

# BASIC ASSESSMENT REPORT AND ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PROPOSED BORROW-PIT IN GA-MASEMOLA VILLAGE WITHIN MAKHUDUTHAMAGA LOCAL MUNICIPALITY OF SEKHUKHUNE DISTRICT MUNICIPALITY, LIMPOPO PROVINCE.

**Borrow-pit no.1**

**Farm Lekkerland 767KS**

*Prepared for:*

**Road Agency Limpopo SOC Ltd**



**ROADS AGENCY LIMPOPO**  
*Together for better roads*

RAL Project Reference: RAL/T902/2018



*Prepared by:*



**Mamadi & Company** | SA

*March 2020*

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	DOCUMENT TITLE:	Basic Assessment Report and Environmental Management Programme for the Proposed Borrow-pit in Ga-Masemola Village within Makhuduthamaga Local Municipality of Sekhukhune District Municipality, Limpopo Province.	
	REF NO:	RAL/T902/2018	

## DOCUMENT IDENTIFICATION

## PROJECT INFORMATION

CLIENT	PROJECT NAME
Road Agency Limpopo SOC Ltd	Basic Assessment Report and Environmental Management Programme for the Proposed Borrow-Pit in Ga-Masemola Village within Makhuduthamaga Local Municipality of Sekhukhune District Municipality, Limpopo Province.

## THE FOLLOWING KEY RESOURCES HAVE DRAFTED, REVIEWED AND COMMENTED ON THIS DOCUMENT:



QUALITY CONTROL	NAME	DESIGNATION	DATE	SIGNATURE
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Reviewed by	Virginia Ramakuwela	Senior Environmental Consultant	02 March 2020	
Approved by	Ike Rampedi	Head of Sustainability and Environmental Division	03 March 2020	

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## CLIENT APPROVAL

QUALITY CONTROL	NAME	DESIGNATION	DATE	SIGNATURE
Approved by	Shonisani Tshivhase	Environmental Manager (RAL)		

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## LIST OF ABBREVIATION

<b>EA</b>	Environmental Authorization
<b>EAP</b>	Environmental Assessment Practitioner
<b>EIA</b>	Environmental Impact Assessment
<b>EMPr</b>	Environmental Management Programme
<b>ECO</b>	Environmental Compliance Officer
<b>I&amp;AP's</b>	Interested and Affected Parties
<b>NEMBA</b>	National Environmental Management Biodiversity Act (Act 10 of 2004)
<b>NEMA</b>	National Environmental Management Act (Act 107 of 1998)
<b>NWA</b>	National Water Act (Act 36 of 1998)
<b>OHSA</b>	Operational Health and Safety Act (Act 85 of 1993)
<b>MSDSs</b>	Management Safety Data Sheets
<b>DMR</b>	Department of Mineral Resources
<b>DWS</b>	Department of Water and Sanitation
<b>MPRDA</b>	Minerals and Petroleum Resources Development Act (Act 28 of 2002)

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## DEFINITION OF TERMS

**Audit**—A systematic, independent, and documented review of operations and practices to ensure that relevant requirements are met. Qualified professionals with relevant auditing experience can conduct most audits and, where possible, independent external auditors should also be used.

**Contaminated water:** Means water contaminated by the Contractor's activities such as with hazardous substances, hydrocarbons, paints, solvents and runoff from plant, workshop or personnel wash areas but excludes water containing cement/ concrete or silt.

**Construction:** The time period that corresponds to any event, process, or activity that occurs during the construction phase (e.g., building of site, buildings, and processing units) of the proposed project or development. This phase terminates when the development goes into full operation or use starting with the commissioning of the project.

**Environment:** Environment means the surroundings within which humans exist and that could be made up of:-

- (i) The land, water and atmosphere of the earth;
- (ii) Micro-organisms, plant and animal life;
- (iii) Any part or combination of (i) and (ii) and the interrelationships among and between them; and
- (iv) The physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and well-being.

**Environmental Aspect:** An environmental aspect is any component of a contractor's construction activity or operational activity that is likely to interact with the environment.

**Environmental Authorisation (EA)** A written statement from the relevant environmental authority, with or without conditions, that records its approval of a planned undertaking to build or upgrade a section of road and the mitigating measures required to prevent or reduce the effects of environmental impacts during the life of a contract.



**Environmental Control Officer (ECO):** A suitably qualified and experienced person or entity appointed for the construction works, to perform the obligations specified in the EA.

**Environmental Impact:** An impact or environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of a construction or operational activities. An impact may be the direct or indirect consequence of a construction or operational activity.

**Environmental Impact Assessment:** The process of examining the environmental effects of a development. The assessment may require detailed/specialist studies of significant issues that have been identified during the environmental scoping.

**Environmental Management Programme (EMPr):** An environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented; and that the positive benefits of the projects are enhanced. (This document)

**Environmental Policy:** A statement by the organisation of its intentions and principles in relation to its overall environmental performance which provides a framework for action and for the setting of its environmental objectives and targets.

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**Interested and Affected Party (I&AP):** Refers to an I&AP party contemplated in section 24(4)(d) of the NEMA (1998, Act No. 107) and which, in terms of that section, includes –

- a) *Any person, groups of persons, organisation interested in or affected by an activity, and;*
- b) *Any organ of state that may have jurisdiction over any aspect of the activity.*

**Integrated Environmental Management:** The way of managing the environment by including environmental factors in all stages of development. This includes thinking about physical, social, cultural and economic factors and consulting with all the people affected by the proposed developments. Also called "IEM".

**Method Statement:** Is a written submission by the Contractor to the ECO in response to the EMP or to a request by the ECO, setting out the plant (construction equipment), materials, labour and method the Contractor proposes using to carry out an activity, identified by the relevant specification or the ECO when requesting the Method Statement. The Method Statement shall be in such detail that the ECO is able to assess whether the Contractor's proposal is in accordance with the EMP and/or will produce results in accordance with the EMP.

**Mitigate:** The implementation of practical measures to reduce the adverse impacts, or to enhance beneficial impacts of a particular action.

**Pollution:** According to the NEMA (Act No. 107 of 1998), pollution can be defined as, “*Any change in the environment caused by (i) substances; (ii) radioactive or other waves; or (iii) noise, odors, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or will have such an effect in the future*”.

**Potentially hazardous substance:** Is a substance, which, in the reasonable opinion of the EAP, can have a deleterious effect on the environment. Hazardous Chemical Substances are defined in the Regulations for Hazardous Chemical Substances published in terms of the Occupational Health and Safety Act.



**Reasonable:** Means, unless the context indicates otherwise, reasonable in the opinion of the EAP, after he has consulted with EAP.

**Rehabilitation:** To re-establish or restore to a healthy, sustainable capacity or state.

**Site:** The area in which activity is taking place.



**Solid waste:** Means all solid waste, including construction debris, chemical waste, excess cement/concrete, wrapping materials, timber, tins, cans, drums, wire, nails, food and domestic waste (e.g. plastic packets and wrappers).

**Topsoil:** The top 100mm of soil and may include top material e.g. vegetation and leaf litter.

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## mineral resources

Department:  
Mineral Resources  
**REPUBLIC OF SOUTH AFRICA**

### BASIC ASSESSMENT REPORT

And



### ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

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

**NAME OF APPLICANT:** Road Agency Limpopo SOC Ltd  
**TEL NO.:** 015 284 4646  
**FAX NO.:** 015 291 2433  
**PHYSICAL ADDRESS:** 26 Rabe Street (c/o Biccard Street)  
Polokwane  
0700  
**EMAIL:** [Tshivhasesp@ral.co.za](mailto:Tshivhasesp@ral.co.za)

**SAMRAD REF. NUMBER:**



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### IMPORTANT NOTICE



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

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

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

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



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

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## OBJECTIVE OF THE BASIC ASSESSMENT PROCESS

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

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

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## PART A

### SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

#### 1. CONTACT PERSON AND CORRESPONDENCE ADDRESS

##### a) Details of the EAP

Table 1: Details of the EAP

<b>Name of the Practitioner:</b>	Hulisani Netshisaulu of Mamadi and Company SA (Pty) Ltd
<b>Telephone:</b>	079 058 2847
<b>E-mail:</b>	hulisanin@mamadi.co.za
<b>Cell:</b>	072 606 4102
<b>Fax:</b>	086 403 2628

##### b) Expertise of the EAP

###### i) The qualifications of the EAP

Ms. Netshisaulu holds a Bachelor of Earth Science Honors in Mining and Environmental Geology.



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

Ms. Hulisani Netshisaulu, the author of this report, is an Environmental Consultant at Mamadi and Company Consulting (Pty) Ltd (MC). Ms Netshisaulu has five years' experience in Environmental Consulting. She holds a Bachelor of Earth Science in Mining and Environmental Geology Honours degree obtained in 2010 from the University of Venda. As part of her studies she has conducted a research titled: The investigation of groundwater quality in Nzhelele area, Limpopo Province. She also holds a certificate in Project Management obtained in 2013 from the University of South Africa (UNISA).

She is an Environmental Consultant.. She is experienced in assessing environmental impacts associated with developmental projects, compiling environmental impact assessment reports and environmental monitoring or audit during construction and operational phases of developments. She has worked on projects of various natures such as Housing, Bridge Construction, Mining, Waste Management, Filling Stations and Section 24G applications

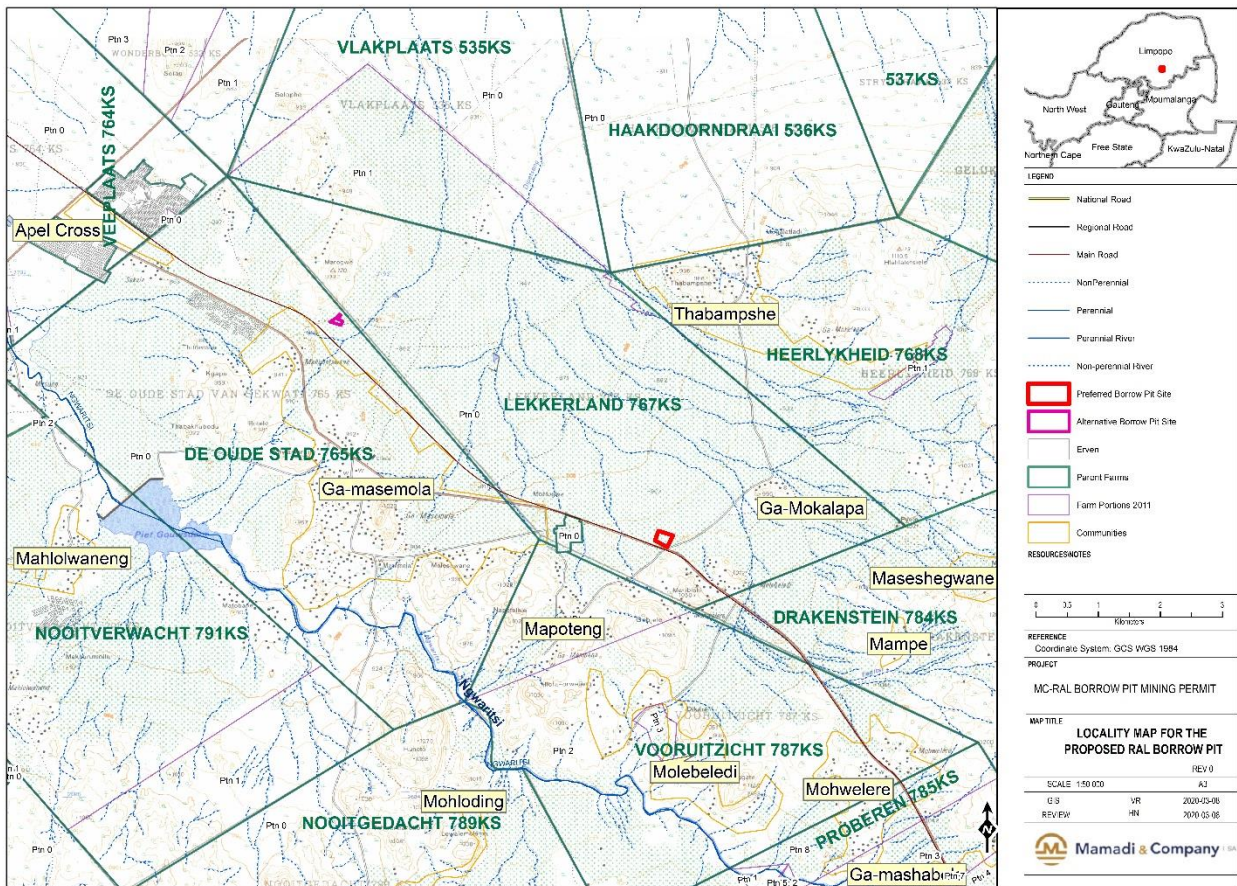
#### 2. LOCATION OF THE OVERALL ACTIVITY

<b>Farm Name:</b>	Lekkerland
<b>Farm Portion:</b>	767KS
<b>Application area (Ha)</b>	Approximately 5 hectares
<b>Local Municipality:</b>	Makhuduthamaga Local Municipality
<b>Magisterial district:</b>	Sekhukhune District Municipality
<b>Distance and direction from nearest town</b>	The site is located 50km North of Jane Furse town.
<b>21 digit Surveyor General Code for each farm portion</b>	TOK500000000076700000

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Four Corners Coordinates		
Point	X	Y
Corner Point A	24°34'24,407"S	29°41'6,405"E
Corner Point B	24°34'27,794"S	29°41'12,827"E
Corner Point C	24°34'21,803"S	29°41'15,809"E
Corner Point D	24°34'19,357"S	29°41'8,184"E
Centre Point E	24°34'23,246"S	29°41'10,778"E

**3. LOCALITY MAP** (Show nearest town, scale not smaller than 1:250000)



**Figure 1: Locality Map**

**4. 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.)

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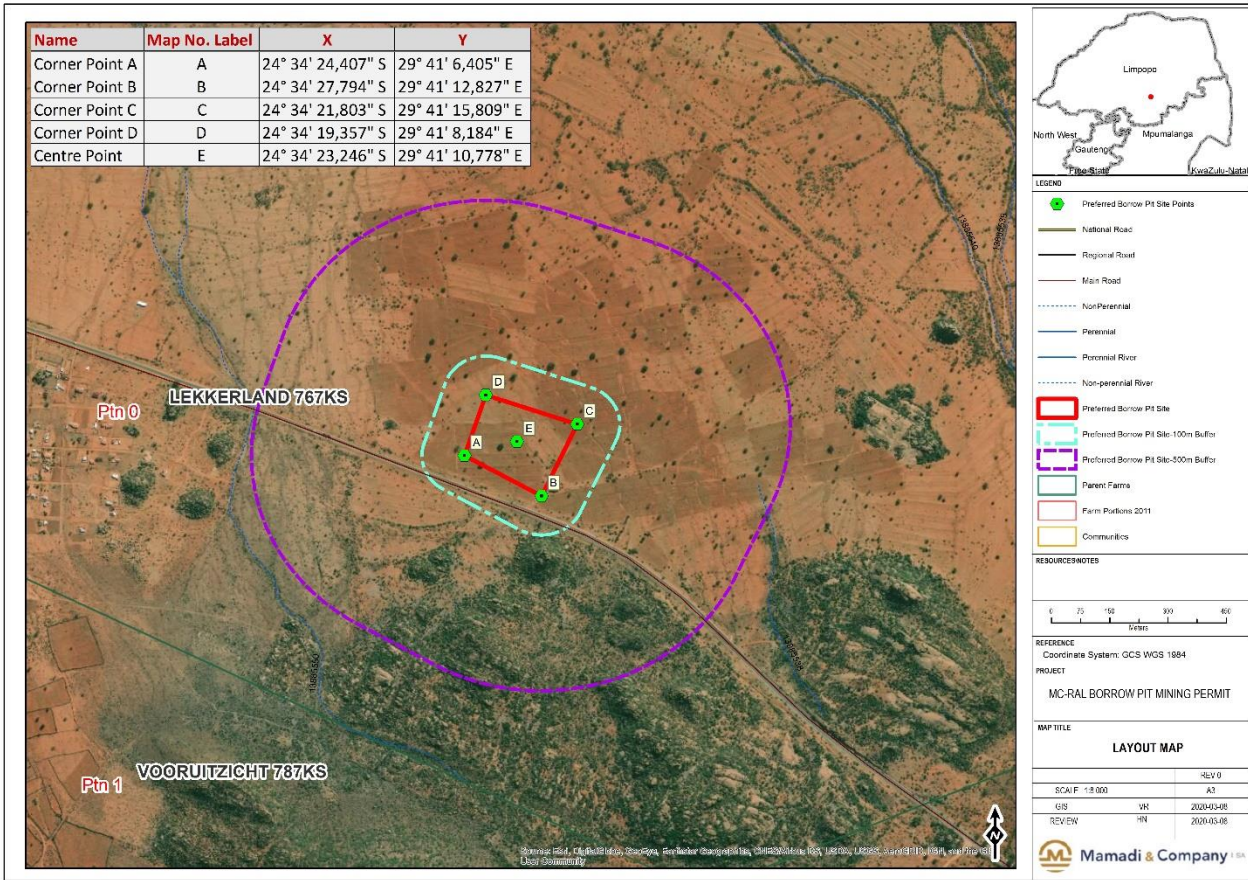




Figure 2: Layout Map

a) Listed and specified activities

Table 2: Listed and specified activities

NAME OF ACTIVITY	AERIAL EXTENT OF THE ACTIVITY	LISTED ACTIVITY	APPLICABLE LISTING NOTICE
(E.g. for prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc  E.g. for mining - excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	Ha or m <sup>2</sup>	Mark with an X where applicable or affected.	(GNR 327, GNR 325 or GNR 324)
Clearing of the site and removal of topsoil, thereafter mining of Gravel material	Approximately 5ha	X (Activity 21 and 27)	Listing Notice 1 (GNR 327)

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(excavation) to be used as fill material, loading and transporting for use. Placement of ablution facilities (potable chemical toilets).			
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**b) 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)

Road Agency Limpopo soc Ltd (RAL) proposes to undertake the construction of the road in previously disadvantaged community at Ga-Masemola Village, which covers a distance of 5.3km. The proposed road is an existing internal gravel road (D4253) that traverse within the Ga-Masemola village. The road connects with the R579 road from Lebowakgomo to Jane Furse. The construction activities will be conducted in two Phase as follows:

- Phase A: Improvement of Structural Capacity of the Pavement Layers and
- Phase B: Upgrading from Gravel to Bituminous Surface



The road construction activities requires gravel material for road in-filling. According to the National Environmental Management Act (Act No 107 of 1998) (NEMA) the following activities, published GNR.326, Environmental Impact Assessment (EIA) Regulations, 2014 (amended 7 April 2017) are triggered by the proposed borrow pit which will be mined:

- **GN R. 327, Activity 21:** 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.
- **GN R. 327, Activity 27:** The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation

In this regard, Environmental Authorisation and Mining Permit is required, in terms NEMA and Section 27 of the Mineral and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA), for the borrow pit excavation for the required Gravel material.

