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: Witvlei Boerdery Trust

TEL NO: 076 440 7920

FAX NO:

POSTAL ADDRESS: P. O. Box 241, Kakamas, 8870

PHYSICAL ADDRESS: Augrabies Way, Kakamas, 8870

FILE REFERENCE NUMBER SAMRAD: 225811 and 227511

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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 ASSSSMENT AND BASIC ASSESSMENT REPORT

3. Contact Person and correspondence address

a) Details of

i) Details of the EAP

Name of The Practitioner: Bernard de Witt

Tel No.: 021 851 1616

Fax No. : 086 512 0154

e-mail address: bernard@enviroafrica.co.za

ii) Expertise of the EAP.

(1) **The qualifications of the EAP**
(with evidence).
See Curriculum Vitae attached as Appendix A

(2) **Summary of the EAP's past experience**.
(In carrying out the Environmental Impact Assessment Procedure)
See Appendix A

b) Location of the overall Activity.

Farm Name:	Plot 2372, Alheidt
Application area (Ha)	Not more than 5ha
Magisterial district:	Kenhardt
Distance and direction from nearest town	Approximately 7,5 km south-west of Kakamas
21 digit Surveyor General Code for each farm portion	C03600070000237200000

c) Locality map
(show nearest town, scale not smaller than 1:250000).
Please refer to Appendix B attached.

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

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

Please refer to Appendix B attached.

The application is for an aggregate quarry with a mobile crusher plant and an access road leading in and out of the proposed site. The granite will be extracted from the quarry by blasting and any granite boulders that are too big will be broken into smaller sizes with a hydraulic hammer and the granite will be scooped up by front-end loaders and put into a hopper. A conveyor belt will then feed the granite into a crusher.

The rock that has been crushed into gravel will then be conveyed into a screen to be sorted according to size. The various grades and sizes of gravel will be stockpiled on the proposed site. The gravel will then be loaded on tipper trucks and transported to wherever it is required in the building and construction industry.

The portable screens and crushers will all be powered by diesel engines.

Water will be used for dust control and the volume of water used will not exceed 100m3 per month. The water will be sourced from an existing borehole on the property and will be sprinkled at the point where the granite is crushed into gravel. It is envisaged that no effluent will result, as temperatures in the area are so high that the water for controlling dust will evaporate like the moisture that remains on the aggregates to be stockpiled.

Ablutions at the nearby farmhouse will be available for workers employed at the proposed quarry and crusher plant and if required, portable toilets will be provided on the proposed site.

Solid waste will be collected in household wheelie bins and disposed of at the nearby municipal waste disposal site.

An access road will be constructed that leads in and out of the proposed 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)***
Mining - blasting, excavations, loading, processing/ crusher plant, conveyor belts, stockpiling, access road construction, hauling and transportation, establishment of	Not more than 5ha	X	Items 12, 21, 27 and 28 of GN No. R. 327 and

perimeter wall of boulders and perimeter fence of wire mesh			Items 12 and 14 of GN No. R. 324

(ii) Description of the activities to be undertaken

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

The application is for establishing a quarry of not more than 5ha in size, from which granite will be blasted. Granite boulders that are too big will be broken with a hydraulic hammer into smaller sizes and the granite will be scooped up by front-end loaders and put into a hopper. A conveyor belt will then feed the granite into a crusher.

The rock that has been crushed into gravel will then be conveyed into a screen to be sorted according to size. The various grades and sizes of gravel will be stockpiled on the proposed site. The gravel will then be loaded on tipper trucks and transported to wherever it is required in the building and construction industry.

The portable screens and crushers will all be powered by diesel engines.

Water will be used for dust control and the volume of water used will not exceed 100m3 per month. The water will be sourced from an existing borehole on the property and will be sprinkled at the point where the granite is crushed into gravel. It is envisaged that no effluent will result, as temperatures in the area are so high that the water for controlling dust will evaporate like the moisture that remains on the aggregates to be stockpiled.

Ablutions at the nearby farmhouse will be available for workers employed at the proposed quarry and crusher plant and if required, portable toilets will be provided on the proposed site.

Solid waste will be collected in household wheelie bins and disposed of at the nearby municipal waste disposal site.

