THE PROPOSED MINING PERMIT REMAINING EXTENT OF PORTION 13, WOLVE KOP FARM 12, MIDDELBURG RD EASTERN CAPE PROVINCE.

Draft Basic Assessment Report and Environmental Management Programme

DMR Reference Number: (EC) 30/5/1/3/2/2/1(0645) MP

September 2021

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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: Afrimat Contracting International (Pty) Ltd
TEL NO: 021 917 8860

FAX NO: 086 617 7910

POSTAL ADDRESS: PO Box 768, Bellville, Western Cape, 7535

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FILE REFERENCE NUMBER SAMRAD: (EC) 30/5/1/3/2/2/1(0675) MP

FILE REFERENCE NUMBER SAMRAD:

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1. IMPORTANT NOTICE

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

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

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

It is therefore an instruction that the prescribed reports required in respect of applications for an environmental authorisation for listed activities triggered by an application for a right or a permit are

submitted in the exact format of, and provide all the information required in terms of, this template. Furthermore, please be advised that failure to submit the information required in the format provided in this template will be regarded as a failure to meet the requirements of the Regulation and will lead to the Environmental Authorisation being refused.

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

2. Objective of the basic assessment process

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

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

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

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

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

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

(ii) the degree to which these impacts—

(aa) can be reversed;

(bb) may cause irreplaceable loss of resources; and

(cc) can be managed, avoided or mitigated;

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

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

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

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

PART A

SCOPE OF ASSESSMENT AND BASIC ASSESSMENT REPORT

1. PROJECT BACKGROUND

Afrimat Contracting International (Pty) Ltd, a subsidiary of Afrimat Limited, is applying for a mining permit to mine 5 ha of stone aggregate on the Remaining Extent of Portion 13 of the farm Wolve Kop 12 situated in Middelburg RD Magisterial District, Eastern Cape Province. The site is located within the Inxuba Yethemba Local Municipality under the jurisdiction of the Chris Hani District Municipality, district of the Eastern Cape province of South Africa..

An open cast operation is proposed where quarrying will take place from the existing quarry located on the site by means of utilising a bench cut method. The material which will be mined is Dolerite, which is best suited for the lower aggregates such as sand, sub-base and base gravel road wearing roads.

Mining/Excavation

The site was previously quarried and abandoned by a third party and Afrimat wishes to recommence with the mining activities on the site, which is situated in the Middelburg district in the Eastern Cape, close to the boundary of the Northern Cape. Stone aggregate (from dolerite) will be mined, which is used in the building/construction industry.

Figure 1: Photo showing View of quarry. Insert: dolerite rubble near entrance

The area indicated for mining is 4.8 ha, located within a fenced off area on a sheep farm. Afrimat is proposing to re-establish the old quarry. The quarrying will entail the expansion of the existing quarry through open cast mining methods. The applicant will:

- drill and blast the hard rock after the topsoil (where available) of the area has been stripped and stockpiled,
- load and haul the material out of the excavation to the crushing and screening plants,
- crush and screen the recovered material at the crusher plant in order to reduce the material to various size aggregate,
- stockpile the aggregate at a stockpile area until it is collected by clients.

The mining process will entail the removal of overburden to expose the underlying dolerite. It is understood that overburden thickness may vary on the different sections of the pit earmarked for extension. This allows strip mining to be undertaken by means of drilling and blasting ±30m wide and 50m long strips on the shallow end of the deposit (see schematic diagrams of open pit mining process below (figure 2 and 3).

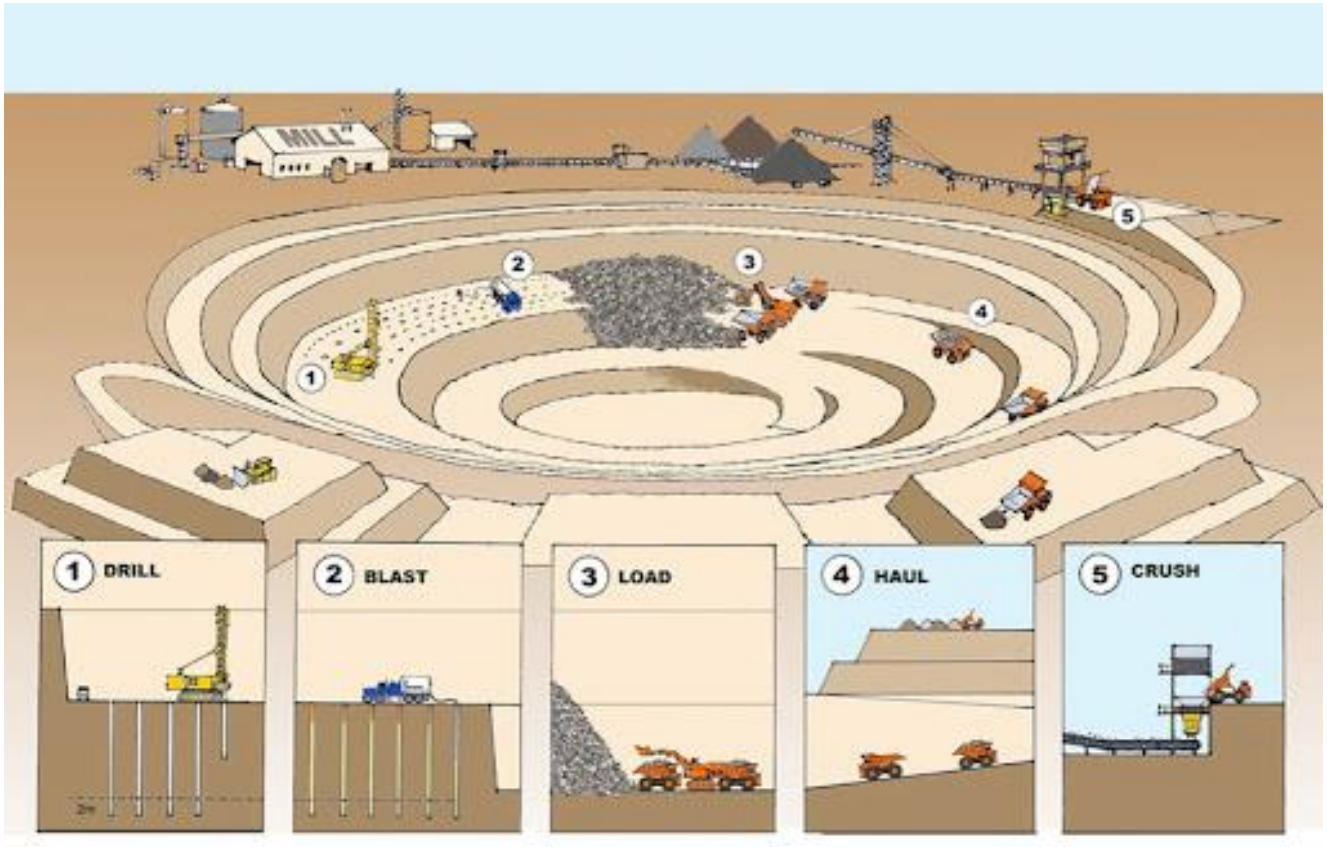


Figure 2: Open Pit mine system overview

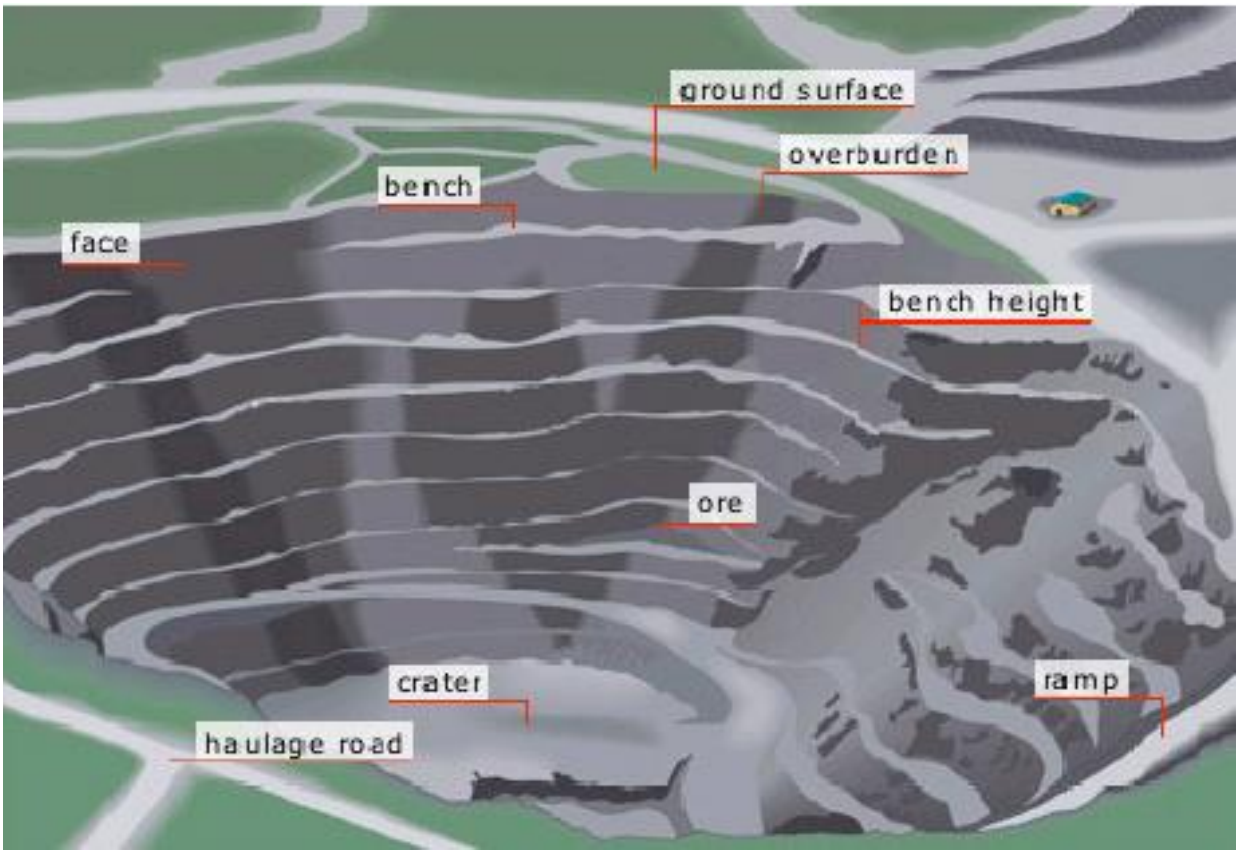


Figure 3: Schematic illustration of an open pit mine

Water trucks will be used to suppress dust generated during the quarrying process. Water shall be abstracted from the borehole for the safe mining of the mineral and this activity shall require a water use license application. This underground water will mainly be used for dust suppression purposes on the crusher plant, roads and mining area. Potable water will be purchased for use on the site.

The proposed activity will not require any beneficiation or processing of the dolorite prior to it being sold. A mobile site office, weigh bridge, ablution facilities, parking area for visitors and site vehicles, and bunded diesel and oil storage facilities will be established at the site. A generator will be used to power the infrastructure on site until an Eskom connection can be secured. Approximately fifteen workers will be employed at the site and it must be noted that this number can increase or decrease based on the demand of the material in the area.

Excavation of blasted limestone will be done by an excavator and trucks will haul the dolerite to the crushing plant less than 500m from the excavation. The mining and crushing plant will operate on a single day shift basis.

Proposed Infrastructure

The following infrastructure is envisaged on site:

- Drilling Equipment (but not permanently required)
- Haul road
- Excavating Equipment
- Earth Moving Equipment
- Mobile crushers and mobile screens
- Parking area for visitors and site vehicles
- Vehicle service area with wash bay
- Bunded diesel tank
- Oil storage facilities
- Ablution Facilities
- Weigh Bridge

Some infrastructure may be added during the life of the mine, such as a water storage tanks that will store underground water abstracted from the planned borehole, wash bays, and a stormwater management system.

Access and haul roads

The existing haul roads within the open pit area and the existing office area will be used and will thus limit the impact of creating new roads, thereby reducing environmental impacts. The quarry has an existing private haul road for transporting material to the access road on the N10. These

roads are maintained when required. Alternative routes could not be considered as the road provide easy access and pose low traffic impact to the public.

Water supply

Potable water will be brought to site daily. Dust suppression will be conducted through use of a borehole which will be drilled and relevant authorisation will be obtained from department of water affairs.

Sanitation

A chemical toilet will be used for this project and will be maintained by a contractor.

Waste Management

Domestic Waste

Waste will be stored in designated waste bins on site that will be located strategically around the site (i.e. the office and store container). Waste handling will be generally handled as general and waste oil storage area (see example on **Figure 4 below**). Domestic waste will be disposed off at Noupoort landfill site. No hazardous waste will be generated as a result of the operation. Scrap metal will be handled by any of the scrap dealers located in Noupoort and Middelburg.

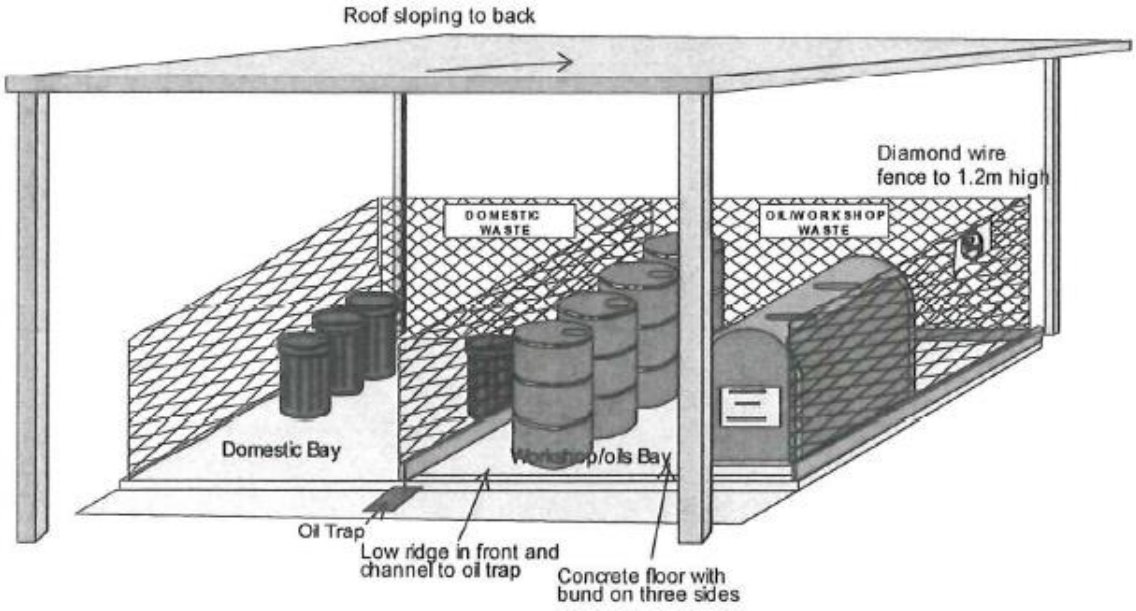


Figure 4: Example of temporary waste storage to be constructed on site

Industrial Waste

The proposed temporary waste storage facility as shown above includes a facility for the handling of used oil and fuel. This facility must have a concrete floor and be constructed with a low ridge at the leading edge, guiding run-off water into an oil trap. All used oil, leaked oil/fuel saturate soil, oil contaminated spares, oily rags etc must be placed in facilities as provided and marked. From there the oil/waste will either be:

- Collected by oil recycling company (such as Oilkol) or,
- Transported by the applicant to a suitable regional licensed hazardous waste handling facility, dependent on the nature of the material

1.1 Location of the overall Activity.

Farm Name:	Remaining Extent of Portion 13, Wolve Kop Farm 12
Application area (Ha)	4.8 ha
Magisterial district:	Middelburg RD
Distance and direction from nearest town	The site is located about 12 km North of Middelburg with access coming from the N10
21 digit Surveyor General Code for each farm portion	C04800000000001200013

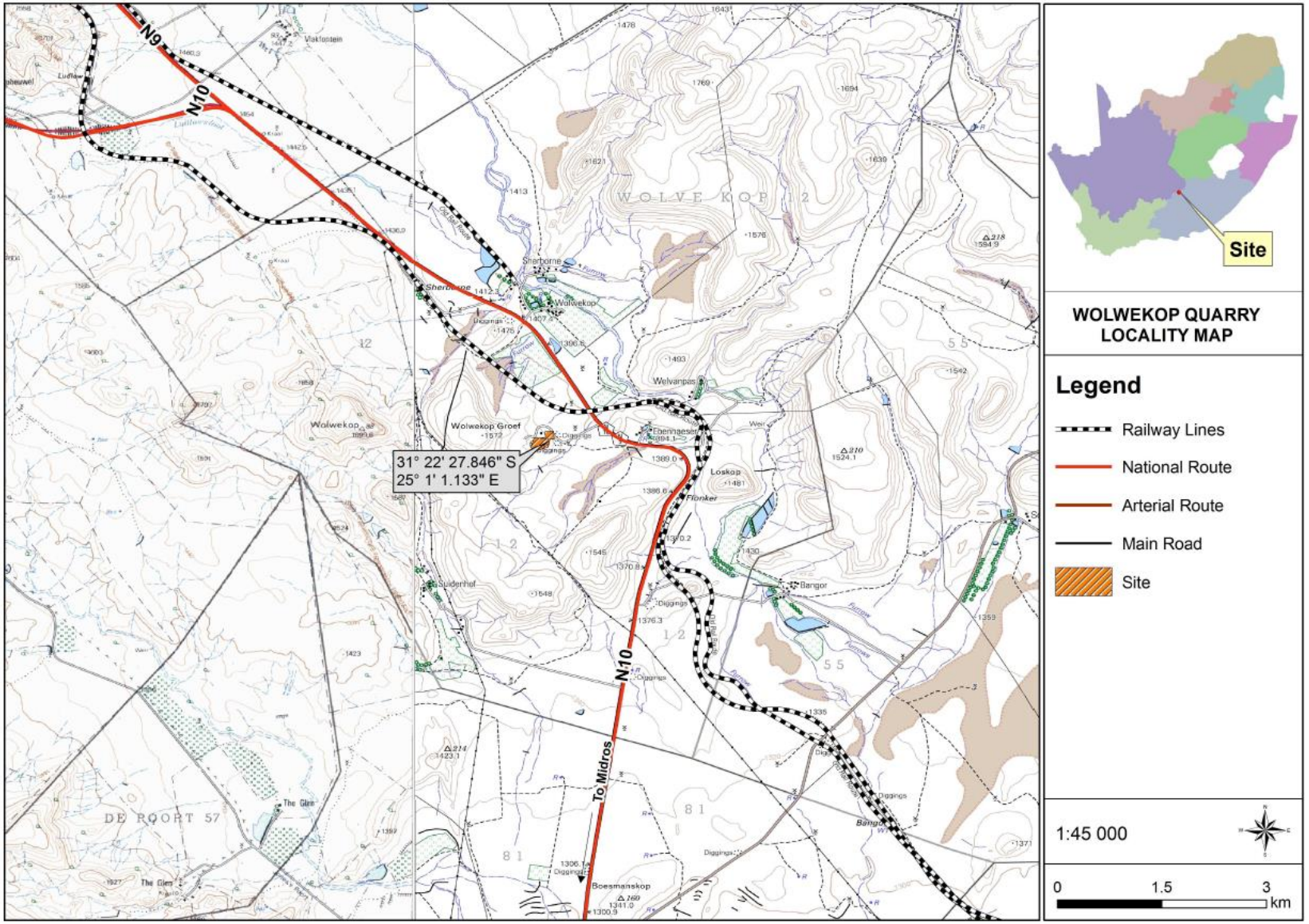
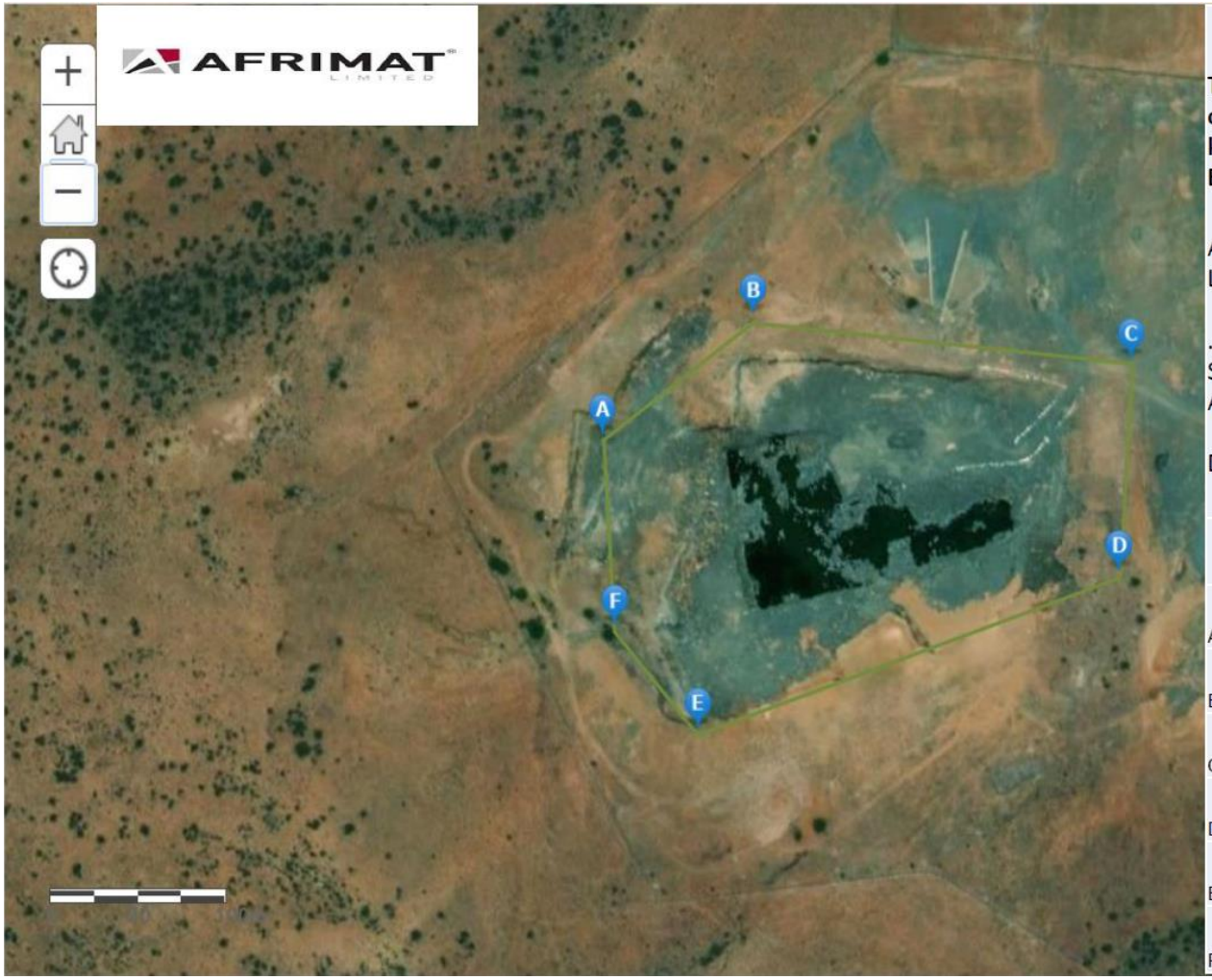


Figure 5: Locality map of the proposed Wolve Kop Mining permit



The Figure A-F represents a Mining Permit area comprise of Portion 00013 of the Farm 12 Wolwe kop in in the Magisterial District of Middelburg, Eastern Cape Province. Measuring 4.8 Ha

Applicant: Afrimat Contracting International (PTY) LTD(10645 MP)

....

Signature of Applicant Signature of Regional Manager

Date..... Date.....

	Y	X
A	31°22'26.98" S	25°00'52.56" E
B	31°22'24.94" S	25°00'55.81" E
C	31°22'25.70" S	25°01'04.07" E
D	31°22'29.29" S	25°01'03.80" E
E	31°22'31.96" S	25°00'54.62" E
F	31°22'30.21" S	25°00'52.82" E

Figure 6: Aerial view of the proposed mining permit - MPRDA Regulation 2(2) map

1.2 Contact Person and correspondence address

a) Details of

i) Details of the EAP

Name of The Practitioner: Ntsanko Ndlovu

Tel No.: 012 664 5654

Fax No. : 086 607 1354

e-mail address: ntsanko.ndlovu@afrimat.co.za

ii) Expertise of the EAP.

(1) **The qualifications of the EAP**
(with evidence).

Ms Ntsanko Ndlovu has been assigned as the lead Environmental Practitioner to undertake the necessary environmental authorisation process and she is currently employed by Afrimat Limited. Ntsanko is a certified Environmental Assessment Practitioner (EAPASA – 2019/1335 and Pri.Sci.Nat (127870) holds a Masters degree in Environmental Management from North-West University with over 11 years of professional experience as an environmentalist. Ntsanko is currently Senior Environmental Specialist based at Afrimat. She has a wealth of experience in managing Environmental Impact Assessments (EIAs) with the required Public Participation Process (PPP), carrying out environmental audits and conducting environmental awareness, which she gained through the years.

This report and the associated PPP and specialist studies have been reviewed by MPG Environmental Consultants. MPG Environmental Consultancy (Pty) Ltd was appointed by Afrimat to be the independent Environmental Consultant to review the work that will be conducted by Afrimat's EAP prior to the commencement of the public participation in accordance with Regulation 13 (2) of the NEMA EIA Regulations 2014 as amended.

Ms. White's consulting experience includes basic environmental impact assessments (BAs), environmental impact assessments (EIAs), environmental compliance, public participation processes (PPPs), environmental management plans (EMPs), water licensing and authorisations and waste license applications for various projects, ranging from abattoirs and township establishments to power station developments.

Anne-Mari completed her Bachelor of Science in Environmental Management at the University of South Africa (UNISA) in 2007. In addition, she has done short courses in soil classifications and wetland delineations at Terrasoil; geographic information systems (GIS) at the University of KwaZulu-Natal (UKZN) and EIAs at the North-West University (NWU) in South Africa. She is also registered as a natural scientist with the South African Council for Scientific Natural Professionals (SACNASP).

Anne-Mari is also registered with the Environmental Assessment Practitioners Association of South Africa (EAPASA) and is a member of the International Association for Impact Assessments (IAIA).

EAP's qualifications are attached as Appendix A1 of this report.