In order to meet the requirements stipulated in the MPRDA and associated Regulations (GN R7949) and EIA Regulations, 2014 (amended 7 April 2017) it is required that a Basic Assessment Report (BAR) and Environmental Management Programme (EMPr) be undertaken to comprehensively address the environmental impacts and propose suitable mitigation measures, pertaining to the proposed borrow pit.

The purpose of the proposed borrow pit is to provide fill material to be used in the roads upgrade as note above. The area disturbed will, after completion of the mining activities, be rehabilitated to acceptable state.

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## Services

The following services are required:

- Access: Access to the site already exists. The road will be upgraded to accommodate the movement of trucks.
- Ablution facilities: Chemical toilets will be provided for employees.
- Waste Management: All general waste generated will be collected and disposed of a registered landfill site.
- Diesel: Diesel for vehicles and machinery will be stored at the camp site. No other power is required.
- No other services are required at this stage.

## Mining Method – Project Phases



The site establishment and operation of the borrow-pit mining will take place through the following steps:

### Site Preparation/Establishment

- Demarcation of the mining area with danger tape to ensure that the mining is implemented correctly and as per the extent being applied for the borrow pit (i.e. approximately 5ha);
- Fencing of the proposed borrow-pit area to be mined to prevent mining in an unapproved and/or sensitive area;
- Placement of temporary ablation facilities (i.e. potable chemical toilets);
- Clearance of vegetation by means of a dozer/ scraper;
- Topsoil removal/stripping and stockpiling for use during rehabilitation; and
  - N.B. The stripping and stockpiling of topsoil is the most important step in any rehabilitation program and must begin before any minerals are extracted from the intended area of disturbance. Prior to the commencement of minerals extraction, the site must be cleared and grubbed. All topsoil located in the area of disturbance should be stripped from the site, avoiding mixing with trees, boulders and other discard materials, and should be stockpiled in berms located outside the boundaries of the proposed operations for use at later mining phases. Ideally, topsoil should not be worked when wet and prolonged storage should be avoided. In this way the valuable topsoil, an ideal medium for plant growth, will become available for rehabilitation purposes at the site as mining advances.
- Stripping and stockpiling of subsoil and overburden prior to mining.
  - Subsoil and overburden should be stockpiled in berms located outside the boundaries of the proposed operations for use at later mining phases.

### Operation



- Excavation or ripping of gravel materials with an excavator;
- Loading of excavated materials by front end loaders to trucks; and
- Material will be transported directly for use off site.

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### Rehabilitation and Closure

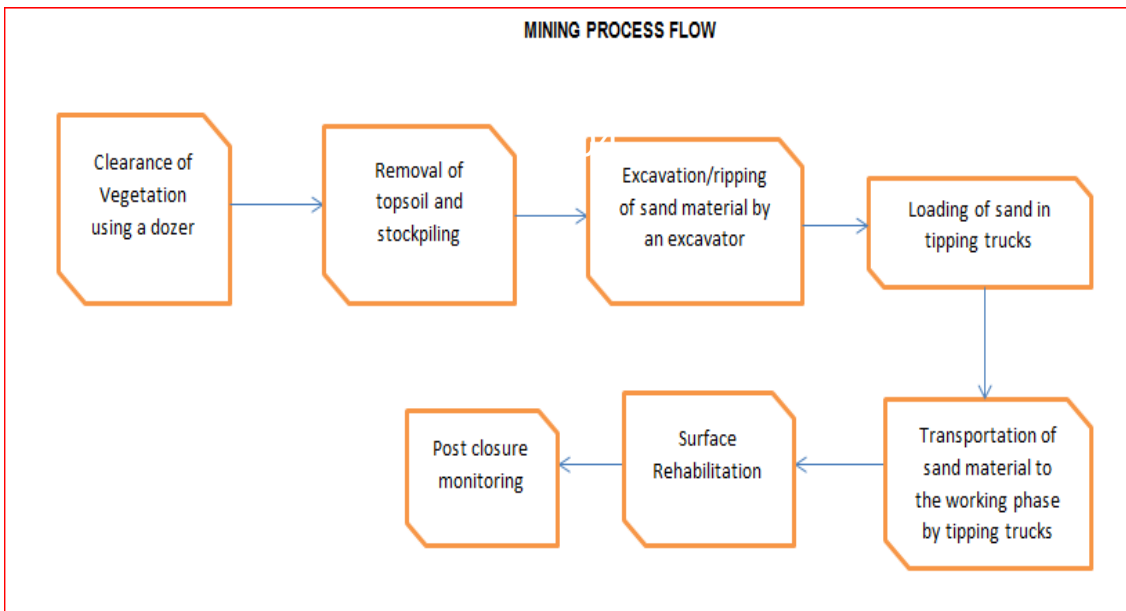
- Rehabilitation by filling the excavated area and spread of topsoil and allow revegetation naturally; and
  - N.B. As mining advances, topsoil, subsoil and overburden will initially be shifted and stockpiled outside the boundaries of the pit and will then subsequently be shifted to mined-out areas. No stockpiling of material will be present on the site after rehabilitation.
  - Sustainable development applied to mining works necessarily includes rehabilitation with the aim of either restoring the land to its original use, or eliminating or reducing adverse environmental impacts to a long-term acceptable condition. The process is driven primarily by legislation which ensures that the mine owner must comply with the intention of achieving those end conditions, which are defined in broad terms by guidelines. The MPRDA, 2002, and the Regulations (GN R7949) set out the process whereby a mine requires a closure certificate, the application for which must be accompanied by an environmental risk report. The closure objectives which form part of the required environmental management plan must inter alia identify key objectives, define future land use objectives and provide proposed closure costs. The following basic principles of rehabilitation will be followed:
    - Prepare a rehabilitation plan prior to the commencement of mining.
    - Agree on the long-term post - mining land use objective for the area. The land use must be compatible with the climate, soil, topography of the final landform and the degree of the management available after rehabilitation.
    - Progressively rehabilitate the site, where possible, so that the rate of rehabilitation is similar to the rate of mining.
    - Prevent the introduction of noxious weeds and pests.
    - Minimise the area cleared for mining and associated facilities to that absolutely necessary for the safe operation of the mine.
    - Reshape the land disturbed by mining so that it is stable, adequately drained and suitable for the desired long-term land use.
    - Minimise the long-term visual impact by creating landforms which are compatible with the surrounding landscape.
    - Reinstate natural drainage patterns disrupted by mining wherever possible.
    - Minimise the potential for erosion by wind and water both during and following mining.
    - Characterise the topsoil and retain it for use in rehabilitation. It is preferable to reuse the topsoil immediately rather than storing it in stockpiles. Only discard if it is physically or chemically undesirable, or if it contains high levels of weed seeds or plant pathogens.
    - Consider spreading the cleared vegetation on disturbed areas.





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- Deep rip compacted surfaces to encourage infiltration, allow plant root growth and key the topsoil to the subsoil, unless subsurface conditions dictate otherwise.
  - Ensure that the surface one or two metres of soil is capable of supporting plant growth.
  - If topsoil is unsuitable or absent, identify and test alternatives substrates, e.g. overburden that may be suitable substitute after addition of soil improving substances.
  - Revegetate the area with plant species consistent with the post mining land use.
  - Monitor and manage rehabilitation areas until the vegetation is self-sustaining.
- Alien vegetation control on the rehabilitated disturbed area and after care for approximately 6 months thereafter.

Please refer to **Figure 5** for Mining method process flow.





**Figure 3: Mining process flow diagram**

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## 5. POLICY AND LEGISLATIVE CONTEXT

**Table 3: Policy and Legislative context**



Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
National Environmental Management Act (Act No 107 of 1998)	<p>The EIA Regulations have been promulgated in terms of Chapter 5 of the Act. Listed activities which may not commence without an environmental authorisation are identified within these Regulations.</p> <p>In terms of S24(1) of NEMA, the potential impact on the environment associated with these listed activities must be assessed and reported on to the competent authority charged by NEMA with granting of the relevant environmental authorisation.</p> <p>In terms of GNR 326 and GNR 327 of 2014 a Basic Assessment Process is required to be undertaken for the proposed project.</p>	<p>Department of Mineral Resources (DMR) – competent authority</p> <p>Limpopo Economic Development, Environment and Tourism (LEDET)</p>	<p>The listed activities triggered by the proposed borrow-pit mining activities have been identified and assessed in the EIA process being undertaken (i.e. Basic Assessment).</p> <p>This Basic Assessment Report is being submitted to the competent and commenting authority in support of the application for authorisation.</p>
National Environmental Management Act (Act No 107 of 1998)	<p>In terms of the Duty of Care Provision in S28(1) the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with this project is avoided, stopped or minimised.</p> <p>In terms of NEMA, it has become the legal duty of a project proponent to consider a project holistically, and to consider the cumulative effect of a variety of impacts.</p>	<p>DMR</p> <p>LEDET</p>	<p>While no permitting or licensing requirements arise directly by virtue of the proposed project, this section has found application during the Basic Assessment process through the consideration of potential impacts (cumulative, direct, and indirect). It will continue to apply throughout the life cycle of the project.</p>
National Water Act (Act No 36 of 1998)	<p>In terms of S19, the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to prevent and remedy the effects of pollution to water resources from occurring, continuing, or recurring.</p>	<p>Department of Water and Sanitation (DWS)</p>	<p>Section 19 of the Act will apply with respect to the potential impact on drainage lines and ephemeral streams which will potentially occur primarily during the construction phase (i.e. pollution from construction vehicles).</p>

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Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
Minerals and Petroleum Resources Development Act (Act No 28 of 2002)	The Department of Mineral Resources (DMR) is responsible for regulating the mining and minerals industry to achieve equitable access to the country's resources and contribute to sustainable development. The Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) (MPRDA) requires that an EIA be conducted and that the EMP be drafted for the mitigation of impacts identified during the environmental impact assessment for a mining project. During December 2014, the "One Environmental System" was implemented by Government which initiated the streamlining of the licensing processes for mining, environmental authorisations and water use. Under the One Environmental System, The Minister of Mineral Resources, will issue environmental authorisations and waste management licences in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), and the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA), respectively, for mining and related activities. The Minister of Environmental Affairs will be the appeal authority for these authorisations.	DMR	In view of the above the application for the environmental authorisation for the proposed project was submitted to the DMR as the competent authority.
National Environmental Management: Air Quality Act (Act No 39 of 2004)	S18, S19, and S20 of the Act allow certain areas to be declared and managed as "priority areas."  Declaration of controlled emitters (Part 3 of Act) and controlled fuels (Part 4 of Act) with relevant emission standards.  GN R 827 – National Dust Control Regulations prescribes general measures for the control of dust in all areas	LEDET	No permitting or licensing requirements arise from this legislation.  Dust Control Regulations describe the measures for control and monitoring of dust, including penalties. These regulations will be applicable during the construction phase of the project.
National Heritage Resources Act (Act No 25 of 1999)	<ul style="list-style-type: none"> <li>» S38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including <ul style="list-style-type: none"> <li>» Any development or other activity which will change the character of a site exceeding 5 000 m<sup>2</sup> in extent</li> </ul> </li> <li>» The relevant Heritage Authority must be notified of developments such as linear developments (i.e. roads and power lines), bridges</li> </ul>	<p>South African Heritage Resources Agency (SAHRA)</p> <p>Limpopo Provincial Heritage Resources Authority (LIHRA)</p>	<p>The total area to be 'disturbed' is approximately 5000m<sup>2</sup>, which trigger an HIA.</p> <p>An HIA study has been conducted by a qualified specialist and is included in Appendix 4 .</p>

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	<p>exceeding 50 m, or any development or other activity which will change the character of a site exceeding 5 000 m<sup>2</sup>; or the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent. This notification must be provided in the early stages of initiating that development, and details regarding the location, nature and extent of the proposed development must be provided.</p> <p>» Stand-alone HIAs are not required where an EIA is carried out as long as the EIA contains an adequate HIA component that fulfils the provisions of S38. In such cases only those components not addressed by the EIA should be covered by the heritage component.</p>		
National Environmental Management: Biodiversity Act (Act No 10 of 2004)	<p>In terms of S57, the Minister of Environmental Affairs has published a list of critically endangered, endangered, vulnerable, and protected species in GNR 151 in Government Gazette 29657 of 23 February 2007 and the regulations associated therewith in GNR 152 in GG29657 of 23 February 2007, which came into effect on 1 June 2007.</p> <p>In terms of GNR 152 of 23 February 2007: Regulations relating to listed threatened and protected species, the relevant specialists must be employed during the EIA Phase of the project to incorporate the legal provisions as well as the regulations associated with listed threatened and protected species (GNR 152) into specialist reports in order to identify permitting requirements at an early stage of the EIA Phase.</p> <p>The Act provides for listing threatened or protected ecosystems, in one of four categories: critically endangered (CR), endangered (EN), vulnerable (VU) or protected. The first national list of threatened terrestrial ecosystems has been gazetted, together with supporting information on the listing process including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national</p>	DMR LEDET	<p>As the applicant will not carry out any restricted activity, as is defined in S1 of the Act, no permit is required to be obtained in this regard.</p> <p>An ecological walkthrough of the site must be undertaken to ensure that no species listed as a protected species within the National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004): Publication of Lists of Critically Endangered, Endangered, Vulnerable and Protected Species are identified within the development area. A permit will be required to be obtained should this species be impacted by the borrow pit footprint.</p>

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Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	maps of listed ecosystems (National Environmental Management: Biodiversity Act: National list of ecosystems that are threatened and in need of protection, (GG 34809, GN 1002), 9 December 2011).		
National Environmental Management: Biodiversity Act 10 of 2004	GNR 598: The Alien and Invasive Species (AIS) Regulations provides for the declaration of weeds and invader plants.	DMR Department of Agriculture, Forestry and Fisheries (DAFF)  LEDET	This Act will find application throughout the life cycle of the project. In this regard, soil erosion prevention and soil conservation strategies must be developed and implemented. In addition, a weed control and management plan must be implemented.
National Forests Act (Act No. 84 of 1998)	In terms of S5(1) no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a license granted by the Minister to an (applicant and subject to such period and conditions as may be stipulated".  GN 908 provides a list of protected tree species.	DAFF	A permit would need to be obtained for any protected trees that are affected by Mining activities.
National Veld and Forest Fire Act (Act 101 of 1998)	In terms of S13 the landowner would be required to burn firebreaks to ensure that should a veldfire occur on the property, that it does not spread to adjoining land.  In terms of S13 the landowner must ensure that the firebreak is wide and long enough to have a reasonable chance of preventing the fire from spreading, not causing erosion, and is reasonably free of inflammable material.  In terms of S17, the applicant must have such equipment, protective clothing, and trained personnel for extinguishing fires.	DAFF	While no permitting or licensing requirements arise from this legislation, and this Act will find application during the construction and operational phase of the proposed Mining activities.
Hazardous Substances Act (Act No 15 of 1973)	This Act regulates the control of substances that may cause injury, or ill health, or death due to their toxic, corrosive, irritant, strongly sensitising or inflammable nature or the generation of pressure thereby in certain	Department of Health	It is necessary to identify and list all the Group I, II, III, and IV hazardous substances that may be on the site and in what operational context they are used, stored or

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Legislation	Applicable Requirements	Relevant Authority	Compliance Requirements
	<p>instances and for the control of certain electronic products. To provide for the rating of such substances or products in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale, use, operation, modification, disposal or dumping of such substances and products.</p> <ul style="list-style-type: none"> <li>» Group I and II: Any substance or mixture of a substance that might by reason of its toxic, corrosive etc, nature or because it generates pressure through decomposition, heat or other means, cause extreme risk of injury etc., can be declared as Group I or Group II substance</li> <li>» Group IV: any electronic product; and</li> <li>» Group V: any radioactive material.</li> </ul> <p>The use, conveyance, or storage of any hazardous substance (such as distillate fuel) is prohibited without an appropriate license being in force.</p>		<p>handled. If applicable, a license is required to be obtained from the Department of Health.</p>
<p>National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)</p>	<p>The Minister may by notice in the <i>Gazette</i> publish a list of waste management activities that have, or are likely to have, a detrimental effect on the environment.</p> <p>The Minister may amend the list by –</p> <ul style="list-style-type: none"> <li>* Adding other waste management activities to the list.</li> <li>* Removing waste management activities from the list.</li> <li>* Making other changes to the particulars on the list.</li> </ul> <p>In terms of the Regulations published in terms of this Act (GN 921), A Basic Assessment or Environmental Impact Assessment is required to be undertaken for identified listed activities (Category A and B) while Category C Activities (such as storage of waste) must be undertaken in accordance with the National norms and standards for storage of waste.</p>	<p>DEA: Waste Management</p> <p>LEDET: Waste Management</p>	<p>As no waste disposal site is to be associated with the proposed project, no permit is required in this regard.</p> <p>Waste handling, storage and disposal during construction and operation is required to be undertaken in accordance with the requirements of the Act, as detailed in the EMP.</p>

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	<p>Any person who stores waste must at least take steps, unless otherwise provided by this Act, to ensure that:</p> <ul style="list-style-type: none"> <li>» The containers in which any waste is stored, are intact and not corroded or in</li> <li>» any other way rendered unfit for the safe storage of waste.</li> <li>» Adequate measures are taken to prevent accidental spillage or leaking.</li> <li>» The waste cannot be blown away.</li> <li>» Nuisances such as odour, visual impacts and breeding of vectors do not arise; and</li> <li>» Pollution of the environment and harm to health are prevented.</li> </ul>		
National Road Traffic Act (Act No 93 of 1996)	<ul style="list-style-type: none"> <li>» Legal axle load limits and the restrictions imposed on abnormally heavy loads are discussed in relation to the damaging effect on road pavements, bridges, and culverts.</li> <li>» The general conditions, limitations, and escort requirements for abnormally dimensioned loads and vehicles are also discussed and reference is made to speed restrictions, power/mass ratio, mass distribution, and general operating conditions for abnormal loads and vehicles. Provision is also made for the granting of permits for all other exemptions from the requirements of the National Road Traffic Act and the relevant Regulations.</li> </ul>	Provincial Department of Transport	No permit is required as there won't be any abnormal machinery used on site.
The Occupational Health and Safety Act (No 9 of 1997)	The Occupational Health and Safety Act, 1993 (No.85 of 1993) provides for the health and safety of people at work as well as the health and safety of persons using plant and machinery.	Department of Labour	The applicant, RAL, will be required to meet the requirements of the OHS Act during the construction and operational phases of the proposed project.