An access road will be constructed that leads in and out of the proposed site.

e) Policy and Legislative Context

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)
EIA Regulations of 2014 (as amended): Item 21 of GN No. R. 327 (Listing Notice 1)	Activities that include rock blasting, crushing, aggregate stockpiling, loading onto trucks and transportation of the aggregate away from an area not more than 5ha in size.	A Basic Assessment ("BA") application for environmental authorisation is being made to the competent authority by EnviroAfrica on behalf of the Witvlei Boerdery Trust. Should the competent authority approve the application, the applicant will comply with the environmental authoriation and EMPr
EIA Regulations of 2014 (as amended): Item 12 of GN. R. 327 (Listing Notice 1) and Item 14 of GN No. R. 324 (Listing Notice 3)	A quarry and related structures and infrastructure will be established and operated over a proposed site of slightly less than 5ha and this will be within 32m of a watercourse.	A Freshwater Impact Assessment for the proposed quarry and associated structures and infrastructure on the proposed site has been compiled and the recommendations contained therein have been included in the BAR and EMPR.
EIA Regulations of 2014 (as amended): Items 12, 27 and 28 of GN No. R. 327)	Indigenous vegetation covering more than 1ha will be cleared in order to establish the proposed quarry and the proposed site is currently	A Botanical Compliance Statement has been compiled for the proposed quarry and associated structures and infrastructure on the proposed site and the recommendations contained therein have been included in the BAR and EMPR.

	zoned Agriculture and is located within a Critical Biodiversity Area.	
National Water Act, No. 36 of 1998 (NWA), Section 21 (c) & (i)	The proposed quarry area is bordered by an an ephemeral watercourse in the north and another ephemeral watercourse in the south	An application for a water use licence has been lodged by WatsanAfrica CC on behalf of the Witvlei Boerdery
National Environmental Management: Biodiversity Act, No. 10 of 2004 (GN. R. 152)	Potential endangered, vunerable or protected plant species on the proposed site	Captured in EMPr. Although no species in terms of NEM:BA were observed by botanical specialist
National Forests Act, No. 84 of 1998 (NFA)	Avoidance of protected / significant trees, or permit application if removal required	Captured in EMPr. Refer to EMPr and Botanical Assessment
Northern Cape Nature Conservation Act, No. 9 of 2009	Avoidance of protected / significant plants and trees, or permit application if removal required	Captured in EMPr. Refer to EMPr and Botanical Assessment

f) Need and desirability of the proposed activities.

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

Alheidt and nearby Kakamas are ever developing nodes in the Kai!Garib Municipal region.

A demand exists for aggregate material to meet the needs of the construction sector in the area and the proposed development is to provide a legitimate means of meeting this demand.

While the actual proposed development will not provide much additional empoyment for surrounding community members, it will provide sustained income for the applicant's 2 to 4 skilled employees who will be part of the operational staff for the development.

In addition, the aggregate from the operations of the quarry will enable the clients to whom the aggregate is supplied, to continue providing skilled and unskilled employment opportunities to persons in the Alheidt and Kakamas region.

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

The Verneujk Pan Trust is the owner of Plot 2372, Alheidt and the applicant is the Witvlei Trust. The representative of the applicant is Mr. C. A. Bruwer, who is among the trustees of both of the said trusts. It will therefore be much easier for the applicant to establish the proposed development on Plot 2372, Alheidt than for the applicant to seek another property elsewhere and then attempt to obtain landowner's consent for the proposed development.

In light of this, Plot 2372 in Alheidt is the preferred site alternative and is also the only site alternative considered for the proposed development.

The proposed activities entail blasting to extract granite from the on-site granite outcrops and any granite boulders that are too big will be broken into smaller sizes with a hydraulic hammer and the granite will be scooped up by front-end loaders and put into a hopper. A conveyor belt will then feed the granite into a crusher.

The rock that has been crushed into gravel will then be conveyed into a screen to be sorted according to size. The various grades and sizes of gravel will be stockpiled on the proposed site. The gravel will then be loaded on tipper trucks and transported to wherever it is required in the building and construction industry. The portable screens and crushers will all be powered by diesel engines.

No feasible technology alternatives exist other than those described above for the proposed development, as the use of manual labour would mean that work on the proposed site will take much longer to do and clients waiting for aggregate deliveries would experience inconvenient delays.

h) 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 the proposed development is contemplated is Plot 2372, Alheidt. Please see Locality map and Appendix 4.

The Verneujk Pan Trust is the owner of Plot 2372, Alheidt and the applicant is the Witvlei Boerdery Trust. The representative of the applicant is Mr. C. A. Bruwer, who is among the trustees of both the Verneujk Pan Trust and the Witvlei Trust. It will therefore be much easier for the applicant to establish the proposed development on Plot 2372, Alheidt than for the applicant to seek another property elsewhere and then attempt to obtain landowner's consent for the proposed development.

In light of this, Plot 2372, Alheidt is the only site alternative considered.

(b) The type of actvity considered is a quarry for extracting granite from the on-site granite outrop area on Plot 2372, Alheidt and a mobile crusher plant, stockpile areas for the sorted aggregate and a new access road leading in and out of the proposed site.