2. 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

(i) Listed and specified activities

NAME OF ACTIVITY **(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.)	**Aerial extent of the Activity** **Ha or m²**	**LISTED ACTIVITY** **Mark with an X where applicable or affected.**	**APPLICABLE LISTING NOTICE (*GNR 544, GNR 545 or GNR 546)***
Demarcate site with visible coloured steel or wooden stakes to mark out the boundaries of the mine	5ha	N/A	Not listed
Placement of ablution facility within the boundaries of the site	5m^2	N/A	Not listed
Strip and stockpile topsoil		X	**GNR 983, Listing Notice 1 Activity No. 27:** The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for- i. the undertaking of a linear activity; or Maintenance purposes undertaken in accordance with a maintenance management plan.
• Excavate and load dolerite to be sold • Transport sand from mining area to clients	6m x 80m strips at a time up to 4.8ha	X	**GNR 983, Listing Notice 1 Activity No. 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 associated infrastructure, structures and earthworks directly related to the extraction of a mineral resource, including activities for which an

			exemption has been issued in terms of section 106 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).
• Final rehabilitation of entire major area	6m x 80m strips at a time up to 4.8ha	X	**GNR 983, Listing Notice 1 Activity No. 22**: The decommissioning of any activity requiring - ii. a closure certificate in terms of section 43 of the Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002);

3. Policy and Legislative Context

This section of the EIA Report discusses applicable legal provisions and the legal context for the Environmental Impact Assessment process. It provides a review of relevant legislation, regulations, policies and guidelines, which are applicable to (or have implications for) the proposed project. The contents of this report are based on a review of the information that was available at the time. The discussion in this chapter is by no means an exhaustive list of the legal obligations of the applicant in respect of environmental management for the Wolve kop dolerite mine permit project.

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT (a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process	**REFERENCE WHERE APPLIED**	**HOW DOES THIS DEVELOPMENT COMPLIY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.** (E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)
The Mineral and Petroleum Resources Development Act, No. 28 of 2002 (MPRDA)	Part A 3) d) Description of the scope of the proposed overall activity.	A mining permit application has been applied for to DMRE: (EC) 30/5/1/3/2/2/1(0675) MP
National Environmental Management Act,1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 GNR 983 Listing Notice 1 Activity 21, 22 & 27	Part A 3) d) i) Listing and specified activities.	This Basic Assessment is being undertaken in terms of the National Environmental Management Act (No. 107 of 1998). This is in order to determine any possible impacts on the environment and to propose sufficient mitigation in order to not harm the environment. An application for environmental authorisation submitted to DMRE: (EC) 30/5/1/3/2/2/1(0675) MP
The National Heritage Resources Act, No. 25 of 1999 (NHRA)	Refer to Appendix D1 for specialist heritage studies.	A Heritage Impact Assessment study was conducted and there are no findings of cultural and heritage significance present on site.
The National Environmental Management: Biodiversity Act, No. 10 of 2004 (NEMBA)	Refer to appendix D2 for Botanical/ Ecological Impact Assessment study.	Refer Appendix D2

The National Environmental Management Air Quality Act, No. 39 of 2004 (NEMAQA)	Air quality management has been addressed in the EMPr (Part B of this document	Air quality management measures have been stipulated in the EMPr, to ensure that the Applicant complies with the legislative requirements,
Public Participation Guidelines in terms of NEMA Regulations	Section h) ii) Details of Public Participation followed (Part A of this document)	Public participation process will be conducted in accordance with the guidelines published in terms of the NEMA EIA Regulations 2014
The Mine Health and Safety Act, No. 29 of 1996 as amended and the Regulations thereto	The commitment to abide by the requirements of the Mine Health and Safety Act, No. 29 of 1996 have been included in the EMPr	The Applicant will ensure that operations on site are in line with the requirements of the Act and Regulations.
Land Use Planning Ordinance (Ordinance 15 of 1985)	Part A(iv)(1)(b) Description of the current land uses	The applicant will submit a land use application for Dolerite Mining at the Inxuba Yethemba Municipality

a. 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).

As south Africa and Eastern Cape Province are actively embracing the clean energy initiatives and projects, good quality construction aggregate is need for such projects. This site which has exposed good quality dolerite from previous mining by others, is a good site selection both in terms of quality and limit to environmental impact.

Therefore, in terms of need and Desirability, this site is a good choice to support clean energy at mining impact to the surrounding environment.

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

As this is an already mined site, it is the preferred site and will have minimal impact. Open cast mining with blasting and hauling and crushing will be conducted on site. No other technology is considered.

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

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

i. Details of the development footprint alternatives considered.

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

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

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

The study site, as well as the infrastructure that is required in order to support the Afrimat's aggregate operations is dictated by the locality of the aggregate reserve. The site has been previously mined by a third party and the applicant has assessed the occurrence of the ore body and is well aware of the sales environment and demand for the product in Noupoort and surrounding areas in the Eastern region.

(b) The type of activity to be undertaken;

No activity alternatives were considered as the purpose for the project is to mine aggregate on the Remaining Extent of Portion 13, Wolve Kop Farm 12 where the site had been abandoned by a third party who had previously mined the site. The mining operation will entail opening of the surface through an open cast operation where quarrying will take place utilising a bench cut mining method.

c) The design or layout of the activity;

The mining operation, that is crushing, will be done mostly with mobile crushers which will be working out of the blasted rock face and will move with the quarry as it develops.

A general layout has been developed paying special consideration to the current location of the existing infrastructure. The layout of the site was guided by the existing biophysical perspective of the site as well as the existing pit of which the applicant will continue to use should the mining permit be granted. The proposed infrastructure will not be placed on sensitive areas at all but areas that are already disturbed or less sensitive environments. Major sections of the proposed development do not lie on pristine ground, since the site was previously mined by a third party. No areas of high ecological significance were observed within the site. The proposed development is not considered fatally flawed, and the proposed mining activities would be acceptable.

d) The technology to be used in the activity;

No other technology alternatives were considered. The applicant will:

- remove clinker layer by layer, from the top of the dump by excavator
- load and haul the reclaimed clinker from the dump to the processing plant.
- crush and screen the recovered material at the crusher plant in order to reduce it to various size aggregate

- stockpile the aggregate at a stockpile area, and
- sell the aggregate to clients, after it's been weighed on the weigh bridge

e) The operational aspects of the activity; and

will be loaded to trucks as they come to site. Aggregate will be temporarily stockpiled on site.

(f) The option of not implementing the activity.

The No-Go alternative implies no change in the site's status quo, in other words no aggregate will take place. Should the mining permit application not commence the applicant will not be able to mine the aggregate from the property. This will result in a loss of income to the applicant. If the application is not approved, no material will be available for construction works in the area and the applicant will not be able to supply the demand of the aggregate in the area. The No-Go alternative is therefore not a feasible option in this case as it suggests that the aggregate and sand should not be exploited.

ii. Details of the Public Participation Process Followed

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

Stakeholder Identification

The interested and affected parties (I&APs) in and around the study area were identified and a dedicated stakeholder database for the project was developed. A dedicated stakeholder database for the project is and has been fundamental to the ultimate success of the consultation process.

The database includes stakeholder representatives of a broad range of sectors of society, i.e. National Government, Provincial Government, Local government (municipalities within in the study area), Surrounding and effected Land owners, NGOs, CBOs and authorities, Community and tribal leaders, previously disadvantaged groups (i.e. women, the youth and organisations for the disabled), etc.

Announcement of the project and its EIA process

The proposed project and its basic assessment process were announced in the study area in the following ways:

Media announcements

Newspaper Advertisements (in English) informing stakeholders about the proposed project and

inviting them to participate and register as interested and affected parties will be compiled and placed in the Graaf Reinet Advertiser newspaper on 16 September 2021. Providing a brief description of the project, legislative requirements, and the process to be followed. The newspaper advert will also inform any interested and affected party (I&APs) of the process to follow to register as an I&AP on the dedicated project database, and provided details of the EAP and contact details for more information on the project.

Notice Boards

Various environmental site notices (size A2) advertising the proposed development will be fixed on various conspicuous areas including the project site; the local Public Library; and other nearby areas in Noupoort and South of Midros. The site notice will provide a brief description of the project, legislative requirements, and the process to be followed. The on-site notice will also inform any interested and affected party (I&APs) of the process to follow to register as an I&AP on the dedicated project database, and provided details of the EAP and contact details for more information on the project.

Background Information Document (BID)

Background Information Documents (BID) (English) were prepared as a basis for discussion with stakeholders about the project. The BID introduced the project to the stakeholders, provided the rationale for the project, the EIA and public participation processes to be followed in the project, proposed project timeframes, etc. The BID included a registration/comment sheet which was available in English. A letter of invitation addressed to I&APs captured on the database, accompanied the BID and a registration/comment sheet.

iii. Summary of issues raised by I&Aps

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

Interested and Affected Parties: List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Para in this report where the issues / responses were incorporated.
Landowner: Farm Wolvekop 12 Ptn 13 National Government of the Republic of South Africa Department Public Works (EC) (Asset Management) Ms Mandisa Lunika Email: mandisa.lunika@ecdpw.gov.za Tel: 082 774 7309 (M Gwarube)					
Lawful occupier/s of the land	NA				
Landowners or lawful occupiers on adjacent properties –					
Farm 12 Ptn 5 Owner: John Moore Contact: 082 385 7206 Email:					
Farm 12 Ptn 11 Remainder (Welvanpas Guest Farm) Owner: Beets Gerhard Contact: 082 348 9123 Email:					
Organs of state (Responsible for infrastructure that may be affected Roads, Eskom, Telkom, DWA etc.)					

Interested and Affected Parties: List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Para in this report where the issues / responses were incorporated.
Ward councilor: (no response on telephone landlines, so contact will be ongoing) Name: Contact: Email:					
Inxuba Yethemba Local Municipality Municipal Manager (no response on telephone landline, so contact will be ongoing) P.O. Box 55 Middelburg 5900 Tel: (0)49 842 1337					
Department of Mineral Resources and Energy Ms Sinethemba Mtolo Email: Sinethemba.mtolo@dmre.gov.za					
Department of Economic Development, Environmental Affairs and Tourism Mcedisi Makosonke Acting Regional Director Cell: 079 507 8044 Phone: 045 808 4000/4083 Email: Mncedisi.Makosonke@dedea.gov.za					

Interested and Affected Parties: List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Para in this report where the issues / responses were incorporated.
Department of Water and Sanitation: Ms Lizna Fourie Tel: 082 886 1746 Email: Fouriel4@dws.gov.za					
Dept. of Rural Development and Agrarian Reform RM: Preggy Pilay Tel: 041 407 4019 Email: preggyp@daff.gov.za					
Department of Transport: (no response on telephone landline, so contact will be ongoing) Mr Majiba Tel: 079 504 8950					
Communities					
None specific (Will be advertised in the Graaf Rienet Advertiser)					
Dept. Land Affairs					
Commission On Restitution Of Land Rights: Regional Land Claims Commission: (no response on telephone landline, so contact will be ongoing)					
Traditional Leaders - None					
Other Competent Authorities					

Interested and Affected Parties: List the names of persons consulted in this column, and Mark with an X where those who must be consulted were in fact consulted.		Date Comments Received	Issues raised	EAPs response to issues as mandated by the applicant	Para in this report where the issues / responses were incorporated.
Heritage					
OTHER AFFECTED PARTIES					
INTERESTED PARTIES					

4. THE ENVIRONMENTAL ATTRIBUTES ASSOCIATED WITH THE ALTERNATIVES.(THE ENVIRONMENTAL ATTRIBUTED DESCRIBED MUST INCLUDE SOCIO-ECONOMIC, SOCIAL, HERITAGE, CULTURAL, GEOGRAPHICAL, PHYSICAL AND BIOLOGICAL ASPECTS)

4.1 Baseline Environment

This section provides a general description of the environment in which the proposed previously mined dolerite is located. The purpose of this section is to provide a perspective of the local environment within which the proposed mining operation will be located, with a view to identify sensitive issues/areas, species of conservation concern, wetlands or other ecological aspects, which need to be considered when conducting the impact assessment and designing the various components of the project.

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

i. General location and topography

The site (4.8 ha) is located on an east-facing hillslope in the Eastern Cape upper Karoo, a high-lying area above the Escarpment. The general topography is undulating or hilly (see Figure 7). The study area slopes gently towards the north east, towards the Droë Rivier. with an average elevation of 1435 m above mean sea level (mamsl). Apart from the rocky hills there are no other significant topographical features. The landscape to the northeast flattens out a bit before it rises up again to the hills on the eastern side of the small valley. The topography seems to be largely influenced by resistance to weathering of the base rocks (dolerite and sandstone).

Figure 7: View of mining site showing the general topography of the area.

ii. Climate

The mean annual rainfall for the area, which is located in the Eastern Cape interior, is 327 mm (as per Cape Farm Mapper climatic data for 1950 to 2000). The peak rainfall period are between the months of January to March (i.e. summer to autumn), while the driest period is June to August (winter). The study area lies on the edge of the summer rainfall region. Mean monthly maximum and minimum temperatures are 29.6°C and 0.4°C for January and June/July, respectively (as per Cape Farm Mapper data). Incidence of frost is high (Mucina & Rutherford 2006). The Köppen-Geiger climate classification for the Middelburg area is BSk (arid, steppe).

The Air Quality study conducted by Waste Aside for the proposed site indicates that based on an evaluation of the meteorological data simulations run from the global NEMS weather model at ~30 km resolution from 1985 to current of the project area. The following deductions can be made; In the summer months' maximum average daily temperatures are predicted to be 22°C to 29°C on average with a maximum of 35°C possible during hot days, dropping to a predicted 9°C to 14°C on average at night and 1°C minimum on cold nights. During winter months the average day time temperature are predicted in the 14°C to 21°C range while cold winter night time temperatures predicted to drop to -5°C.

Falling in a summer rainfall area, the location is predicted to receive the most precipitation in the summer months of October to April overall. December and January predicts the highest rainfall months with between 28 mm to 41 mm predicted per month during these months. October and November are predicted to receive 28 mm precipitation. All other months are predicted to receive less than 13 mm precipitation on average during the month.

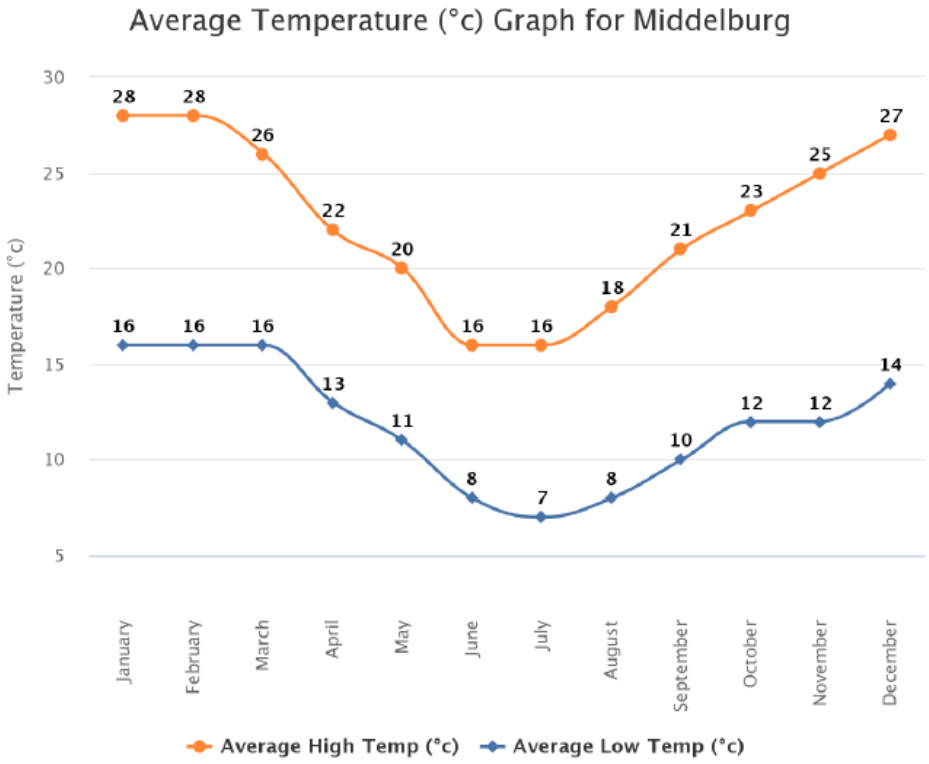


Figure 8: Monthly average air temperature for the study area (https://www.worldweatheronline.com/).

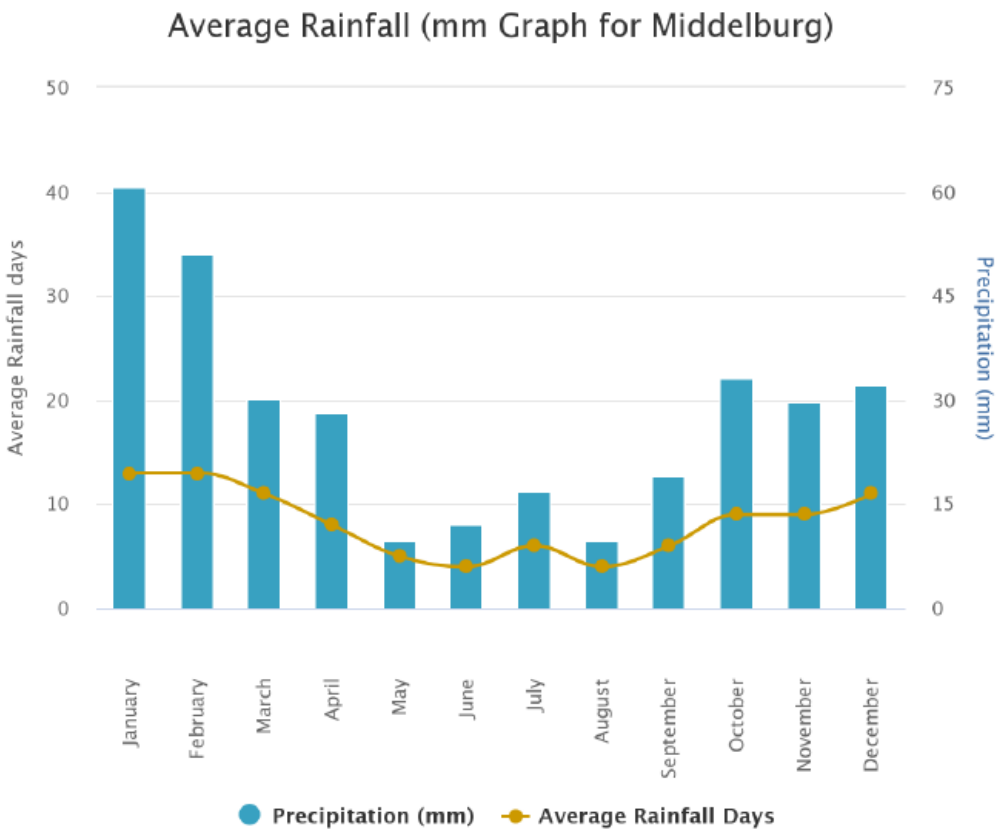


Figure 9: Monthly average rainfall and rainfall distribution for the study area (https://www.worldweatheronline.com/).

iii. Geology

The Geological Survey of South Africa (now the Council for Geoscience (CGS)) has mapped the area at 1:125 000 scale (3124 Middelburg). The geological setting is shown in **Figure 10** and the main geology of the area is listed

Table 1: Geological formations within the study area.

Code	Formation	Group	Description
~	Quaternary deposits		Alluvium and terrace gravel
Jd	Intrusive		Dolerite
TrK	Katberg	Beaufort	Sandstone rich with red brown mudstone.

The geology underlying the quarry site comprise a massive dolerite intrusion which is surrounded by sandstone and mudstone of the Katberg Formation of the Beaufort Group. Towards the Droë Rivier, alluvial material overlies the Katberg hostrock. A simple geological conceptual model is presented in **Figure 11**.

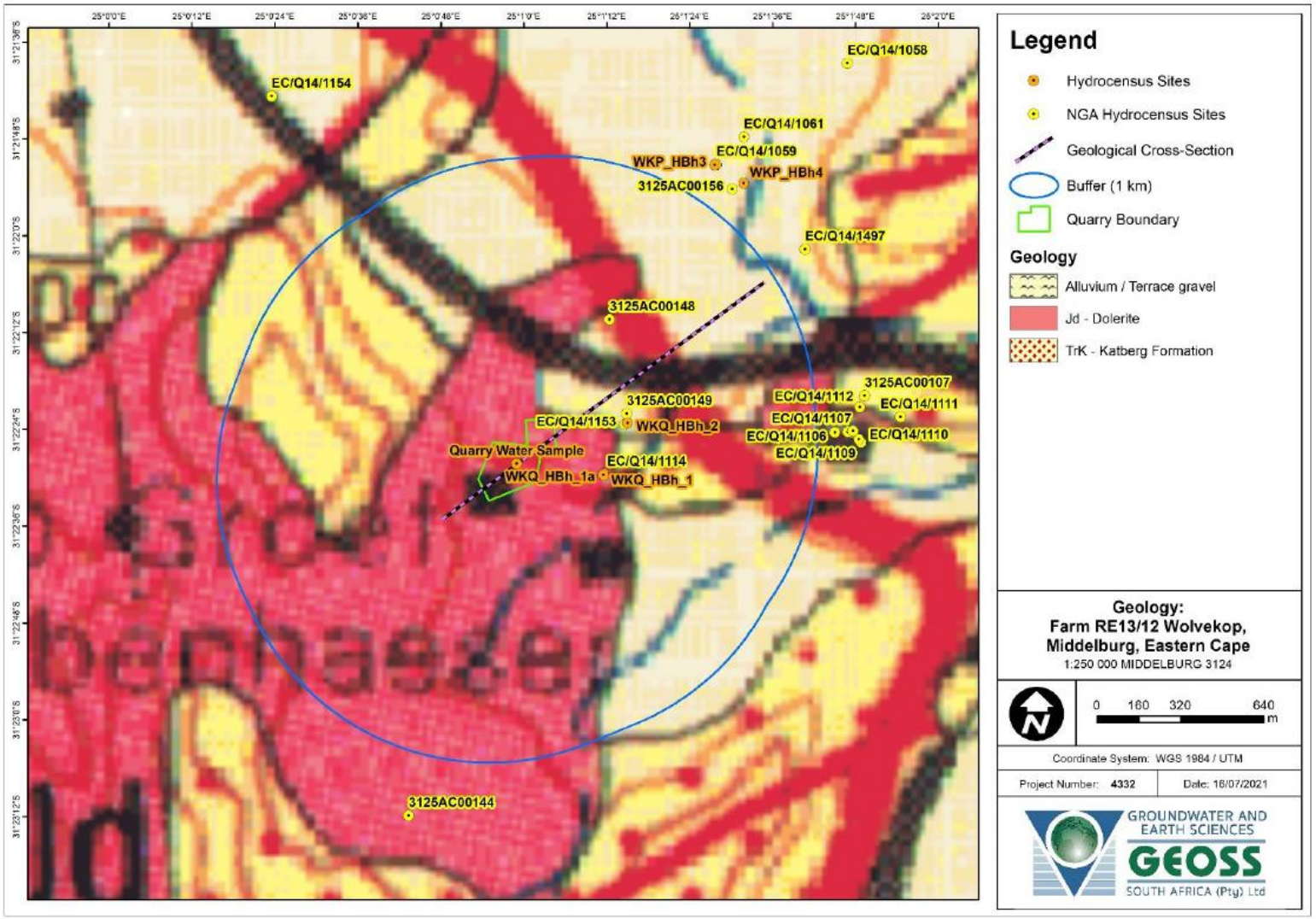


Figure 10: Geological setting of the study area and surrounds, (1:125 000 scale 3124 Middelburg (CGS, ~1975)).

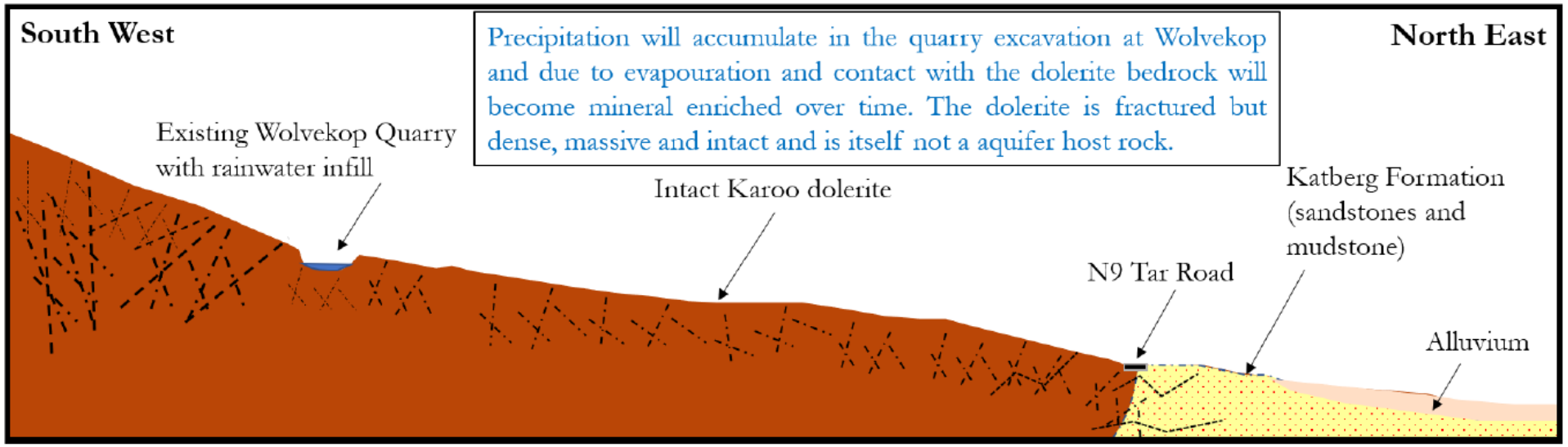


Figure 11: Conceptual south-west / north-east geological cross-section

iv. Hydrology

There are no mapped watercourses or NFEPA wetlands on or nearby the mining site. A dry watercourse runs past the south-eastern side of the site towards the Droë River, a NFEPA river located in the valley 1 km northeast of the site. The National Freshwater Ecosystem Priority Areas (NFEPA) project provides strategic spatial priorities for conserving South Africa's freshwater ecosystems and supports sustainable use of water resources.

v. Hydrogeology

The underlying aquifer at the site is classified by the Department of Water Affairs and Forestry (DWAF, 2002) as a **fractured aquifer** with an average **yield potential of over.5 L/s** (**Figure 12**). This high yield potential was confirmed when finding high yielding boreholes during the hydrocensus which were located in the fractured Katberg Formation and alluvial areas – well away from the Wolvekop Quarry. A fractured aquifer describes an aquifer where groundwater occurs in narrow fractures within the bedrock. Based on the DWAF (2002) mapping of the regional **groundwater quality**, as indicated by electrical conductivity (EC), the area is in the range of 0 – 70 mS/m. This is considered to be "**good**" quality for water (**Figure 13**, with respect to drinking water standards.

Aquifer vulnerability classification

The national scale groundwater vulnerability map, which was developed according to the DRASTIC methodology (Conrad and Munch, 2007), indicates that the site has a "**low/medium**" **vulnerability** to surface-based contaminants (**Figure 14**).