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**6. 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).

According to the Makhuduthamaga Local Municipality's 2019-2020 Integrated Development Plan (IDP), one of the challenges within the municipality is poor roads infrastructure. The proposed road construction will address some of the challenges within the municipality. The proposed project will benefit the residents of Ga-Masemola village through the creation of short term employment opportunities, skills transfers and economic development for local businesses.

The road upgrade activities require the use of gravel materials that can be sourced from the proposed borrow-pit. This will cut costs in the transportation of materials sourced elsewhere and it will also reduce the traffic on the local roads, as there will be reduced number of trucks coming in and out of the site.

The proposed mining activities will have a moderate to low environmental impact on the natural areas given the small footprint of the borrow-pit and the rehabilitation that will occur. Furthermore the biodiversity map of the area, confirmed through the site visit conducted, the area is disturbed and has no natural vegetation remaining (Refer to Figure 7 for Biodiversity Map).

Given the nature of the proposed mining activities, all impacts identified and discussed further below, will be limited to the footprint of the borrow pit. In this regard, the distance of the borrow pit to the villages significantly decreases potential impacts to people's health and wellbeing. The applicant must adhere to mitigation measures proposed in the EMP to ensure that the impact of its proposed mining activities is avoided or minimal.

**7. MOTIVATION FOR THE OVERALL PREFERRED SITE, ACTIVITIES AND TECHNOLOGY ALTERNATIVE,**

Only the site location alternative was considered for the proposed borrow-pit location:



Preferred site

The preferred site location is located approximately 1km from the residential area. The site is bordered by the R579 road on the western side and a vacant land on north and eastern side. The site is heavily impacted by previous Agricultural activities. The site is infested by alien invasion species. The site can be accessed via the R579, and an existing access road is available. The anticipated environmental impacts will be minimal based on the current status of the area which is already disturbed by previous Agricultural activities. According to the site inspection findings of the Heritage Impact Report (HIA) there are no signs of Heritage/archaeological features identified within the proposed area.

**8. FULL DESCRIPTION OF THE PROCESS FOLLOWED TO REACH THE PROPOSED PREFERRED ALTERNATIVES WITHIN THE SITE, AND** (NB!! – This section is about the determination of the specific site layout and

the location of infrastructure and activities on site, having taken into consideration the issues raised by interested and affected parties, and the consideration of alternatives to the initially proposed site layout.)



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### Preferred Site Location

The preferred site location was identified based on the following:

- Availability of required gravel material;
- The site is already impacted by previous agricultural activities;
- The site is further away from the residential area;
- There is minimal anticipated environmental impacts;
- The HIA report findings indicate that there are no signs of Heritage/archaeological features identified on site.

## 9. DETAILS OF THE DEVELOPMENT FOOTPRINT ALTERNATIVES CONSIDERED

The National Environmental Management Act (Act No. 107 of 1998), Environmental Impact Assessment Regulations, 2014 (amended April 2017) requires the applicant to identify alternatives for projects applied for. In terms of the above-mentioned regulations an alternative in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to the (a) the property on which or location where it is proposed to undertake the activity; (b) the type of activity to be undertaken; (c) the design or layout of the activity; (d) the technology to be used in the activity; (e) the operational aspects of the activity; and (f) the option of not implementing the activity.



The applicant proposes to undertake mining for fill material which is required for road upgrades (as noted in this report). The proposed activities will include the excavation of Gravel material.

- **Location Alternatives:** The following location alternatives were identified and assessed:
  - Preferred site

The preferred site location is located approximately 1km from the residential area. The site is bordered by the R579 road on the western side and a vacant land on north and eastern side. The site is heavily impacted by previous Agricultural activities. The site is infested by alien invasion species. The site can be accessed via the R579, and an existing access road is available. The anticipated environmental impacts will be minimal based on the current status of the area which is already disturbed by previous Agricultural activities. According to the site inspection findings of the Heritage Impact Report (HIA) there are no signs of Heritage/archaeological features identified within the proposed area.

- Alternative site

The proposed alternative Borrow-pit area is located east of the Ga-Masemola village and the R579 road. The site is bordered by Koppie and illegal mining activities on the northern side; crop farming on the eastern southern side.

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The site is heavy disturbed by illegal mining activities and agricultural activities taking place in the area, however there are still some patches of indigenous vegetation which comprise mostly by sweet thorn shrubs and grass. The site can be accessed via the R579, and an existing access road is available. The anticipated environmental impacts will be minimal based on the current status of the area, however negative social impacts are anticipated based on the agricultural activities taking place around the site.

According to the findings of the Heritage Impact Assessment report the site is a “No-go area” due to Heritage/archaeological remains identified within the proposed area.

- **Access Route Alternatives:** No alternatives were considered for the access roads as the intention is to use existing road. This will ultimately reduce the impact/ environmental footprint of the proposed project.
- **Design/Layout Alternatives:** Since no complicated surface infrastructure will be required for this project no design and layout alternatives for the proposed project were deemed necessary. Also, worth noting is that the entire development footprint will be excavated for infill material and thereafter rehabilitated
- **Technology Alternatives:** Based on the nature of the borrow-pit mining activities, excavation using the TLB and Grader machinery is feasible and no other technology alternatives were considered for this project.
- **Input Material Alternatives:** As mentioned above, water will be sourced from the river (Tributary of the Olifants river) and the necessary authorisation will be acquired from DWS. In view of the above, no other input material alternatives were considered for this project. Note that no building facilities will be constructed at the project site.
- **No-Go Option:** The ‘no-go’ alternative is the option of not undertaking mining activities on the project site. The no-go option assumes the site remains in its current state. Mining is required in order to excavate the materials (Gravel material) which are required for the construction/upgrade of the road. Should the mining permit be refused, effectively the roads would not be constructed in time as a new site would have to be found and the process to obtain a mining permit will have to be applied for. The socio-economic benefit and most notably the future development of the area will also be lost if the mining activities for the borrow pit is not undertaken.

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

Public participation is the cornerstone of any Environmental Impact Assessment (EIA) process. The principles of the NEMA govern many aspects of EIA's, including public participation. The general objectives of integrated environmental

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management laid down in the NEMA include to “ensuring adequate and appropriate opportunity for public participation in decisions that may affect the environment”. The National Environmental Management Principles include the principle that “The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary to achieve equitable and effective participation, and participation by vulnerable and disadvantaged persons must be ensured”, which basically means that the person responsible for the application (the Environmental Assessment Practitioner (EAP)) must ensure that provision of sufficient and transparent information on an ongoing basis to interested and affected parties (I&APs) are made to allow them to comment, and to ensure that the participation of previously disadvantaged people like women and the youth are undertaken.

In terms of the EIA Regulations, 2014 (amended 7 April 2017), when applying for environmental authorisation, the EAP managing the application must conduct at least a public participation process where all potential or registered interested and affected parties (I&APs), including the competent authority, are given a period of at least 30 days to submit comments on each of the basic assessment reports, EMPr, scoping report and environmental impact assessment report, and where applicable the closure plan. In this case a Basic Assessment Report (BAR) is considered and the BAR will be made available for a 30-day comment period from 09 March – 09 April 2020.



This section of the BAR and EMPr will give an explanation of the public participation process undertaken in order to comply with the above-mentioned requirements.

RAL is applying for an environmental authorisation for the proposed mining activities for the Borrow Pit. The application for the environmental authorisation is undertaken in terms of the process as laid out in part 2 of Chapter 4 under the NEMA EIA Regulations, 2014 (amended 7 April 2017). The abovementioned regulations require that an applicant for an environmental authorisation (EA) submit a BAR and EMPr to the competent authority after having subjected the reports to a public participation process. In view of the above, a public participation process was initiated in February 2020 for the proposed Mining Permit Application. The public participation process for the proposed project was designed to provide sufficient and accessible information to I&APs in an objective manner to assist them to:

- raise issues of concern and make suggestions for Mitigated benefits;
- contribute local knowledge and experience;
- verify that their issues have been captured;
- verify that their issues have been considered in the technical investigations; and
- Comment on the findings of the Basic Assessment Report.

The following has been conducted in undertaking of the public participation process for the proposed project:

- An advert was placed in Sowetan Newspaper on 05 March 2020

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- Placement of site notices with all relevant and required information at the project site and surrounding areas of interest on 09 March 2020.
- Public meeting was held on the 20 February 2018 at the Traditional Council offices in Ga-Masemola village.
- Distribution of Background information documents and comment sheets via hand-delivery on 09 March 2020.
- Release of the draft BAR and EMPr for a 30-day public and stakeholder review and comment period, from 09 March – 09 April 2020.
- Hard-copies and soft-copies of the BAR and EMPr delivered to organs of state, e.g. LEDET, DWS, DAFF, LIRHA, and Local and District Municipalities, on 09 March 2020.

**11. SUMMARY OF ISSUES RAISED BY I&APS** (Complete the table summarising comments and issues raised, and reaction to those responses) (To be completed after the consultation period)

No comments received to date.



**12. THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES** (The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)

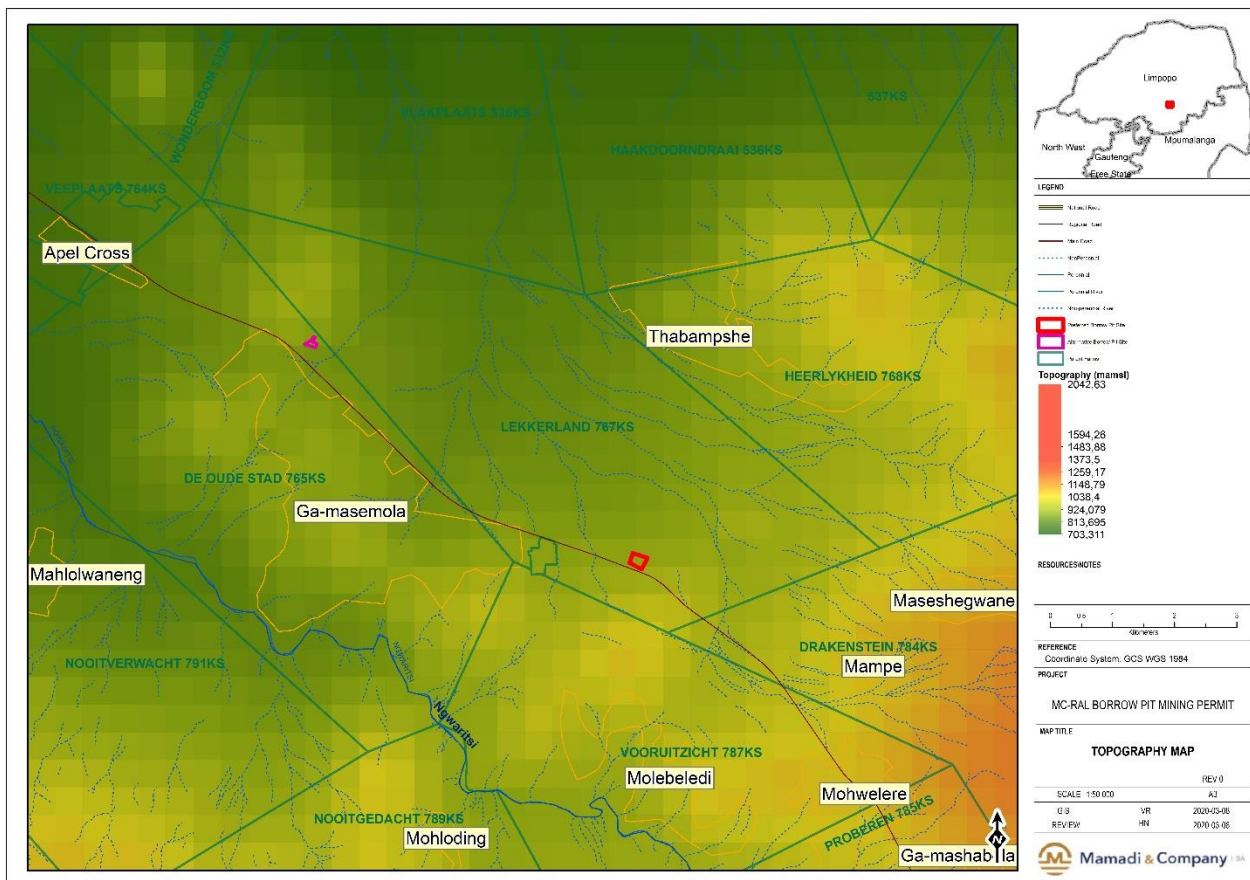
**1) Baseline Environment**

- a) Type of environment affected by the proposed activity** (Its current geographical, physical, biological, socio- economic and cultural character)

**Geographical Location:** The proposed Borrow-pit area is located on Farm Lekkerland 767KS in Ga-Masemola village within Makhuduthamaga Local Municipality. The proposed site covers an area of approximately 5ha. The site can be accessed via the R579 road from Lebowakgomo to Jane Furse area. The site lies approximately 1km west of Ga-Masemola residential area. The site is surrounded by vacant land.



**Topography:** The topography of the area varies between flat and undulating slopes interrupted by koppies, a steep slope that makes the area prone to erosion. The proposed Borrow-pit site is located in a low-lying area and is relatively flat. (Refer to Figure 4 below.)

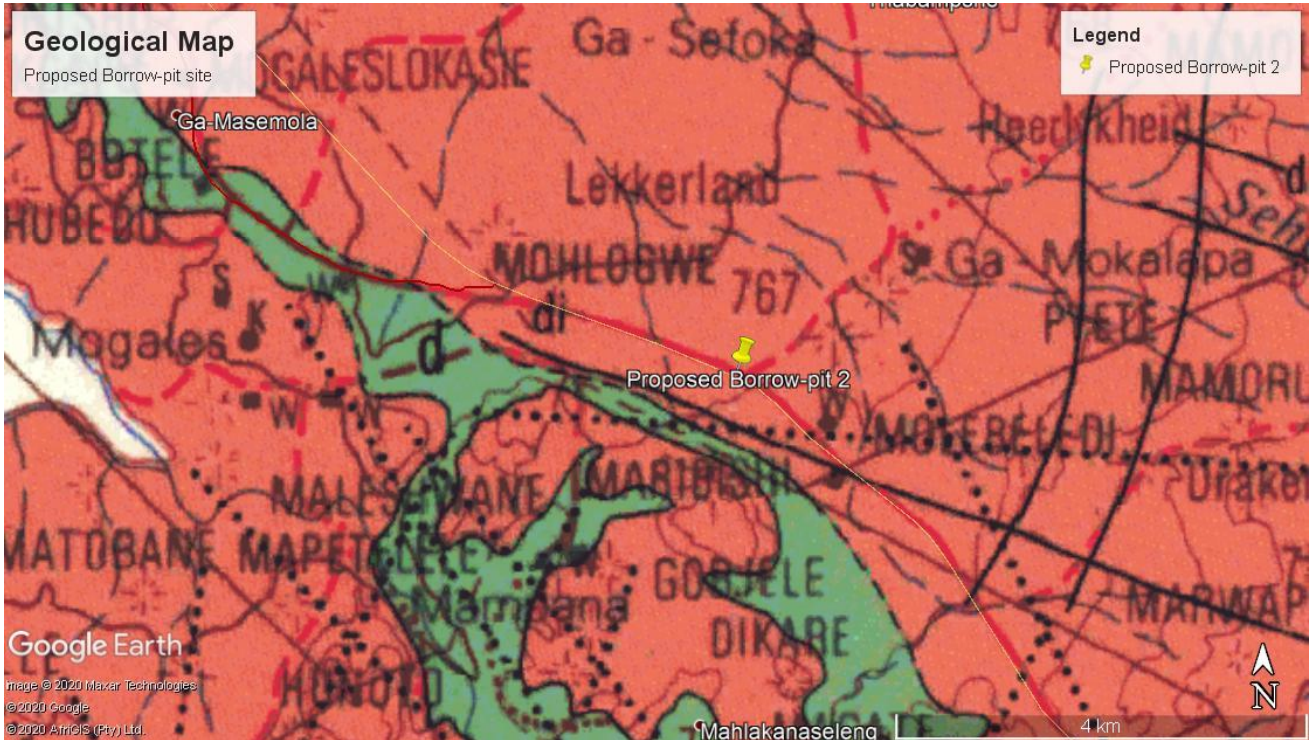
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**Figure 4: Topography Map**

**Geology:** The site is located on the area underlain by Bulai Gneiss Formation, Beit Bridge Complex (refer to Figure 5). During site inspection it was observed that the proposed borrow-pit area is comprised of sandy gritty soil and there are not rock outcrops within the proposed site.