(c) The granite to be mined is exposed aboveground along a ridge that extends in a north to south manner and constitutes only a small portion of the almost 5ha proposed site. The northern border of the proposed site is an ephemeral drainage line and the southern border of the proposed site is another ephemeral drainage line. The gravel access road that will be constructed to lead vehicles in and out of the proposed site will extend from the eastern portion of the proposed site and cross the southern ephemeral drainage line to connect to an existing gravel road located further east. The gravel access road is the only part of the proposed development that will directly affect a

It is only the granite to be blasted out of the ground, the gravel access road to be constructed and the perimeter wall of boulders and perimeter fence of wire mesh that will remain in fixed positions on the proposed site. The trucks, front-end loaders, hydraulic hammers and other equipment as well as the crusher plant and other structures to be used on the proposed site will all be movable around the proposed site.

(d) The granite will be extracted from the ground by blasting. The hydraulic hammers, front-end loaders, trucks and mobile crusher plant e.t.c. to be used on the proposed site will all be powered by diesel engines.

(e) The aggregate produced by crushing the on-site granite will be stockpiled and when clients have placed an order, the aggregate will be scooped by front-end loaders onto the back of trucks and delivered to clients in the construction and building industry.

ii) Details of the Public Participation Process Followed

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

The Public Participation Process ("PPP") that was conducted entails the following:

(a) Placing an advertisement in the "Gemsbok" local newspaper on 08 July 2022
(b) Sending out notification letters to I&APs
(c) Placing posters at the gate that enters the proposed site, Hartebees Kontant Winkel, Alheidt, Kakamas AgriMark, Ka! Garib Municipality

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	Section and paragraph reference in this report where the issues and or response were incorporated.
AFFECTED PARTIES					
Landowner/s	**X**	None received	N/A	N/A	N/A
Lawful occupier/s of the land	X	None received	N/A	N/A	N/A
Landowners or lawful occupiers on adjacent properties	**X**			N/A	N/A
Loveren van Zyl Boerdery		17/08/2022	Requests to be included in the list of registered I&APs	Request accepted	
Municipal councillor	**X**	None received	N/A	N/A	N/A
Municipality	**X**	None received	N/A	N/A	N/A

Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA e					
Municipality	X	None received	N/A	N/A	N/A
Communities				N/A	N/A
Dept. Land Affairs		N/A	N/A	N/A	N/A
Traditional Leaders		N/A	N/A	N/A	N/A
Dept. Environmental Affairs		N/A	N/A	N/A	N/A
Other Competent Authorities affected					
<u>OTHER AFFECTED PARTIES</u>					

INTERESTED PARTIES				
Marlien Theron	17/08/2022	Request to be registered as an I&AP	Electronic mail response confirming registration as an I&AP was issued to Marlien Theron on 30/09/2022	
Garib Advice and Development Initiative (NPO)	01/08/2022	Requests clarity on: (1) "The impact your activities will have on the environment and how you might/will participate in activities to mitigate the effect of Climate Change. (2) The risk the planned development might have on the Water supply and future sustainability of this valuable source, to communities around the planned development. (3) What efforts or activities will be undertaken to rehabilitate land and mitigate soil erosion within the areas where you will undertake these mining activities. (4) How your Social and Labour Plans will support Job Creation endeavours and SMMEs within the area, with special focus on vulnerable groups and skills transfer in the communities around your mining activities".	(1)The blasting of granite on the proposed site will cause some noise and some ground vibrations. This impact will be mitigated by limiting blasting sessions to normal working hours. The on-site granite outcrop area to be blasted and excavated will be left as hole in the ground when mining operations are over. This environmental impact of will be mitigated by the establishment of a wall of boulders that will be put up around the hole to lower the probability of any people and animals falling into the hole. A fence of small diameter wire mesh will also be put up around the hole to further limit the probability of people and animals falling into the hole. The on-site vegetation will be negatively affected by inter alia, the on-site stockpiling of aggregate, the construction of an access road to the proposed site and the on-site movement of trucks and front-end loaders. The rehabilitation work to be completed before the closure of mining operations will enable the restoration of vegetation on the proposed site. The proposed development is quite a small operation and cannot cause any significant climate change concerns.	

			(2) The proposed mining operations will be kept clear of the nearby ephemeral drainage lines so that the ephemeral drainage lines continue as much as possible to supply water to dowstream users in the current manner. It is only where the access road to the proposed site crosses the southern ephemeral drainage line that the ephemeral drainage line will be directly impacted. The impact will be mitigated by inter alia, reinforcing the banks of the drainage line with gabions or rip rap etc as is recommended in the freshwater specialist assessment report compiled by Watsan Africa for the development proposal. In addition, the access road will be maintained such that the road does not widen nor deepen. (3) The competent authority requires an Environmental Management Programme ("EMPr") to form part of the application for environmental authorisation and the EMPr must include how the impacts of the proposed development will be satisfactorily managed, including how soil erosion will be minimised and how rehabilitation will be implemented. (4) The proposed quarry and crusher plant will provide some employment opportunities for people residing in the Alheidt and nearby Kakamas area. However, the proposed development is quite a small operation and can therefore	

			not provide a large number of employment opportunities.	

iv) The Environmental attributes associated with the alternatives. (The environmental attributed described must include socio-economic, social, heritage, cultural, geographical, physical and biological aspects)

(1) Baseline Environment

(a) Type of environment affected by the proposed activity.