The DRASTIC method considers the following factors:
D = depth to groundwater (5);
R = recharge (4);
A = aquifer media (3);
S = soil type (2);
T = topography (1);
I = impact of the vadose zone (5); and
C = conductivity (hydraulic) (3)

The number indicated in parenthesis at the end of each factor description is the weighting or relative importance of that factor. This "**low/medium**" rating is likely associated with the upper intergranular/alluvial material which is slightly susceptible to point and non-point sources of contamination which occurs closer to the river. There is no alluvial material at the quarry site. DWAF have classified the aquifer as being fractured which implies the groundwater is mainly found in the fractured bedrock below.

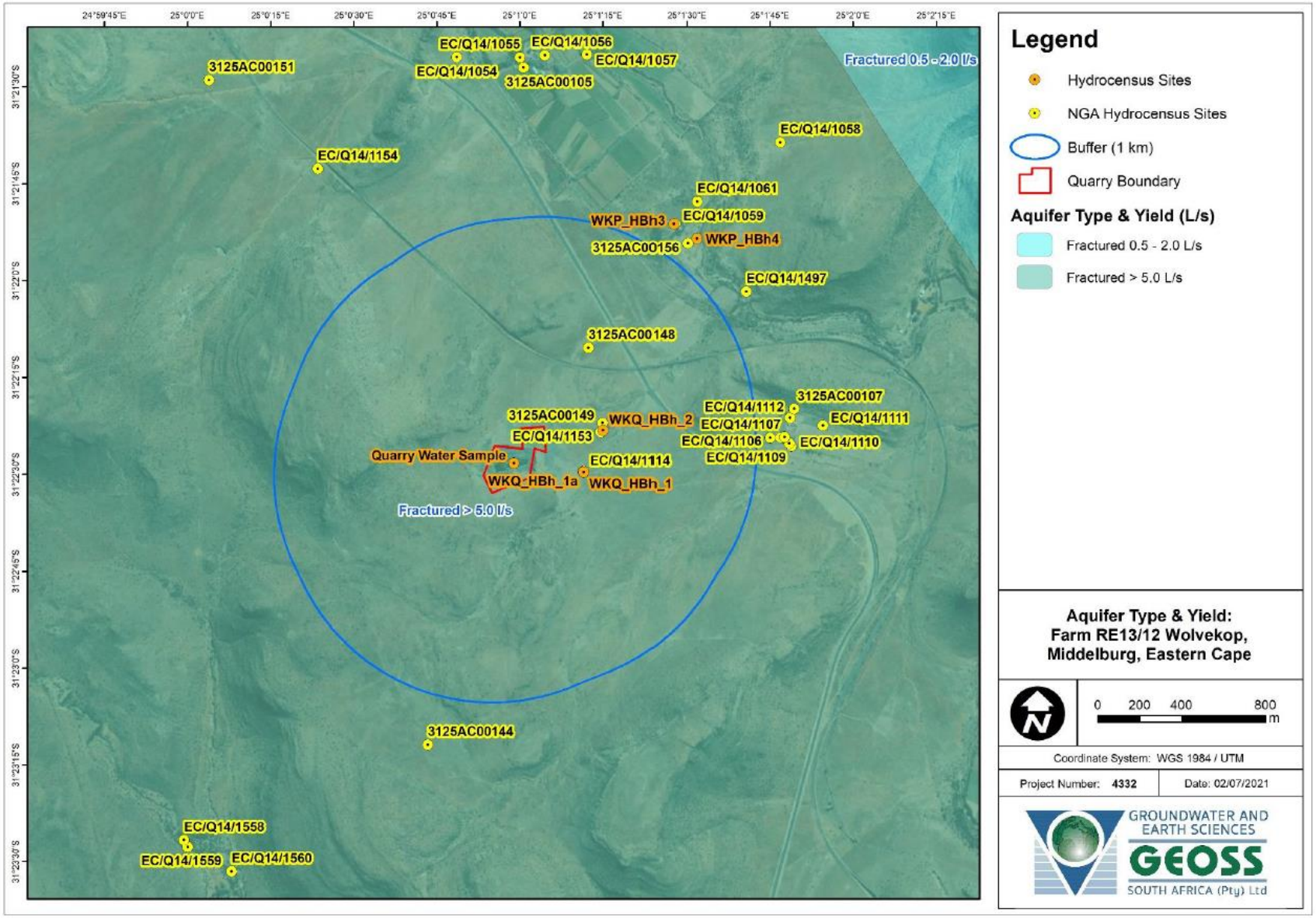


Figure 12: Regional aquifer yield type (DWAF, 2002) and average borehole yield classification (excluding dry boreholes).

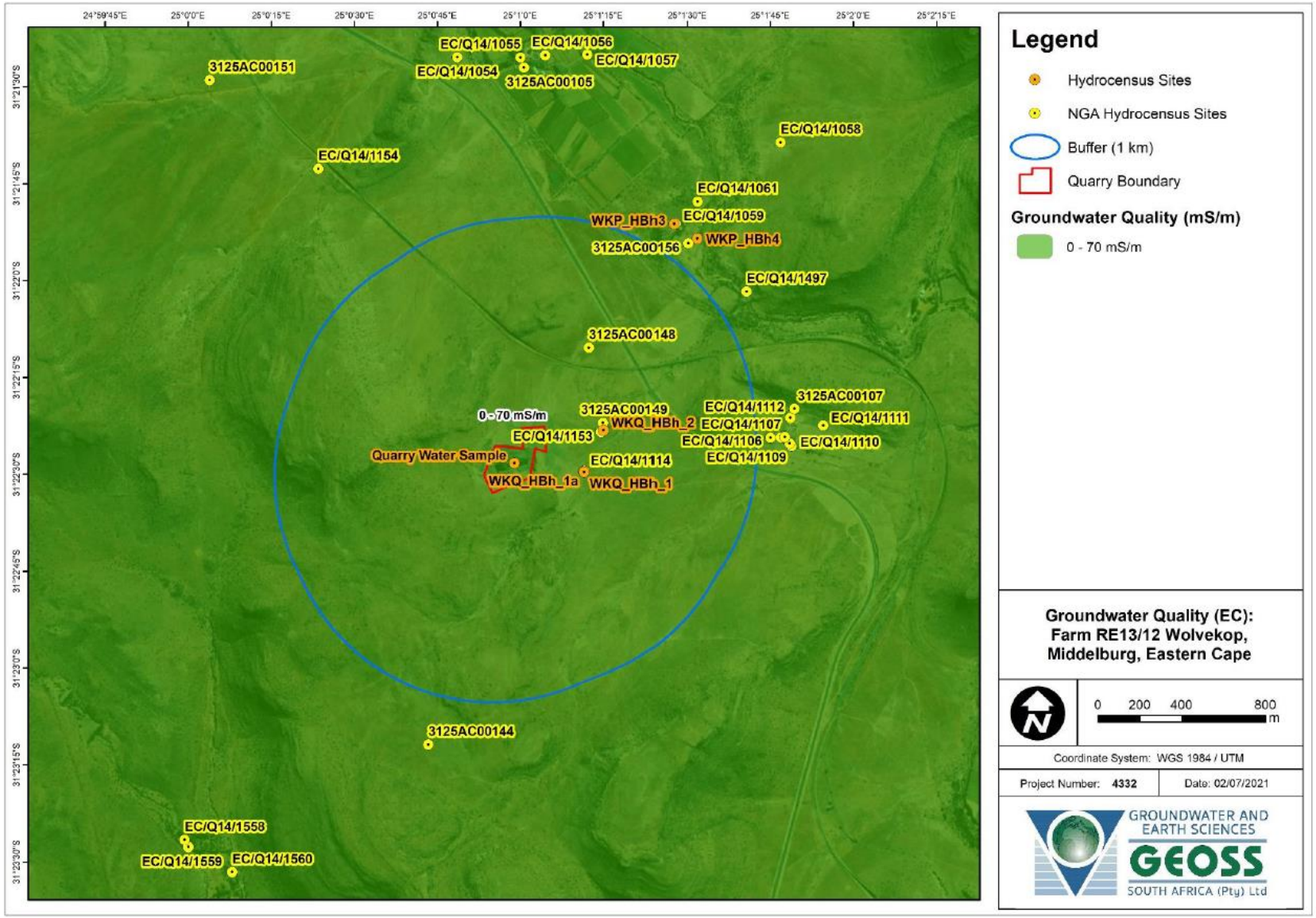


Figure 13: Regional groundwater quality (mS/m) from DWAF (2002).

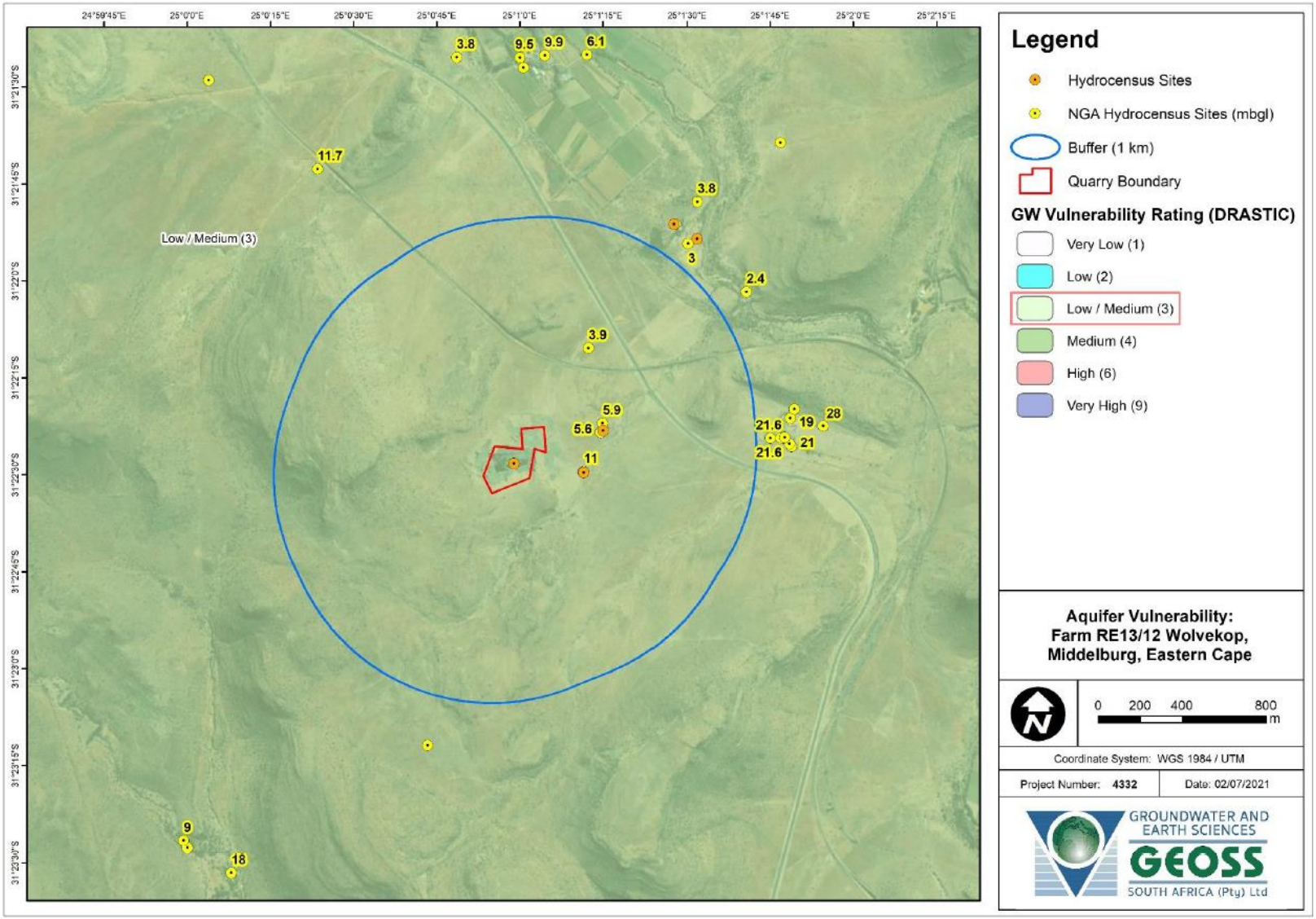


Figure 14: Vulnerability rating (DWAF, 2005) and groundwater depths (mbgl).

vi. Biogeographical Context

The site is located inside Eastern Upper Karoo, a Nama-Karoo vegetation type distributed in the Northern Cape, Eastern Cape and Western Cape Provinces, roughly inland of the Great Escarpment (see Figure 15). It occurs on flats and gently sloping plains at an altitude between 1000 and 1700 masl, interspersed with hills and rocky areas of Upper Karoo Hardeveld in the west and grassland vegetation types in these parts, such as Tarkastad Montane Shrubland (Mucina & Rutherford 2006). It is dominated by dwarf small-leaved shrubs, with grasses of the genera *Aristida* and *Eragrostis*. Common shrub species include *Eriocephalus ericoides, Chrysocoma ciliata, Helichrysum dregeanum, Pentzia incana, Lycium horridum* and *Selago* species (Mucina & Rutherford 2006).

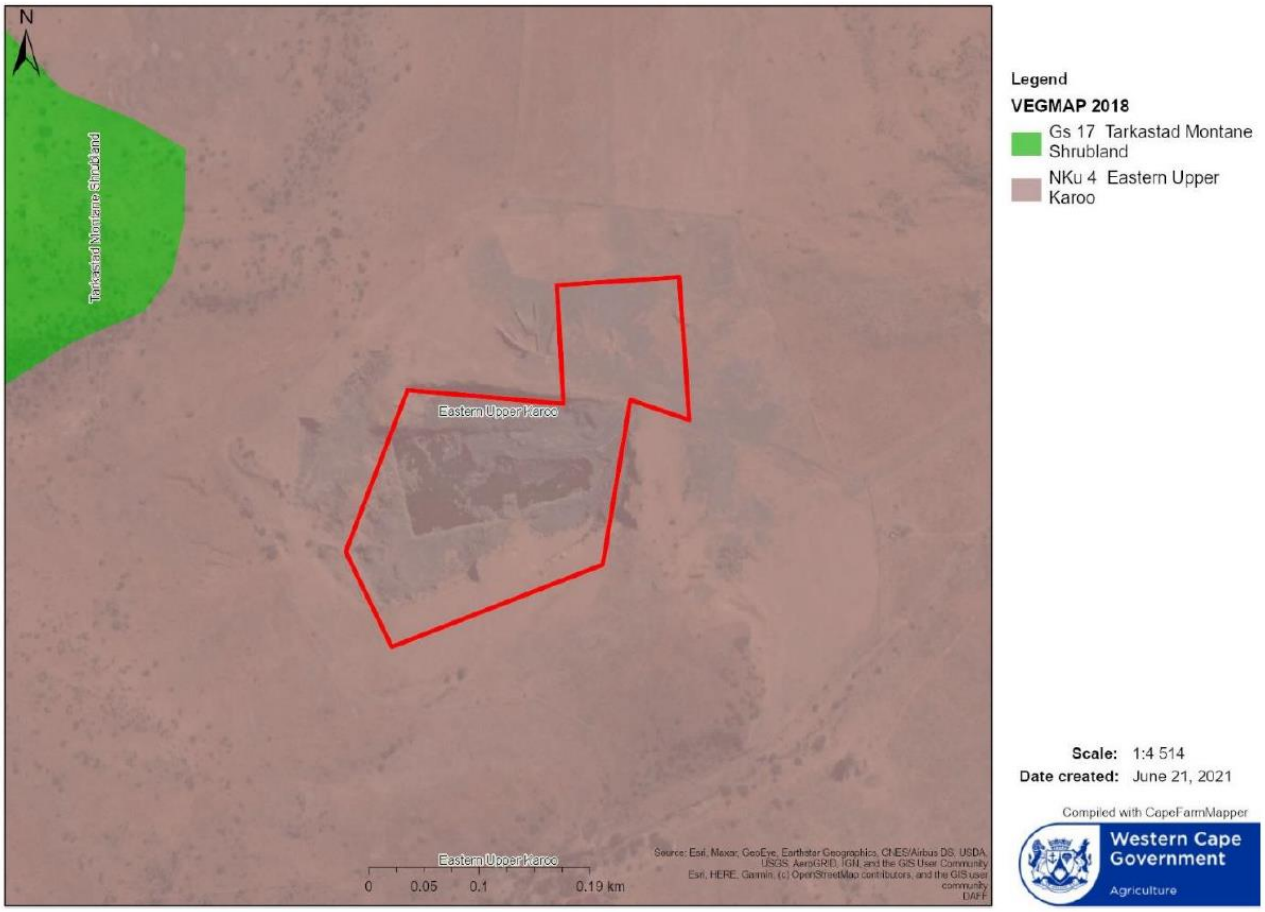


Figure 15: Extract of the 2018 SA Vegetation Map, showing the position of the site (outlined in red) inside Eastern Upper Karoo.

vii. Vegetation & Flora

The natural vegetation found on site and the surrounding area is described as Eastern Upper Karoo. It comprises a prominent grass layer (<1 m tall), with a few emerging shrub/tree species (see Photos 9 & 10). Structurally it can be described as a low to short closed grassland, following Edward's (1983) classification. The area shown as good quality vegetation on Figure 16 is in a fair to good condition, but a few farm/mine tracks and removed built structures were noted. The rest of the site (inside the

fenced-off area) is clearly transformed or affected by past mining activities, but still supports a fair grass cover in places (see Figure 17). Diversity is obviously higher in the relatively undisturbed areas on the western and southern sides.

A greater diversity of species was encountered outside the fenced-off area, notable on the hill slope above the site and on the rocky exposures on northern side. Dominant grass species encountered include *Eragrostis chloromelas, Aristida diffusa, A. congesta* and *Hyparrhenia hirta*. Emergent tree and shrub species recorded include *Searsia erosa, S. burchellii, Lycium horridum, Diospyros lycioides* and an alien ornamental tree *Schinus molle* (see Figure 18).

Figure 16: Photo showing Grassy veld on the southern side of quarry.

Figure 17: Photo showing rocky slope with an emergent *Searsia erosa* on the eastern side of quarry.

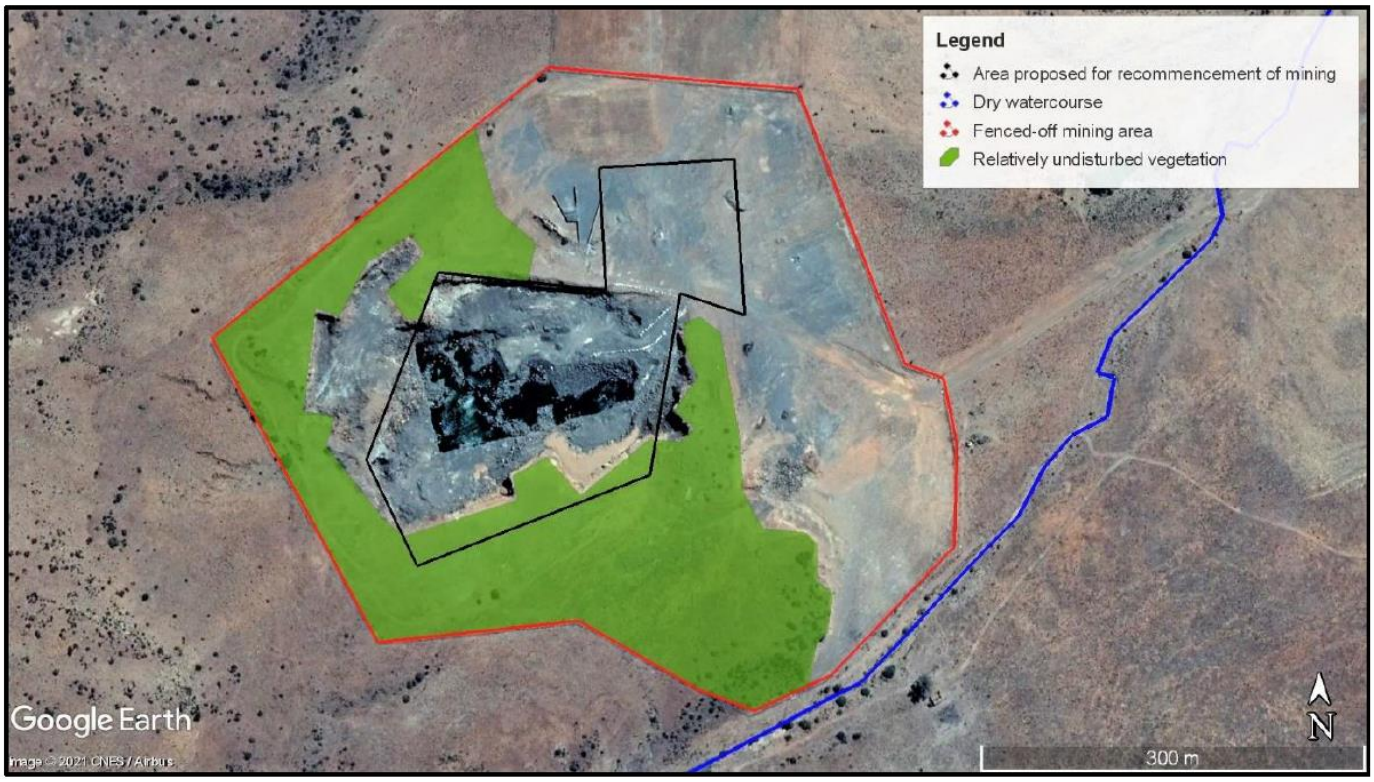


Figure 18: Aerial photograph showing the biodiversity attributes of the mining site.

Figure 19: Transformed part of the mining site, with derelict mining infrastructure.

Smaller shrub species and weeds recorded include *Felicia hirsuta, Eriocephalus ericoides, Chrysocoma ciliata, Helichrysum zeyheri, Melolobium calycinum, Selago saxatilis, Melianthus comosus, Withania somnifera, Monsonia camdeboensis, Asparagus suaveolens, Salsola kali, Aizoon namaense* (= *Galenia procumbens*), *Jamesbrittenia tysonii* and *Nemesia fruticans*. The small rock fern *Cheilanthes eckloniana* was also noted on exposed dolerite on the western side of the quarry. The more interesting flora was recorded outside the fenced-off mining area, notably on or adjacent to dolerite and sandstone exposures. Species recorded here include *Ruschia cradockensis* ssp *cradockensis, Trichodiadema* sp, *Chasmatophyllum musculinum, Stomatium duthiae, Crassula corallina, Anacampseros albidiflora, Euclea undulata, Geigeria filifolia, Gomphocarpus fruticosus, Pentzia punctata* and *Crassothonna cf patula*. See Photo 6 for some of the flora encountered. *Stomatium duthiae* and *Melolobium calycinum* are regional endemics. *S. duthiae* is typically associated with low-angled dolerite plates (see Figure 19). No SCC were recorded.

Figure 20: A few indigenous species recorded, with Helichrysum zeyheri (top left), Cheilanthes eckloniana (top right), Stomatium duthiae (bottom left) and Geigeria filifolia (bottom right).

Only three notable invasive species were recorded, namely *Opuntia ficus-indica, Datura stramonium* and *Salsola kali* (see Figure 20). All of them are listed as Category 1b invaders in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) Alien and Invasive Species List (2016). *Datura stramonium* and *Salsola kali* are serious agricultural pests, with the latter an aggressive invader, being able to rapidly take over new areas (Bromilow 2010). Its “only benefit is that it can act as an anti-erosion agent in bare areas” (Bromilow 2010). A small patch of Yucca sp was also recorded on site.

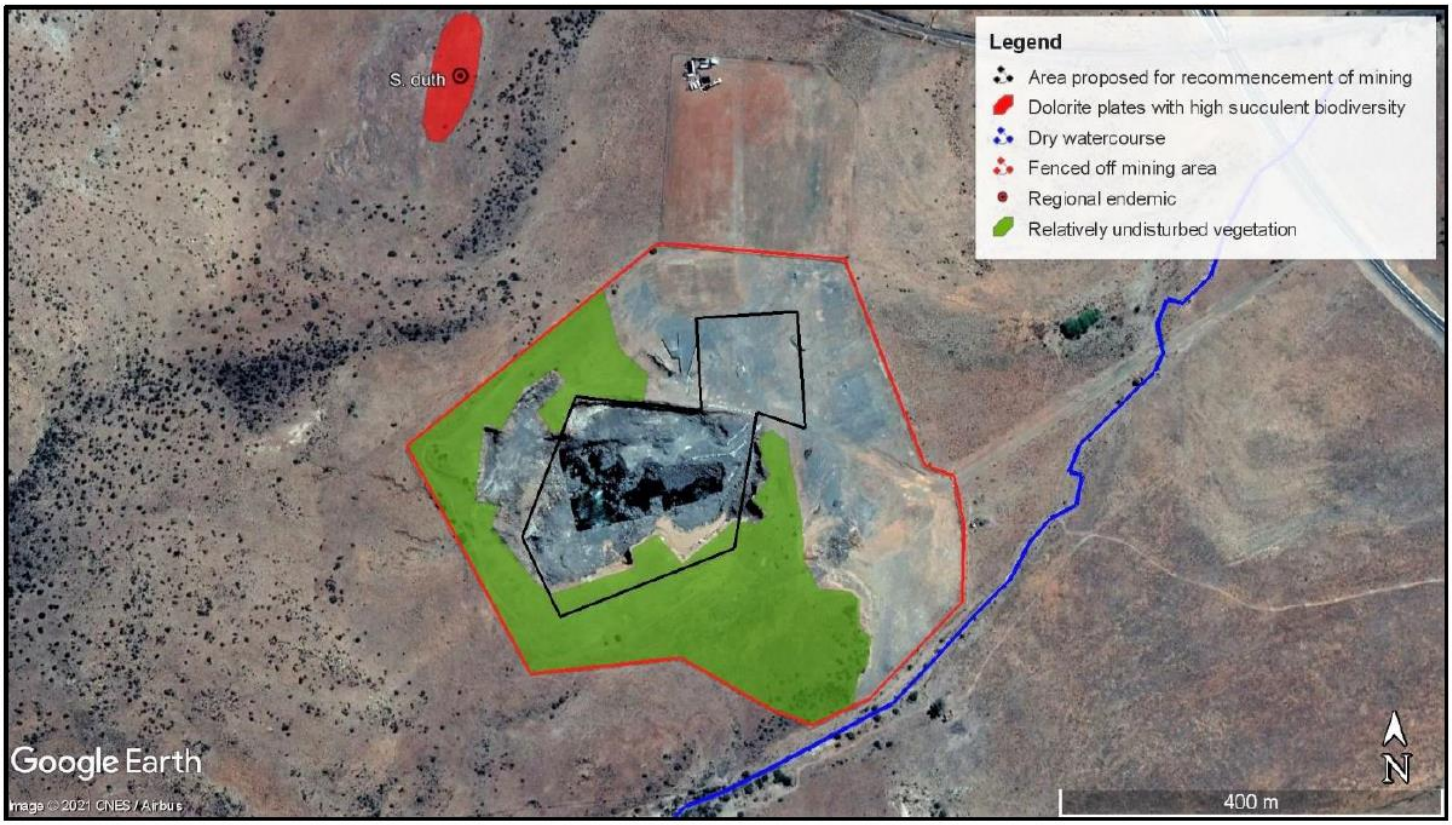


Figure 21: Aerial photograph showing notable biodiversity features outside the fenced off mining area.