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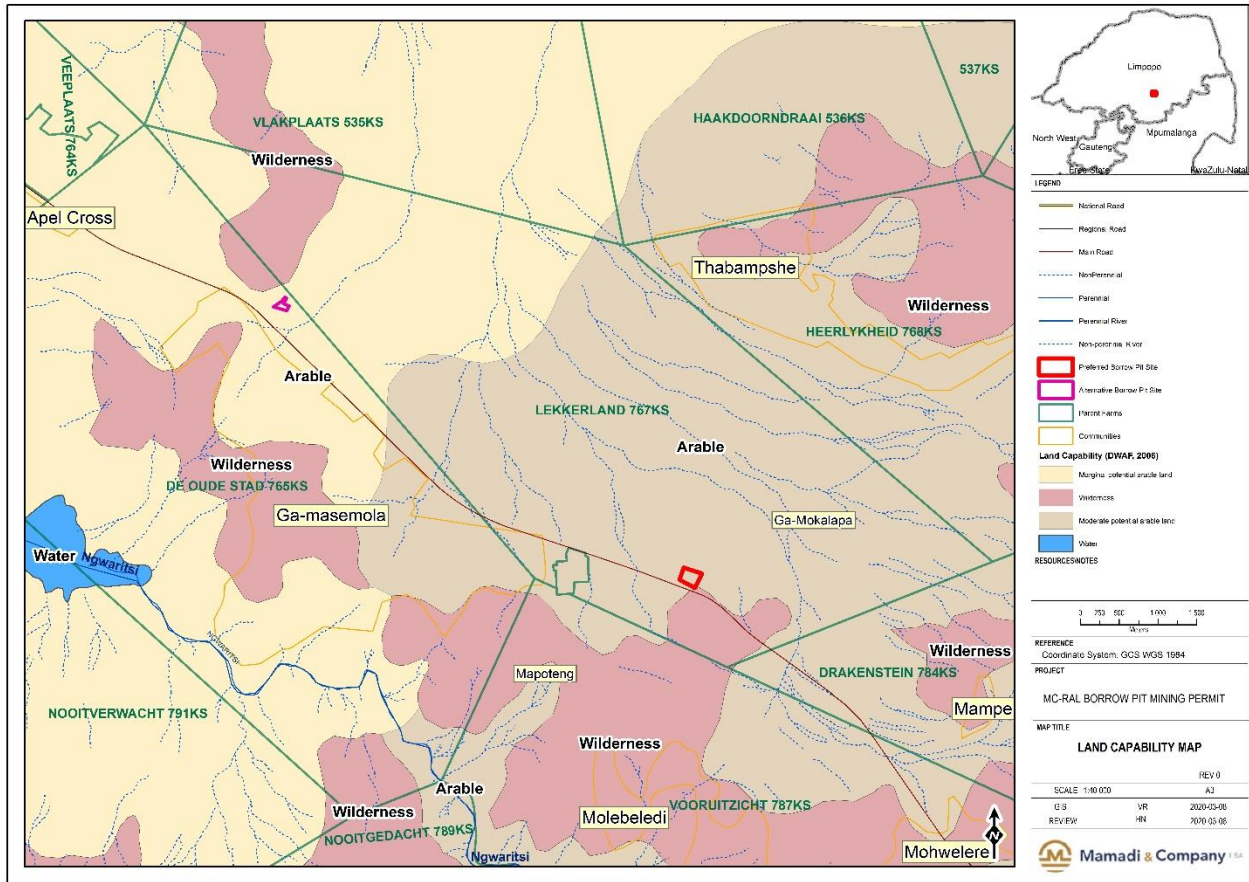
**Figure 5: Geological Map of the site**

**Climate:** Makhuduthamaga municipal area is characterized by a hot climate, with the average temperature shows moderate fluctuation with average summer temperatures of 23°C, as well as a maximum of 28°C and a minimum of 18°C. In winter, the average is 13,5°C with a maximum of 20°C and a minimum of 7°C Climate

Makhuduthamaga is susceptible to major climate conditions which can oscillate between floods and droughts. Mean average rainfall 500-800mm. Makhuduthamaga is located in the Summer Rainfall Zone of the country, and receives more than 80% of its rainfall between September to March at times extending to April. Thunderstorms with the associated low soil penetration and high level of erosion are common in the area.

**Land Capability:** According to DWAF, 2006 data the preferred site is located within arable land whereas the alternative site within marginal potential arable land (refer to Figure 6 below)



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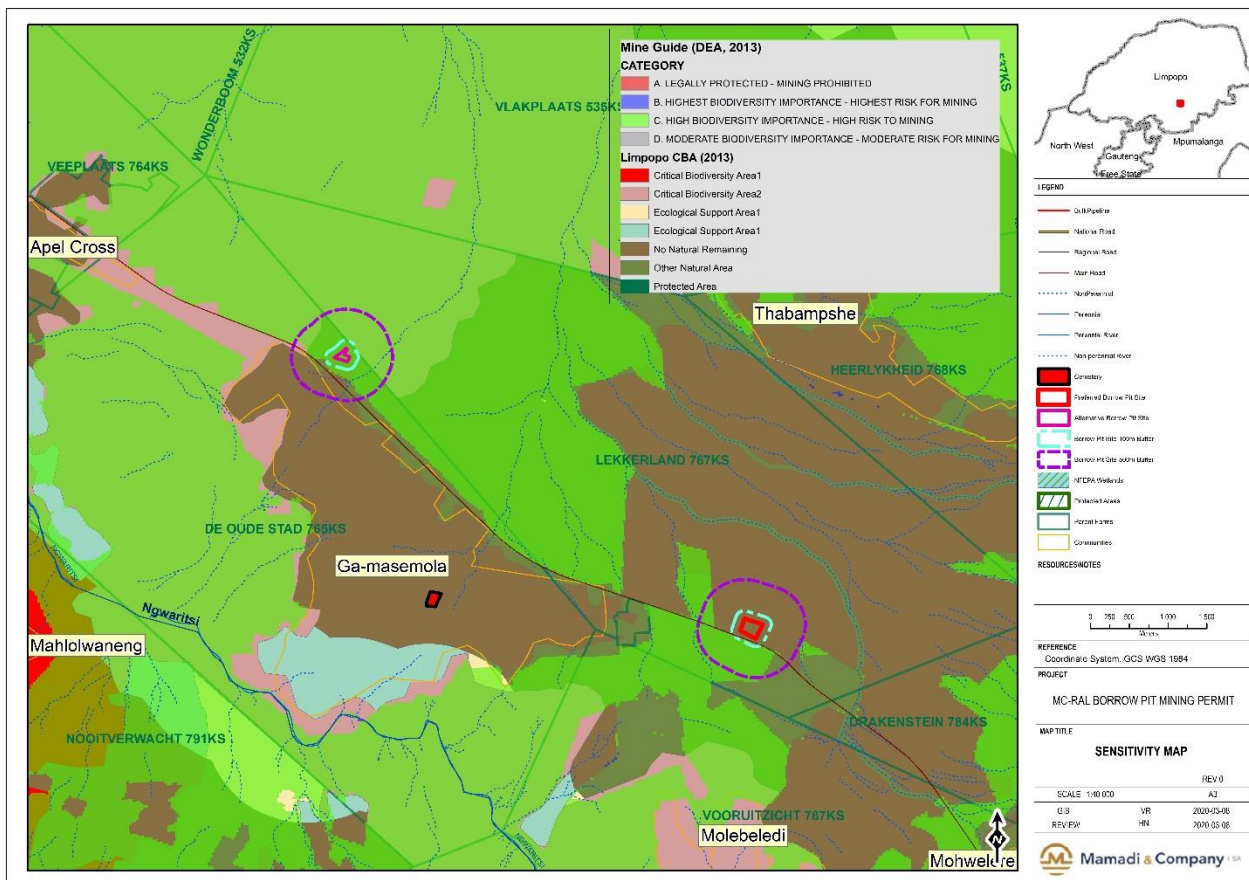


**Figure 6: Land Capability Map**

**Water Resources:** The proposed site fall within the B52A catchment area of the Olifants river. There are no water resources found within the proximity of the site.

**Ecology:** The proposed site is heavily disturbed by the previous agricultural activities and there is few indigenous vegetation around the site. There are few identified Marula trees around the site. There area is observed to be dominated by alien invasive species. According to SANBI BGIS Land Use Decision Support (LUDS) Tool (Refer to Figure 7 below) the proposed site has no Natural Vegetation.

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**Figure 7: Sensitivity Map**

**Socio-Economic Conditions:** According to the Statistics South Africa (2011), South African Population Census 2011 indicates that the area has a population of 8114 people, which comprise of 56% female and 44% male (Refer to Table 4). The socio-economic characteristics are listed in the table below. The proposed road upgrades and borrow-pit mining activities will provide short-term job opportunities. As a result, the proposed project will contribute to the local economy through the creation of jobs as well as the purchase of goods and services from the local community.

**Table 4: Demographics for Ga-Masemola**

	2011
<b>Population</b>	8 114
<b>Age Structure</b>	
Population under 19	50%
Population 20 to 59	35%
Population over 60	15%



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	2011
<b>Sex</b>	
Male	44%
Female	56%
<b>Employment</b>	
Employed	9.7%
Unemployed	29%
Youth unemployment rate (official) 15-34	45.0%
<b>Educational Level</b>	
No schooling	27%
Matric	24%
Higher education	4%

(Source: Census 2011)

**Cultural and Heritage:** Vhufa Hashu Heritage Consultants has been appointed by Mamadi & Company SA (Pty) Ltd to conduct the Heritage Impact Assessment (HIA) Study for the proposed preferred Borrow-pit site in Ga-Masemola village. The objectives of the study were to:

- identify possible archaeological, cultural and historic within the proposed site;
- Assess the significance of the cultural resources in terms of their archeological or historical, scientific, social, religious, aesthetic and tourism value;
- Evaluate the potential impacts of the structures on archaeological, cultural and historic resources; and
- Recommend mitigation measures to ameliorate any negative impacts on areas of archeological, cultural or historical importance.

The study or investigation was conducted in line with the National Heritage Resource Act, 1999 (Act 25 of 1999). The phase 1 HIA study did not identify any archaeological sites within the proposed borrow pit site. And it was recommended that workers should be workshopped about the importance of heritage resources.

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**b) Description of the current land uses**

The proposed preferred site is surrounded Agricultural land and the R579 road on the Southern side. It should be noted that no agricultural practices are currently taking place in the area.:



Figure 8: R579 Road west of the site where the cars are parked



Figure 9: Open space on the southern side of the site





Figure 10: Existing access road from the R579 road



Figure 11: Open space on the northern side of the site

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

The proposed project area lies in an open field, it is bordered the R579 on the southern side. The nearest residential properties are approximately 1km west of the site. There are Marula trees scattered around the area, it is not anticipated that no trees will be affected by the borrow-pit activities. However, if at a later stage it is required that the trees must be removed, then the necessary permit will be acquired.

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d) Environmental and current land use map (Show all environmental and current land use features)

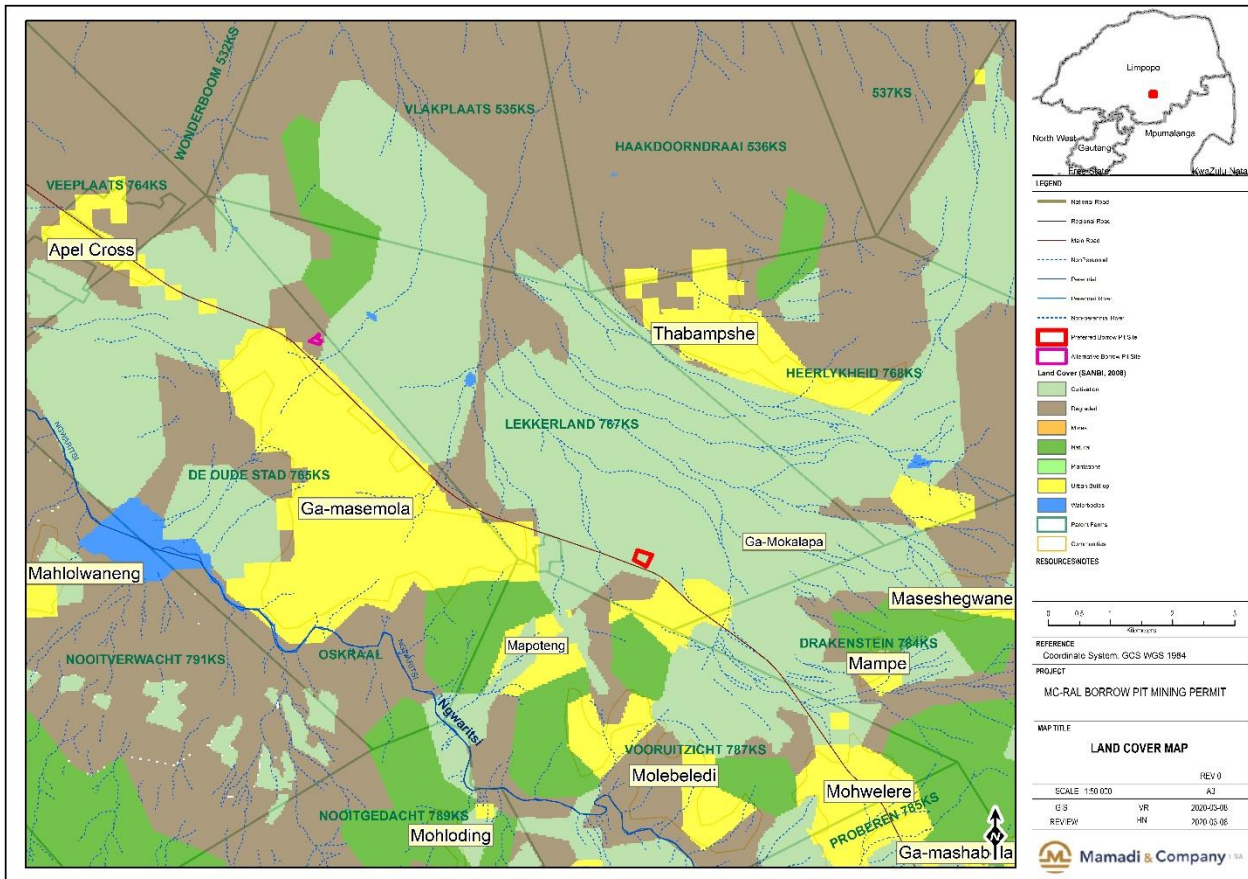






Figure 12: Land Use Map

13. **IMPACTS AND RISKS IDENTIFIED INCLUDING THE NATURE, SIGNIFICANCE, CONSEQUENCE, EXTENT, DURATION AND PROBABILITY OF THE IMPACTS, INCLUDING THE DEGREE TO WHICH THESE IMPACTS** (Provide a list of the potential impacts identified of the activities described in the initial site layout that will be undertaken, as informed by both the typical known impacts of such activities, and as informed by the consultations with affected parties together with the significance, probability, and duration of the impacts. Please indicate the extent to which they can be reversed, the extent to which they may cause irreplaceable loss of resources, and can be avoided, managed or mitigated).