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

The proposed quarry site and the new road sections will be much smaller than the area investigated during this study (the study area being approximately 6ha). The vegetation encountered in the larger study area can be described as a low grassy shrubland dominated by white grasses (after the then recent rains), with a sparse overstory of smaller woody trees and larger shrubs, located on gentle east-sloping plains. Denser and higher growing vegetation is found along the ephemeral drainage lines and watercourses.

The proposed quarry site is partially characterized by large outcrops of exfoliating granite sheets (which will be the areas targeted for mining), with relatively shallow red-yellow, freely drained apedal soils surrounding these sheets. These rocky outcrops are almost devoid of any vegetation, but the surrounding soils typically support the vegetation described above.

The Northern Cape CBA Map (2016) identifies biodiversity priority areas, called Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), which, together with protected areas, are important for the persistence of a viable representative sample of all ecosystem types and species as well as the long-term ecological functioning of the landscape as a whole (Holness & Oosthuysen, 2016).

According to the NCCBA the proposed site is located within a CBA. The proposed activity will have a long term impact on the slightly less than 5ha proposed site . The vegetation of the larger footprint is still well connected towards the north and the west. However, towards the south and east, intensive agriculture is practised and so connectivity is lower, but this should not result in a significant additional impact.

Two small drainage line are located within 100m of the proposed quarry and crusher plant operations. The exposed granite touches upon one of these small tributaries. These two tributaries end up in a sheet wash plain downstream of the proposed quarry, together with a larger drainage line flowing in a north to south direction that is located eastwards of the proposed quarry and crusher plant operations. The larger drainage line will be crossed by the proposed access road that will lead in and out of the proposed site of the quarry and crusher plant operations. The sheet wash plain ends up against the main road of the area and the pecan nut orchard. It is here that the three drainage lines have been terminated.

The proposed quarry site is located approximately 1.3km away from the Hartbees River. It is too far away to have any impact on the Hartbees River, especially with a notable agricultural impact on the banks of the Hartbees River.

The proposed development area is primarily underlain by Putsies Gneiss of the Vyfbeker Metamorphic Suite that is igneous in origin. This Suite is thus lacking in fossils.

One occurrence of a low-density surface scatter of MSA/ Early LSA (AP-004) was recorded within the development footprint. The sample size is small, without context, and of low significance; the impact is negligible.

A rocky outcrop was recorded (AP-001), and an occurrence of Stone Age material (AP-003) near the outcrop. These are outside of the development footprint. However, the outcrop and material may have possible archaeological context. This outcrop should be avoided during any mining activities.

An occurrence of a mid-20th century metal tin can (AP-002) was recorded outside of the development footprint. It is considered to be of low significance, and developmental impact is considered negligible.

(b) Description of the current land uses.

Current land use zoning is Agriculture and the land is used for cattle grazing. A sand mine of not more than 5ha also exists approximately 1km south-east of the proposed development. The surrounding land is mainly used for agriculture. However, a number of sand mines also exist in the surrounding area.

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

The proposed site is bordered by an ephemeral dainage line to the north and another ephemeral drainage line to the south. An old disused dam exists on the eastern portion of the proposed site.

(d) Environmental and current land use map.

(Show all environmental, and current land use features)

Please refer to Screening Tool Report as Appendix C.

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

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

Refer to Appendix K.

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

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

Refer to Appendix K.

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

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

Refer to Appendix K.

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

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

Please refer to Section h(iii) above.

ix) Motivation where no alternative sites were considered.

The Verneujk Pan Trust is the owner of Plot 2372, Alheidt and the applicant is the Witvlei Trust. The representative of the applicant is Mr. C. A. Bruwer, who is among the trustees of both the Verneujk Pan Trust and the Witvlei Trust. It will therefore be much easier for the applicant to establish the proposed development on Plot 2372, Alheidt than for the applicant to seek another property elsewhere and then attempt to obtain landowner's consent for the proposed development.

In light of this, Plot 2372, Alheidt is the only site alternative that has been considered.

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

The position of the on-site granite outcrops is fixed and so blasting and subsequent excavation of the granite can only take place in the granite outcrop area of the proposed site. The route followed by the proposed road that leads in and out of the proposed site will also be fixed for the duration of the mining operations. The route followed by the road has been chosen to minimise the distance from the proposed site to the existing main road of the rural area. The crusher plant, aggregate stockpiles, trucks, front-end loaders etc on the proposed site will all be movable around the proposed site.