Figure 22:A few alien species recorded, with* Opuntia ficus *–indica (left) and* Yucca sp *(right)

viii. Observed Fauna

A fair number of mammal species have been recorded in the area by the landowner (farmer). As for grazing fauna, the following were recorded (habitat and distribution information from Skinner & Smithers 1990):

- Steenbok (*Raphicerus campestris*), a widespread small antelope species. Either a steenbok or grey rhebok was observed on the access road to the mine by the author. It moved away too quickly to make a positive identification.
- Grey rhebok (*Pelea capreolus*), widespread on rocky hills and mountain slopes.
- Springbok (*Antidorcas marsupialis*), originally an arid region and open grassland species, subsequently introduced to other parts of the country.
- Kudu (*Tragelaphus strepsiceros*), a savanna woodland species, common in the Eastern Cape interior.

Predators recorded, include:

- Bakoorjakkal *(Otocyon megalotis*), known from the arid parts of the Cape provinces.
- Cape fox (*Vulpes chama*), widespread, especially in grassveld types, coastal scrub or semi-desert scrub.
- Black-backed jackal (*Canis mesomelas*), widespread with a wide habitat tolerance.

Omnivores and rodents recorded, include:

- Aardvark (*Orycteropus afer*), widespread with a wide habitat tolerance. Aardvark burrows noted on site by the author.
- Springhaas (*Pedetes capensis*), widespread in grassveld areas.
- Rock hyrax (*Procavia capensis*), widespread in rocky habitats, observed by the author inside the quarry.
- Porcupine (*Hystrix africaeaustralis*), widespread, scat noted on site by the author (see Figure 16).

Figure 23: Porcupine scat (left) and a harvester termite mound (right)

Significant termite activity (harvester termite mounds) was also noted (see Figure 23 above). No threatened terrestrial fauna species are known from the area. The Screening Report, generated on 1 March 2021 by Ntsanko Ndlovu of Afrimat, list two sensitive avifauna species, namely *Aquila verreauxii* (black eagle, VU) and *Neotis ludwigii* (Ludwig's bustard, EN). There is an iNat observation of the former from the hills 10 km southwest of the mining site. It is likely that it will use the air space above the mine. There are no observations of Ludwig's bustard, a bird species in the bustard family, from the area. It is listed as endangered and threatened by collisions with telephone lines (and powerlines), hunting and poisoning.

ix. Conservation Status, Threats and Biodiversity Network

Eastern Upper Karoo is not listed as a threatened vegetation type in National Environmental Management: Biodiversity Act (Act 10 of 2004) (DEA 2011) or in the recent 2018 National Biodiversity Assessment (Skowno *et al*. 2019). It is listed as Least Concern in the latter. Only about 3% is transformed (Skowno *et al*. 2019), mainly due to the building of dams (Mucina & Rutherford 2006). Its conservation status is poor, with only 2% is formally conserved in the Mountain Zebra and Karoo National Parks, as well as in Oviston, Rolfontein, Commando Drift and Gariep Dam Nature Reserves.

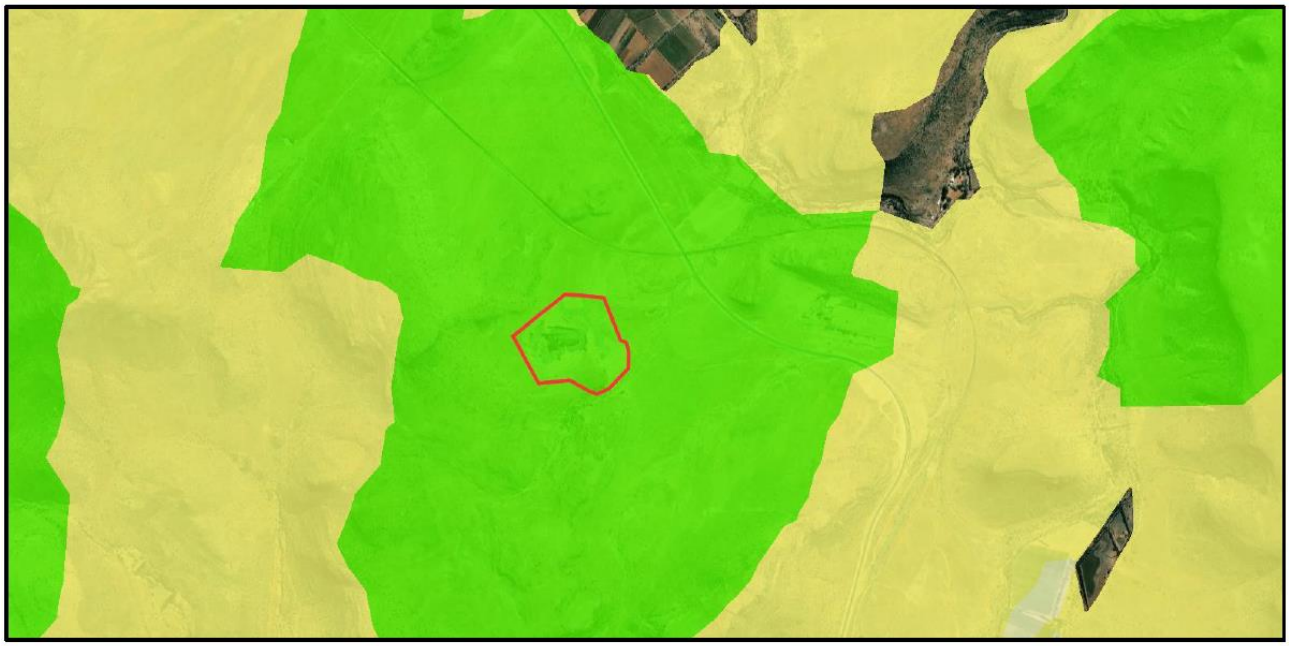


Figure 24: Extract of the 2019 Eastern Cape Biodiversity Conservation Plan, with the mining site outlined in red and located entirely inside a critical biodiversity area (CBA2, green).

The mining site falls inside the Eastern Cape biodiversity network (see Figure 24 above). More specifically, it falls inside an area mapped as a critical biodiversity area (CBA2). Reasons given for its mapped status appear to be species and vegetation type related, and the possible presence of expert areas and special habitats. Further away, the area around the CBA has been mapped as an ESA1. The CBA2 extends through and well beyond the boundary of the mining site. It is unlikely that continued mining activities, as presented, will increase the impact on the CBA2 significantly. Its mapped status, however, suggests that protection or conservation is the ultimate goal for the area. CBA's are defined as areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure (Skowno et al. 2019). Many of these areas support known occurrences of threatened plant species, and/or may be essential elements of designated ecological corridors. Loss of designated CBA's is therefore not recommended.

x. Hydrocensus

GEOSS conducted a s site visit was on 4 June 2021 to assess groundwater use within the study area Three groundwater sources could be identified. These sites are summarised in **Table 3** and together with NGA sites are presented in **Figure 26**. Based on the data it is evident that there are a number of groundwater users surrounding the proposed development, however, information on these boreholes is somewhat limited. From the data, water levels vary across the area, but tend to follow the topographic trend with the deepest levels higher up and the shallowest levels closer to the Droë Rivier. Water samples were collected from the closest active borehole to the site (WKQ_HBh2) and the quarry itself (Quarry_Water), the positions for which are presented in **Map 7**.

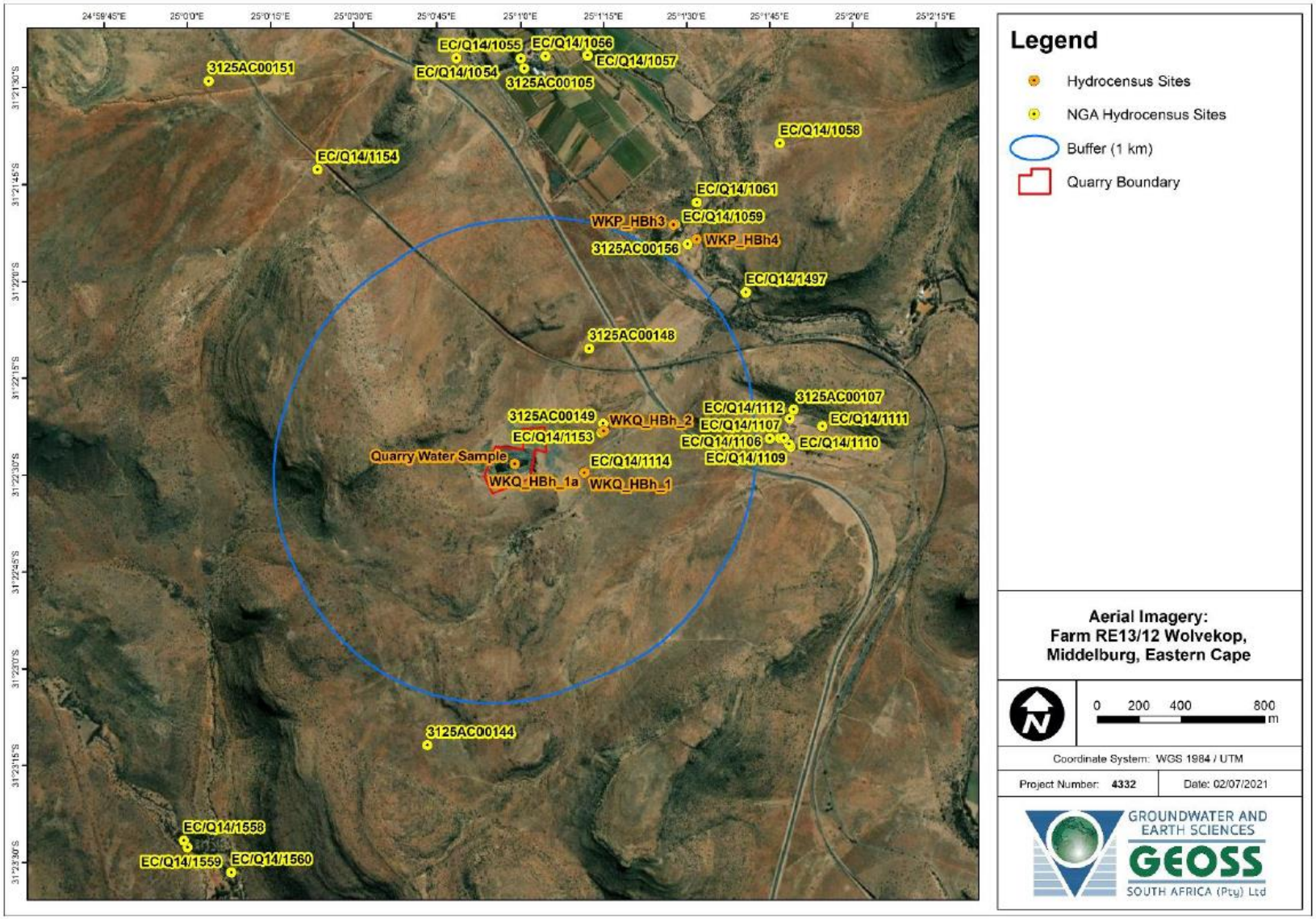


Figure 25: Study site with 1 km buffer area including NGA positions both within and outside of the1 km buffer

xi. Heritage

A heritage impact assessment conducted Integrated Specialist Services (Pty) Ltd indicates that the project area is located in the Chris Hani region of Eastern Cape Province of South Africa that boosts a rich traditional history of prehistoric hunter gatherer communities, the late proto-historic and contemporary Xhosa communities as well as the colonial and settler communities and the recent peopling of the region.

The following section presents results of the archaeological and heritage survey conducted within the proposed development project site.

Heritage resource	Status/Findings
Buildings, structures, places and equipment of cultural significance	None were recorded within the proposed development site
Areas to which oral traditions are attached or which are associated with intangible heritage	None exists on the study area
Historical settlements and townscapes	None exist within the study site
Landscapes and natural features of cultural significance	None
Archaeological and paleontological sites	The project area is archaeologically and paleontological sensitive however no significant archaeological remains were recorded during the survey except for a scatter of undecorated potsherds
Graves and burial grounds	None exist at the site
Movable objects	None
Overall comment	The proposed development site is significantly altered by previous mining activities and retains low heritage significance.

xii. Palaeontology

The study area is dominated by a dolerite sill which is underlain by the Katberg Formation that forms the lowermost part of the Tarkastad Subgroup of the Beaufort Group of the Karoo Supergroup. The Katberg Formation comprises of fine to medium grained sandstone with scattered pebbles of up to 150 mm in diameter. Internal sedimentary structures include horizontal lamination, parting lineation, trough cross-bedding, planar cross-bedding and oval to spherical calcareous concretions. The

sedimentary structures of the Katberg Formation suggest a braided stream environment (Johnson *et al*., 2009)

Although the dolerite that underlies the study area is of no palaeontological importance, it is underlain by the highly fossiliferous Katberg Formation. The Katberg Formation is associated with the *Lystrosaurus* Assemblage Zone. This exceptionally fossiliferous Assemblage Zone contains fossils of basal tetrapods such as *Rhytidosteus*, *Uranocentrodon*, *Lydekkerina*, *Broomulus, Putterillia*, *Limnoiketes*, *Micropholis*, *Kestrosaurus*; Captorhinida such as *Owenetta* and *Procolophon*, Eosuchia such as *Heleosuchus*, *Paliguana*, *Noteosuchus*, *Prolacerta*, *Proterosuchus* and *Aenigmasaurus*; Dicynodontia such as *Myosaurus* and *Lystrosaurus*; Therocephalia such as *Tetracynodon*, *Moschorhinus, Scaloposaurus*, *Ericiolacerta*, *Olivieria, Regisaurus* and Cynodontia such as *Thrinaxodon*, *Galesaurus* and *Platycraniellus* (Rubidge, 1995). This exceptionally fossiliferous geological formation is regarded as being of Very High Palaeontological Sensitivity (Almond *et al.*, 2009). See Figure 26 below for palaeontological sensitivity of the site

Table 2: Palaeontological Map Legend

Colour	**Palaeontological Significance**	**Action**
RED	VERY HIGH	Field assessment and protocol for finds are required.
GREEN	MODERATE	Desktop study is required.
GREY	INSIGNIFICANT / ZERO	No palaeontological studies are required.

The very highly paleontologically sensitive Katberg Formation will be exposed if mining extends to the base of the dolerite sill. In the event that fossils are found in the Katberg Formation during mining or development, the ECO must follow the Chance Palaeontological Find Procedure as stipulated on the EMPr section and to contact a palaeontologist for further advice.

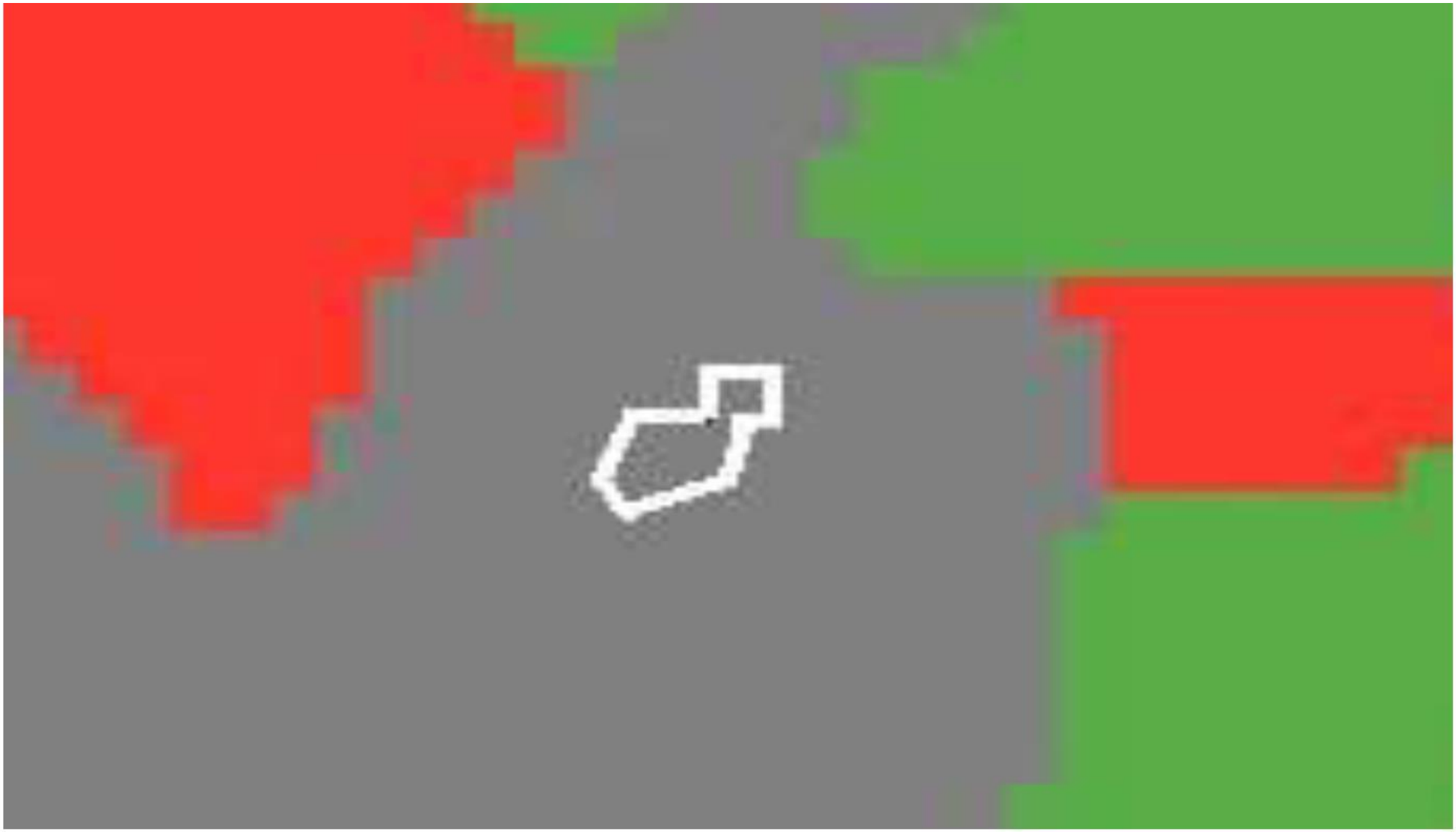


Figure 26: Palaeontological sensitivity map of the study site (white polygon) and surroundings (SAHRA, 2021)

xiii. Air Quality

Site-Specific Dispersion Potential

Based on an evaluation of the meteorological data simulations run from a global NEMS weather model at ~30 km resolution from 1985 to current of the project area. The following deductions regarding the prevailing wind direction and wind frequency can be assessed. Looking at Figure 8 below, the predominant wind direction is predicted to occur mainly from the south-east more than 1220 hours per year, with wind speeds higher than 5 km/h.

At the site, calm conditions with wind speeds of 12 km/h or less, are predicted 3-7 days per month throughout the year. 12-19 km/h winds are predicted 6-11 days per month through the year. Wind speeds of more than 19 km/h are predicted to occur 9-13 days per year on average.

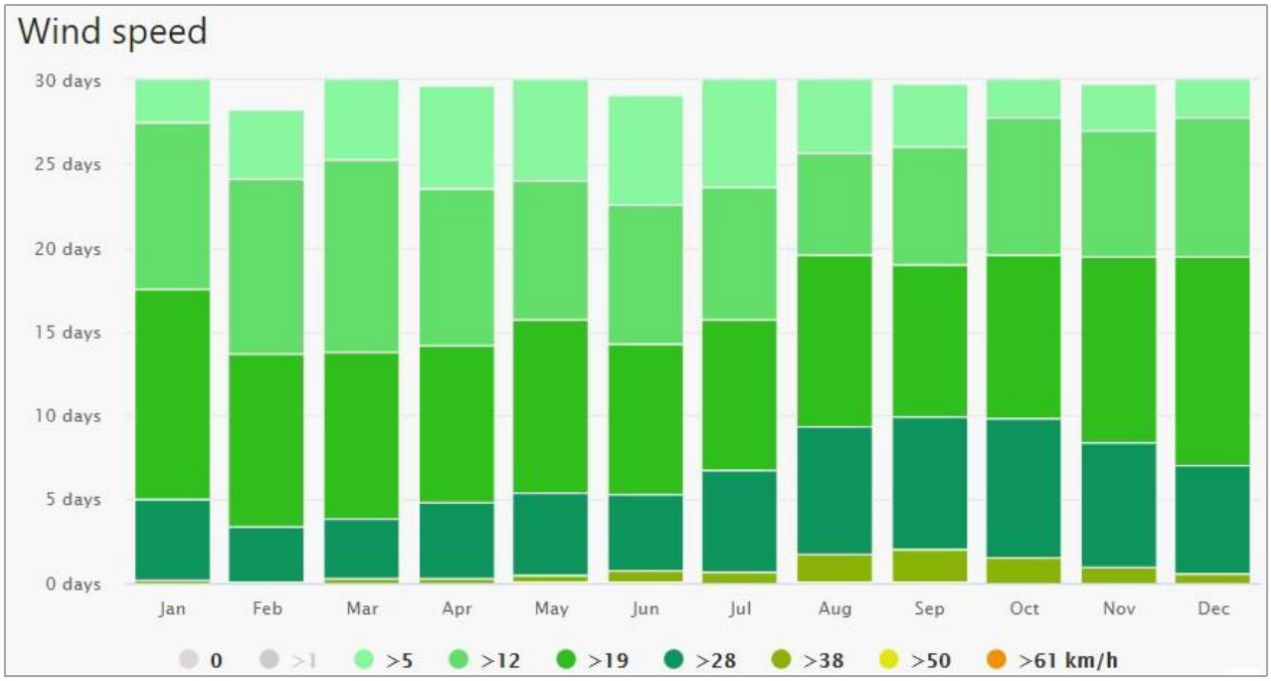


Figure 27: Wind Class Frequency Distribution per month.

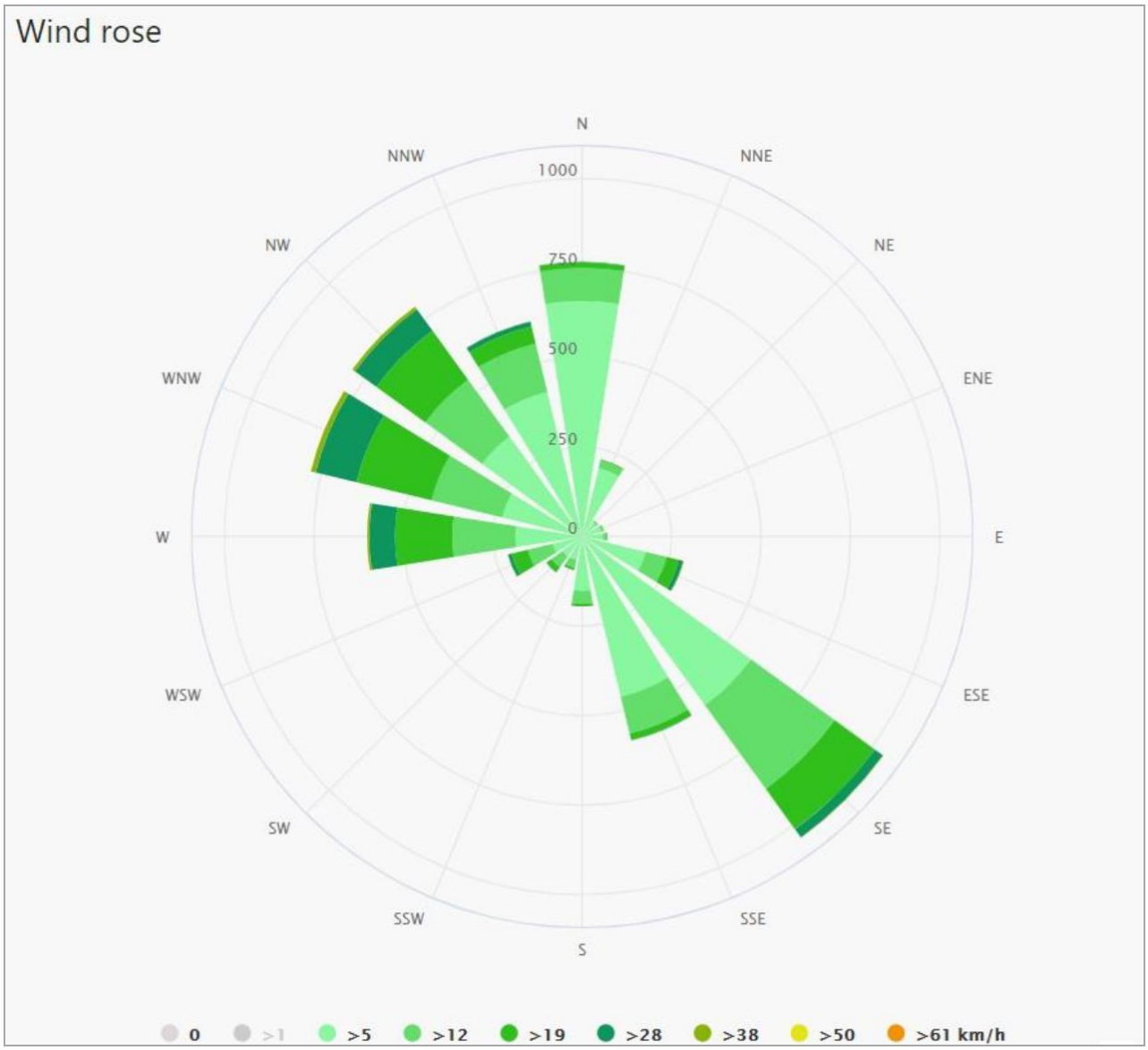


Figure 28: NEMS 30 km simulation model wind rose for the proposed Afrimat Wolve Kop project area for the period 1985 to current.

The air quality impact assessment undertaken for the project includes a meteorological overview of the area. An emissions inventory was undertaken with the aim of quantifying emissions associated with the activities involved in the mining of coal. The emissions for specific activities such as bulldozing, blasting, tipping, wind erosion and materials handling activities were calculated and the cumulative impacts were compared to the relevant ambient air quality standards to determine legal compliance.

The findings reported here is therefore a combination of historical, observed and previously modelled data and provided the background and predicted scenario of various pollutants in the Afrimat Wolve Kop project mining area. The construction and operational phases were assessed. Based on the dispersion modelling simulations, the following conclusions can be summarized as follows:

PM_{10}

For the unmitigated and mitigated Daily PM_{10} concentrations it was predicted not to be higher than the 75 µg/m³ limit for any of the sensitive receptors. The annual average PM_{10} limit of 40 µg/m³ are not predicted to exceed at any of the identified sensitive receptors for any of the modelled scenarios.