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The following are potential impacts associated with the mining activities:

Potential Impacts	Phase	Reversible (Yes / No)	Irreplaceable Damage (Yes / No)	Can Impact Be Avoided? (Yes / No)
<b>Land degradation</b> The removal of topsoil and vegetation with heavy machines deprives the land its nutrients and render the land infertile for agricultural purpose.	Site Establishment	No	Yes	No
<b>Loss of indigenous vegetation</b> Natural plant communities are dynamic ecosystems that provide habitats that support all forms of life. Different types of plant communities (and habitats) exist in the study area, and these occur within and around the study area. The current condition of the vegetation communities of the study area can be described as transformed/ degraded due to agriculture and previous mining	Site Establishment	No	Yes	No
<b>Fragmentation of vegetation and edge effects</b> Fragmentation is one of the most important impacts on vegetation, especially when this creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. This impact occurs when areas are cleared for developments or an area is invaded by alien invasive plant species. Fragmentation results in the isolation of functional ecosystems, and results in reduced biodiversity and reduced movement due to the absence of ecological corridors.	Site Establishment	Yes	No	Yes
<b>Invasion of alien plant species</b> As with mining activities, the introduction of alien and invader plant species is inevitable; with disturbance comes the influx of aliens. The life of mine (i.e. all phases) could result in the area being invaded by alien invasive species. Alien invader species need to be consistently managed over the entire Life of Mine of the project.	Site Establishment, Operation and Rehabilitation, Decoms & Closure	Yes	No	Yes
<b>Soil disturbance</b> Land clearing and Mining activities on site could lead to physical disturbance of the soils on site which has a potential of causing soil erosion and dust.	Site clearing and Operation	Yes	Yes	Yes
<b>Disturbance to animal life in the vicinity</b> The site establishment and operational phase activities are associated with an increase in noise levels, vehicular movements and dust levels. Noise pollution can depress local populations of sensitive faunal groups and increased dust levels can smother natural environments. Animals differ in the degree to which they tolerate such disturbance, and can be expected to have	Site Establishment & Operation	Yes	Yes	Yes

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Potential Impacts	Phase	Reversible (Yes / No)	Irreplaceable Damage (Yes / No)	Can Impact Be Avoided? (Yes / No)
potentially negative and positive impacts on various faunal groups. Dust may be generated as a result of mining activities and, in particular, where there is exposed ground. Specific activities that may contribute to release of fugitive dust include offloading and stockpiling of materials such as sand, excavation, storage of excavated materials and movement of heavy vehicles. The generation of dust may be higher during windy, dry periods. The increase in dust levels may negatively impact the plants and animal species which utilise the area. An increase in vehicular traffic may also result in road fatalities of faunal species				
<b>Noise Pollution</b> Excavation, and vehicles movement to and from the site hauling and transporting Gravel materials, and the voices of the excavation crew.	Site Establishment & Operation	No	No	Yes
<b>Air Pollution</b> Dust emission during excavation, clearing of vegetation and loading and haulage of materials by trucks. Dust pollution may cause Cardiovascular diseases.	Site Establishment & Operation	No	No	Yes
<b>Disruption of sensitive ecological ecosystems</b> The area will be bare excavated ground after mining activities. Without vegetation cover, these areas are sensitive to erosion and invasion by alien plant species	Rehabilitation, Decoms & Closure	Yes	Yes	No
<b>Disturbance to wildlife</b> in the surrounding area Activities associated with the decommissioning phase are similar to those associated with the site establishment and operation. Increased vehicular movement, increased noise levels and increased dust may result in the disturbance of sensitive faunal populations but this will be a short-term impact.	Rehabilitation, Decoms & Closure	Yes	No	Yes
<b>Social Impact</b> Employment Opportunities and skills development for local residence.	Site Establishment, Operation and Rehabilitation, Decoms & Closure	Yes	No	Yes
<b>Cultural-historical resources</b> Potential impact on heritage resources identified	Site Establishment, Operation	Yes	Yes	Yes

It is not anticipated that the mining activities associated with the borrow pit will have any lasting material effects on existing land uses on the areas or any other areas in their vicinity as the site will be rehabilitated.

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**14. METHODOLOGY USED IN DETERMINING AND RANKING THE NATURE, SIGNIFICANCE, CONSEQUENCES, EXTENT, DURATION AND PROBABILITY OF POTENTIAL ENVIRONMENTAL IMPACTS AND RISKS** (Describe how the significance, probability, and duration of the aforesaid identified impacts that were identified through the consultation process was determined in order to decide the extent to which the initial site layout needs revision).

This section provides the detailed methodology used for the assessment of the significance of potential environmental impacts in the EIA. This methodology allows for the identified potential impacts to be analysed in a systematic manner, with significance rating (from low to high) assigned to each potential impact. The criteria used to determine impact consequence include nature, extent, duration and magnitude of the impact and are presented below.

**Assessment of the significance of the potential impacts: Criteria of assigning significance to potential impacts**

**Table 5: Scoring of Potential Impacts**

SEVERITY			OCCURRENCE
MAGNITUDE (SEVERITY) OF IMPACT	DURATION OF IMPACT	EXTENT OF IMPACT	PROBABILITY OF OCCURRENCE
Magnitude (M)	Duration (D)	Scale (S)	Probability (P)
10 Very high/ don't know	5 Permanent	5 International	5 Definite/don't know
8 High	4 Long-term (impact ceases after closure of activity)	4 National	4 High probable
6 Moderate	3 Medium-term (5 to 15 years)	3 Regional	3 Medium probability
4 Low	2 Short-term (0 to 5 years)	2 Local	2 Low probability
2 Minor	1 Transient	1 Site only	1 Improbable
1 None/insignificant			



After ranking these factors for each impact, the significance of the aspects, occurrence and severity, was assessed using the following formula:

$$\text{Significance Points (SP)} = (M + D + S) \times P$$

The maximum SP value is up to 100. The environmental effects were then rated based on the system provided in Table 6 below

**Table 6: Significant Point System**

SP	SIGNIFICANCE RANKING	DESCRIPTION
SP>70	Indicates High (H) environmental significance	Where it would influence the decision regardless of any possible mitigation. An impact that could influence the decision about whether or not to proceed with the project.

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SP = 40 - 70	Indicates Moderate (Mod) environmental significance	Where it could have an influence on the decision unless it is mitigated. An impact or benefit which is sufficiently important to require management. Of moderate significance could influence the decisions about the project if left unmanaged.
SP<40	Indicates Low (L) environmental significance	Where it will not have an influence on the decision. Impacts with little real effect and which should not have an influence on or require modification of the project design or alternative mitigation
+	Positive impact	An impact that is likely to result in positive consequences / effects.

**15. THE POSITIVE AND NEGATIVE IMPACTS THAT THE PROPOSED ACTIVITY (IN TERMS OF THE INITIAL SITE LAYOUT) AND ALTERNATIVES WILL HAVE ON THE ENVIRONMENT AND THE COMMUNITY THAT MAY BE AFFECTED** (Provide a discussion in terms of advantages and disadvantages of the initial site layout compared to alternative layout options to accommodate concerns raised by affected parties)

No site layout plan alternatives were considered. Concerns raised during the 30-day public review period regarding the layout will be incorporated into the Final BAR and EMPR.

**16. THE POSSIBLE MITIGATION MEASURES THAT COULD BE APPLIED AND THE LEVEL OF RISK** (With regard to the issues and concerns raised by affected parties provide a list of the issues raised and an assessment/ discussion of the mitigations or site layout alternatives available to accommodate or address their concerns, together with an assessment of the impacts or risks associated with the mitigation or alternatives considered).

At this stage no issues were raised that required an assessment/ discussion of mitigation measures.



**17. MOTIVATION WHERE NO ALTERNATIVE SITES WERE CONSIDERED**

Not Applicable.

**18. STATEMENT MOTIVATING THE ALTERNATIVE DEVELOPMENT LOCATION WITHIN THE OVERALL SITE**

The following factors contributed to the motivation of this site: The site is located close to the proposed construction site which will minimise the distance of transporting the material, there is an existing access road which joins the main road close to the site, the site has minimum vegetation cover, the site has a high potential and is located close the main road which makes it easily accessible, and noise and dust impacts is not deemed to be significant, seeing that the proposed Borrow Pit is locate 1km from the nearest residential area and there are no signs of Heritage/archaeological features identified within the proposed area.

**19. 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

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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.)

Please refer to **Section 14** above for the methodology used and **Section 20** below for the impact assessment.

**20. ASSESSMENT OF EACH IDENTIFIED POTENTIALLY SIGNIFICANT IMPACT AND RISK** (This section of the report must consider all the known typical impacts of each of the activities (including those that could or should have been identified by knowledgeable persons) and not only those that were raised by registered interested and affected parties).



Potential impact of each main activity in each phase, and corresponding significance assessment

The significance of each activity in each phase of the proposed mining activity associated with the borrow pit is discussed in the tables below.

**Assessment of potential impacts associated with the Site Establishment and Operational Phases**

ENVIRONMENTAL IMPACT	ENVIRONMENTAL SIGNIFICANCE											
	Before Mitigation						After Mitigation					
	M	D	S	P	Total	SP	M	D	S	P	Total	SP
<b>1. Ecology</b>												
Destruction / loss of indigenous natural vegetation during site preparation	1	3	6	5	50	Mod	1	2	2	3	15	L
Proposed mitigation measures: <ul style="list-style-type: none"> <li>Avoid unnecessary impacts on natural vegetation, especially outside the development footprint.</li> <li>Vegetation clearance should be contained, within the footprint of the mining area.</li> <li>Ensure the project site is fenced off (e.g. using construction mesh) to prohibit activities outside of the area being applied for.</li> <li>Areas to be cleared must be clearly marked in the field to eliminate unnecessary clearing.</li> <li>A field survey must be undertaken before mining commences at to confirm that no ecologically sensitive areas or conservation areas are present in sections to be cleared.</li> <li>Limit unnecessary impacts on surrounding natural vegetation, e.g. driving around in the veld, use access roads only</li> </ul>												
Fragmentation of vegetation and edge effects during site preparation.	1	5	6	3	36	Mod	1	2	2	3	15	L
Proposed mitigation measures: <ul style="list-style-type: none"> <li>Ecologist/ ECO with an Ecology background to undertake ecological walkthrough to identify all species of conservation concern prior to site establishment. A permit / permission to be obtained from the relevant Department for the removal/relocation of species where applicable.</li> </ul>												
Establishment and spread of declared weeds and alien invader plants during	2	5	6	4	36	52	1	1	2	2	8	L



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site preparation and Operational Phase.														
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Proposed mitigation measures:

- Keep disturbance of vegetation surrounding borrow-pit area to a minimum.
- Rehabilitate disturbed areas as quickly as possible following completion of mining activities in an area.
- Do not translocate soil stockpiles from areas with alien plants.
- Establish an on-going monitoring programme to monitor the establishment of alien invasive species.

**2. Soils**

Physical disturbance of soils during land clearing and operation of the mining area.	2	5	2	4	36	Mod	1	2	2	3	15	L
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Proposed mitigation measures:

- Limit clearance to the footprint to the immediate development area.
- Rehabilitate disturbed areas as quickly as possible following completion of the mining phase activities in an area

**3. Dust**



Dust emissions during site preparation and operational phase. Dust emissions within the site due to movement of vehicles and operation equipment during site preparation and operational phase. Exhaust emissions, noise and traffic are anticipated from haulage trucks and operation machinery to and from site, as well as on-site..	2	2	2	4	24	L	1	1	1	2	6	L
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Proposed mitigation measures:

- Implement a practical speed limit on site (e.g. 20km/hr).
- Vehicles transporting equipment must ensure that they are maintained in good order. Vehicles which are emitting volumes of smoke should be taken for maintenance immediately.
- All vehicles must be road-worthy and all drivers must have a valid license.
- If abnormal loads will be transported to site the relevant permits or clearances must be in place.
- Transporting of goods through the use of abnormal loads needs to take place during off-peak hours.
- An appropriate dust suppressant must be applied on all exposed areas as required to minimise/control airborne dust.
- Ensure that a complaints register is kept at the construction site from the first day of construction.
- The construction activities should be kept to the mining footprint being applied for.

**4. Land capability and use**

Land degradation during site preparation and operation of the site.	1	2	1	1	4	L	2	3	6	5	55	-
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The removal of topsoil and vegetation with heavy machines deprives the land its nutrients and render the land infertile for agricultural purpose.													
---	--	--	--	--	--	--	--	--	--	--	--	--	--

Proposed mitigation measures:

- Avoid unnecessary impacts on natural vegetation, especially outside the development footprint.
- Excavations should be contained, within the footprint of the mining area.
- Ensure the project site is fenced off (e.g. using construction mesh) to prohibit activities outside of the area being applied for.
- Rehabilitate disturbed areas as quickly as possible following completion of the mining phase activities in an area

**5. Ground and Surface water**

Spillages or leaks could impact on stormwater and groundwater	3	1	1	3	15	L	1	1	1	2	6	L
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Proposed mitigation measures:

- Contractor must ensure that spill kit and drip drays are available on site
- Spill kits must be put in convenient areas to ensure that minor spillages are cleaned as soon as they occur
- Depending on the nature and extent of the spill, contaminated soil must be either excavated or treated on-site. This could involve the application of soil absorbent materials or oil-digestive powders to the contaminated soil.
- Daily inspections for minor spills must be conducted to ensure that the site is free of spillages

**6. Health and Safety**

Potential for accidents and injuries to workers. Unhygienic environment for workers which can cause nuisance to employees.	4	3	1	4	32	L	2	2	1	3	15	L
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Proposed mitigation measures:



- All employees should be given adequate Personal Protective Equipment (PPE) including dust masks
- No burning of refuse is permitted on site.
- When operation machinery and vehicles are noticed to release black soot in their tailpipes they should be taken for maintenance.
- When dust occurs on site mostly during dry weather when soils are loose, appropriate dust suppression measures must be implemented, including surface area watering.

**7. Noise**

Noise Pollution during site preparation and operation Excavation, and vehicles movement to and from the site hauling and transporting Gravel materials, and the voices of the excavation crew.	2	2	6	3	30	Mod	1	2	2	4	14	L
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Proposed mitigation measures:

- Local people should be informed of the project before commencement
- A speed limit of 20km/h should be maintained on site and outside the site

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- Construction vehicles should be serviced on regular basis
- Restrict unnecessary movement of heavy vehicles through residential areas.

### 8. Cultural heritage

Cultural-historical resources during site preparation and operational Potential impact on heritage resources identified.	1	3	1	3	15	L	1	2	1	1	4	L
--	---	---	---	---	----	---	---	---	---	---	---	---

- Proposed mitigation measures:
- Workers should be workshopped about the importance of heritage resources.
  - Despite that no archaeological objects were observed during the survey of the proposed site and that the area is disturbed, the client is reminded that unavailability of archaeological material does not mean absence, archaeological material might be hidden underground. It is thus the responsibility of the developer to notify contractors and workers about archaeological material (e.g., pottery, stone tools, remnants of stone-walling, graves, etc) and fossils that may be located underground.
  - In the event that any of the above are unearthed, all construction within a radius of at least 10m of such indicator should cease and the area be demarcated by a danger tape. Accordingly, a professional archaeologist or Limpopo Provincial Heritage Resources Authority (LIHRA) officer should be contacted immediately.
  - Note that any measures to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law.
  - No person may exhume or collect such remains, whether of recent origin or not, without the endorsement by LIHRA.

### 9. Socio-economic aspects

Direct employment and skills development / transfer during site preparation and operation	6	4	2	5	60	Mod	8	4	2	5	70	Mod
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- Proposed mitigation measures:
- Local labour force should take first preference for employment especially for semi-skilled and low skilled job categories.
  - Training and skills development programmes should be initiated prior to the commencement of the operation phase.
  - The allocation of employment opportunities should be undertaken on a fair basis.

### 10. Traffic aspects



Disruption of normal traffic flow	1	4	2	5	42	Mod	1	2	2	5	15	Low
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- Proposed mitigation measures:
- Ensure that incoming and outbound loads are well managed and scheduled to minimise potential disruptions on the site access.
  - Necessary and visible signages must be placed at appropriate areas;
  - Where necessary traffic control measures must be implemented

### 11. Waste management

Impact due to waste	6	4	1	5	55	Mod	4	4	1	5	45	Low
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- Proposed mitigation measures:
- Good housekeeping must be practiced at all times to ensure that the construction site is kept neat and tidy.
  - An adequate number of bins should be placed around the site to control waste.

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- All waste generated on site must be collected and transported to the nearest registered landfill site. The disposal slip must be filed on site.
- Waste will be sorted at site so as to sort the recyclable and non-recyclable waste.
- All empty hazardous containers must be stored in a dedicated area and later removed from the site for appropriate disposal at a licensed facility.

### Assessment of potential impacts associated with the Rehabilitation, Decommissioning and Closure Phase

ENVIRONMENTAL IMPACT	ENVIRONMENTAL SIGNIFICANCE											
	Before Mitigation						After Mitigation					
	M	D	S	P	Total	SP	M	D	S	P	Total	SP
<b>1. Ecology</b>												
Establishment and spread of declared weeds and alien invader plants during site preparation and Operational Phase.	2	5	6	4	36	52	1	1	2	2	8	L
Proposed mitigation measures:												
<ul style="list-style-type: none"> <li>• Keep disturbance of vegetation surrounding borrow-pit area to a minimum.</li> <li>• Rehabilitate disturbed areas as quickly as possible following completion of mining activities in an area.</li> <li>• Do not translocate soil stockpiles from areas with alien plants.</li> <li>• Establish an on-going monitoring programme to monitor the establishment of alien invasive species.</li> </ul>												
<b>2. Soils</b>												
Physical disturbance of soils during land clearing and operation of the mining area.	2	5	2	4	36	Mod	1	2	2	3	15	L
Proposed mitigation measures:												
<ul style="list-style-type: none"> <li>• Limit clearance to the footprint to the immediate development area.</li> <li>• Rehabilitate disturbed areas as quickly as possible following completion of the mining phase activities in an area</li> </ul>												
<b>3. Dust</b>												
Dust emissions during site preparation and operational phase. Dust emissions within the site due to movement of vehicles and operation equipment during site preparation and operational phase. Exhaust emissions, noise and traffic are anticipated from haulage trucks and operation machinery to	2	2	2	4	24	L	1	1	1	2	6	L

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and from site, as well as on-site..													
-------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--

Proposed mitigation measures:

- Implement a practical speed limit on site (e.g. 20km/hr).
- Vehicles transporting equipment must ensure that they are maintained in good order. Vehicles which are emitting volumes of smoke should be taken for maintenance immediately.
- All vehicles must be road-worthy and all drivers must have a valid license.
- If abnormal loads will be transported to site the relevant permits or clearances must be in place.
- Transporting of goods through the use of abnormal loads needs to take place during off-peak hours.
- An appropriate dust suppressant must be applied on all exposed areas as required to minimise/control airborne dust.
- Ensure that a complaints register is kept at the construction site from the first day of construction.
- The construction activities should be kept to the mining footprint being applied for.