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

and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)

Refer to Appendix K, as well as risk identification and ratings in specialist reports (Appendices H to J).

j) Assessment of each identified potentially significant impact and risk

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

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.)	**POTENTIAL IMPACT** (Including the potential impacts for cumulative impacts) (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
Mining - excavation	Dust					
	Altering of drainage lines					
	Soil erosion					
	Injuries to wildlife and to people falling into mining excavations					
	Loss of protected/significant flora					

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

k) Summary of specialist reports.

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

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.
Terrestrial Biodiversity Compliance Statement of 01 September compiled by PB Consult	• All construction must be done in accordance with an approved construction and operational phase Environmental Management Plan (EMP), which must include the recommendations made in this report. • A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase in terms of the EMP and any other conditions pertaining to specialist studies. • • An application must be made to DENC for a flora permit in terms of the NCNCA with regards to impacts on species protected in terms of the act. • Conservation of protected plant species (Refer to Table 4 Photo 3& Table 5): • •Vachellia erioloba All mature individuals must be identified and protected during the construction operational phases. The road should stay at least 1m (preferably further) away from the drip line of the canopy of each tree. All efforts should be made to minimise the impact on these trees, no matter size or general condition (Refer to Table 4). • Boscia albitrunca: All mature individuals must be marked and protected. The road and quarry site should stay at least 1m away from the drip line of the canopy of each tree (Table 4). • Conservation of provincially protected plant species (NCNCA) (Refer to Table 5). • The final access route must be approved by a suitable	All recommendations included	Within BAR, Appendix H, as well as in EMPr.

	qualified (botany) ECO. • Before any work is done the site and access routes must be clearly demarcated (with the aim at minimal width/smallest footprint). The demarcation must include the total footprint necessary to execute the work, but must aim at minimum disturbance. • Lay-down areas or construction sites must be located within already disturbed areas or areas of low ecological value and must be pre-approved by the ECO. Terrestrial Biodiversity Scan Witvlei Boerdery Trust – Aggregate Quarry Page 34 • All alien invasive species within the footprint and or within 10 m of the footprint must be removed responsibly. • Care must be taken with the eradication method to ensure that the removal does not impact or lead to additional impacts (e.g. spreading of the AIP due to incorrect eradication methods); • Care must be taken to dispose of alien plant material responsibly. • Indiscriminate clearing of any area outside of the construction footprint must be avoided. • All areas impacted as a result of construction must be rehabilitated on completion of the project. o This includes the removal of all excavated material, spoil and rocks, all construction related material and all waste material. • It also included replacing the topsoil back on top of the excavation as well as shaping the area to represent the original shape of the environment. • An integrated waste management approach must be implemented during construction. o Construction related general and hazardous waste may only be disposed of at Municipal approved waste disposal sites. • All rubble and rubbish should be collected and removed		

	from the site to a suitable registered waste disposal site. •		
Freshwater Specialist Report of August 2022 compiled by Watsan Africa,	The mitigating measures pertain to the three drainage lines adjacent to the proposed rock quarry site. The southern one will be more impacted than the northern one. The quarry may touch upon the southern drainage line and can even be excavated right through it. This impact would be severe and cannot be avoided if the quarry is to go ahead. The acceptability of this impact must be weighed against the importance of the drainage line and if a part drainage line can be sacrificed for the economic good of the community. Eventually, there will be a trench of 10m wide and 10m deep, touching upon the drainage line. This trench will widen and deepen as excavation continues over the next 30 years. The best way to look at this is probably to see to it that the impact is only localized and does not expand and grow downstream along the drainage line. Hence, machinery, stockpiles and vehicles must preferably stay out of the drainage line. It is customary to place a berm above a mine to divert storm water around the mine and to prevent storm water from entering the mine. The part of the sub-catchment above the dam is very small and the rainfall is tantamount to desert conditions, so it seems not necessary to construct extended cut-off berms above the quarry. Sudden downpours cannot be excluded. A berm can be placed in the drainage lines to divert stormwater elsewhere and prevent it from flowing into the pit. Dust control is of the essence, as dust can settle on the drainage lines and associated riparian habitat. This is not only dust from the crusher but from transporting gravel on trucks away from the site. This may require additional dust control and the spraying of water on areas where the trucks are loaded and where they move about. Dust will be ill tolerated on the adjacent orchards. An access road will have to be constructed from the quarry to the farm road downstream to a point right between the two drainage lines (Figure 1), the shortest route. This farm road crosses the	All recommendations included	Within BAR, Appendix I, as well as in EMPr.