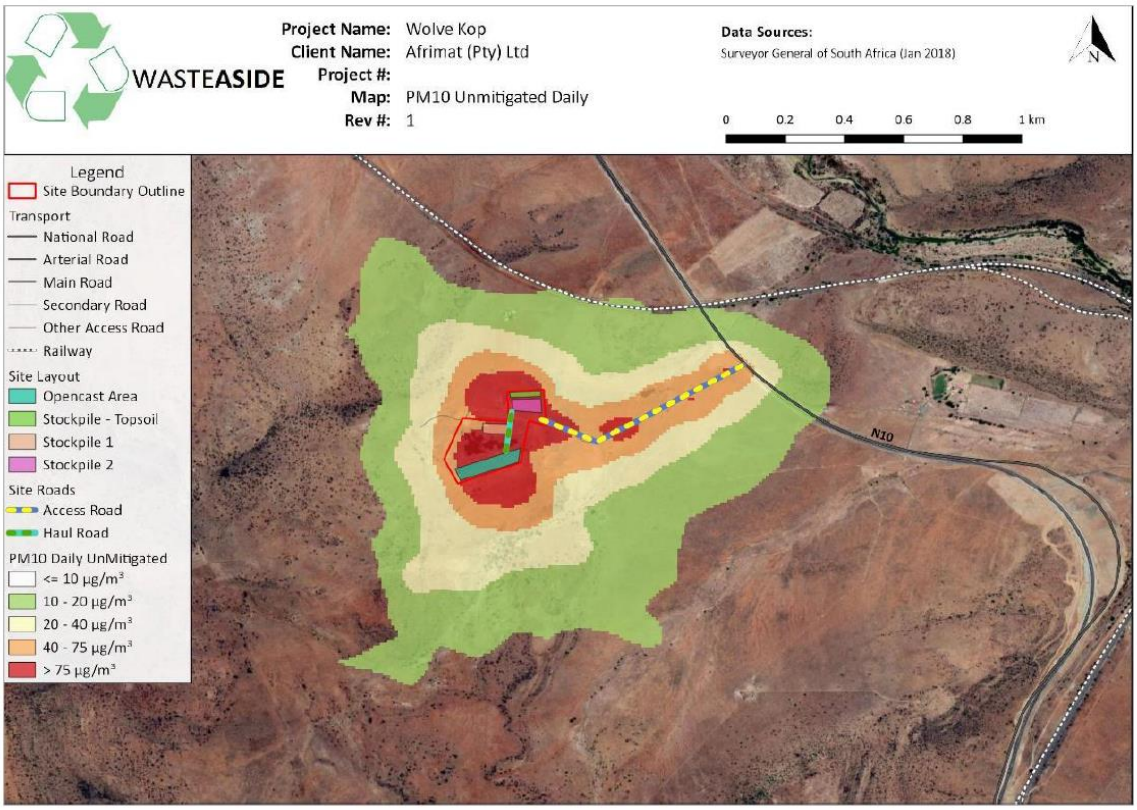


Figure 29: Predicted average annual concentrations for PM10 for the Afrimat Wolve Kop project when unmitigated.

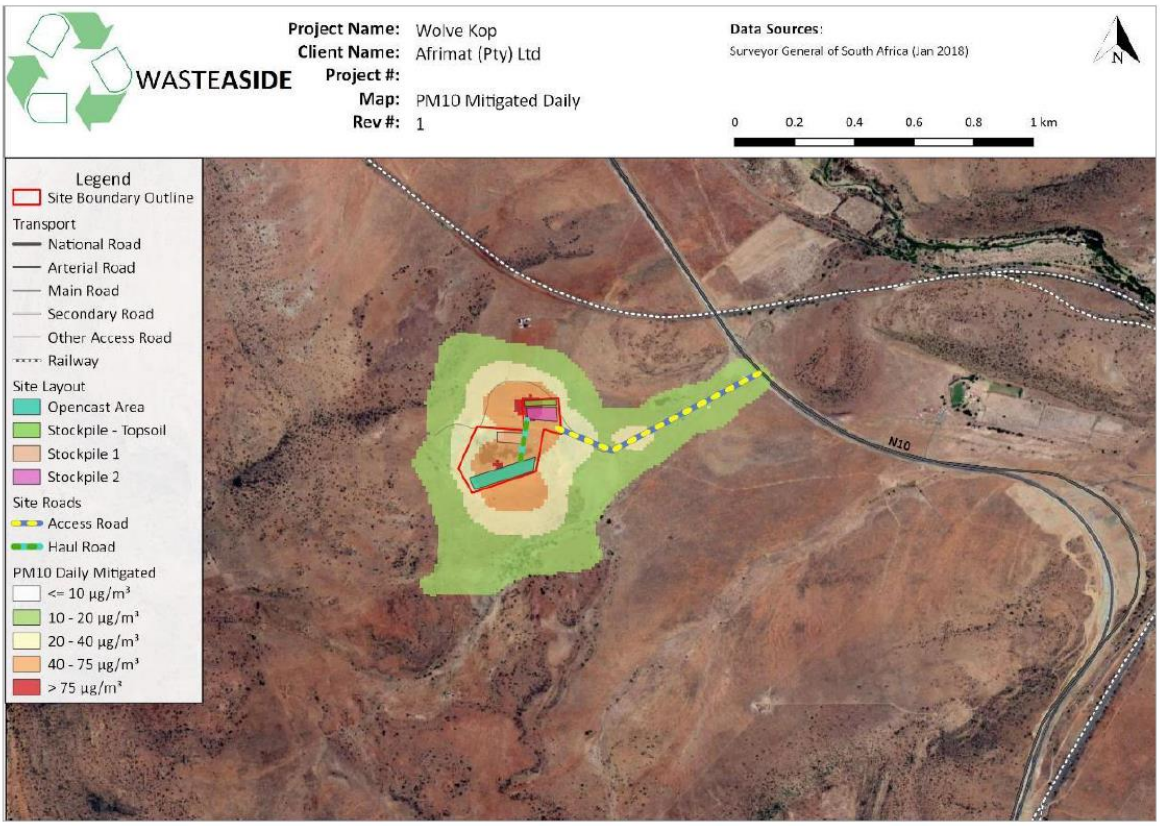


Figure 30: Predicted average annual concentrations for PM10 for the Afrimat Wolve Kop project operations when mitigated.

TSP

In the mitigated and unmitigated scenarios, none of the sensitive receptors are predicted to exceed the monthly dust fallout for the highest month residential limit of 600 mg/m²/day.

The predicted annual dust fall out for the mitigated and unmitigated scenarios are not predicted to exceed the annual limit of 300 mg/m²/day at any of the sensitive receptors.

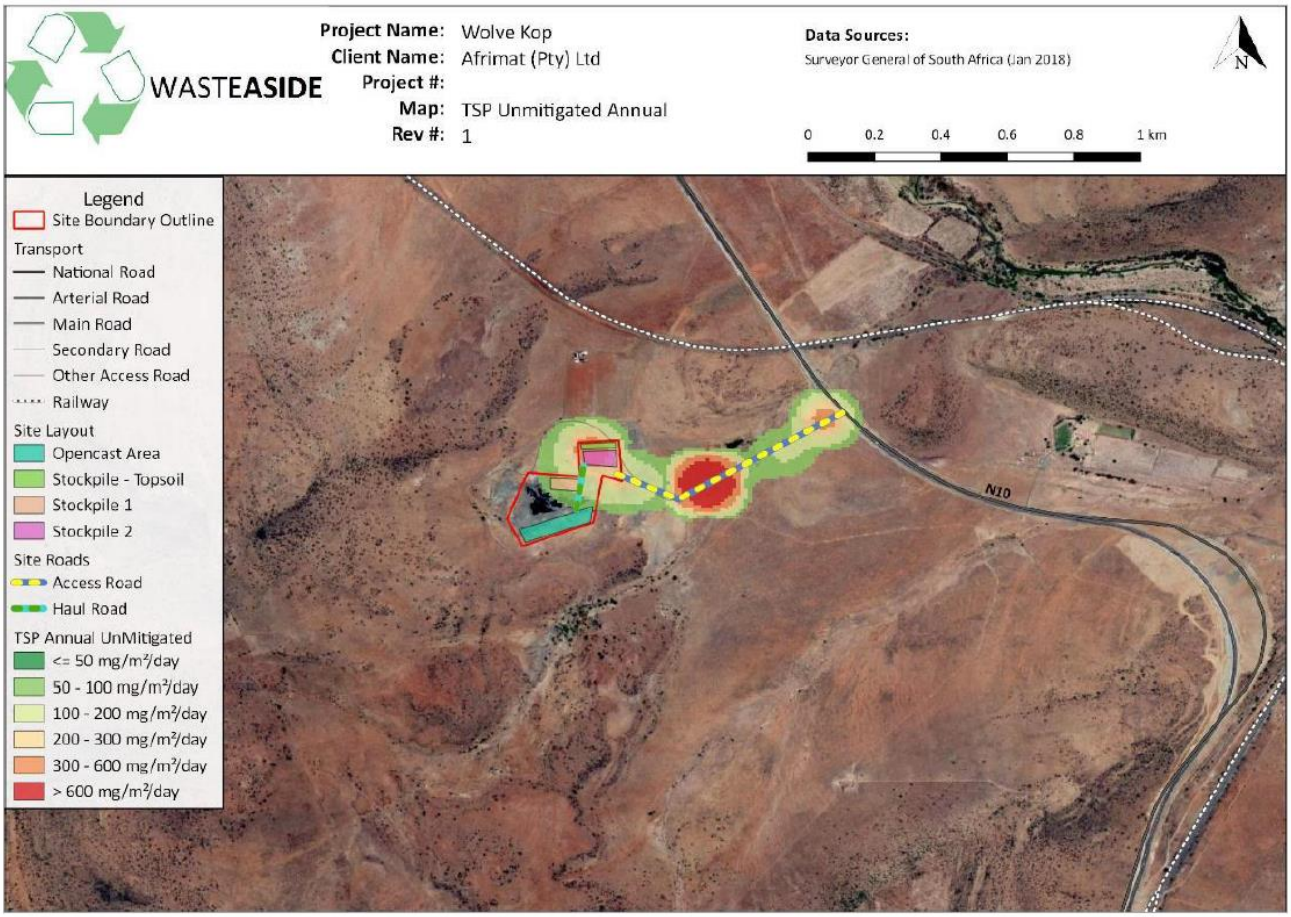


Figure 31: Predicted average annual concentrations for TSP for the Afrimat Wolve Kop project when unmitigated.

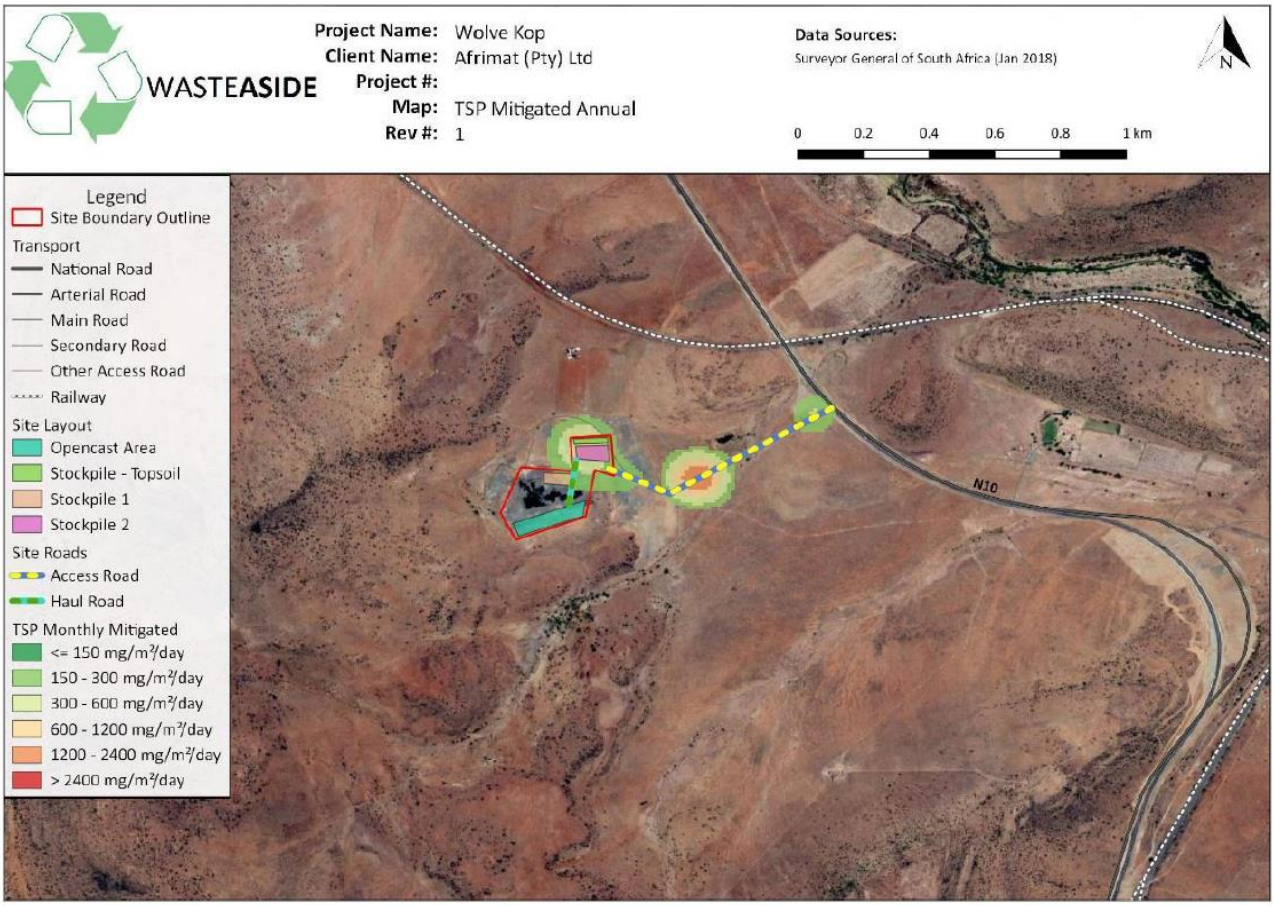


Figure 32: Predicted average annual concentrations for TSP for Afrimat Wolve Kop project operations when mitigated

xiv. Socio-Economic

The proposed development falls within the jurisdiction of Inxuba Yethemba Municipality.

This municipality similarly to othe municipalities in the area has challenges in the such as shortcomings in (1) the layout, densities, infrastructure development, service-delivery, financing and management of settlements, (2) type of dwelling, (3) access to private vehicle and/or public transport, (4) long distances between towns and (5) poor (gravel road conditions. These are stumbling block in the development of human and social capital and securing a resilient, sustainable, quality and inclusive living environment.

b. Description of the current land uses.

The farm itself is an active sheep and guest farm. The site includes one large open cast mining area, an abandoned crushing area and disturbed areas previously used for stockpiling (see Map 2). The biodiversity survey was prompted by the proposed recommencement of mining activities. Intact good quality vegetation was found around a part of the mining area, notably

on the western and southern sides. Alien infestation is minimal. According to the 2018 SA Vegetation Map, the mine is located inside Eastern Upper Karoo.

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

This is an already mined site, open excavation and no significant environmental features.

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

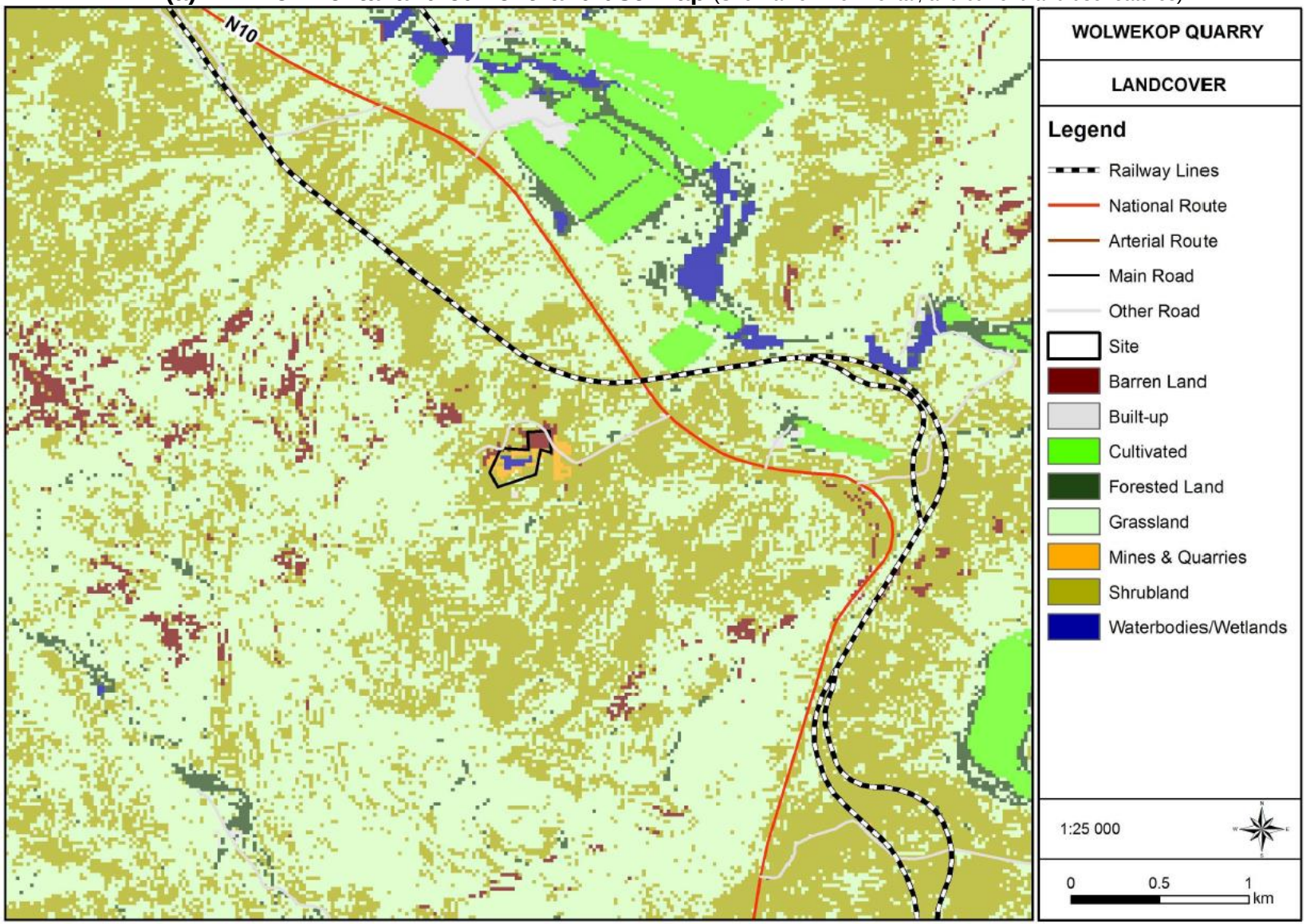


Figure 33: Land Cover Map

5. 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).

Please refer to Appendix E for the full Impact Assessment undertaken for the proposed Wolve Kop Mine.

5.1 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).

Specialist studies identified key issues and impacts that required thorough investigation. All identified potential impacts and risks were assessed in terms of their overall potential significance on the natural, social and economic environments. The criteria for the description and assessment of environmental impacts were drawn from the EIA Regulations 2014. The assessment of the impacts has been conducted according to a synthesis of criteria required by the integrated environmental management procedure.

The significance of both positive and negative potential impacts were determined through the evaluation of impact consequence and likelihood of occurrence. The significance of potential impacts that may result from the proposed project was determined in order to assist decision-makers.

The significance of an impact is defined as a combination of the **consequence** of the impact occurring and the **probability** that the impact will occur. The following risk assessment model has been used for determination of the significance of impacts.

SIGNIFICANCE = CONSEQUENCE X PROBABILITY

WHERE Consequence = Extent + Intensity + Duration

The criteria used to determine impact consequence are presented on the table below. Each rating has been allocated a score weighting

Table 3: Criteria used to determine the Consequence of the Impact

Rating	Definition of Rating	Score
A. *Extent - the area over which the impact will be experienced*		
Local	limited to the immediate area(s) around the project site -	1
Regional	extends over a larger area that would include a major portion of an area or province	2
National/International	nationally or beyond	3
B. *Intensity - the magnitude of the impact in relation to the sensitivity of the receiving environment, taking into account the degree to which the impact may cause irreplaceable loss of resources*		
Low	Site-specific and wider natural and/or social functions and processes are negligibly altered	1
Medium	Site-specific and wider natural and/or social functions and processes continue albeit in a modified way	2
High	Site-specific and wider natural and/or social functions or processes are severely altered	3
C. Duration– the lifetime of the impact, that is measured in relation to the lifetime of the proposed development and its reversibility		
Short-term	(0 to 3 years)	1
Medium-term	(3 to 10 years) confined to the construction period	2
Long-term	(more than 10 years)	3
Permanent	beyond the anticipated lifetime of the project	4

The combined score of these three criteria corresponds to a **Consequence Rating**, as follows:

Table 4: Method used to determine the Consequence Score

Combined Score (A+B+C)	3 – 4	5	6	7	8 - 9
Consequence Rating	Very low	Low	Medium	High	Very high

Once the consequence was derived, the probability of the impact occurring was considered. Probability of impact occurrence - this describes the likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time

- Improbable (very low to low likelihood).
- Possible (likely).
- Probable (distinct possibility).
- Definite (the impact would occur regardless of prevention or mitigation measures)

The probability of the impact using is presented in the table below.

Table 5: Probability Classification

Probability– the likelihood of the impact occurring	
Improbable	1
Possible	2
Probable	3
Definite	4

The overall significance of impacts was determined by considering consequence and probability using the rating system prescribed below

Table 6: Impact significance ratings

		Probability			
		Improbable	Possible	Probable	Definite
Consequence	Very Low	INSIGNIFICANT	INSIGNIFICANT	VERY LOW	VERY LOW
	Low	VERY LOW	VERY LOW	LOW	LOW
	Medium	LOW	LOW	MEDIUM	MEDIUM
	High	MEDIUM	MEDIUM	HIGH	HIGH
	Very High	HIGH	HIGH	VERY HIGH	VERY HIGH

Practicable mitigation and optimisation measures are recommended and impacts are rated in the prescribed way both without and with the assumed effective implementation of mitigation and optimisation measures.

The impact significance rating should be considered by authorities in their decision-making process based on the implications of ratings ascribed below:

- **Insignificant:** the potential impact is negligible and will not have an influence on the decision regarding the proposed activity/development.
- **Very Low:** the potential impact is very small and should not have any meaningful influence on the decision regarding the proposed activity/development.
- **Low:** the potential impact may not have any meaningful influence on the decision regarding the proposed activity/development.
- **Medium:** the potential impact should influence the decision regarding the proposed activity/development.
- **High:** the potential impact will affect the decision regarding the proposed

activity/development.

- **Very High:** the proposed activity should only be approved under special circumstances.

5.1.1 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)

Please refer to the full Impact Assessment in Appendix E.

5.1.2 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).

No comments or issues have been raised by the interested and affected parties yet

5.1.3 Motivation where no alternative sites were considered.

The proposed Wolve Kop aggregate, gravel and sand mine is required in order to support the Afrimat's mining operations and is dictated by the locality of the aggregate reserve. The mining operation will not require any infrastructure, only an excavator and drill for blasting and loading aggregate, gravel and sand and an ablution facility will be available on site. Therefore, no site layout alternatives were considered. The positioning of the of the access road is dictated by the fact that it is already existing, however which will accommodate the movement of vehicles and material carrying trucks into and out of the mine.

The No-Go option

In addition, the No-Go alternative is considered in the basic assessment in accordance with the requirements of the EIA Regulations 2014 as amended. The No-Go alternative implies no change in the site's status quo, in other words no aggregate and sand mining will take place.

The majority of the negative impacts associated with the project can be managed at reasonable cost and with prudent long-term planning and monitoring. The positive benefits for the region and the country are considerable and should be realised.

The No-Go option will therefore result in the non-realisation of an important economic development opportunity for Afrimat, the region and South Africa as a whole. Accordingly, this

is not an option for Afrimat, and has not been considered.

Importantly, this is previously mine site. Therefore, the impact will be minimal as this site has been mined before.

5.1.4 Statement motivating the alternative development location within the overall site. (Provide a statement motivating the final site layout that is proposed)

As mentioned above, the proposed Wolve Kop aggregate mine is required in order to support Afrimat's mining operations and is dictated by the locality of the aggregate reserve. The mining operation will not require any infrastructure, only an excavator and drill will be used. The positioning of the of the access road is therefore dictated by the fact that it is already existing which will accommodate the movement of vehicles and material carrying trucks to and from the mine.

