with the EMP, ensuring that they all understand the environmental risks of their actions and the consequences thereof.

- An environmental, health and safety induction programme will be provided to all employees prior to commencing work, and they will sign acknowledgement of the induction.

A monthly "toolbox talk" will be held prior to commencing work, which will include discussions on health, safety and environmental considerations. The toolbox talks should be led by the site manager.

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

All the risks will be reported to the Environmental Control Officer (ECO) immediately. The ECO will report it to the relevant personnel within 24 hours who are able to control the situation i.e., the spills will be reported to the contractors who deals with spills.

- Establish the context
    - Strategic
    - Organisational
    - Risk management
- Identify risks
- Analyse risks
    - Consequences
    - Likelihood

- Assess and prioritise risks
    - Acceptability
    - Priorities for treatment
    - Treat risks
    - Eliminate
    - Reduce
    - Transfer
    - Manage

Monitor and review. In additional to the above Please refer to the impact assessment.

n) Specific information required by the competent authority

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

No specific information requirements have been stated by the competent authority to date.

2) UNDERTAKING

The EAP herewith confirms

a) the correctness of the information provided in the reports [X]

b) the inclusion of comments and inputs from stakeholders and I&APs ; To be included in Final BAR [X]

c) the inclusion of inputs and recommendations from the specialist reports where relevant; and [X]

d) that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected. Parties are correctly reflected herein. [X]

Signature of the environmental assessment practitioner:

Lesekha Consulting

Name of company:

Date: 17 March 2021