	southern drainage line prior to its connection to the main dirt road. The crossing is of concern, as trucks are bound to leave their mark here. The road must be maintained so that is does not widen and deepen. Some reinforcement of the banks may be required, such as riprap or gabions. Sudden flows down the drainage line must not be allowed to cause any erosion. Accidental diesel spills can be a problem. Storage for diesel must be properly bunded. If a spill occurs, it must be cleaned up by trained staff and with equipment stored as a kit on site. Clean-up kit must be regularly inspected according to a set schedule and record must be kept of these inspections.		
Phase 1 HIA Report of 25 August 2022 compiled by Ubuque Heritage Consultants	1. The MSA/LSA lithic occurrences (AP-003 and AP-004) recorded on the eastern portion of the development footprint and northwest (outside) of the development footprint are of low significance and will not be affected by the development. 2. The rocky outcrop and the material surrounding the outcrop have possible archaeological context. Although it is situated outside the development area, this outcrop should be avoided during mining activities. Therefore a 50m buffer zone is recommended around the outcrop and considered a NO-GO area. 3. The one occurrence of a Mid-20th century metal tin can (AP-002) recorded outside the development footprint's northwestern border is considered low significance and will not be impacted by development. Therefore, no further mitigation is recommended. 4. The proposed aggregate development on Alheit Plot 2372 is underlain by Putsies Gneiss of the Vyfbeker Metamorphic Suite. This Suite is igneous in origin and thus unfossiliferous. The development footprint is considered to have low palaeontological sensitivity. Therefore, the proposed development will not lead to a negative impact on the palaeontological reserves of the area. Since the development footprint is not considered sensitive regarding	All relevant recommendations included	Within BAR, Appendix J, as well as in EMPr.

	palaeontological resources, the development's construction may be authorised to its whole extent (Butler, 2022). 5. Although all possible care has been taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the assessment. If during construction, any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490) must be alerted immediately as per section 36(6) of the NHRA. Depending on the nature of the finds, a professional archaeologist or palaeontologist must be contacted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required, subject to permits issued by SAHRA.		

Attach copies of Specialist Reports as appendices

l) Environmental impact statement

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

The specialist that compiled the Terrestrial Biodiversity Compliance Statement for the proposed aggregate quarry and crusher plant on Plot 2372, Alheidt has concluded that "it is unlikely that the proposed development will lead to any significant impact on the terrestrial biodiversity features because of its size as long as the impact minimisation recommendations are implemented".

The freshwater specialist that compiled the Freshwater Assessment concluded on Page 32 and 33 of his report that "the proposed rock quarry would be a relatively small impact on an already impacted lower sub-catchment. It would make little difference to what is already impacted on the ground. The cumulative impact would be marginally bigger and that "It is recommended that the proposed rock quarry be officially approved".

It is also concluded in the Heritage Impact Assessment that the proposed development will not lead to a negative impact on the palaeontological reserves of the area. Since the development footprint is not considered sensitive regarding palaeontological resources, the development's construction may be authorised to its whole extent (Butler, 2022).

In addition to the conclusions reached by the above-mentioned specialists regarding the proposed aggregate quarry and crusher plant, the other potential impacts identified and assessed by the appointed EAP such as soil erosion, injuries to wildlife and trespassers, visual impact etc will be mitigated to satisfactory levels by the implementation of the EMPr.

In light of the above considerations, the EAP is of the view that the proposed aggregate quarry and crusher plant operations should be granted environmental authorisation by the competent authority.

(ii) Final Site Map

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

Refer to Appendix B

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

Refer to Appendix K

m) 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.

Recommendations from Terrestrial Biodiversity Compliance Statement:

MITIGATION MEASURES TO BE IMPLEMENTED

- • All construction must be done in accordance with an approved construction and operational phase Environmental Management Plan (EMP), which must include the recommendations made in this report.
- • A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase in terms of the EMP and any other conditions pertaining to specialist studies.
- • An application must be made to DENC for a flora permit in terms of the NCNCA with regards to impacts on species protected in terms of the act.
- • Conservation of protected plant species (Refer to Table 4 Photo 3& Table 5):
- • Vachellia erioloba All mature individuals must be identified and protected during the construction operational phases. The road should stay at least 1m (preferably further) away from the drip line of the canopy of each tree. All efforts should be made to minimise the impact on these trees, no matter size or general condition (Refer to Table 4).
- • Boscia albitrunca: All mature individuals must be marked and protected. The road and quarry site should stay at least 1m away from the drip line of the canopy of each tree (Table 4).
- • Conservation of provincially protected plant species (NCNCA) (Refer to Table 5).
- • The final access route must be approved by a suitable qualified (botany) ECO.
- • Before any work is done the site and access routes must be clearly demarcated (with the aim of minimising width/smallest footprint). The demarcation must include the total footprint necessary to execute the work, but must aim at minimum disturbance.
- • Lay-down areas or construction sites must be located within already disturbed areas or areas of low ecological value and must be pre-approved by the ECO.
- All alien invasive species within the footprint and or within 10 m of the footprint must be removed responsibly.
- • Care must be taken with the eradication method to ensure that the removal does not impact or lead to additional impacts (e.g. spreading of the AIP due to incorrect eradication methods);
- • Care must be taken to dispose of alien plant material responsibly.
- • Indiscriminate clearing of any area outside of the construction footprint must be avoided.
- • All areas impacted as a result of construction must be rehabilitated on completion of the project. o This includes the removal of all excavated material, spoil and rocks, all construction related material and all waste material.
- o It also included replacing the topsoil back on top of the excavation as well as shaping the area to represent the original shape of the environment.
-
- • An integrated waste management approach must be implemented during construction. o Construction related general and hazardous waste may only be disposed of at Municipal approved waste disposal sites.
- o All rubble and rubbish should be collected and removed from the site to a suitable registered waste disposal site.
-