5.1.5 Full description of the process undertaken to identify, assess and rank the impacts and risks the activity will impose on the preferred site (In respect of the final site layout plan) through the life of the activity. (Including (i) a description of all environmental issues and risks that erer identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

The process utilised to identify the impacts of the proposed activity included:

- Observations based on site visits;
- Input from the specialist baseline assessments and recommendations;
- Input from public participation;
- Consultation and discussions with the project team and Applicant;
- Application of previous knowledge and experience by the EAP for these types of projects in; and
- Knowledge and experience in the implementation of the EIA Regulations (2014) as amended. `

In terms of accessing and ranking the impacts, the EAP identified all environmental activities, aspects and impacts pertinent to the area and activity. This was supported by the identification of receptors and resources, which allowed for an understanding of the impact pathway and an assessment of the sensitivity to change. The identification and degree of assessment was based on the understanding of the following:

- An **activity** is a distinct process or task undertaken by an organisation for which a responsibility can be assigned. Activities also include facilities or pieces of infrastructure that are controlled by an organisation;

- An **environmental aspect** is an 'element of an organisations activities, products and services which can interact with the environment'. The interaction of an aspect with the environment may result in an impact;
- **Environmental risks / impacts** are the consequences of these aspects on environmental resources or receptors of particular value or sensitivity;
- **Receptors** comprise but are not limited to people or man-made structures;
- **Resources** include components of the biophysical environment;

The significance of the impact was then assessed by rating each variable according to defined criteria provide is Section 5.1 above. The purpose of the rating was to develop a clear understanding of influences and processes associated with each impact, both with and without mitigation

5.1.6 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).The supporting impact assessment conducted by the EAP must be attached as an appendix, marked **Appendix E**

Table 7: Assessment of identified significant impacts

ACTIVITY whether listed or not listed. **(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)**.	**POTENTIAL IMPACT** **(e.g. dust, noise, drainage surface disturbance,fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)**	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated **(e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)**	**SIGNIFICANCE** if not mitigated	**MITIGATION TYPE** **(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation.**	**SIGNIFICANCE** if mitigated
Demarcation of the mining area	Disturbance outside the mining area	Land outside the mining area	Construction and Operational	Medium - High	• Control through management and monitoring of coloured steel droppers or wooden stakes throughout mining • Control through management and monitoring of coloured steel droppers or wooden stakes throughout mining • Demarcate the watercourse areas and buffer zones to limit disturbance, clearly mark these areas as no-go areas	Low

Clearance of land for the establishment of infrastructure	Loss or damage of plant species of conservation importance	Vegetation	Construction and operational	Medium	• During mining, avoid the unnecessary disturbance of the surrounding vegetation by means of demarcation, especially on the western and southern sides. • A 30-50 m wide buffer should be allowed and maintained along the boundary of the fenced-off area and no mining activities should encroach onto the boundary. • Position mining infrastructure and stockpile area in areas previously disturbed by mining activities. Avoid the steeper, rocky slopes. • Minimise the construction of new roads by using existing access roads. • Strict control must be exercised to avoid the harming/catching of wildlife.	Low
Clearance of land for the expansion of the site	Dust generation	Air quality	Construction and operation	Moderate	• Control through dust suppression • Control through limiting the speed of vehicle movement to a maximum speed of 40km/h • Control through monitoring of dustfall to determine if measures are effective • Progressive rehabilitation will be implemented to minimise exposed areas on mining areas and haul roads	Low

Clearance of land for establishment of infrastructure (processing plant and construction)	Soil erosion, compaction and contamination	Soil	Construction and Operation	High/Moderate	• Prevent through restricting the disturbed area • Prevent through restricting spillage from haulage vehicles • Control through removal of all utilisable soil and storage of the same • Control through implementation of storm • Prevent through establishment of runoff cut-off trenches and detention ponds on the down-slope side of mine. • Progressive rehabilitation will be implemented to minimise exposed areas • Runoff from the construction area must be managed to avoid erosion and pollution problems. • Implementation of best management practices as per approved method statements • Monitoring should be done to ensure that sediment pollution is timeously dressed	Moderate/Low
	Visual impact	Visual receptors	Construction and operation	Medium	• Avoid/prevent leaving any building material or waste on site • Proper upkeep and maintenance of the site must be done. • Vegetation cover should be maintained at the periphery to reduce the visual impact. • Where necessary, vegetated areas should not be disturbed until existing quarried areas are exhausted. • Use overburden to create berms to reduce impact of excavations in the pit	Low

	Destruction of heritage resources	Archaeology and heritage resources	Construction and operational	Low	• Should any artefact of cultural significance be found, work must cease at the site of the find and this person must report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. • The Site Manager must then make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area before informing SAHRA/PHRA. • If a human grave/burial is encountered, the remains must be left as undisturbed as possible before the local police and SAHRA are informed. If the burial is deemed to be over 60 years old and no foul play is suspected, an emergency exhumation permit may be issued by SAHRA for an archaeologist to exhume the remains.	Low
	Increase in poaching activities	Wild animals	Construction and operational	Medium	• It is recommended that all labour teams be accommodated off-site, thereby reducing the risk of poaching during the night. • Labour teams should be supervised during the day and no wandering around the natural habitat adjacent to the study area should be allowed. • The proposed quarry should be fenced off to prevent access to adjacent natural habitat.	Very Low

• Excavations	• Blasted rock may be tainted by nitrate explosives with potential to contaminate groundwater	• Groundwater	Construction	Medium	• Clean water should be used for dust suppression, and ensure no potential contaminants are deposited on surfaces where dust suppression will be undertaken • Establish a storm water management system.	Low
	• Accidental fuel and oil spillages may contaminate groundwater • Dust suppression may wash contaminants from surface to underlying aquifers	• Groundwater	Construction	Medium	• Use the water supply borehole as a monitoring borehole	Low
• Extraction of dolerite • Installation of planned groundwater abstraction • Disposal of industrial and domestic waste. • Dust suppression. • Monitoring of impacts.	• Groundwater abstraction through boreholes may deplete groundwater resources of neighboring groundwater users • Final aggregate may be tainted by nitrate explosives with potential to contaminate groundwater	Groundwater	Operational	Medium	• Maintain an efficient storm water management system • Continue groundwater monitoring	Low

Stripping and stockpiling of topsoil	Soil erosion	Soil	Operational	Medium	• Control through restricting the footprint to be used • Prevent through restricting the disturbed area • Control through rehabilitation by replacing topsoil on the stripped land before the next strip is opened and mined. • Control by restricting topsoil stockpiles to 0.5m in height and must not be compacted • Control through implementation of storm water management measures	Low
	Stormwater run-off	Soil	Construction, operation	High	• Additional erosion protection measures should be installed downstream from stormwater outlets to ensure continued function of the wetland/river • River sediments/debris are not to be used for construction (e.g.: rocks for use in gabion baskets/reno mattresses) or to be permanently removed from the system • Removed sediment should be stockpiled for rehabilitation • Do not allow excavations to stand open for longer than 2 days where at all possible. Excavations should preferably be opened and closed on the same day	Medium

Transport material from mining area to clients	• Dust pollution • Pedestrian safety on site	Air quality	Construction and Operational	Medium	• Control through minimisation of vehicle movement • Control by monitoring trucks that collect material to ensure that they are covered • A speed limit of 40km/h must not be exceeded	Low

Noise generation	Noise pollution to surrounding neighborhood	Sensitive receptors working on site and those outside the site	Construction, operation and Decommissioning	Medium	• Limit operation time to daylight hours between 07h00 and 18h00 on weekdays and 07h00-17h00 on weekends. Inform neighbours on time should night shift work be done • Regular servicing of mining equipment to ensure noise suppression mechanisms are effective e.g. install exhaust mufflers • Switching off equipment when not in use • Employees be obliged to use individual protective equipment against exaggerated noise in the work environment • Conduct high level noise activities during the day to avoid the inconvenience caused by noise during the night in locations occupied by humans, or sensitive to noise. • Fixed noise producing sources such as generators, pump stations and crushers to be either housed in enclosures or barriers out up around the noise source should the noise be determined to be too excessive? This would therefore not be required from onset. • The on-site road network will be well maintained to limit body noise from empty trucks travelling on internal roads • All access roads will be signposted and speed limited (40km/h) to minimise transport noise	Medium

					• A noise barrier in the form of a berm, tree break or similar noise fence should be constructed on the boundary of the proposed crushing and screening area as soon as possible and around other noise • The barrier will help with the attenuation of noise produced of noise produced by the proposed activities. A basic rule of thumb for barrier height is: Any noise barrier should be at least as tall as the line-of-sight between the noise source and the receiver, plus 30%. So if the line-of-sight is 10m high, then the barrier should at least be 13m tall for best performance	
Placement of mobile ablution facility/ies within the boundaries of the site	Leakage of the toilet	Soil	Construction	Medium	• Control through regular servicing/emptying chemical toilets. Proof of this must be obtained and kept on record.	Low
Drilling and Blasting	• Dust resulting from blasting • Fly rock • Noise resulting from blasting	Air Quality	Operation	Medium	• Control by evacuating all persons within 500m of a blast site • Control by limiting lasting operations to daylight hours when ambient noise levels are highest • Maintaining good public relations with the surrounding neighbours, i.e warning the local communities well in advance before blasts • Conduct Seismograph calibration tests to ensure that blasting standards are met.	Low

Crushing and screening plant	• Fugitive dust (containing TSP, as well as PM_{10} and $PM_{2.5}$).	Ambient air	Operational	Medium - High	• Fog Suppression System • Dust extraction hoods and cyclones and/or bag filters • Conventional water sprays, whose performance can be enhanced with the addition of wetting agents that assist in water to dust particle contact, lessening the amount of water required • Locating plant so that it is sheltered from the prevailing wind and the introduction of plant shelterbelts • Extra constant supervision at crushing often requires at this typically dusty process is almost always required • In order to reduce dust contamination in crusher control rooms and operator's positions, these areas should be completely enclosed and ventilated with uncontaminated air to create a positive air pressure - provide air conditioning so the operator has no need to open doors or windows • Protection of the control room will, also create a healthier environment, protect the electrical equipment from dust contamination that may lead to malfunctioning	Low - Medium
Material handling	• Dust from material handling	Ambient air quality	Operational	Medium	• Water sprays at the material handling points. • Covered conveyor transfer points. • Material wetting before being transferred.	Low - Medium

Demolition & Removal of all infrastructure (incl. transportation off site)	Erosion and dust	Ambient air quality and noise	Closure and Decommissioning Phase	Medium	• Demolition should not be performed during windy periods (August, September and October), as dust levels and the area affected by dust fallout will increase. • The area of disturbance must be kept to a minimum, as demolition should be done judiciously avoid the exposure of larger areas to wind erosion. • Maintain 40km/h speed limit. • Cabs of machines should be swept or vacuumed regularly to remove accumulated dust. • Exhaust pipes of vehicles should be directed so that they do not raise dust. • Engine cooling fans of vehicles should be shrouded so that they do not raise dust. • Dust suppression of roads being used during rehabilitation should be enforced.	Low

Waste generation, storage and disposal	• Land pollution • Hazardous Leachate • Illegal dumping	Land pollution	Construction, Operation and Decommissioning	Medium	• Ensure segregation of hazardous wastes from non-hazardous. • During the construction phase, temporary storage of construction waste to be stored in a bunded designated area. • No burning of refuse wastes are on the premises or on surrounding premises • All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site • Sealable bins and containers must be made available for the storage of all streams of waste throughout the site. • Waste bins must be emptied on a regular basis as to ensure bins do not overflow. • No littering will not be permitted on site and general housekeeping should be enforced • Site must be kept clean and free of rubbish that could potentially attract animal pests and that bins are scavenger proof. • Separate waste skips/ bins for the different waste streams must be available on site • DO not dump waste of any nature, or any foreign material into any drainage line or stream • All waste to be disposed of at a suitably registered waste disposal facility • A suitable and registered waste service provider must remove all waste materials off site. • Proof of disposal to be obtained and kept on record	Low

Employment of Workers, skills training and procurement of construction materials	Job creation	Job creation	Construction & Operational	Positive impact	• During community engagement/information dissemination, emphasis must be placed on the fact that permanent employment is directly related to the feasibility of the mine operations • Strict adherence to Labour legislation (in terms of the employment of minors etc.) must at all times be made. • Maximise and monitor local recruitment where required • Promote employment of women and youth • Train locally recruited construction workers for longer-term employment where possible • Support economic diversification through development of alternative markets.	Positive impact

Fuel and oil storage	• Soil and groundwater contamination	Soil and ground water pollution	Operational and Decommissioning	Medium	• Store fuel in bunded tank with apron • Control by establishing a temporary waste storage facility with concrete floor, sloping concrete apron and oil trap • Maintenance/servicing of vehicle and machineries must be conducted on a concrete and roofed floor • Oil spill kit must be kept within a clearly visible area • Oil spills to be cleaned immediately and affected ground/soil to be uplifted and bagged for removal off site to approved dump facility for hydro carbons or treat affected soil accordingly • All personnel must wear issued PPE at all times as indicated by safety signs. • Fuel storage facilities must be inspected on a regular basis. • Spill prevention measures to be implemented at all times. • Firefighting equipment such as fire extinguishers must be made available and be inspected on a regular basis. • A spill kit must be made available at all time. • All spills to be cleaned immediately. • Storage facilities must be inspected on a regular basis. • All leaks to be repaired immediately	Low

• Cessation of operations and cleaning up • Monitoring of impacts	• Positive impact relating to groundwater level recovery once abstraction stops. Recovery expected to equilibrate with the prevailing groundwater level in the area. • Residual groundwater contamination may continue	Groundwater	High	Closure and decommissioning	• Continue groundwater monitoring	High
Rehabilitation	Soil erosion	Soil	Operational and Closure	High	• The area disturbed by mining activities, such as the stockpile areas, crusher plant, offices and roads, should be rehabilitated post mining. This can be achieved by means of hydro-seeding and the re-establishment of suitable indigenous species. Most of the plant material (seeds and cuttings) needed can be sourced from plants in the surrounding vegetation or suitable indigenous plant nurseries. A budget should be allocated for this purpose. • Prevent through restricting the disturbed area • Plants with roots that bind the soil, and vegetation cover should be used that breaks the impact of falling raindrops, thus preventing wind and water erosion. • Spreading of soil must be performed on less windy days. • The best time to re-vegetate the area must be linked to the distribution and reliability of the rainfall. • Leaving the surface of the soil in a coarse condition reduces wind erosion and ultimately reduces the dust levels.	Medium

	Establishment of alien invasive vegetation	Alien invasive plant	Operational and Closure		• As an operational phase impact, alien control is required as an ongoing management concern. The spread of aliens into the adjacent area must also be prevented. Weeds, such as *Datura stramonium* and *Salsola kali*, can be easily controlled by hand-pulling or by using herbicides. Certain species, such as *Opuntia ficus-indica*, requires the removal and destruction of the entire plant.	
	Dust emission	Air Quality	Closure and decommission		• Revegetation of exposed areas for long-term dust and water erosion control is commonly used and is the most cost-effective option. • Plants with roots that bind the soil, and vegetation cover should be used that breaks the impact of falling raindrops, thus preventing wind and water erosion. • Plants used for revegetation should be indigenous to the area, hardy, fast-growing, nitrogen-fixing, provide high plant cover, be adapted to growing on exposed and disturbed soil (pioneer plants) and should easily be propagated by seed or cuttings. • The area of disturbance must be kept to a minimum, as demolition should be done judiciously avoid the exposure of larger areas to wind erosion. • Spreading of soil must be performed on less windy days. • The bare soil will be prone to erosion and therefore there is need to reduce the velocity near the surface of the soil by re-vegetation. •	•

					• Leaving the surface of soil in a coarse condition reduces wind erosion and ultimately reduces dust levels. • Additional mitigation measures include keeping soil moist using sprays or water tanks, using wind breaks. • The best time to re-vegetate the area must be linked to the distribution and reliability of rainfall. • Cabs of machines should be swept or vacuumed regularly to remove accumulated dust. • Exhaust pipes of vehicles should be directed so that they do not raise dust. • Engine cooling fans of vehicles should be shrouded so that they do not raise dust. • Hard surfaced haul roads or standing areas to be washed down and swept to remove accumulated dust. • Dust suppression of roads being used during rehabilitation should be enforced. • It is recommended that the rehabilitation by vegetating should begin during the operational phase already as the objective is to minimize the erosion. • These measures should be aimed to reduce the potential for fugitive dust generation and render the impacts on ambient air quality negligible.	

6. 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):-

LIST OF STUDIES UNDERTAKEN	RECOMMENDATIONS OF SPECIALIST REPORTS	SPECIALIST RECOMMENDATIONS THAT HAVE BEEN INCLUDED IN THE EIA REPORT (Mark with an X where applicable)	REFERENCE TO APPLICABLE SECTION OF REPORT WHERE SPECIALIST RECOMMENDATIONS HAVE BEEN INCLUDED.
Heritage Impact Assessment	The study did not find any permanent barriers to the mining permit application. It is the considered opinion of the authors that the mining permit application may be approved as planned from a heritage resources management perspective, provided that mitigation measures are implemented if and when required. The following recommendations are based on the results of the AIA/HIA research, cultural heritage background review, site inspection and assessment of significance. From a heritage point of view, the proposed mining development is viable because the proposed project site has been previously altered by infrastructure developments. Overall, impacts to heritage resources are not considered to be significant for the project receiving environment. It is thus concluded that the project may be cleared to proceed as planned subject to the Heritage Authority ensuring that detailed heritage monitoring procedures are included in the project EMPr for the mining phase, include chance archaeological finds mitigation procedure in the project EMPr	**X**	Impact Assessment and EMPr (Part B)

Geohydrological Impact Assessment Study	From a geohydrological prospective activities of the Wolvekop Quarry will have a minimal impact on the groundwater of the area. As the Quarry Water (rainfall held within the excavation) is of poorer quality than the surrounding groundwater with regards to elevated sodium, nitrates, and sulphates, unnecessary discharge into any proximal drainage channels should be avoided. The water can be used for dust suppression when and if necessary, as the water will evaporate before infiltration in to the hard, and low permeability bedrock below the quarry site area.	**X**	Impact Assessment and EMPr (Part B)
Botanical/Ecological Impact Assessment	The proposed mining area is well contained inside a fenced-off area and largely on land previously disturbed by mining activities. Only a narrow strip (0.5 ha) of fair quality veld on the southern side of the quarry will need to be cleared to allow for expansion of mining in that direction. The surrounding natural vegetation on the western and southern sides seems to be in a good condition and should be protected as far as possible. With mitigation, the impact of mining on biodiversity will be of a low order. It is therefore recommended that that mining activities be allowed to proceed subject to certain mitigation measures.	**X**	Impact Assessment and EMPr (Part B)
Palaeontology	The very highly paleontologically sensitive Katberg Formation will be exposed If mining extends to the base of the dolerite sill. In the event that fossils are found in the Katberg Formation during mining or development, the ECO must follow the Chance Palaeontological Find Procedure as stipulated below and to contact a palaeontologist for further advice.	**X**	Impact Assessment and EMPr (Part B)
Air Quality Impact Assessment	The findings reported here is therefore a combination of historical, observed and previously modelled data and provided the background and predicted scenario of various pollutants in the Afrimat Wolve Kop project mining area. The construction and operational phases were assessed. Based on the dispersion modelling simulations, the following conclusions can be summarized as follows:		

	PM_{10} For the unmitigated and mitigated Daily PM_{10} concentrations it was predicted not to be higher than the 75 µg/m³ limit for any of the sensitive receptors. The annual average PM_{10} limit of 40 µg/m³ are not predicted to exceed at any of the identified sensitive receptors for any of the modelled scenarios. **TSP** In the mitigated and unmitigated scenarios none of the sensitive receptors are predicted to exceed the monthly dust fallout for the highest month residential limit of 600 mg/m²/day. The predicted annual dust fall out for the mitigated and unmitigated scenarios are not predicted to exceed the annual limit of 300 mg/m²/day at any of the sensitive receptors. **Recommendations** • Based on the results presented the following further recommendations are outlined: • Fallout monitoring should be established to include all 8 compass directions. • Fallout monitoring is to be continued for the life of mine to better assess the level of nuisance dust associated with both mining and process related operations. Sampling of fallout should be undertaken within the neighbouring areas as well as on-site • PM_{10} and $PM_{2.5}$ dust monitoring must also be undertaken at the same sites as mentioned under the previous bullet but also in and around potential fugitive emission sources to determine mitigation measures and focus management efforts.		

	Further mitigation measures that should be applied, if it is found that dust and PM_{10} levels are measured to be exceeding the limits are: • Fully sealed Pit and Access Haul Roads to achieve 90-100% mitigation on these roads. The impacts from dust fallout and Particulate matter can be reduced by implementing dust control measures. The highest intensity of the construction work should be carried out during the summer months and not over the harsh winter months as can result in increased dispersion of fugitive dust. The mine should ensure that unpaved roads are continuously watered and treated with dust binding additive products to reduce the volume of fugitive dust emitted from unpaved roads. The mitigation and management measures for mining operation and discussed in this report should be sufficient to ensure the mining operation can be conducted with minimal impact on the receiving environment and therefore not have a detrimental effect and can go ahead.		

Attach copies of Specialist Reports as appendices

6.1 Environmental impact statement

Summary of the key findings of the environmental impact assessment;

This Environmental Impact Assessment illustrates that there are various potential negative and positive impacts that may arise as a result of the extension of the Wolve Kop quarry which will have an effect on the following environmental components:

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

The applicant is committed in fulfilling their corporate responsibility, which included social and environmental responsible practices. Ongoing monitoring is undertaken and annual performance assessments are conducted. Therefore, no impacts which could cause detrimental harm to the environment were identified as part of this assessment, should the prescribed mitigation measures proposed as part of this report, as well as in the attached Impact Assessment and Environmental Management Programme (EMPr) be implemented.

The proposed project layout is preferred from the environmental perspective as the mining occurs within a highly transformed and disturbed area. In general, the proposed mine is situated in an endangered area however mitigation measures put in place will ensure the preservation of endangered species. The existing haul road will be used and will thus limit the impact of creating new roads, thereby reducing further environmental impacts.

Further, assuming all phases of the project adhere to the conditions stated in the EMPr (Part B of this report) it is believed that the noise and air quality impacts associated with the proposed extension of the mine and associated infrastructure will have low significant, adverse environmental impact on the surrounding environment.

6.2 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 .Attach as **Appendix B**

It is important to note the crushing will be done most probably with mobile crushers so they will be working out of the blasted rock face and will move with the quarry as it develops. Final Site Map has been attached as Appendix B4.

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

A number of significant impacts associated to the proposed activities have been identified in previous section in this report as part of the EIA process. In the review of the specialist assessment reports highlighted in section j) above, specific environmental and social sensitive receptors were identified. The table below summarises the high significant potential impacts associated to the proposed Wolve Kop Mining Permit.

Table 8: Summary of Impacts

Activity	Potential Impact
OPERATIONAL PHASE	
Topsoil and subsoil stripping & stockpiling for mining operation area	Soil erosion, compaction and contamination
	Vegetation and habitat loss
	Alteration of the visual environment and topography
	Invasion by alien invasive species
Fuel storage	Hydrocarbon Contamination
	Contamination of water Resources
	Chemical Fires
	Degradation of soil resources
Drilling and Blasting	Dust resulting from blasting
	Fly rock
	Noise resulting from blasting
Transport material from mining area to clients	Dust pollution
	Pedestrian safety on site
Social Impacts	Employment opportunities
	Health, Safety and Security issues
Waste management	Land pollution
	Soil contamination through hazardous leachate
DECOMMISSIONING PHASE	
Demolition / removal of portable and related infrastructure	Erosion
	General Waste generation and littering
Rehabilitation of the lay down, stockpile and mining areas	Erosion
	Influx of alien invasive vegetation

	Degradation of soil resources

However, no impacts which could cause detrimental harm to the environment were identified as part of this assessment, should the prescribed mitigation measures proposed as part of this report, as well as in the attached Impact Assessment and EMPr be implemented.

6.4 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 purpose of the EMPr is to provide relevant management measures to conduct activities with due care and diligence, as well as avoid / limit any adverse impacts of the operation. The EMPr is compiled to help control impacts that may occur to meet acceptable standards, both as a legal and social responsibility to the environment within which the activity takes place. The purpose of the EMPr is to provide relevant management measures to conduct activities with due care and diligence, as well as avoid / limit any adverse impacts of the operation. The EMPr is compiled to help control impacts that may occur to meet acceptable standards, both as a legal and social responsibility to the environment within which the activity takes place.

The objectives for the EMPr are:

- To develop, implement and maintain effective management systems for the environmental aspects of the mine extension;
- To document details of environmental protection infrastructure and controls so that they are able to provide long term protection for the natural environment;
- Ensuring compliance to legislation, regulations, and national standards throughout the life cycle of the project;
- Ensure that activities are carried out so as to aid rehabilitation;
- All Environmental Management considerations are implemented during the construction, operational and decommissioning phases of the project.

The following socio–economic objectives should be attained during the entire life cycle of the proposed activities:

- Adhere to an open and transparent communication procedure with stakeholders at all times.
- Ensure that accurate and regular information is communicated to I&APs in a manner which is understandable and accessible.
- Mitigate negative impacts.
- Enhance project benefits and minimise negative impacts through intensive consultation with stakeholders.

- Assemble adequate, accurate, appropriate, and relevant socio-economic information relating to the context of the operation.
- Ensure that recruitment strategies for the mine, prioritise the sourcing of local labour, and share in gender equality.
- Ensure an atmosphere of equality and non-discrimination among the workforce.
- Contribute to the development of functional literacy and numeracy among employees.
- Empower the workforce to develop skills that will equip them to obtain employment in other sectors of the economy.
- Contribute to the development of a self-reliant (not dependent on the mine) community surrounding the area of operation.
- Ensure that decommissioning and retrenchments take place in a legally compliant and humane manner.

6.5 Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

The conditions for authorisation are recommended to include the following:

- All mitigation measures and management of identified impacts recommended by the Specialists as part of this report and EMPr must be adhered to and implemented during the construction and operational phases of the project;
- Conditions stipulated in all other permits or authorisations must be implemented;
- A dust monitoring system is to be established and managed by the Applicant to determine the dust fallout generated on site by activities;
- Maintain lines of communication with the neighbours of properties close to the mine;
- Undertake continual closure and rehabilitation concurrently with active mining;
- Revise closure cost assessment on annual basis as required by NEMA;
- Conditions stipulated in the final EMPr and closure plan must be adhered to;
- Any event resulting in the spill or leak of hydrocarbons or any other hazardous solvents into the ground and/or water resources must be reported to all relevant authorities. All necessary documentation must be completed and submitted within the prescribed timeframes. Containment, clean-up and remediation must commence immediately pertaining to incidents in terms of section 30 of the NEMA, 1998. ; and
- All mitigation measures provided in this report must be implemented. Should the mitigation measures be deemed impractical, ineffective or cost prohibitive, Cape Lime may apply to the DMR to alter such mitigation measures accordingly. Any change in mitigation measures must be approved by the competent authority.

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

(Which relate to the assessment and mitigation measures proposed)

Section 50 (g) of the MPRDA requires the applicant to identify knowledge gaps and report on the adequacy of predictive methods, underlying assumptions and uncertainties encountered in compiling the required information.

For the purpose of this project, specialist's reports were conducted. Some specialists have identified gaps within the data they worked with, or highlighted some assumptions made during the discussion of their results or discussed some limitations to their studies. The gaps, assumptions and limitations are summarised below:

Botanical/Ecological Impact Assessment

Fieldwork was carried out early in the winter season, outside the main rainfall and flower season for the area. Flowering plants that only flower during the main rainfall season (i.e. January to March) or at other times of the year, such as certain bulbs, may have been missed. The overall confidence in the completeness and accuracy of the botanical findings is however considered to be moderate to good, given the disturbed/transformed state of a large part of the site. No follow-up survey is deemed necessary.

Geohydrology

During this study, certain assumptions limited the certainty of the data acquired and the outcome of this report.

- The groundwater quality was determined from one set of test results. Seasonal changes may occur in the chemistry of the water from the pit lakes, groundwater and stream which could not be accounted for.
- The coordinates of the NGA boreholes are sometimes found to be inaccurate. Hence, it was difficult to incorporate the NGA data accurately into the field hydrocensus.

Heritage Impact Assessment

The investigation has been influenced by the unpredictability of buried archaeological remains (absence of evidence does not mean evidence of absence) and the difficulty in establishing intangible heritage values. It should be noted that archaeological deposits (including graves and traces of archaeological heritage) usually occur below the ground level. Should artefacts or skeletal material be revealed at the site during construction, such activities should be halted immediately, and a competent heritage practitioner, SAHRA must be notified in order for an investigation and evaluation of the find(s) to take place (see NHRA, Section 36(6). Recommendations contained in this document do not exempt the applicant from complying with any national, provincial and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the NHRA. The author assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report.

The field survey did not include any form of subsurface inspection beyond the inspection of burrows, road cut sections, and the sections exposed by erosion. Some assumptions were made as part of the study and therefore some limitations, uncertainties and gaps in information would

apply. It should, however, be noted that these do not invalidate the findings of this study in any significant way:

- The proposed project activities will be limited to specific right of site as detailed in the development layout.
- The construction team to provide link and access to the proposed site by using the existing access roads and there will be no construction beyond the demarcated site.
- No excavations or sampling were undertaken, since a permit from heritage authorities is required to disturb a heritage resource. As such the results herein discussed are based on solely observed indicators. However, these surface observations concentrated on exposed sections such as road cuts and clear farmland.
- This study did not include any ethnographic and oral historical studies, nor did it investigate the settlement history of the area.