**4. Land capability and use**

Land degradation during site preparation and operation of the site. The removal of topsoil and vegetation with heavy machines deprives the land its nutrients and render the land infertile for agricultural purpose.	1	5	8	4	56	Mod	1	2	1	3	12	L
--	---	---	---	---	----	-----	---	---	---	---	----	---

Proposed mitigation measures:

- Avoid unnecessary impacts on natural vegetation, especially outside the development footprint.
- Excavations should be contained, within the footprint of the mining area.
- Ensure the project site is fenced off (e.g. using construction mesh) to prohibit activities outside of the area being applied for.
- Rehabilitate disturbed areas as quickly as possible following completion of the mining phase activities in an area

**5. Noise**



Noise Pollution during site preparation and operation Excavation, and vehicles movement to and from the site hauling and transporting Gravel materials, and the voices of the excavation crew.	2	2	6	3	30	Mod	1	2	2	4	14	L
---	---	---	---	---	----	-----	---	---	---	---	----	---

Proposed mitigation measures:

- Local people should be informed of the project before commencement
- A speed limit of 20km/h should be maintained on site and outside the site
- Construction vehicles should be serviced on regular basis
- Restrict unnecessary movement of heavy vehicles through residential areas.

**5. Cultural heritage**

Cultural-historical resources during site	1	3	1	3	15	L	1	2	1	1	4	L
---	---	---	---	---	----	---	---	---	---	---	---	---

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preparation and operational Potential impact on heritage resources identified.													
--	--	--	--	--	--	--	--	--	--	--	--	--	--

Proposed mitigation measures:

- Workers should be workshopped about the importance of heritage resources.
- Despite that no archaeological objects were observed during the survey of the proposed site and that the area is disturbed, the client is reminded that unavailability of archaeological material does not mean absentee, archaeological material might be hidden underground. It is thus the responsibility of the developer to notify contractors and workers about archaeological material (e.g., pottery, stone tools, remnants of stone-walling, graves, etc) and fossils that may be located underground.
- In the event that any of the above are unearthed, all construction within a radius of at least 10m of such indicator should cease and the area be demarcated by a danger tape. Accordingly, a professional archaeologist or Limpopo Provincial Heritage Resources Authority (LIHRA) officer should be contacted immediately.
- Note that any measures to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law.
- No person may exhume or collect such remains, whether of recent origin or not, without the endorsement by LIHRA.

**6. Socio-economic aspects**



Direct employment and skills development / transfer during site preparation and operation	6	4	2	5	60	Mod	8	4	2	5	70	Mod
---	---	---	---	---	----	-----	---	---	---	---	----	-----

Proposed mitigation measures:

- Local labour force should take first preference for employment especially for semi-skilled and low skilled job categories.
- Training and skills development programmes should be initiated prior to the commencement of the operation phase.
- The allocation of employment opportunities should be undertaken on a fair basis.

**21. 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)

- Heritage Impact Report-Recommendations (Appendix 4)**
  - Despite that no archaeological objects were observed during the proposed site survey, and that the area is disturbed, the client is reminded that unavailability of archaeological material does not mean absentee, archaeological material might be hidden underground. It is thus the responsibility of the developer to notify contractors and workers about archaeological material (e.g., pottery, stone tools, remnants of stone-walling, graves, etc) and fossils that may be located underground. In the event that any of the above are unearthed, all construction within a radius of at least 10m of such indicator should cease and the area be demarcated by a danger tape. Accordingly, a professional archaeologist or Limpopo Heritage Resources Authority (LIHRA) officer should be contacted immediately. In the meantime, it is the responsibility of the contractor to protect the site from publicity (i.e., media) until a mutual agreement is reached. Noteworthy that any measures to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law. In the same manner, no person may exhume or collect such remains, whether of recent origin or not, without the endorsement by LIHRA.

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## 22. ENVIRONMENTAL IMPACT STATEMENT

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

This section provides a summary of the assessment conclusions for the proposed borrow pit mining activities to be undertaken by RAL. Borrow pit mining activities are intensive and hence they have potentially medium environmental impacts without mitigation and low impacts with mitigation measures. The assessed impact ratings after implementation of the mitigation measures above are summarised as follows:

Table 7 : Summary of the key findings of the environmental impact assessment

Potential Impacts (Positive: +ve; Negative: -ve)	Impact Significance Without Mitigation	Impact Significance With Mitigation
<b>Site Preparation and Operational Phases</b>		
<b>Ecology</b> <ul style="list-style-type: none"> <li>Destruction / loss of indigenous natural vegetation during site preparation</li> <li>Fragmentation of vegetation during site preparation.</li> <li>Establishment and spread of declared weeds and alien invader plants during site preparation and Operational Phase</li> </ul>	Medium (-ve)	Low (-ve)
<b>Soils</b> Physical disturbance of soils during land clearing and operation of the mining area.	Medium(-ve)	Low(-ve)
<b>Dust</b> Dust emissions during site preparation and operational phase. Dust emissions within the site due to movement of vehicles and operation equipment during site preparation and operational phase. Exhaust emissions, noise and traffic are anticipated from haulage trucks and operation machinery to and from site, as well as on-site..	Low(-ve)	Low(-ve)
<b>Land capability and use</b> Land degradation during site preparation and operation of the site. The removal of topsoil and vegetation with heavy machines deprives the land its nutrients and render the land infertile for agricultural purpose.	Moderate(-ve)	Low(-ve)
<b>Noise</b> Noise Pollution during site preparation and operation Excavation, and vehicles movement to and from the site hauling and transporting Gravel materials, and the voices of the excavation crew.	Low(-ve)	Low(-ve)
<b>Cultural heritage</b> Cultural-historical resources during site preparation and operational	Low(-ve)	Low(-ve)
<b>Socio-economic aspects</b> Direct employment and skills development / transfer during site preparation and operation	Moderate (+ve)	Moderate (+ve)
<b>Rehabilitation and Decommissioning phase</b>		
<b>Disruption of sensitive ecological ecosystems</b> The area will be bare excavated ground after mining activities. Without vegetation cover, these areas are sensitive to erosion and invasion by alien plant species	Low(-ve)	Low(-ve)

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Potential Impacts (Positive: +ve; Negative: -ve)	Impact Significance Without Mitigation	Impact Significance With Mitigation
<b>Disturbance to wildlife</b> in the surrounding area Activities associated with the decommissioning phase are similar to those associated with the site establishment and operation. Increased vehicular movement, increased noise levels and increased dust may result in the disturbance of sensitive faunal populations but this will be a short-term impact.	Low(-ve)	Low(-ve)

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

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

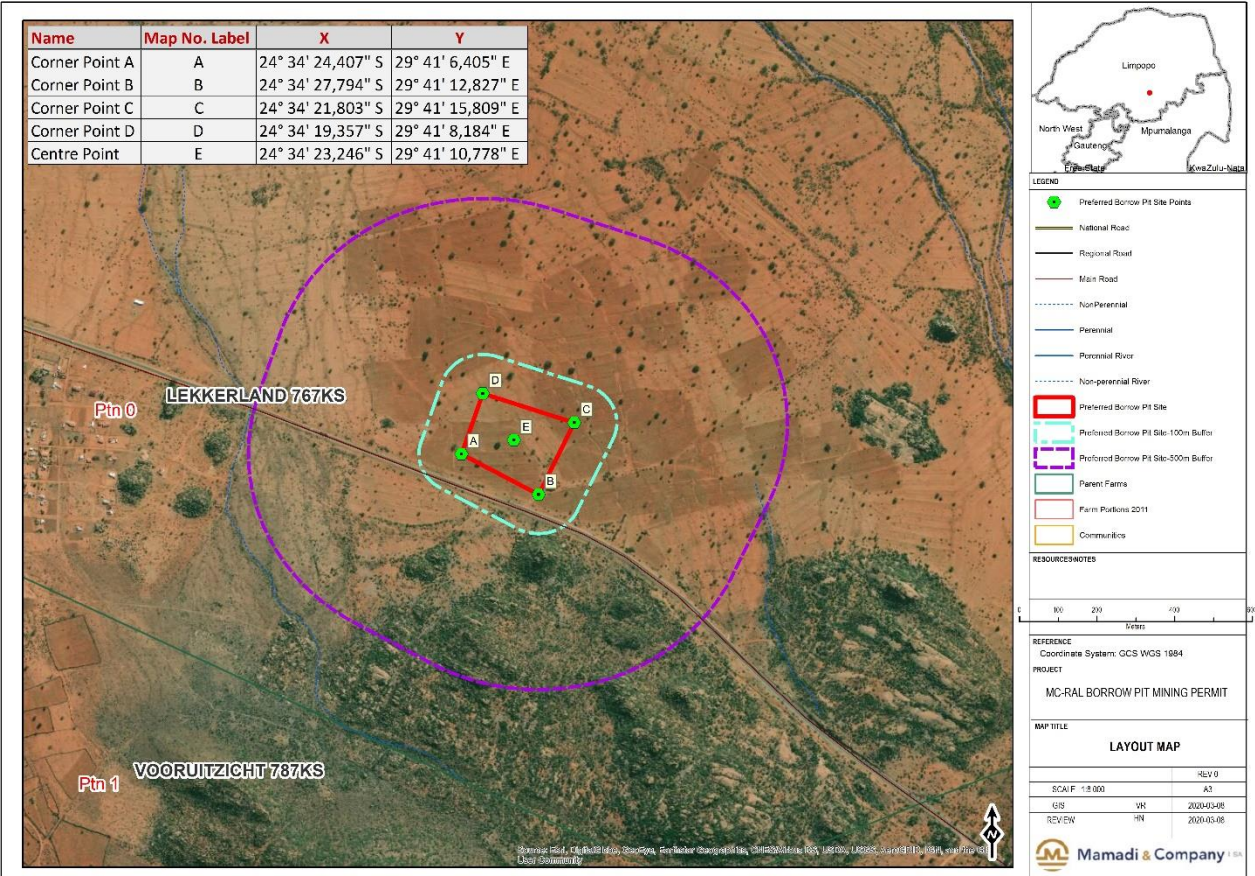




Figure 13: Site Map

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

Positive and negative impacts associated with the proposed borrow pit mining activities include:



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### **Positive**



The proposed borrow pit mining activities to obtain Gravel material will allow for the upgrade of roads as the material will be used for filling. Subsequently, the upgrades of the roads will result in:

- Direct employment and skills development / transfer during site preparation and operation. The construction phase will create a limited number of employment opportunities. Skills development/ transfer will occur as employees will be trained in environmental awareness.
- The proposed upgrade of these road will positively contribute to the social, safety, and economic aspects of the areas.

### **Negative**

During the preparation and actual operation of the barrow pit (i.e. excavations), the following potential negative impacts could occur:

- Destruction / loss of indigenous natural vegetation during site preparation Natural plant communities are dynamic ecosystems that provide habitats that support all forms of life. Different types of plant communities (and habitats) exist in the study area, and these occur within and around the study area. The current condition of the vegetation communities of the study area can be described as transformed/ degraded due to agriculture and previous mining
- Fragmentation of vegetation and edge effects during site preparation. Fragmentation is one of the most important impacts on vegetation, especially when this creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. This impact occurs when areas are cleared for developments or an area is invaded by alien invasive plant species. Fragmentation results in the isolation of functional ecosystems, and results in reduced biodiversity and reduced movement due to the absence of ecological corridors.
- Establishment and spread of declared weeds and alien invader plants during site preparation and Operational Phase. As with mining activities, the introduction of alien and invader plant species is inevitable; with disturbance comes the influx of aliens. The life of mine (i.e. all phases) could result in the area being invaded by alien invasive species. Alien invader species need to be consistently managed over the entire Life of Mine of the project.
- Physical disturbance of soils during land clearing and operation of the mine Land clearing activities on site could lead to physical disturbance of the soils on site which has a potential of causing soil erosion and dust.
- Dust emissions during site preparation and operational phase. Dust emissions within the site due to movement of vehicles and operation equipment during site preparation and operational phase. Exhaust emissions, noise and traffic are anticipated from haulage trucks and operation machinery to and from site, as well as on-site.
- Land degradation during site preparation and operation of the site The removal of topsoil and vegetation with heavy machines deprives the land its nutrients and render the land infertile for agricultural purpose.
- Destruction or loss of cultural and heritage resources during the excavation of Gravel material ;
- Noise generation from set-up (removal of vegetation and topsoil) and operational activities of excavation;
- Visual intrusion caused by the excavation activities in the largely agricultural setting al beit temporary in nature;

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- Increase in traffic volumes in the vicinity of the site during hauling and transportation of Gravel material to laydown areas where road upgrades are to take place;
- Animal life will be affected in the immediate vicinity of the excavation activities. It is anticipated that the noise and general activity will keep the animal life away from the site while the borrow pit mining is ongoing;

## 23. PROPOSED IMPACT MANAGEMENT OBJECTIVES AND THE IMPACT MANAGEMENT OUTCOMES



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

The objectives of the EMPr will be to:

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

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

- Noise generation can be managed through consultation and restriction of operating hours and by maintaining equipment and applying noise abatement equipment if necessary;
- Visual intrusion can be managed through consultation with landowners/ stakeholders by informing landowners/ stakeholders of the temporary nature of the intrusion and the rehabilitation that will take place;
- Traffic is managed as far as possible and vehicle congested is prevented in and around the borrow pit mining site. This can be done by limiting haulage vehicles to transport Gravel material materials during off-peak hours to prevent further congestion;
- Dust fall can be managed by application of wet suppression on exposed surfaces and use of water during excavation and stockpiling;
- Soil disturbance and clearance of vegetation at the site will be limited to the absolute minimum required and disturbed areas will be re-vegetated with locally indigenous species as soon as possible;
- Animal life is protected and preserved at all times and the borrow pit mining activities has minimal disturbance to the surrounding habitat;
- Heritage and Cultural features which might be encountered during excavation should be reported to relevant authorities.

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- Employment is created during the mining - contributing to the local economic even if it is only on a temporary basis.



**24. ASPECTS FOR INCLUSION AS CONDITIONS OF AUTHORISATION** (Any aspects which must be made conditions of the Environmental Authorisation)

- Gate accessing the site should be closed and monitored at all time. Only authorised personnel should be given access to the site.
- All wastes generated must be disposed of at an appropriate registered landfill and disposal certificate be should be kept on site.
- Clearing of vegetation should be limited to the area being applied for only.
- Appointment of an Environmental Control Officer (ECO) to oversee compliance with the Environmental Management Programme (EMPr).
- ECO site audits to ensure compliance and to advise on any mitigation measures necessary to negate any environmental degradation.
- The ECO must compile monthly ECO Audit reports on the state of the environment and areas of compliance and non-compliance with the EMPr. These reports must be made available to the Department of Mineral Resources (DMR) and other authorities who undertake site inspections.
- The ECO needs to be consulted in the pre-construction phase to ensure that the site has been adequately fenced off.
- Before construction commences the contractors need to receive induction training in accordance with the approved EMPr.

**25. DESCRIPTION OF ANY ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE** (Which relate to the assessment and mitigation measures proposed)

The following assumptions and limitations are applicable to the studies undertaken within this Basic Assessment process:

- It is assumed that the description of the proposed project, provided by the applicant is sufficient for providing the authorities with the right information for understanding the proposed project.
- All information provided by the RAL and I&APs to the environmental team was correct and valid at the time it was provided.
- It is assumed that the borrow pit site identified by RAL represent technically suitable sites for the borrow pit mining activities.
- Conclusions of studies assume that any potential impacts on the environment associated with the proposed borrow pit mining activities will be avoided, mitigated, or offset.
- This report and its investigations are project-specific,

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## 26. REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED



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

It is the opinion of the EAP that the proposed borrow pit mining activities should be authorised.

- The environmental impacts associated with the borrow pit mining activities are minimal provided that the proposed mitigation and rehabilitation thereafter is implemented;
- With appropriate care and consideration the impacts resulting from borrow pit mining can be suitably avoided, minimised or mitigated;
- With implementing the appropriate rehabilitation activities, the impacts associated with the borrow pit mining activities can be managed;
- Without implementation of borrow pit mining activities the road construction could be delayed until such time another site is found and the procedure to obtain a mining permit is carried out.
- The proposed upgrade of the road will benefit the general society in that it will create much needed employment opportunities for the people of Ga-Masemola.
- The project will create temporary jobs from semi-skilled to skilled jobs that the local people will benefit from.
- The construction or upgrade of the road will improve traffic flow and the state of the road infrastructures in Makhuduthamaga Local Municipality.
- The upgrading and maintenance of roads is an important priority in order to improve the infrastructure network.

### ii. Conditions that must be included in the authorisation

- Gate accessing the site should be closed and monitored at all time. Only authorised personnel should be given access to the site.
- All wastes generated must be disposed of at an appropriate registered landfill and disposal certificate be should be kept on site.
- Clearing of vegetation should be limited to the area being applied for only.
- Appointment of an Environmental Control Officer (ECO) to oversee compliance with the Environmental Management Programme (EMPR).
- ECO site audits to ensure compliance and to advise on any mitigation measures necessary to negate any environmental degradation.
- The ECO must compile monthly ECO Audit reports on the state of the environment and areas of compliance and non-compliance with the EMP. These reports must be made available to the Department of Mineral Resources and other authorities who undertake site inspections.

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- The ECO needs to be consulted in the pre-construction phase to ensure that the site has been adequately fenced off.
- Before construction commences the contractors need to receive an induction training in accordance with the approved EMPR.