Recommendations regarding freshwater-related impacts:

The mining of granite and the related crusher plant operations and stockpiling of the resulting aggregate and all other related activities will be kept clear of the drainage lines located to the north and south of the proposed site.

Dust control is of the essence, as dust can settle on the drainage lines and associated riparian habitat. This is not only dust from the crusher but from transporting gravel on trucks away from the site. This may require additional dust control and the spraying of water on areas where the trucks are loaded and where they move about. Dust will be ill tolerated on the adjacent orchards.

An access road will have to be constructed from the quarry to the farm road downstream to a point right between the northern and southern drainage lines. This new farm road will cross the drainage line located to the eastwards of the proposed mining area prior to connecting to the main gravel road. The crossing is of concern, as trucks are bound to leave their mark here. The road must be maintained so that is does not widen and deepen. Some reinforcement of the banks may be required, such as riprap or gabions. Sudden flows down the drainage line must not be allowed to cause any erosion.

Accidental diesel spills can be a problem. Storage for diesel must be properly bunded. If a spill occurs, it must be cleaned up by trained staff and with equipment stored as a kit on site. Clean-up kit must be regularly inspected according to a set schedule and record must be kept of these inspections.

Recommendations from the Heritage Impact Assessment Report:

1. The rocky outcrop and the material surrounding the outcrop have possible archaeological context. Although it is situated outside the development area, this outcrop should be avoided during mining activities. Therefore a 50m buffer zone is recommended around the outcrop and considered a NO-GO area.

2. Although all possible care has been taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the assessment. If during construction, any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490) must be alerted immediately as per section 36(6) of the NHRA. Depending on the nature of the finds, a professional archaeologist or palaeontologist must be contacted as soon as possible to inspect the findings. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required, subject to permits issued by

n) Aspects for inclusion as conditions of Authorisation.

Any aspects which must be made conditions of the Environmental Authorisation

As per Section M and including mitigation measures specified in Appendix K, specialist reports and in the EMPr

o) Description of any assumptions, uncertainties and gaps in knowledge.

(Which relate to the assessment and mitigation measures proposed)

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

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

The appointed specialists that identified certain impacts of the proposed aggregate quarry and crusher plant on the proposed site have all concluded that as long as the recommendations contained in the specialist reports are implemented, the environmental impact will be mitigated to satisfactory levels and so the competent authority can grant the an environmental authorisation to the applicant. The appointed EAP identified additional impacts that fall outside the scope of the work dealt with by the specialists professionals and also came to the conclusion that the implementation of the recommendations made by the specialist and the implementation of the EMPr will mitigate the environmental impact to satisfactory levels and so the competent authority can grant an environmental authorisation to the applicant.

ii) Conditions that must be included in the authorisation

The applicant must strictly implement the recommendations made by the appointed specialist professionals and must strictly comply with the requirements specified in the EMPr

q) Period for which the Environmental Authorisation is required.

2 to 5 years

r) Undertaking

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

Please refer to (Declarations of the applicant)

s) Financial Provision

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

i) Explain how the aforesaid amount was derived.

The amounts were provided by the applicant and are based on the cost of labour and of earthmoving equipment. Please refer to Appendix L.

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

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

The amounts are based on the cost of labour and of earthmoving equipment. The applicant provided the amounts and has signed for these amounts. Please refer to Appendix L.

t) Specific Information required by the competent Authority

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

(1) Impact on the socio-economic conditions of any directly affected person. (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or 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 appplicant is the Witvlei Boerdery Trust for whom the contact person is one of the trustees Mr. C. A. Bruwer. The sole landowner is the Verneujk Pan Trust for whom the contact person is also Mr. C. A. Bruwer and the applicant intends to establish the quarry and crusher plant in order to inter alia, benefit socio-economically. The proposed site is not occupied and so it is mainly the applicant and the few employees that will be working at the quarry and crusher plant that stand to be directly affected by the proposed development.

(2) Impact on any national estate referred to in section 3(2) of the National Heritage Resources Act. (Provide the results of Investigation, assessment, and evaluation of the impact of the mining, bulk sampling or alluvial diamond prospecting on any national estate referred to in section 3(2) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) with the exception of

the national estate contemplated in section 3(2)(*i*)(vi) and (vii) of that Act, attach the investigation report as **Appendix 2.19.2** and confirm that the applicable mitigation is reflected in 2.5.3; 2.11.6.and 2.12.herein).