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

6.7.1 Reasons why the activity should be authorized or not.

Although the existing mine operations and proposed expansion will result in unavoidable adverse environmental impacts, no fatal flaws in the project have been identified thus far through the EIA process. The mine is located in area that is not considered particularly sensitive or vulnerable, none of these adverse impacts are considered unacceptably significant and all can be managed to tolerable levels through the effective implementation of the recommended mitigation measures.

The EAP believes that specialist studies have shown that the mining is generally acceptable. The Environmental Impact Assessment Study has outlined key environmental and social issues associated with the proposed project, and described the potential environmental and social benefits and impacts, described mitigation measures, outlined the final layout and provided the environmental impact statement.

The EAP together with the EIA team are of the opinion that a thorough and due environmental process, as outlined in Government Notices R982 and R984, promulgated under National Environmental Management Act (NEMA, Act 107 of 1998) as amended, was followed in undertaking the Environmental Impact Assessment and associated Public Participation Process. The analysis of key environmental impacts assessed during both the Scoping and EIA phases has shown that there are no negative impacts that can be classified as fatal flaws. The findings conclude that, provided that the recommended mitigation and management measures are implemented, there are no environmental fatal flaws that post the provided mitigation, should prevent the proposed project from proceeding. Therefore, based on the

above- mentioned factors, it is recommended that the proposed for Environmental Impact Assessment Authorisation for the construction of haul road and lime kilns be authorised.

6.7.2 Conditions that must be included in the authorisation

The conditions for authorisation are recommended to include the following:

- All mitigation measures and management of identified impacts recommended by the Specialists as part of this report and EMPr must be adhered to and implemented during the construction and operational phases of the project;
- Conditions stipulated in all other permits or authorisations must be implemented;
- A dust monitoring system is to be established and managed by the Applicant to determine the dust fallout generated on site by activities;
- Maintain lines of communication with the neighbors of properties close to the mine;
- Undertake continual closure and rehabilitation concurrently with active mining;
- Revise closure cost assessment on annual basis as required by NEMA;
- Conditions stipulated in the final EMPr and closure plan must be adhered to;
- Any event resulting in the spill or leak of hydrocarbons or any other hazardous solvents into the ground and/or water resources must be reported to all relevant authorities. All necessary documentation must be completed and submitted within the prescribed timeframes. Containment, clean-up and remediation must commence immediately pertaining to incidents in terms of section 30 of the NEMA, 1998. ; and
- All mitigation measures provided in this report must be implemented. Should the mitigation measures be deemed impractical, ineffective or cost prohibitive, Cape Lime may apply to the DMR to alter such mitigation measures accordingly. Any change in mitigation measures must be approved by the competent authority.

Furthermore, it is also suggested that, where relevant, the competent authority stipulates any additional mitigation measures that they consider necessary as conditions in the Environmental Authorisation.

6.7.3 Period for which the Environmental Authorisation is required.

The environmental authorisation is required to mine the farm Wolve Kop mine for a period of three (3) years. However, the permit may be renewed should the applicant wish to continue mining after the three year period.

6.8 Undertaking

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

The undertaking is provided at the end of the EMPr.

6.9 Financial Provision

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

The Financial Provision and closure liability for Wolve Kop Mine has been determined currently at a value of at R175 475.85 **(Incl. VAT).**

6.9.1 Explain how the aforesaid amount was derived.

The amount was calculated according to the methodology in the Guideline Documents for the Evaluation of the Quantum of Closure Related Financial Provision Provided by a Mine as published by the DMR. Table 9 below indicate the calculations.

Table 9: Determination of Quantum

Mine	**Wolvekop Quarry**						
Applicant :	**Afrimat Aggregates (Trading) (Pty) Ltd-**						
Evaluator:	**Tali Tshikhovhokhovho**				**Location:**	**Middelburg**	
Reference :	**0**				**Date:**	**Jul 2021**	
	Environmental Parameters						
	Risk Class	C					
	Area sensitivity	Low					
	Nature of terrain	Flat					
	Proximity to Urban Ara	Peri - urban					
No.	**Description**	**Unit**	**A Quantity**	**B Master Rate**	**C Multiplication factor**	**D Weighting factor 1**	**E=A*B*C*D Amount (Rands)**
1	Dismantling of processing plant and related structures (including overland conveyors and powerlines)	m3	0	R 17.59	1	1	R 0.00
2 (A)	Demolition of steel buildings and structures	m2	0	R 244.97	1	1	R 0.00
2(B)	Demolition of reinforced concrete buildings and structures	m2	0	R 361.00	1	1	R 0.00
3	Rehabilitation of access roads	m2	0	R 43.84	1	1	R 0.00
4 (A)	Demolition and rehabilitation of electrified railway lines	m	0	R 425.47	1	1	R 0.00
4 (B)	Demolition and rehabilitation of non-electrified railway lines	m	0	R 232.07	1	1	R 0.00
5	Demolition of housing and/or administration facilities	m2	0	R 489.93	1	1	R 0.00
6	Opencast rehabilitation including final voids and ramps	ha	3	R 249 350.95	0.04	1	R 29 922.11
7	Sealing of shafts adits and inclines	m3	0	R 131.51	1	1	R 0.00
8 (A)	Rehabilitation of overburden and spoils	ha	0	R 171 219.27	1	1	R 0.00
8 (B)	Rehabilitation of processing waste deposits and evaporation ponds (non-polluting potential)	ha	0	R 213 250.51	1	1	R 0.00
8 (C)	Rehabilitation of processing waste deposits and evaporation ponds (polluting potential)	ha	0	R 619 380.55	0.51	1	R 0.00
9	Rehabilitation of subsided areas	ha	0	R 143 370.35	1	1	R 0.00
10	General surface rehabilitation	ha	0	R 135 634.54	1	1	R 0.00
11	River diversions	ha	0	R 135 634.54	1	1	R 0.00
12	Fencing	m	0	R 154.72	1	1	R 0.00
13	Water management	ha	0	R 51 572.07	0.17	1	R 0.00
14	2 to 3 years of maintenance and aftercare	ha	3	R 18 050.22	1	1	R 54 150.67
15 (A)	Specialist study	Sum	1	20 193.50	1	1	R 20 193.50
15 (B)	Specialist study	Sum	1	20 193.50	1	1	R 20 193.50
					Sub Total 1		R 124 459.79
1	Preliminary and General		R 14 935.17		**weighting factor 2** 1.05		R 15 681.93
2	Contingencies		R 12 445.98				R 12 445.98
					Subtotal 2		R 152 587.70
					VAT (15%)		R 22 888.15
					Grand Total		**R 175 475.85**

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

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

Afrimat will provide a bank guarantee to ensure the financial provision.

6.10 Specific Information required by the competent Authority

6.9.1 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:-

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

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

The aggregate, gravel and sand will be used in the construction of planned upcoming renewable energy projects and/or construction and upgrade of roads in the Middelburg area. The activity will therefore also have a positive impact on the surrounding environment as it will aid in building development of the area. Afrimat will pay surface rental to the land owner.

ii. 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).

iii. 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)**.

SECTION OF NEMA	CONTENTS	DESCRIPTION OF HOW THE ASPECT HAS BEEN ADDRESSED
Section 24 (4)(a)		
24(4)(a)	Procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment –	Refer to Section i) for the methodology used for the assessment of impacts.

SECTION OF NEMA	CONTENTS	DESCRIPTION OF HOW THE ASPECT HAS BEEN ADDRESSED
	must ensure, with respect to every application for an environmental authorisation—	
24(4)(a)(i)	Coordination and cooperation between organs of state in the consideration of assessments where an activity falls under the jurisdiction of more than one organ of state;	The Draft Basic Assessment Report will be made available to all the relevant organs of state: Umsobomvu Local Municipality, Pixley ka Seme as District Municipality; DWS for commenting on water related issues; Eastern Cape Department: Economic Development, Environmental Affairs and Tourism as the authority regarding environmental matters; SAHRA as the authority regarding cultural heritage matters; Eastern Cape Department: Rural Development and Agrarian Reform as the authority governing the agricultural industry; and the land owner - for comment during the stakeholder engagement processes. The DMRE remains the Competent Authority.
24(4)(a)(ii)	That the findings and recommendations flowing from an investigation, the general objectives of integrated environmental management laid down in this Act and the principles of environmental management set out in section 2 are taken into account in any decision made by an organ of state in relation to any proposed policy, programme, process, plan or project;	The findings and recommendations of specialist investigations, and general objectives and the principles of environmental management are addressed in Section d of the Basic assessment - Part B of this document.
24(4)(a)(iii)	That a description of the environment likely to be significantly affected by the proposed activity is contained in such application;	Refer to Section h) iv) for a detailed description of the baseline environment likely to be affected by the project.
24(4)(a)(iv)	Investigation of the potential consequences for or impacts on the environment of the activity and assessment of the significance of those potential consequences or impacts; and	Refer to Appendix E for the assessment of potential impacts.

SECTION OF NEMA	CONTENTS	DESCRIPTION OF HOW THE ASPECT HAS BEEN ADDRESSED
24(4)(a)(v)	Public information and participation procedures which provide all interested and affected parties, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in those information and participation procedures; and	Refer to Section h) iii) which details the stakeholder engagement processes followed and still continue and Appendix B for the public participation process conducted.
24(4)(A)	Where environmental impact assessment has been identified as the environmental instrument to be utilised in informing an application for environmental authorisation, subsection (4)(b) is applicable	Environmental impact assessment has been identified as the environmental instrument therefore (4)(b) is applicable.
Section 24(4)(b)		
24(4)(b)	Must include, with respect to every application for an environmental authorisation and where applicable—	
24(4)(b)(i)	Investigation of the potential consequences or impacts of the alternatives to the activity on the environment and assessment of the significance of those potential consequences or impacts, including the option of not implementing the activity;	No alternatives were considered. The aggregate mining is dictated by the locality of the aggregate reserve. The applicant previously mined aggregate from the property adjacent to the proposed mining permit area and is well aware of the sales environment and demand for the product in the Eastern Cape region.
24(4)(b)(ii)	Investigation of mitigation measures to keep adverse consequences or impacts to a minimum;	Mitigation measures for potential impacts have been identified. Refer to Section e and f of the basic assessment report- Part B of this document.
24(4)(b)(iii)	Investigation, assessment and evaluation of the impact of any proposed listed or specified activity on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), excluding the national estate contemplated in section 3(2)(i)(vi) and (vii) of that Act;	Heritage considerations formed part of this environmental process. The National Heritage Resources Act has been taken into account, and a heritage assessment has been undertaken. Refer to Section t i) 2) and Appendix C1.
24(4)(b)(iv)	Reporting on gaps in knowledge, the adequacy of predictive methods and underlying assumptions, and	These have already been addressed in the specialist baseline studies conducted (refer

SECTION OF NEMA	CONTENTS	DESCRIPTION OF HOW THE ASPECT HAS BEEN ADDRESSED
	uncertainties encountered in compiling the required information;	to various appendices). Also refer to Section o.
24(4)(b)(v)	Investigation and formulation of arrangements for the monitoring and management of consequences for or impacts on the environment, and the assessment of the effectiveness of such arrangements after their implementation;	Management and monitoring measures have been specified in Section i)1) h) of the EMPr - Part B of this document. Implementation and suitability of the EMPr will be audited every second year as required by Regulation 54 of the MPRDA and audited as per the Environmental Authorisation in terms of Regulation 34 of the NEMA EIA Regulations (GNR982 of 2014).
24(4)(b)(vi)	Consideration of environmental attributes identified in the compilation of information and maps contemplated in subsection (3); and	Refer to Appendix A for maps indicating geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes informed by maps compiled by relevant departments.
24(3)	The Minister, or an MEC with the concurrence of the Minister, may compile information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes which must be taken into account by every competent authority.	
24(4)(b)(vii)	Provision for the adherence to requirements that are prescribed in a specific environmental management Act relevant to the listed or specified activity in question.	Listed activities for the Wolve Kop Project have been identified. Refer to Section d) i). Environmental impact assessment has been identified as the environmental instrument in terms of NEMA. No AEL is required as per NEMAQA. No WML is required as per NEMWA. Permits from western Cape DEADP will be required as per NEMBA. The area does not fall within a protected area as per NEMPAA.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

The purpose of this section is to provide a baseline Environmental Management Programme (EMPr) to essentially form part of Wolve Kop Mine Environmental Management System (EMS). The information provided in this section describes guidelines, operating procedures and rehabilitation/pollution control requirements. The EMPr is a legally binding document that the holder of the Environmental Authorisation is responsible for implementing.

The recommendations and procedures stipulated in the EMPr are based on the findings discussed in Part A of this report. It is therefore essential that this portion be carefully studied, understood, implemented and adhered to at all times.

Part B of this report should be considered as a “living” document, to be reviewed and amended as deemed necessary.

The reasons for review and/or amendments may be the following:

- Failure to identify certain risk or impacts during the initial EIA process; and
- The inability of the EMPr to sufficiently provide for the avoidance, management, and mitigation of environmental impacts associated with the undertaking of authorised activities.

In the event that additional activities, not specified in the Basic Assessment and EMPr, are to take place, the impacts associated to those activities must be assessed according to the requirements stipulated by GN R. 982. Therefore, this EMPr is only applicable to the listed activities stipulated in **Part A section d) i)** and/or those authorised in terms of the Environmental Authorisation.

1. DRAFT ENVIRONMENTAL MANAGEMENT PROGRAMME.

1.1 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 details of the EAP are provided in Part A, Section 3 (a) above

1.2 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 aspects of the activity covered by the EMPr re detailed in Part A, Section 1 (h)

1.3 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)

1.4 Description of Impact management objectives including management statements

1.4.1 Determination of closure objectives. (ensure that the closure objectives are informed by the type of environment described)

The closure objectives, identified for the Wolve Kop, Closure and Liability plan (Appendix E). The main objective for the project proposal for the end land use of the mining area is to rehabilitate the land to a livestock grazing area.

By ensuring the following, a physically stable and sustainable landscape post-mining is achievable:

- All temporary infrastructure, foreign material and stockpiles will be removed, reshaped and de-compacted as close to the original landscape profile as to ensure the capability to sustain indigenous vegetation.
- Ensure that community safety is not adversely impacted (i.e. the pit area is adequately fenced off to restrict entry by humans and animals).
- Maintain and restore biodiversity levels as to provide appropriate habitats.
- Shape all channels and drains to smooth slopes and integrate into natural drainage patterns.
- Remove alien and/or invasive vegetation.
- The stockpiles around the opencast pit will be shaped and re-vegetated only on the outward facing sides of the stockpiles. A security fence will be constructed on top of these stockpiles to ensure no trespassing or dangerous access to the open pit and the steep pit section of the stockpiles.

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

It is anticipated that that 26 m^3/day will be sufficient for the operation and this extracted water will be stored in Jojo tanks (5000 litres each). However, permitted volume and rate of water use required for the mining operations will be confirmed in the Water Use License that is currently being processed by the Department of Water Affairs.

1.4.3 Has a water use license has been applied for?

It is anticipated that a borehole will be drilled and water will be abstracted to serve as water supply for dust suppression and small quantities of process water, therefore, in terms of the National Water Act No. 36 of 1998, a Water Use license is required as per the following listed activities:

(a) Taking water from a water resource -

1.4.4 Impacts to be mitigated in their respective phases

Table 10: Measures to rehabilitate the environment affected by the undertaking of any listed activity

ACTIVITIES (as listed in 2.11.1)	**PHASE** of operation in which activity will take place. State; Planning and design, Pre- Construction' Construction, Operational, Rehabilitation, Closure, Post closure.	**SIZE AND SCALE of disturbance** (volumes, tonnages and hectares or m²)	**MITIGATION MEASURES** (describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)	**TIME PERIOD FOR IMPLEMENTATION** Describe the time period when the measures in the environmental management programme must be implemented Measures must be implemented when required. With regard to Rehabilitation specifically this must take place at the earliest opportunity. .With regard to Rehabilitation, therefore state either:-.. Upon cessation of the individual activity or. Upon the cessation of mining, bulk sampling or alluvial diamond prospecting as the case may be.
Demarcation of mining area (GN R 983, Listing Notice 1, Activity 21 as amended)	Before Construction commences	5 ha	• Control through management and monitoring of coloured steel droppers or wooden stakes throughout mining • Control through management and monitoring of coloured steel droppers or wooden stakes throughout mining	Mining is only allowed within the boundaries of the approved mining area: compliance with the MHSA 1996 and OHSA 1993	Before construction activities commences and throughout operation

Clearance of land for the expansion of the pit (GN R 983, Listing Notice 1, Activity as amended)	Construction and Operational	±2ha	• Topsoil salvage and replacement would be critical for rehabilitation. Where possible, topsoil, containing indigenous plant seeds, should be pushed aside and protected from compacting/trampling. Topsoil stockpiles must not exceed 0.5 m in height • Prevent through restricting the disturbed area • Prevent through restricting spillage from haulage vehicles • Control through removal of all utilisable soil and storage of the same • Control through implementation of storm • Prevent through establishment of runoff cut-off trenches and detention ponds on the down-slope side of mine. • Progressive rehabilitation will be implemented to minimise exposed areas	National Environmental Management: Biodiversity Act No. 10 of 2004	Mitigation can cease upon cessation of the individual activity (clearing of land and excavations)
Stripping and stockpiling of topsoil (GN R 983, Listing Notice 1, Activity 27 as amended)	Construction and Operational	±3ha (pit and infrastructure area	• Control through restricting the footprint to be used • Prevent through restricting the disturbed area • Control by restricting topsoil stockpiles to 0.5m in height and must not be compacted • Control through implementation of storm water management measures • Control through restricting the footprint to be used • Soil stripping should be forbidden on areas not required for mining work or on areas of retained vegetation • Separately stockpiling subsoils and overburden to be returned for backfilling in the correct soil horizon order	National Environmental Management Act 1998 as amended and meet rehabilitation standards/ objectives	During construction and throughout operational phase

Clearance of more than 300 square metres for the purposes of mining limestone deposits GNR 985, Listing Notice 3, Activity 12 (c) i.	Construction	±1ha	• Restrict quarry footprint to proposed development area (between the former quarry and the gravel road) and not affect the untransformed grasslands and stream to the east of the site • Natural areas where new infrastructure is planned should be checked by a suitably experienced botanist prior to construction at an optimal time of year (November to April) to locate all conservation-important species that may have been dormant during fieldwork. • All conservation-important flora in the Plains Grassland area should be removed and translocated to suitable habitat on adjacent habitat prior to any habitat destruction. • Protected plants, such as geophytes and bulbs should be translocated to adjacent suitable habitat if threatened by development. A permit may be necessary and the relocation should be done under the supervision of an experienced horticulturalist	National Environmental Management: Biodiversity Act No. 10 of 2004	During construction
Replace topsoil over mined-out area and Final rehabilitation of entire major area GNR 983, Listing Notice 1, Activity 22	Operational and decommissioning	To be determined during operation	• Prevent through restricting the disturbed area • Control though ongoing alien invasive eradication programme • Control by replacing topsoil on the stripped land should take place before the next strip is opened and mined • Prevent spraying of herbicides in the area as this also kills many adjacent non-target species • Mining should be phased, starting at the lowest point. Backfilling and rehabilitation of a mined-out area should be undertaken immediately after mining has been completed in that area. • Manage by rehabilitating and backfilling all erosion damage, such as erosion channels and runnels • Regular follow up clearing of alien invasive species would be required in order to obtain successful rehabilitation	Meet rehabilitation standards objectives	During operation and decommissioning

Table 11: Impact Management Outcomes (A description of impact management outcomes, identifying the standard of impact management required for the aspects contemplated in paragraph ();

ACTIVITY (whether listed or not listed). **(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)**.	**POTENTIAL IMPACT** **(e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)**	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated **(e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)**	**MITIGATION TYPE** **(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)** **E.g.** • **Modify through alternative method.** • **Control through noise control** • **Control through management and monitoring** • **Remedy through rehabilitation.**	**STANDARD TO BE ACHIEVED** **(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.**
Demarcation of the mining area	Disturbance outside the mining area	Coloured steel droppers or Wooden Stakes	Construction Phase	Control through management and monitoring of Coloured steel droppers or Wooden Stakes	Place visible Coloured steel droppers or Wooden Stakes at the boundaries of the mining area
Placement of ablution facility within the boundaries of the site	• Leakage of the toilet	Soil	Construction and Operational	• Control through cleaning and servicing the toilet regularly	Comply with Mine Health and Safety Act, 1996 (Act No. 29 of 1996) and Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) as amended
Clearance of land for establishment of ablution, expansion of access road and transport	• Impact on vegetation type, habitat and CBA's	Vegetation	Construction and Operational	• Control by properly storing indigenous plants in bags and then transplant in rehabilitation areas or taken to a nursery for later replanting	Conserve species within Critical Biodiversity Area Compliance to the 2014 Western Cape Biodiversity Framework (WCBF) and

	• Impact on Species of Conservation Concern • Impact on biological connectivity or linkage			• Prevent through searching and rescuing indigenous plants that transplant easily such as succulents and bulbs, should be undertaken ahead of mining • Control by replanting in late summer or early winter (May to July) • Where possible, topsoil, containing indigenous plant seeds, should be transferred immediately to rehabilitation areas rather than being stockpiled, as stockpiling kills important fungi, microbes, seed and soil fauna •	rehabilitation standards/objectives
Strip and stockpile topsoil	Soil erosion	Soil	Construction and Operational	• Control through restricting the footprint to be used • Prevent through restricting the disturbed area • Control through rehabilitation by replacing topsoil on the stripped land before the next strip is opened and mined. • Control by restricting topsoil stockpiles to 0.5m in height and must not be compacted • Control through immediately transferring topsoil containing indigenous plant seeds to rehabilitation areas where possible, rather than being stockpiled, as stockpiling kills	Rehabilitation standards/objectives

				important fungi, microbes, seed and soil fauna • Control through implementation of storm water management measures	
	Dust pollution	Air quality	Construction and Operation	• Control through dust suppression • Control through minimisation of vehicle movement • Monitor trucks that collect sand to ensure that they are covered • Control through rehabilitation by replacing topsoil on the stripped land should take place before the next strip is opened and mined. • Control by restricting topsoil stockpiles to 0.5m in height and must not be compacted	Dust generated must fall below the threshold as per the NEM:AQA National Dust Control Regulation Standards for industrial area
Excavations and loading of sand Transport sand from mining area to clients	Reduction in soil depth	Soil	Operational	• Control through implementation of proper topsoil management and rehabilitation	The impact should be avoided through correct replacement of topsoil to ensure the effective rehabilitation of the area
	Dust Pollution	Air Quality	Operational	• Control through dust suppression • Control through minimisation of vehicle movement • Monitor trucks that collect sand to ensure that they are covered • Restrict vehicle of to 40km/h on access road to prevent the generation of excess dust	Dust generated must fall below the threshold as per the NEM:AQA National Dust Control Regulation Standards for industrial area

	Damage to archaeological or heritage features	Heritage	Construction and Operational	• Prevent through reporting and evaluation of any archaeological or heritage features found • The Site Manager must then make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area before informing SAHRA/PHRA. • If a human grave/burial is encountered, the remains must be left as undisturbed as possible before the local police and SAHRA or HWC are informed. If the burial is deemed to be over 60 years old and no foul play is suspected, an emergency exhumation permit may be issued by SAHRA for an archaeologist to exhume the remains.	Compliance with the National Heritage Resources Act 25 of 1999 and South African Heritage Resources Agency
Rehabilitation of mined area	Soil erosion	Soil Vegetation	Operational	• Prevent through restricting the disturbed area • Control through rehabilitation by replacing topsoil on the stripped land should take place before the next strip is opened and mined. • Control by restricting topsoil stockpiles to 0.5m in height and must not be compacted • Prevent through restricting the disturbed area • Control through removal of all utilisable soil and storage of the same	Rehabilitation standards/objectives

				• Control through implementation of storm water management • measures	
	Establishment of alien invasive plant	Vegetation	Operational	• Control though alien invasive eradication programme • Control by replacing topsoil on the stripped land should take place before the next strip is opened and mined • Prevent spraying of herbicides in the area as this also kills many adjacent non-target species	Rehabilitation standards/objectives

Table 12: 1.1 Impact Management Actions (A description of impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (c) and (d) will be achieved).

ACTIVITY whether listed or not listed. **(E.g. Excavations, blasting, stockpiles, discard dumps or dams, Loading, hauling and transport, Water supply dams and boreholes, accommodation, offices, ablution, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc…etc…etc.)**.	**POTENTIAL IMPACT** **(e.g. dust, noise, drainage surface disturbance,fly rock, surface water contamination, groundwater contamination, air pollution etc….etc…)**	**ASPECTS AFFECTED**	**PHASE** In which impact is anticipated **(e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)**	**MITIGATION TYPE** **(modify, remedy, control, or stop) through (e.g. noise control measures, storm-water control, dust control, rehabilitation, design measures, blasting controls, avoidance, relocation, alternative activity etc. etc)E.g. Modify through alternative method. Control through noise control Control through management and monitoring through rehabilitation..**	**STANDARD TO BE ACHIEVED** **(Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.**
Demarcation of the mining area	Disturbance outside the mining area	Land outside the mining area	Construction and Operational	• Control through management and monitoring of coloured steel droppers or wooden stakes throughout mining • Control through management and monitoring of coloured steel droppers or wooden stakes throughout mining	Avoiding mining within unauthorised boundaries Maintain natural vegetation and reduce disturbance on functioning of the wetland

Clearance of land for the expansion of the site and establishment of the mine	Loss or damage of plant species of conservation importance	Terrestrial vegetation	Construction and operational	• During mining, avoid the unnecessary disturbance of the surrounding vegetation by means of demarcation, especially on the western and southern sides. • A 30-50 m wide buffer should be allowed for and maintained along the boundary of the fenced-off area and no mining activities should encroach onto the boundary. • Position mining infrastructure and stockpile area in areas previously disturbed by mining activities. Avoid the steeper, rocky slopes. • Minimise the construction of new roads by using existing ones. Strict control must be exercised to avoid the harming/catching of wildlife.	Maintain natural vegetation
	Dust generation	Air quality	Construction and operation	• Control through dust suppression • Control through limiting the speed of vehicle movement to a maximum speed of 40km/h • Control through monitoring of dustfall to determine if measures are effective • Progressive rehabilitation will be implemented to minimise exposed areas on mining areas and haul roads	Avoid creating health impact by reducing dust levels
	Visual impact	Visual receptors	Construction and operation	• Avoid/prevent leaving any building material or waste on site • Proper upkeep and maintenance of the site must be done. • Vegetation cover should be maintained at the periphery to reduce the visual impact. • Where necessary, vegetated areas should not be disturbed until existing quarried areas are exhausted. • Use overburden to create berms to reduce impact of excavations in the pit	Reduce the negative visual impact on receptors

	Soil erosion, compaction and contamination	Soil	Construction and Operation	• Prevent through restricting the disturbed area • Prevent through restricting spillage from haulage vehicles • Control through removal of all utilisable soil and storage of the same • Control through implementation of storm management measures • Prevent through establishment of runoff cut-off trenches and detention ponds on the down-slope side of mine. • Progressive rehabilitation will be implemented to minimise exposed areas • Runoff from the construction area must be managed to avoid erosion and pollution problems. • Implementation of best management practices as per approved method statements • Monitoring should be done to ensure that sediment pollution is timeously dressed	Correct topsoil replacement should be implemented to ensure effective rehabilitation of the area.
	Increase in poaching activities	Wild animals	Construction and operational	• It is recommended that all labour teams be accommodated off-site, thereby reducing the risk of poaching during the night. • Labour teams should be supervised during the day and no wandering around the natural habitat adjacent to the study area should be allowed. The proposed quarry should be fenced off to prevent access to adjacent natural habitat.	