## 27. PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED



The Environmental Authorisation will be required for a period of two (2) years.

## 28. 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 provided at the end of the EMPr is applicable to both, this Basic Assessment Report and the EMPr in Part B, below.

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

A financial provision of approximately **R10 645** which includes rehabilitation activities. A breakdown of these costs is presented in the table below.

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CALCULATION OF THE QUANTUM							
Applicant: Evaluators:		Road Agency Limpopo		Ref No.:		Mar-20	
				Date:			
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 power lines)	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	0	35,03	1	1	0
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	205242,16	1	1	0
7	Sealing of shaft adits and inclines	m3	0	105,09	1	1	0
8 (A)	Rehabilitation of overburden and spoils	ha	0	136828,1	1	1	0
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	170416,93	1	1	0
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	494971,55	1	1	0
9	Rehabilitation of subsided areas	ha	0	114572,93	1	1	0
10	General surface rehabilitation	ha	0,07	108390,94	1	1	7587,3658
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							7587,3658
1	Preliminary and General		910,483896	weighting factor 2 1			910,483896
2	Contingencies			758,73658			758,73658
Subtotal 2							9256,59
VAT (15%)							1388,49
<b>Grand Total</b>							<b>R10 645</b>



Figure 14: Quantum Calculation

i. Explain how the aforesaid amount was derived.

The aforesaid amount was derived using the Department of Mineral Resources standard methods for the evaluation of the quantum of closure-related financial provision provided by a mine. The amount is anticipated to be an operating cost and will be provided for in the Financial and Technical Competence report.

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 Mining Work Programme as the case may be).

The amount that has been calculated will be added to the quantum calculation for the entire operation and will be provided for under the operating expenditure of the operation.

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### 30. 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:

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



Please refer to **Section 20** above. A full consultation process will be implemented during the environmental authorisation process. The purpose of the consultation is to provide affected persons the opportunity to raise any potential concerns. Concerns raised will be captured and addressed within the public participation section of this report.

- b) **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 2.19.2 and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12. herein.)

The Heritage impact study conducted on site indicated that there are no cultural or heritage feature were identified on site, furthermore the site has already been disturbed by agricultural and mining activities. However, it is recommended that in the event that any archaeological or heritage features of are unearthed, all construction within a radius of at least 10m of such indicator should cease and the area be demarcated by a danger tape.



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

This BAR and EMPr has been compiled in accordance with the NEMA (1998), EIA Regulations, 2014 (amended April 2017) and MPRDA (2002). The EAP managing the application confirms that this BAR and EMPr is being submitted for Environmental Authorisation in terms of the National Environmental Management Act, 1998 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). Should the DMR require any additional information, this will be provided upon request. No reasonable or feasible

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alternatives exist for this Mining Permit Application and as such, motivation for no alternatives has been provided in **Section 7, 8 and 9** above.



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## PART B

### ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

#### 1. DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME

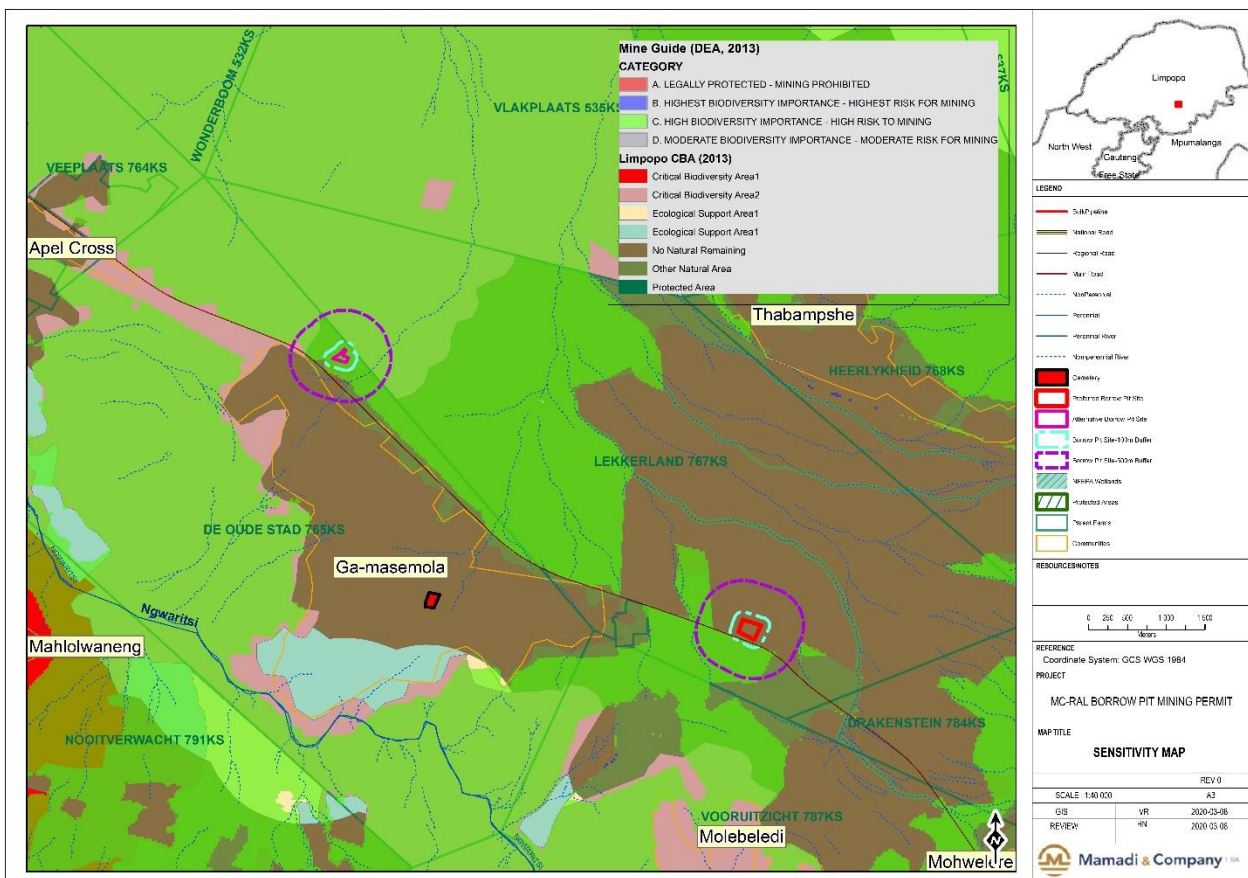
- a) **Details of the EAP** (Confirm that the requirement for the provision of the details and expertise of the EAP are already included in PART A, section 1(a) herein as required).

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

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

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

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



**Figure 15: Sensitivity Map**

#### 4. DESCRIPTION OF IMPACT MANAGEMENT OBJECTIVES INCLUDING MANAGEMENT STATEMENTS



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

The broad rehabilitation objectives include the following aspects:

- Restoration of previous land use capability
- No biodiversity loss

Objectives for the proposed project are as follows:

- Prevent soil, surface water and groundwater contamination;
- Comply with the relevant local and national regulatory requirements; and
- Maintain and monitor the rehabilitated areas.

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



The volumes and rates of water to be used are yet to be determined at this stage. However, the necessary authorisation will be acquired from the Department of Water and Sanitation.

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

No. The water use has not been applied for.



- iv) Impacts to be mitigated in their respective phases,** (Measures to rehabilitate the environment affected by the undertaking of any listed activity)
- v) Impact Management Outcomes, and** (A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph)
- vi) 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).

The majority of the impacts to the environment are expected to be localised and associated with the area of disturbance (i.e. footprint of the mining site). The environmental impacts associated with the mining activities have been assessed according to the assessment criteria given in Part 1, Section 14. The results of this assessment were included in Part 1, Section 20. The tables below provide site-specific mitigation/ management measures, and also identify the responsible party actions for activities, or processes that have sufficiently significant impacts to require mitigation.



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**Proposed mitigation measures for the Site Establishment Phase**



Issue/ Activity	Nature of Impact	Mitigation Measure & standards to be achieved (impact management outcome)	Time period for implementation	Responsible Person
Destruction / loss of indigenous natural vegetation due site preparation activities.	Natural plant communities are dynamic ecosystems that provide habitats that support all forms of life. Different types of plant communities (and habitats) exist in the study area, and these occur within and around the study area. The current condition of the vegetation communities of the study area can be described as transformed/ degraded due to agriculture and previous mining	<ul style="list-style-type: none"> <li>• Areas to be cleared must be clearly marked in the field to eliminate unnecessary clearing.</li> <li>• A field survey must be undertaken before mining commences at to confirm that no ecologically sensitive areas or conservation areas are present in sections to be cleared.</li> <li>• Limit unnecessary impacts on surrounding natural vegetation, e.g. driving around in the veld, use access roads only.</li> <li>• Avoid unnecessary impacts on natural vegetation, especially outside the development footprint.</li> <li>• Vegetation clearance should be contained, within the footprint of the mining area.</li> <li>• Ensure the project site is fenced off (e.g. using construction mesh) to prohibit activities outside of the area being applied for.</li> </ul>	During site preparation and operational phases	Site manager and ECO in consultation with relevant specialist
Fragmentation of vegetation	Fragmentation is one of the most important impacts on vegetation, especially when this creates breaks in previously continuous vegetation, causing a reduction in the gene pool and a decrease in species richness and diversity. This impact occurs when areas are cleared for developments or an area is invaded by alien invasive	<ul style="list-style-type: none"> <li>• Ecologist/ ECO with an Ecology background to undertake ecological walkthrough to identify all species of conservation concern prior to site establishment. A permit / permission to be obtained from the relevant local municipality for the relocation of SCC where applicable.</li> </ul>	During site preparation and operational phases	Site ECO

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Issue/ Activity	Nature of Impact	Mitigation Measure & standards to be achieved (impact management outcome)	Time period for implementation	Responsible Person
	plant species. Fragmentation results in the isolation of functional ecosystems, and results in reduced biodiversity and reduced movement due to the absence of ecological corridors.			
Establishment and spread of declared weeds and alien invader plants.	As with mining activities, the introduction of alien and invader plant species is inevitable; with disturbance comes the influx of aliens. The life of mine (i.e. all phases) could result in the area being invaded by alien invasive species. Alien invader species need to be consistently managed over the entire Life of Mine of the project.	<ul style="list-style-type: none"> <li>Keep disturbance of vegetation surrounding borrow-pit area to a minimum.</li> <li>Rehabilitate disturbed areas as quickly as possible following completion of mining activities in an area.</li> <li>Do not translocate soil stockpiles from areas with alien plants.</li> <li>Implement an Alien and Invasive Control Plan to avoid establishment of a soil seed banks that would take decades to remove.</li> <li>Establish an on-going monitoring programme to detect and quantify any aliens that may become established.</li> <li></li> </ul>	During site preparation and operation	Mining manager and ECO to monitor
Physical disturbance of soils during land clearing	Land clearing activities on site could lead to physical disturbance of the soils on site which has a potential of causing soil erosion and dust.	<ul style="list-style-type: none"> <li>Identify disturbance areas and restrict construction activity to these areas.</li> <li>Access roads to be carefully planned and constructed to minimise the impacted area and prevent unnecessary excavation, placement, and compaction of soil.</li> <li>Limit clearance to the footprint to the immediate development area.</li> <li>Rehabilitate disturbed areas as quickly as possible following completion of the mining phase activities in an area</li> </ul>	During construction	Mining manager and ECO to monitor

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Issue/ Activity	Nature of Impact	Mitigation Measure & standards to be achieved (impact management outcome)	Time period for implementation	Responsible Person
		•		
Dust emissions	Dust emissions within the site due to movement of vehicles and site clearing of vegetation during site preparation and operational phase. Exhaust emissions, noise and traffic are anticipated from haulage trucks and operation machinery to and from site, as well as on-site.	<ul style="list-style-type: none"> <li>• Adequate planning and scheduling of the construction activities to allow for disruptions caused by rain and wet conditions. The scheduling must make provision for environmental training/awareness raising for workers prior to the commencement of the construction phase (site establishment). Records of all training must be maintained</li> <li>• Adjacent land owners must be timeously informed that the construction phase will commence and must be kept informed of the progress throughout.</li> <li>• Implement a practical speed limit on site (e.g. 20km/hr).</li> <li>• Vehicles transporting equipment must ensure that they are maintained in good order. Vehicles which are emitting volumes of smoke should be taken for maintenance immediately.</li> <li>• All vehicles must be road-worthy and all drivers must have a valid license.</li> <li>• If abnormal loads will be transported to site the relevant permits or clearances must be in place.</li> <li>• Transporting of goods through the use of abnormal loads needs to take place during off-peak hours.</li> <li>• An appropriate dust suppressant must be applied on all exposed areas as required to minimise/control airborne dust.</li> </ul>	During site preparation and operational phases	Contractor and ECO

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Issue/ Activity	Nature of Impact	Mitigation Measure & standards to be achieved (impact management outcome)	Time period for implementation	Responsible Person
		<ul style="list-style-type: none"> <li>• Ensure that a complaints register is kept at the construction site from the first day of construction.</li> <li>• The construction activities should be kept to the mining footprint being applied for.</li> <li>• Particulate Matter (PM10) must closely be monitored and kept within the threshold.</li> <li>• Proper measures must be in place during the excavation of the borrow pit.</li> <li>• It is recommended that dust suppression be conducted at all times to reduce dust emissions.</li> <li>• No burning of waste or other materials is permitted on site.</li> <li>• Adherence to the National Environmental Management: Air Quality Act (Act No.39 of 2004) is expected at all times.</li> </ul>		
Waste Management	Soil contamination	<ul style="list-style-type: none"> <li>• Ensure that all waste including that generated by the clearing or cutting down of vegetation must be removed and disposed of safely at a registered landfill site.</li> </ul>	During site preparation	Contractor
Direct employment and skills development / transfer	The construction phase will create a limited number of employment opportunities. Skills development/ transfer will occur as employees will be trained in what Mining entails as well as environmental awareness training.	<ul style="list-style-type: none"> <li>• It is recommended that local employment policy is adopted to maximise the opportunities made available to the local labour force.</li> <li>• Where reasonable and practical the contractor should appoint local contractors and implement a (local first) policy especially for semi-skilled and low skilled job categories.</li> <li>• Training and skills development programmes should be initiated prior to the commencement of the operation phase.</li> </ul>	During site preparation and operation	Project Manager and Contractor



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Issue/ Activity	Nature of Impact	Mitigation Measure & standards to be achieved (impact management outcome)	Time period for implementation	Responsible Person
		<ul style="list-style-type: none"> <li>The allocation of employment opportunities should be undertaken on a fair basis.</li> </ul>		
Land degradation	The removal of topsoil and vegetation with heavy machines deprives the land its nutrients and render the land infertile for agricultural purpose.	<ul style="list-style-type: none"> <li>Avoid unnecessary impacts on natural vegetation, especially outside the development footprint.</li> <li>Excavations should be contained, within the footprint of the mining area.</li> <li>Ensure the project site is fenced off (e.g. using construction mesh) to prohibit activities outside of the area being applied for.</li> <li>Rehabilitate disturbed areas as quickly as possible following completion of the mining phase activities in an area</li> </ul>	During site preparation and operational phases	Contractor and ECO
Disturbance to animal life in the vicinity	The site establishment and operational phase activities are associated with an increase in noise levels, vehicular movements and dust levels. Noise pollution can depress local populations of sensitive faunal groups and increased dust levels can smother natural environments. Animals differ in the degree to which they tolerate such disturbance, and can be expected to have potentially negative and positive impacts on various faunal groups. Dust may be generated as a result of mining activities and, in particular, where there is exposed ground. Specific activities	<ul style="list-style-type: none"> <li>Local people should be informed of the project before commencement</li> <li>A speed limit of 20km/h should be maintained on site and outside the site</li> <li>Dust control measures must be implemented at all times</li> <li>Construction vehicles should be serviced on regular basis</li> <li>No heavy vehicles to be parked outside the designated construction area where it could obstruct motorists' views.</li> <li>Restrict the movement of heavy vehicles through residential areas.</li> <li>Dust impacts must be mitigated through the implementation of appropriate dust suppression, as required.</li> </ul>	During site preparation and operational phases	Contractor and ECO



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Issue/ Activity	Nature of Impact	Mitigation Measure & standards to be achieved (impact management outcome)	Time period for implementation	Responsible Person
	that may contribute to release of fugitive dust include offloading and stockpiling of materials such as sand, excavation, storage of excavated materials and movement of heavy vehicles. The generation of dust may be higher during windy, dry periods. The increase in dust levels may negatively impact the plants and animal species which utilise the area. An increase in vehicular traffic may also result in road fatalities of faunal species			
Noise generation	Excavation, and vehicles movement to and from the site hauling and transporting Gravel materials, and the voices of the excavation crew	<ul style="list-style-type: none"> <li>Local people should be informed of the project before commencement</li> <li>A speed limit of 20km/h should be maintained on site and outside the site</li> <li>Construction vehicles should be serviced on regular basis</li> <li>Restrict the movement of heavy vehicles through residential areas.</li> </ul>	During site preparation and operational phases	Contractor and ECO
Cultural-historical resources	Potential impact on heritage resources	<ul style="list-style-type: none"> <li>Despite that no archaeological objects were observed during the survey of the proposed site and that the area is disturbed, the client is reminded that unavailability of archaeological material does not mean absentee, archaeological material might be hidden underground. It is thus the responsibility of the developer to notify contractors and workers about</li> </ul>		