None. Refer to specialist report as per Appendix J.

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

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

The Witvlei Boerdery Trust is the applicant and is represented by Mr. C. A. Bruwer, who is a also member of the Vernuijk Pan Trust that solely owns Plot 2372, Alheidt. In addition, it is CA Bruwer Konstruksie CC which is owned by the applicant's representative that will be operating the proposed quarry and crusher plant business. The most reasonable and feasible site alternative for the applicant to establish a quarry and crusher plant operation is therefore lot 2372, Alheidt, especially since the granite to be mined rises right up to ground level on Plot 2372 and so accessing the granite carries lower costs.

It would not be as easy a process for the applicant to obtain landowner's consent for establishing an aggregate quarry and crusher plant on land owned by somebody else. It would also be much more costly if the granite does not form easily accessible outcrops in the way that the granite does on Plot 2372, Alheidt.

PART B

ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

1) Draft environmental management programme.

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

Refer to Appendix L.

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

Refer to Appendix L.

c) 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)

Refer to Appendices B and C

d) **Description of Impact management objectives including management statements**

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

A wall of boulders will be maintained around the pit that will be left behind in the ground where the on-site granite outcrops are to be blasted and excavated. The remainder of the proposed site where no granite outcrops exist will be rehabilitated to become available for grazing again.

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

It is envisaged that not more than 100m3 of water per month will be used for limiting the dust generated by the proposed development.

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

iv) Impacts to be mitigated in their respective phases

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

ACTIVITIES **(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.)	**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.
Please refer to Appendix K and the EMPr					

e) 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.**
Please refer to Appendix K and the EMPr					

f) Impact Management Actions

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

ACTIVITY 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…)**	**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..**	**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.	**COMPLIANCE WITH STANDARDS** (A description of how each of the recommendations in 2.11.6 read with 2.12 and 2.15.2 herein will comply with any prescribed environmental management standards or practices that have been identified by Competent Authorities)
Please refer to Appendix K and the EMPr				

i) Financial Provision

(1) Determination of the amount of Financial Provision.

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

The closure objectives entail restoring back to agricultural land, the on-site areas where the crusher plant, aggregate stockpiles, plant and truck parking areas will be located during mining operaations. The on-site area where the granite outcrops exist will remain as a pit in the ground when mining operations are over. A walll of bolders will be maintained around the pit as well as a fence of small diameter wire mesh in order to limit the likelihood of any animals and trespassers falling into the pit.

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

Please refer to the applicant's signed Declarations.

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

Rehabilitation will take place as per the advice contained in the specialist reports appended hereto and the EMPr.

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

Plot 2372, Alheidt is currently used for grazing, except for a sand mining operation of less than 5ha that is located approximately km south-east of the proposed quarry and crusher plant operations.

It is only the on-site area where the granite outcrops exist that is to be mined and a pit in the ground will be left thereon. The impact cannot be dealt with through rehabilitation. Instead, a wall of boulders will be maintained around the hole in the ground to minimise the probability of widlife and trespassers falling into the hole. A fence of small-diameter mesh wire will be maintained

around the hole to further limit the probability of wildlife or trespassers falling in the hole.

The rest of the proposed site will be occupied by a a mobile crusher plant, stockpiled aggregate, trucks and front-end loaders etc during mining operations.

The parts of Plot 2372, Alheidt that are not occupied by rocky outcrops can therefore be rehabilitated back to grazing land after mining ends. Please refer to the conclusions reached in the specialist reports that are appended hereto.

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

Please refer to Appendix L

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

Please refer to Appendix L

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

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

SOURCE ACTIVITY	IMPACTS REQUIRING MONITORING PROGRAMMES	FUNCTIONAL REQUIREMENTS FOR MONITORING	ROLES AND RESPONSIBILITIES (FOR THE EXECUTION OF THE MONITORING PROGRAMMES)	MONITORING AND REPORTING FREQUENCY and TIME PERIODS FOR IMPLEMENTING IMPACT MANAGEMENT ACTIONS
Routine Enviromental Control Officer site inspections				
Quarterly EA and EMPr compliance inspection reports				

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

Quarterly (every three months from date that EA is issued).

m) Environmental Awareness Plan

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

Verbal communication (maximum of seven employees on site).

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

Enviromental Control Officer inspections will be required on a twice per month (every second week) basis to ensure that the EA and EMPr are being complied with.

n) Specific information required by the Competent Authority

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

The applicant must submit documentation confirming financial provision for rehabiltiation/landscaping of the on-site areas that are located outside of the on-site granite outcrops area upon site 'closure'.

2) UNDERTAKING

The EAP herewith confirms

a) the correctness of the information provided in the reports ☒

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

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

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

Signature of the environmental assessment practitioner:

Name of company:

Date:

-END-