Excavations	Loss and disturbance of fringe vegetation	Watercourse	Operational	• Operational activities should not impact on rehabilitated or naturally vegetated areas	

	Destruction of heritage resources	Archaeology and heritage resources	Construction and operational	• Should any artefact of cultural significance be found, work must cease at the site of the find and this person must report this find to their immediate supervisor, and through their supervisor to the senior on-site manager. • The Site Manager must then make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area before informing SAHRA/PHRA. • If a human grave/burial is encountered, the remains must be left as undisturbed as possible before the local police and SAHRA are informed. If the burial is deemed to be over 60 years old and no foul play is suspected, an emergency exhumation permit may be issued by SAHRA for an archaeologist to exhume the remains.	Protection of archaeological and heritage resources that may be uncovered on site
Clearing and excavations for mine expansion	Increase in poaching activities	Wild animals	Construction and operational	• It is recommended that all labour teams be accommodated off-site, thereby reducing the risk of poaching during the night. • Labour teams should be supervised during the day and no wandering around the natural habitat adjacent to the study area should be allowed. • The proposed quarry should be fenced off to prevent access to adjacent natural habitat.	Protection of wild animals (fauna)

• Excavations	• Changes in water quality due to foreign materials and increased nutrients		Operational	• Locate sanitation facilities outside watercourse/riparian area or its associated buffer zone • Implementation of appropriate stormwater management around the excavation to prevent the ingress of run-off into the excavation and to prevent contaminated runoff into the watercourse • Regular independent water quality monitoring should form part of operational procedures in order to identify pollution • Treatment of pollution identified should be prioritized accordingly	Protection of watercourses
	• Blasted rock may be tainted by nitrate explosives with potential to contaminate groundwater	• Groundwater	Construction	• Clean water should be used for dust suppression, and ensure no potential contaminants are deposited on surfaces where dust suppression will be undertaken • Establish a storm water management system.	

	• Accidental fuel and oil spillages may contaminate groundwater • Dust suppression may wash contaminants from surface to underlying aquifers	• Groundwater	Construction	• Use the water supply borehole as a monitoring borehole	Avoid soil and groundwater contamination
• Extraction of dolerite. • Installation of planned groundwater abstraction • Disposal of industrial and domestic waste. • Dust suppression. • Monitoring of impacts.	• Groundwater abstraction through boreholes may deplete groundwater resources of neighboring groundwater users • Final aggregate may be tainted by nitrate explosives with potential to contaminate groundwater	Groundwater	Operational	• Maintain an efficient storm water management system • Continue groundwater monitoring	Avoid soil and groundwater contamination
Stripping and stockpiling of topsoil	Soil erosion	Soil	Operational	• Control through restricting the footprint to be used • Prevent through restricting the disturbed area • Control through rehabilitation by replacing topsoil on the stripped land before the next strip is opened and mined. • Control by restricting topsoil stockpiles to 0.5m in height and must not be compacted • Control through implementation of storm water management measures	Prevent loss of fertile top and subsoils through run-off

	Stormwater run-off	Soil	Construction, operation	• Additional erosion protection measures should be installed downstream from stormwater outlets to ensure continued function of the wetland/river • Construct any necessary erosion protection works where infrastructure such as roads intersects the channel of the wetland in order to prevent scouring or bank erosion. Gabions, reno mattresses or other stabilising structures and materials could be considered • River sediments/debris are not to be used for construction (e.g.: rocks for use in gabion baskets/reno mattresses) or to be permanently removed from the system • Removed sediment should be stockpiled for rehabilitation • Do not allow excavations to stand open for longer than 2 days where at all possible. Excavations should preferably be opened and closed on the same day	• Correct topsoil replacement should be implemented to ensure effective rehabilitation of the area • Prevent loss of fertile top and subsoils through run-off
Transport material from mining area to clients	• Dust pollution • Pedestrian safety on site	Air quality	Construction and Operational	• Control through minimisation of vehicle movement • Control by monitoring trucks that collect material to ensure that they are covered • A speed limit of 40km/h must not be exceeded	Dust generated must fall below the threshold as per the NEM:AQA National Dust Control Standards for industrial areas

Noise generation	Noise pollution to surrounding neighborhood	Sensitive receptors working on site and those outside the site	Construction, operation and Decommissioning	• Limit operation time to daylight hours between 07h00 and 18h00 on weekdays and 07h00-17h00 on weekends. Inform neighbours on time should night shift work be done • Regular servicing of mining equipment to ensure noise suppression mechanisms are effective e.g. install exhaust mufflers • Switching off equipment when not in use • Employees be obliged to use individual protective equipment against exaggerated noise in the work environment • Conduct high level noise activities during the day to avoid the inconvenience caused by noise during the night in locations occupied by humans, or sensitive to noise. • Fixed noise producing sources such as generators, pump stations and crushers to be either housed in enclosures or barriers out up around the noise source should the noise be determined to be too excessive? This would therefore not be required from onset. • The on-site road network will be well maintained to limit body noise from empty trucks travelling on internal roads • All access roads will be signposted and speed limited (40km/h)to minimise transport noise	Minimise noise level and ensure safety of staff and community

				• A noise barrier in the form of a berm, tree break or similar noise fence should be constructed on the boundary of the proposed crushing and screening area as soon as possible and around other noise • The barrier will help with the attenuation of noise produced of noise produced by the proposed activities. A basic rule of thumb for barrier height is: Any noise barrier should be at least as tall as the line-of-sight between the noise source and the receiver, plus 30%. So if the line-of-sight is 10m high, then the barrier should at least be 13m tall for best performance	
Drilling and Blasting	• Dust resulting from blasting • Fly rock • Noise resulting from blasting	Air Quality	Operation	• Control by evacuating all people within 500m of a blast site • Control by limiting lasting operations to daylight hours when ambient noise levels are highest • Maintaining good public relations with the surrounding neighbours, i.e warning the local communities well in advance before blasts • Conduct Seismograph calibration tests to ensure that blasting standards are met.	Minimise noise level and ensure safety of staff and community

Crushing and screening plant	• Fugitive dust (containing TSP, as well as PM_{10} and $PM_{2.5}$).	Ambient air	Operational	• Fog Suppression System • Dust extraction hoods and cyclones and/or bag filters • Conventional water sprays, whose performance can be enhanced with the addition of wetting agents that assist in water to dust particle contact, lessening the amount of water required • Locating plant so that it is sheltered from the prevailing wind and the introduction of plant shelterbelts • Extra constant supervision at crushing often requires at this typically dusty process is almost always required • In order to reduce dust contamination in crusher control rooms and operator's positions, these areas should be completely enclosed and ventilated with uncontaminated air to create a positive air pressure - provide air conditioning so the operator has no need to open doors or windows • Protection of the control room will, also create a healthier environment, protect the electrical equipment from dust contamination that may lead to malfunctioning	• Dust generated must fall below the threshold as per the NEM:AQA National Dust Control Standards for industrial areas • Avoid creating health impact by reducing dust levels
Material handling	• Dust from material handling	Ambient air quality	Operational	• Water sprays at the material handling points. • Covered conveyor transfer points. • Material wetting before being transferred.	Avoid creating health impact by reducing dust levels

Demolition & Removal of all infrastructure (incl. transportation off site)	Dust generation	Ambient air quality	Closure and Decommissioning Phase	• Demolition should not be performed during windy periods (August, September and October), as dust levels and the area affected by dust fallout will increase. • The area of disturbance must be kept to a minimum, as demolition should be done judiciously avoid the exposure of larger areas to wind erosion. • Maintain 40km/h speed limit. • Cabs of machines should be swept or vacuumed regularly to remove accumulated dust. • Exhaust pipes of vehicles should be directed so that they do not raise dust. • Engine cooling fans of vehicles should be shrouded so that they do not raise dust. • Dust suppression of roads being used during rehabilitation should be enforced.	Avoid creating health impact by reducing dust levels

Waste generation, storage and disposal	• Land pollution • Hazardous Leachate • Illegal dumping	Land pollution	Construction, Operation and Decommissioning	• Ensure segregation of hazardous wastes from non-hazardous. • During the construction phase, temporary storage of construction waste to be stored in a bunded designated area. • No burning of refuse wastes are on the premises or on surrounding premises • All hazardous material must be carefully stored and then disposed offsite at a licensed hazardous landfill site • Sealable bins and containers must be made available for the storage of all streams of waste throughout the site. • Waste bins must be emptied on a regular basis as to ensure bins do not overflow. • No littering will not be permitted on site and general housekeeping should be enforced • Site must be kept clean and free of rubbish that could potentially attract animal pests and that bins are scavenger proof. • Separate waste skips/ bins for the different waste streams must be available on site • DO not dump waste of any nature, or any foreign material into any drainage line or stream • All waste to be disposed off at a suitably registered waste disposal facility • A suitable and registered waste service provider must remove all waste materials off site. • Proof of disposal to be obtained and kept on record	To avoid land and contamination of ground water resources

Employment of Workers, skills training and procurement of construction materials	Job creation	Job creation	Construction & Operational	• During community engagement/information dissemination, emphasis must be placed on the fact that permanent employment is directly related to the feasibility of the mine operations • Strict adherence to Labour legislation (in terms of the employment of minors etc.) must at all times be made. • Maximise and monitor local recruitment where required • Promote employment of women and youth • Train locally recruited construction workers for longer-term employment where possible • Support economic diversification through development of alternative markets.	• Creation of permanent employment and skills and development opportunities for members from the local community and creation of additional business and economic opportunities in the area. • Promotion of social and economic development and improvement in the overall well-being of the community

Fuel and oil storage	• Soil and groundwater contamination	Soil and ground water pollution	Operational and Decommissioning	• Store fuel in bunded tank with apron • Control by establishing a temporary waste storage facility with concreted floor, sloping concreted apron an oil trap • Maintenance/servicing of vehicle and machineries must be conducted on a concrete and roofed floor • Oil spill kit must be kept on a clearly visible area • Oil spills to be cleaned immediately and affected ground/soil to be uplifted and bagged for removal off site to approved dump facility for hydro carbons or treat affected soil accordingly • All personnel must wear issued PPE at all times as indicated by safety signs. • Fuel storage facilities must be inspected on a regular basis. • Spill prevention measures to be implemented at all times. • Fire fighting equipment such as fire extinguishers must be made available and be inspected on a regular basis. • A spill kit must be made available at all time. • All spills to be cleaned immediately. • Storage facilities must be inspected on a regular basis. • All leaks to be repaired immediately	Avoid soil and groundwater contamination

• Cessation of operations and cleaning up • Monitoring of impacts	• Positive impact relating to groundwater level recovery once abstraction stops. Recovery expected to equilibrate with the prevailing groundwater level in the area. • Residual groundwater contamination may continue	Groundwater	High	• Continue groundwater monitoring	Recovery on ground water levels
Health, Safety and Security	Crime and Illnesses of employees	Health, Safety and Security	Construction, Operational and Decommissioning phases	• Security fence is to be inspected continuously to ensure no illegal entry points are created. • Ensure that PPE is always worn on site. • Opened trenches and pits must remain demarcated to avoid injuries to employees • Ensure the contacts details of the police or Security Company, fire fighters, ambulance services are available on the site. • Limit access to the construction crew camp only to the workforce. • Do not allow the movement of public within the development site by posting notices at the entrance gates, and where necessary on the boundary fence. • Emergency contact details for the police, Security Company, ambulance and fire department must be readily available onsite • Emergency facilities must be available and adequately supplied for use by staff and customers • Ensure that only suitably qualified personnel use vehicles and machineries	Maintain good health and safety of employees, customers, visitors and the general public

				• Ensure that the handling of equipment and materials is supervised and adequately instructed. • Security fence is to be inspected continuously to ensure no illegal entry points are created. • Limit access to the site only to the workforce. • Do not allow the movement of public within the development site by posting notices at the entrance gates, and where necessary on the boundary fence. • Appropriate notification signs must be erected, warning the residents and visitors about the hazards around the site and presence of heavy vehicles. • Ensure that employees are regularly checked for illnesses.	
Rehabilitation	Soil erosion	Soil	Operational and Closure	• The area disturbed by mining activities, such as the stockpile areas, crusher plant, offices and roads, should be rehabilitated post mining. This can be achieved by means of hydro-seeding and the re-establishment of suitable indigenous species. Most of the plant material (seeds and cuttings) needed can be sourced from plants in the surrounding vegetation or suitable indigenous plant nurseries. A budget should be allocated for this purpose. • Prevent through restricting the disturbed area • Plants with roots that bind the soil, and vegetation cover should be used that breaks the impact of falling raindrops, thus preventing wind and water erosion. • Spreading of soil must be performed on less windy days. • The best time to re-vegetate the area must be linked to the distribution and reliability of the rainfall.	Re-establishment of the pre-mining land capability to allow for suitable post mining land use

				• Leaving the surface of the soil in a coarse condition reduces wind erosion and ultimately reduces the dust levels.	
	Establishment of alien invasive vegetation	Alien invasive plant	Operational and Closure	As an operational phase impact, alien control is required as an ongoing management concern. The spread of aliens into the adjacent area must also be prevented. Weeds, such as *Datura stramonium* and *Salsola kali*, can be easily controlled by hand-pulling or by using herbicides. Certain species, such as *Opuntia ficus-indica*, requires the removal and destruction of the entire plant. • The primary means of rehabilitation should involve the replacement of topsoil and hydro-seeding with an indigenous grass seed mixture at the start of the rainfall season . A suitably experienced landscaping contractor should be appointed to undertake rehabilitation. • Manage by rehabilitating and backfilling all erosion damage, such as erosion channels and runnels • Prevent spraying of herbicides in the area as this also kills many adjacent non-target species •	Reduce colonization by alien invasive species

	Dust emission	Air Quality	Closure and Decommission	• Revegetation of exposed areas for long-term dust and water erosion control is commonly used and is the most cost-effective option. • Plants with roots that bind the soil, and vegetation cover should be used that breaks the impact of falling raindrops, thus preventing wind and water erosion. • Plants used for revegetation should be indigenous to the area, hardy, fast-growing, nitrogen-fixing, provide high plant cover, be adapted to growing on exposed and disturbed soil (pioneer plants) and should easily be propagated by seed or cuttings. • The area of disturbance must be kept to a minimum, as demolition should be done judiciously avoid the exposure of larger areas to wind erosion. • Spreading of soil must be performed on less windy days. • The bare soil will be prone to erosion and therefore there is need to reduce the velocity near the surface of the soil by re-vegetation.	Reduce colonization by alien invasive species

2. Financial Provision

2.1 Determination of the amount of Financial Provision.

As part of the extension of Wolve Kop Mine and construction of lime kilns Rehabilitation closure and Liability plan **(attached as Appendix E**), the financial provision for the mining operations were determined based on information currently available. The cost estimate has been included for the current and future activities.

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

The closure objectives, identified for the Wolve Kop, Closure and Liability plan (Appendix E). The main objective for the project proposal for the end land use of the mining area is to rehabilitate the land to a livestock grazing area.

By ensuring the following, a physically stable and sustainable landscape post-mining is achievable:

- All temporary infrastructure, foreign material and stockpiles will be removed, reshaped and de-compacted as close to the original landscape profile as to ensure the capability to sustain indigenous vegetation.
- Ensure that community safety is not adversely impacted (i.e. the pit area is adequately fenced off to restrict entry by humans and animals).
- Maintain and restore biodiversity levels as to provide appropriate habitats.
- Shape all channels and drains to smooth slopes and integrate into natural drainage patterns.
- Remove alien and/or invasive vegetation.
- The stockpiles around the opencast pit will be shaped and re-vegetated only on the outward facing sides of the stockpiles. A security fence will be constructed on top of these stockpiles to ensure no trespassing or dangerous access to the open pit and the steep pit section of the stockpiles.

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

The above environmental objectives with regards to closure and rehabilitation have been incorporated into this report and will be made available to the landowner and I&APs. The EIA and EMPr, and the Closure Plan are available during this EIA phase, for comment during the period 16 September 2021 to 18 October 2021. This information will also be made available to the landowner and all registered I&APs.

(a) 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.

Find in **Appendix E**

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

Find in **Appendix E**

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

Section 24(P)(1) of NEMA states that an Applicant for an environmental authorisation relating to mining or related activities on a mining area must make the prescribed financial provision for the rehabilitation, management and closure of environmental impacts, before the Minister responsible for mineral resources issues the environmental authorisation.

In order to ensure that the Applicant provides sufficient funds for the total quantum to cover the rehabilitation, management and remediation of negative residual environmental impacts, the quantum for closure-related financial provision in terms of Regulation 4 of the NEMA Regulations on Financial Provision (GN940 of 2014) has been determined.

Determination of the financial provision (closure costing) has been undertaken, aligned to these requirements. The estimated closure cost for unscheduled closure as of 2016 is R175 475.58 Incl. Vat refer to Table 9 under Section A above. The details of the closure costing can be found in Appendix F of this report.

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

Afrimat has the technical and financial ability to manage and rehabilitate the environment. Details of their technical ability was included in the Mine Works Programme, whilst the financial ability has been provided in Appendix F. The financial provision will be provided by means of a bank guarantee.

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

Monitoring of Impact Management Actions
Monitoring and reporting frequency
Responsible persons
Time period for implementing impact management actions
Mechanism for monitoring compliance

Table 13: Mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon, including

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Demarcation of the mining area	Disturbance outside the mining area	Land outside the mining area	Site Manager and Environmental Control Officer (ECO)	• Throughout the construction and Operational Phase • Daily compliance monitoring by site management • ECO Annual Environmental Reports

Clearance of land for establishment of infrastructure (processing plant, construction kilns, construction of haul roads, construction of mining office, i.e. operation of training centres, offices and kitchen facilities) Transport material from mining area to clients Drilling and Blasting	Dust pollution	Dust fallout monitoring as per the Air Quality Monitoring Programme	ECO and appointed specialist service provider	Dust fallout monitoring and reporting must be undertaken monthly throughout the operation of the mine
	Ecological degradation and biodiversity loss	Biodiversity monitoring to preserve the faunal and floral species of conservation concern	ECO	• Rehabilitation monitoring and reporting to be conducted annually during the summer months for two years post-closure • ECO Annual Compliance Monitoring Reports

Operations of the mine plant fluid bed lime kilns	Generation of noise	Noise monitoring to detect deviations from predicted noise levels to be generated from activities related to the Wolwekop mining operations and to enable corrective measures to be taken where warranted	Site Manager and Environmental Control Officer (ECO)	Noise monitoring and reporting to be conducted monthly throughout the operation of the mine
Placement of ablution facility within the boundaries of the site Coal storage	Soil contamination	To ensure that the chemical toilet is working properly with no leakages to the soil	Site Supervisor and Environmental Control Officer (ECO)	During construction and operational phases
Clearing of vegetation/disturbance of soil	Establishment of alien invasive species	• Regular follow-up clearing of aliens • No spraying of herbicides as it also kills many adjacent non-target species	Site Manager and appointed specialist service provider	Alien invasive vegetation species monitoring and reporting to be conducted throughout the life of the mine and for two years after post-closure

Fuel and oil storage Waste management	Hydrocarbon contamination of soil and groundwater	Regular inspections of areas prone to hydrocarbon spills and contamination must be inspected on a regular basis. Contamination the affected environment will require remediation actions. *Soil contamination* After completion of remediation actions it is recommended that samples be taken to ensure the soil quality comply with the rehabilitation objectives. *Water contamination* Water samples must be taken to ensure compliance with legal thresholds and the baseline data. Records to be kept of monitoring activities.	All staff, Environmental Control Officer/Environmental Officer/	• Annual review of the Emergency preparedness and response plan or review after occurrence of emergency incident • Review of vehicle/plan/equipment maintenance plan as or when required • The boreholes should be sampled quarterly throughout the life of the mine and post- closure. • Daily inspections of vehicles/plant/equipment • Weekly inspections of hazardous substances storage facilities • Weekly inspections of spill prevention equipment

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

Section 34 of GN R. 982 (published under the National Environmental Management Act (NEMA), Act 107 of 1998) stipulates requirements for auditing compliance with the Environmental Authorisation (EA), the Final EMPr, and the Rehabilitation plan.

It requires the holder of the authorisation, for the period during which the EA, EMPr, and closure plan (if applicable) are valid, to ensure compliance with all the conditions stipulated in these documents and that is be audited. This audit report must then be submitted to the competent authority.

The EMPr audit must be undertaken annually until such time as the existing Mining Right expires. A report must be compiled and submitted to the competent authority.

The purpose of this audit report is defined as follows:

- On an ongoing basis, determine the ability of the EMPr (and where applicable the closure plan) to sufficiently provide for:
  - the avoidance;
  - management; and
  - mitigation of environmental impacts; and
- To determine the level of compliance with the provisions of:
  - Environmental Authorisation (EA);
  - EMPr; and
  - where applicable the closure plan.

In the event that findings of the environmental audit report indicate insufficient mitigation of environmental impacts of the activity or insufficient levels of compliance with the requirements, the holder of the EA must:

- Submit recommendations to amend the EMPr or closure plan in order to rectify the shortcomings identified in the audit report.
- Allow for a public participation process (which process has been agreed to by the competent authority and was appropriate) to access the proposed amendment to the EMPr (and where applicable the closure plan); and
- Allow for the potential and registered interested and affected parties (I&AP), including organs of state which have jurisdiction in respect of any aspect of the relevant activity and the competent authority, to comment on these changes.

Operational internal environmental inspections will need to be done once a month by the Applicant's Environmental Representative. All findings and data are to be recorded in an on-site Environmental File.

5. Environmental Awareness Plan

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

General environmental awareness must be promoted among everyone working on the Wolve kop Mine (including consultants and contractors) to encourage the implement environmentally sound practices throughout its duration.

This will ensure that environmental incidents are minimised and environmental compliance maximised.

The objectives of the Environmental Awareness Plan are as follows:

- To inform employees, contractors of any environmental risks which may result from their work;
- To inform employees and contractors of the relevant environmental procedures and actions required to be taken;
- To improve the knowledge of employees and provide the relevant training

Environmental requirements will be included in any operational contracts, thereby making employees aware of the potential environmental risks associated with the quarrying and limestone calcining activities and the necessity to prevent potential environmental incidences by the implementation of good housekeeping practices.

The environmental awareness plan must at least communicate the following:

- Importance of conformance with the environmental policy, procedures and other requirements of good environmental management;
- The significant environmental impacts and risks of an individual's work activities and the environmental benefits of improved performance;
- Individual's roles and responsibilities in achieving the aims and objectives of the environmental policy; and
- The potential consequences of not complying with environmental procedures.

All employees and contractors are to undergo induction, a part of which is environmental awareness training. At the end of this training, personnel will be required to sign a register noting their completion of the training and their understanding thereof.

All personnel performing tasks which can cause significant or major environmental impacts shall be competent on the basis of training, education and/or experience. This applies to, but is not limited to, supervisor level and above.

Environmental awareness training will include the identification of significant environmental impacts, actual or potential, which their work activities could result in, as well as mitigation and prevention measures. Training is appropriate to the activity of individual employees.

Monthly environmental topics will be generated to raise awareness of employees on environmental issues.

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

The EMPr details commitments in order to avoid pollution or the degradation of the environment. Compliance to and implementation of the management and mitigation measures contained in the EMPr. Compliance with the EMPr commitments will form part of the daily operations of the mine, and a copy of the EMPr commitments will be provided to the contractors. Employees will also be briefed regarding the EMPr commitments prior to the commencement of operations. In addition to this, monitoring by internal Environmental Representative as well as by the external auditor.

Site Inductions

All employees are required to undergo environmental awareness induction training on appointment. All records of such training must be kept. Refresher induction training must periodically take place.

Toolbox talks

Regular meetings (recommended to be done daily, at least once a week) communicating the following is recommended:

- Findings of environmental performance reports;
- Awareness raising campaigns discussing environmental topics; and
- Information of any environmental risk which may result from employee's work.

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

Should, however, circumstances lead to unacceptable risks, emergency systems and procedures need to be designed and implemented in the case of an emergency to prevent or minimise the consequential environmental damage. The environmental emergency contingency plan must addresses any reasonably anticipated failure (most probable risk) for the entire mining area as well as the additional infrastructure that could cause environmental emergencies.

Emergencies and risks that should be listed here, as a minimum, include: accidents, fires, spillages (hydrocarbon).

Communication is vital in an emergency and thus communication devices, such as mobile phones, radios, pagers or telephones, must be available around the site. A checklist of emergency response participants must be consulted and the relevant units notified. In this case, many of the emergency services will be sourced from Noupoort.

- fire department;
- police;

- emergency health services such as ambulances, paramedic teams, poisons centres;
- hospitals, both local and for evacuation for specialist care;
- public health authorities; and
- environmental agencies, especially DWS;.

Operational procedures specific for the Wolve kop project have been developed to alleviate potential significant environmental impacts such as:

- Surface fires
- Erosion
- Vegetation and animal life
- Discovery of buried artefacts
- Pollution

Fire Management

- No open fires are allowed
- Place cigarette butts on waste bin

Waste Management

- No littering allowed on-site
- All waste to be stored in closed waste bins
- No burning of waste allowed on-site
- Waste to be stored in correctly labelled bins
- All waste to be disposed off at a registered landfill site

Vegetation and animal life

- Do not remove any vegetation without approval by a qualified botanist or ecologist
- Do not kill, harm or play with any animals on site

Discoveries of buried artefacts

- Stop work immediately
- Notify site manager

Management of hazardous substance or chemicals

- Never mix general waste with hazardous waste
- Only use sealed and non-leaking containers
- Hazardous chemicals must be stored in bunded area

5.3 Specific information required by the Competent Authority

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

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

2) UNDERTAKING

The EAP herewith confirms

1. the correctness of the information provided in the reports ☒

2. the inclusion of comments and inputs from stakeholders and I&APs ; ☒

3. the inclusion of inputs and recommendations from the specialist reports where relevant; ☒ and

4. that the information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected. parties are correctly reflected herein. ☒

Signature of the environmental assessment practitioner:

Afrimat Contracting International (Pty) Ltd

Name of company:

14/09/2021

Date:

-END-