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Issue/ Activity	Nature of Impact	Mitigation Measure & standards to be achieved (impact management outcome)	Time period for implementation	Responsible Person
		<p>archaeological material (e.g., pottery, stone tools, remnants of stone-walling, graves, etc) and fossils that may be located underground.</p> <ul style="list-style-type: none"> <li>• In the event that any of the above are unearthed, all construction within a radius of at least 10m of such indicator should cease and the area be demarcated by a danger tape. Accordingly, a professional archaeologist or Limpopo Heritage Resources Authority (LIHRA) officer should be contacted immediately.</li> <li>• Noteworthy that any measures to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law.</li> <li>• No person may exhume or collect such remains, whether of recent origin or not, without the endorsement by LIHRA.</li> </ul>		



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### Proposed mitigation measures for the Operational Phase



Issue/ Activity	Nature of Impact	Mitigation Measure & standards to be achieved (impact management outcome)	Timeframe for implementation	Responsible Person
Physical disturbance of soils during mining	Mining activities on site could lead to physical disturbance of the soils on site which has a potential of causing soil erosion.	<ul style="list-style-type: none"> <li>Limit clearance to the footprint to the immediate development area.</li> <li>Rehabilitate disturbed areas as quickly as possible following completion of the mining phase activities in an area</li> </ul>	During operation	Mining manager and ECO to monitor
Establishment and spread of declared weeds and alien invader plants	As with mining activities, the introduction of alien and invader plant species is inevitable; with disturbance comes the influx of aliens. The life of mine (i.e. all phases) could result in the area being invaded by alien invasive species. Alien invader species need to be consistently managed over the entire Life of Mine of the project.	<ul style="list-style-type: none"> <li>Keep disturbance of vegetation surrounding borrow-pit area to a minimum.</li> <li>Rehabilitate disturbed areas as quickly as possible following completion of mining activities in an area.</li> <li>Do not translocate soil stockpiles from areas with alien plants.</li> <li>Implement an Alien and Invasive Control Plan to avoid establishment of a soil seed banks that would take decades to remove.</li> <li>Establish an on-going monitoring programme to detect and quantify any aliens that may become established.</li> </ul>	During Operation	ECO to monitor
Dust emissions	Dust emissions within the site due to movement of vehicles and clearing of vegetation during site preparation and operational phase. Exhaust emissions, noise and traffic are	<ul style="list-style-type: none"> <li>Adequate planning and scheduling of the construction activities to allow for disruptions caused by rain and wet conditions. The scheduling must make provision for environmental training/awareness raising for workers prior to the</li> </ul>	During Operation	ECO and Contractor to monitor

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	<p>anticipated from haulage trucks and operation machinery to and from site, as well as on-site.</p>	<p>commencement of the construction phase (site establishment). Records of all training must be maintained</p> <ul style="list-style-type: none"> <li>• Adjacent land owners must be timeously informed that the construction phase will commence and must be kept informed of the progress throughout.</li> <li>• Implement a practical speed limit on site (e.g. 20km/hr).</li> <li>• Vehicles transporting equipment must ensure that they are maintained in good order. Vehicles which are emitting volumes of smoke should be taken for maintenance immediately.</li> <li>• All vehicles must be road-worthy and all drivers must have a valid license.</li> <li>• If abnormal loads will be transported to site the relevant permits or clearances must be in place.</li> <li>• Transporting of goods through the use of abnormal loads needs to take place during off-peak hours.</li> <li>• An appropriate dust suppressant must be applied on all exposed areas as required to minimise/control airborne dust.</li> <li>• Ensure that a complaints register is kept at the construction site from the first day of construction.</li> <li>• The construction activities should be kept to the mining footprint being applied for.</li> </ul>		
Disturbance of surrounding residents	Temporary disruptions in the daily living and movement patterns of neighbouring residents could be	<ul style="list-style-type: none"> <li>• Vehicle movement to and from the site should be minimised as far as possible.</li> </ul>	During operation	Site manager and ECO to monitor

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	<p>foreseen, although it is anticipated that the negative impacts associated with this aspect would be minimal and could be successfully mitigated. Nuisances arising from mining activities (such as dust / construction noise) could occur, which would require avoidance / mitigation.</p>	<ul style="list-style-type: none"> <li>• Roads must be maintained to a manner that will ensure that nuisance to the community from dust is not visibly excessive</li> <li>• Appropriate dust suppressant must be applied to the roads as required to minimise/control airborne dust.</li> <li>• Restrict the movement of heavy vehicles through residential areas.</li> </ul>		
Disturbance to animal life in the vicinity	<p>The site establishment and operational phase activities are associated with an increase in noise levels, vehicular movements and dust levels. Noise pollution can depress local populations of sensitive faunal groups and increased dust levels can smother natural environments. Animals differ in the degree to which they tolerate such disturbance, and can be expected to have potentially negative and positive impacts on various faunal groups. Dust may be generated as a result of mining activities and, in particular, where there is exposed ground. Specific activities that may contribute to release of fugitive dust include</p>	<ul style="list-style-type: none"> <li>• A speed limit of 20km/h should be maintained on site and outside the site</li> <li>• Dust control measures must be implemented at all times</li> <li>• Construction vehicles should be serviced on regular basis</li> <li>• No heavy vehicles to be parked outside the designated construction area where it could obstruct motorists' views.</li> <li>• Restrict the movement of heavy vehicles through residential areas.</li> <li>• Dust impacts must be mitigated through the implementation of appropriate dust suppression, as required.</li> </ul>	During site preparation and operational phases	Contractor and ECO

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	offloading and stockpiling of materials such as sand, excavation, storage of excavated materials and movement of heavy vehicles. The generation of dust may be higher during windy, dry periods. The increase in dust levels may negatively impact the plants and animal species which utilise the area. An increase in vehicular traffic may also result in road fatalities of faunal species			
Noise generation	Excavation, and vehicles movement to and from the site hauling and transporting Gravel materials, and the voices of the excavation crew	<ul style="list-style-type: none"> <li>• A speed limit of 20km/h should be maintained on site and outside the site</li> <li>• Construction vehicles should be serviced on regular basis</li> <li>• Restrict the movement of heavy vehicles through residential areas.</li> </ul>	During site preparation and operational phases	Contractor and ECO
Waste Management	Soil contamination	<ul style="list-style-type: none"> <li>• Adequate waste skips to be provided around the construction camp and site.</li> <li>• Waste is to be removed regularly and disposed of at a licensed municipal landfill site.</li> <li>• Builders' rubble must be disposed of at a licensed municipal landfill site.</li> <li>• No illegal burning of waste or other materials should take place on site.</li> <li>• Hazardous waste and waste contaminated with oil and other hazardous chemicals must be separated</li> </ul>	During site operation	Contractor and ECO

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		<p>from general waste and disposed of at a designated hazardous landfill site.</p> <ul style="list-style-type: none"> <li>Waste must be handled in the correct manner following the principles enshrined within the 'Cradle to Grave' concept.</li> </ul>		
Direct employment and skills development / transfer	The construction phase will create a limited number of employment opportunities. Skills development/ transfer will occur as employees will be trained in what Mining entails as well as environmental awareness training.	<ul style="list-style-type: none"> <li>It is recommended that local employment policy is adopted to maximise the opportunities made available to the local labour force.</li> <li>Training and skills development programmes should be initiated prior to the commencement of the operation phase.</li> <li>The allocation of employment opportunities should be undertaken on a fair basis.</li> </ul>	During Operation	Site Manager and Contractor
Cultural-historical resources	Potential impact on heritage resources	<ul style="list-style-type: none"> <li>Despite that no archaeological objects were observed during the survey of the proposed site and that the area is disturbed, the client is reminded that unavailability of archaeological material does not mean absence, archaeological material might be hidden underground. It is thus the responsibility of the developer to notify contractors and workers about archaeological material (e.g., pottery, stone tools, remnants of stone-walling, graves, etc) and fossils that may be located underground.</li> <li>In the event that any of the above are unearthed, all construction within a radius of at least 10m of such indicator should cease and the area be demarcated</li> </ul>	During Operation	ECO and Contractor to monitor

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		<p>by a danger tape. Accordingly, a professional archaeologist or Limpopo Heritage Resources Authority (LIHRA) officer should be contacted immediately.</p> <ul style="list-style-type: none"> <li>• Noteworthy that any measures to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law.</li> <li>• No person may exhume or collect such remains, whether of recent origin or not, without the endorsement by LIHRA .</li> </ul>		
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**Proposed mitigation measures for Rehabilitation, Decommissioning and Closure Phase**

Issue/ Activity	Nature of Impact	Mitigation Measure & standards to be achieved (impact management outcome)	Timeframe for implementation	Responsible Person
Disruption of sensitive ecological ecosystems (limited to the mining footprint).	The area will be bare excavated ground after mining activities. Without vegetation cover, these areas are sensitive to erosion and invasion by alien plant species	<ul style="list-style-type: none"> <li>Avoid unnecessary impacts on natural vegetation. Impacts should be contained, as much as possible, within the footprint of the mining area.</li> </ul>	During decommissioning and for the timeframe stipulated by the DMR to monitor the progress of site rehabilitation.	Site manager
Disturbance to faunal species in the surrounding area	Activities associated with the decommissioning phase are similar to those associated with the site establishment and operation. Increased vehicular movement, increased noise levels and increased dust may result in the disturbance of sensitive faunal populations but this will be a short-term impact.	<ul style="list-style-type: none"> <li>Avoid unnecessary movement of vehicles and noise pollution</li> </ul>	During Rehabilitation	ECO to monitor



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## 5. FINANCIAL PROVISION - DETERMINATION OF THE AMOUNT OF FINANCIAL PROVISION

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

The closure objectives are to record and communicate the results of the monitoring programme during decommissioning to the participating stakeholders, and to receive an effective closure certificate.



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

The BAR and EMP has been subjected to the legislated 30-day public review period, from 09 March- 09 April 2020. The public review period afforded landowners and I&APs an opportunity to confirm the environmental objectives or add/ raise concerns to them.

- iii) 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 mining has been completed, the team will ensure the site is reverted back to its original state by implementing the measures listed in the table below.



Aspect/ Impact	Rehabilitation Measure	Monitoring Frequency & Responsibility
Removal of construction structures	<ul style="list-style-type: none"> <li>Clear and completely remove from site all construction plant equipment, storage containers, signage, temporary fencing, temporary services, fixtures and any other temporary works; and</li> <li>Ensure that all access roads utilised during mining (which are not earmarked for closure and rehabilitation) are returned (as far as possible) to their state prior to construction.</li> </ul>	Once-off; Contractor
Vegetation clearing/Replanting	<ul style="list-style-type: none"> <li>Remove any emerging alien and invasive vegetation to prevent further establishment;</li> <li>All planting work is to be undertaken by suitably qualified personnel making use of the appropriate equipment;</li> <li>Transplant during the winter (between April and September); and</li> <li>Plant indigenous plants to minimise the spread of alien and invasive vegetation.</li> </ul>	When revegetation is done and in blooming season; RAL or contractor appointed
Topsoil replacement	<ul style="list-style-type: none"> <li>Replace and redistribute stockpiled topsoil together with herbaceous vegetation, overlying grass and other fine organic matter in all disturbed areas of the mining site, including temporary access routes and roads. Replace topsoil to the original depth (i.e. as much as was removed prior to construction).</li> </ul>	Once-off; contractor

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Aspect/ Impact	Rehabilitation Measure	Monitoring Frequency & Responsibility
	<ul style="list-style-type: none"> <li>Prohibiting the use of topsoil suspected to be contaminated with the seed of alien vegetation. Alternatively, the soil is to be sprayed with specified herbicides.</li> <li>Backfill planting holes with excavated material / approved topsoil, thoroughly mixed with weed free manure or compost (per volume about one quarter of the plant hole), one cup of 2:3:2 fertiliser and an approved ant and termite poison.</li> <li>Where local soil has poor drainage, broken rock (Approx. 75 mm in diameter) must be placed to a depth of 150mm at the bottom of the planting hole prior to planting and backfilling with approved plant medium mixture.</li> </ul>	
Waste and Rubble Removal	<ul style="list-style-type: none"> <li>Clear the site of all inert waste and rubble, including surplus rock, foundations and batching plant aggregates.</li> <li>Remove from site all domestic waste and dispose of in the approved manner at a registered waste disposal site.</li> </ul>	Once-off; Contractor
Solid and Hazardous Waste	<ul style="list-style-type: none"> <li>Dispose of all hazardous waste not earmarked for reuse, recycling or resale at a registered hazardous waste disposal site.</li> <li>Remove from site all temporary fuel stores, hazardous substance stores, hazardous waste stores and pollution control sumps. Dispose of hazardous waste in the approved manner.</li> <li>Do not hose oil or fuel spills into a storm water drain or sewer, or into the surrounding natural environment.</li> <li>Dispose of all visible remains of excess cement and concrete after the completion of tasks. Dispose of in the approved manner (solid waste concrete may be treated as inert construction rubble, but wet cement and liquid slurry, as well as cement powder must be treated as hazardous waste).</li> </ul>	Once-off; Contractor
Erosion protection	<ul style="list-style-type: none"> <li>Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resultant from activities within and adjacent to the construction site.</li> <li>Retain shrubbery and grass species wherever possible.</li> <li>Perform regular monitoring and maintenance of erosion control measures.</li> </ul>	After rainfall events; RAL or contractor appointed

**iv) Explain why it can be confirmed that the rehabilitation plan is compatible with the closure objectives**

RAL will set aside the prescribed financial provision for use during the rehabilitation phase. RAL will specify that the contractor is required to comply with all the environmental measures specified in the EMPr. This will include avoiding unnecessary disturbance of natural vegetation and the rehabilitation of the site, immediately after mining has been completed.

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

The financial provision was calculated by means of the DMR’s standard methods. The closure liability will focus on the proposed Mining activities and the cost for rehabilitation and closure of the proposed site according to the DMR Guideline format.



**vi) Confirm that the financial provision will be provided as determined.**

The total amount will be paid into the DMR’s Rehabilitation fund or through a Bank Guarantee by the applicant.

**6. MECHANISMS FOR MONITORING COMPLIANCE WITH AND PERFORMANCE ASSESSMENT AGAINST THE EMPR AND REPORTING THEREON, INCLUDING**

- i) Monitoring of Impact Management Actions**
- ii) Monitoring and reporting frequency**
- iii) Responsible persons**
- iv) Time period for implementing impact management action**
- v) Mechanism for monitoring compliance**

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
All mining Activities	All commitments contained in the BAR and EMPr	Ensure commitments made within the approved BAR and EMPr are being adhered to.	Internal ECO and independent EAP	Undertake and submit an environmental performance audit every month to DMR

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SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Mining Activities	Noise, Dust, Visual, Soil & vegetation, Social, Housekeeping & maintenance, Waste Management, Rehabilitation	Weekly inspections will cover the following: <ul style="list-style-type: none"> <li>• Implementation of effective waste management</li> <li>• Establish and implement a stakeholder complaints register on site and ensure that all complaints are responded to promptly.</li> <li>• Ensure that an oil spill kit is readily available.</li> <li>• Ensure that the fire break is maintained.</li> <li>• Control and minimise the development of new access tracks.</li> <li>• Appropriate storage and handling of topsoil.</li> </ul>	Appointed contractor	Weekly inspection and reporting
Post Mining	Groundwater Revegetation Stability Soil erosion Alien invasive species	The mining site shall be monitored for six months until closure certificate is obtained.	Internal ECO and independent EAP	Monitoring Report



## 7. INDICATE THE FREQUENCY OF THE SUBMISSION OF THE PERFORMANCE ASSESSMENT/ENVIRONMENTAL AUDIT REPORT

Regular monitoring of all the environmental management procedures and mitigation measures shall be carried out by RAL in order to ensure that the provisions of this EMP are adhered to. Formal monitoring and performance assessment of the EMP will be undertaken monthly. Site photographs taken before mining commences and after site has been rehabilitated must be included in the performance assessment reports.

## 8. ENVIRONMENTAL AWARENESS PLAN

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

Environmental awareness training will be provided to all personnel on site. The environmental training will include, amongst others, aspects such as:

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- Awareness training for contractors and employees
- Job specific training – training for personnel performing tasks which could cause potentially significant environmental impacts;
- Comprehensive training – on emergency response, spill management, etc;
- Specialised skills;
- Training verification and record keeping;
- Environmental issues on site;
- Roles and responsibilities;
- The construction environmental management measures;
- Cultural awareness; and
- Heritage discovery procedures

All attendees shall remain for the duration of the training and, on completion, sign an attendance register that clearly indicates participants' names. A copy of the register shall be kept on record by the ECO.

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

All employees must be provided with environmental awareness training to inform them of any environmental risks which may result from their work and the manner in which the risks must be dealt with in order to avoid pollution or the degradation of the environment. This should be in conjunction with the implementation of the EMP.

**iii) Environmental Awareness Training Content – Induction Training**

Please refer to Section 8 (i) above for the general aspects to be included in training.



**9. SPECIFIC INFORMATION REQUIRED BY THE COMPETENT AUTHORITY** (Among others, confirm that the financial provision will be reviewed annually).

The project is planned to complete within 12 months.

**10. UNDERTAKING**

The EAP herewith confirms:

- a) the correctness of the information provided in the reports
- b) the inclusion of comments and inputs from stakeholders and I&APs

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- c) the inclusion of inputs and recommendations from the specialist reports where relevant
- 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

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Signature of the Environmental Assessment Practitioner

Mamadi and Company SA (Pty) Ltd



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Name of the company

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Date

**-END-**

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## List of Appendices

**Appendix 1:** CV of Environmental Assessment Practitioner (EAP)

**Appendix 2:** Maps

**Appendix 3:** Consultation Report and accompanying Annexures

**Appendix 4:** Specialist Studies