



**mineral resources**

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

**DRAFT 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).

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**FILE REFERENCE NUMBER SAMRAD:** EC30/5/1/3/2/10650MP

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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 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**

**3. Contact Person and correspondence address**

**a) Details of**

**i) Details of the EAP**

Name of The Practitioner:

Turn 180 Environmental Consultants (Mr. Louis De Villiers) (Assistant EAP: Lizél Kennedy)

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**ii) Expertise of the EAP.**

**(1) The qualifications of the EAP**

(with evidence). B.Sc. Environmental Geography degree from the University of the Free State

**(2) Summary of the EAP's past experience.**

(In carrying out the Environmental Impact Assessment Procedure)

Please note that the projects listed below was conducted by the EAP with another consultancy (i.e. Eko Environmental) and he has since changed companies (Please refer to Appendix 1 for the CV of the EAP and the EAP's Assistant).

**Relevant past projects include:**

- Obtaining mining authorizations for the establishment of a borrow pit on the farm Sydenham 422 outside Bloemfontein for the mining of gravel used to upgrade the N6 road,
- Obtaining mining permit for Tau-Pele Construction on communal land outside Indwe, Eastern Cape, which will be used to blast, excavate, and crush dolerite,
- Obtaining mining permit for African Mobile Crushers for mining and crushing of dolerite on the farm Koonap Poort 277/1, Adelaide, Eastern Cape,
- Obtaining mining permit for African Mobile Crushers for mining and crushing of dolerite on the farm Plooyfontein 93/1, Hanover, Northern Cape.
- Obtaining a mining permit for Rhino Crushers to establish a commercial borrow pit on the farm Roodewal 292/RE, Bloemfontein



**b) Location of the overall Activity.**

<b>Farm Name:</b>	Die Plaas 210 (Vlaktefontein 210) (Re)
<b>Application area (Ha)</b>	4.98 Ha
<b>Magisterial district:</b>	Lady Grey
<b>Distance and direction from nearest town</b>	Approximately 20 km west of Lady Grey, and approximately 30 km east of Aliwal North
<b>21-digit Surveyor General Code for each farm portion</b>	C00500000000021000000

**c) Locality map**

(show nearest town, scale not smaller than 1:250000).

Please refer to Figure 1 below. Also, please refer to Appendix 2.

**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

A mining permit is required for a proposed gravel borrow pit (<5ha) on the remainder of the farm Die Plaas (Vlaktefontein) 210 in the Lady Grey district, Eastern Cape. The site has an existing borrow pit located within the southern border of the proposed borrow pit footprint. The old borrow pit is approximately 1 ha and has been abandoned several years ago. The vegetation cover within the existing borrow pit (and associated areas used for stockpiling and processing activities) has been completely transformed and does not represent natural vegetation. However, the area surrounding the previous borrow pit footprint features natural vegetation which consists of Aliwal North Dry-Grassland. The area is currently being used for grazing.

Gravel extracted from the borrow pit will be used for the upgrading and special maintenance of the national route R58 Section 4 from Aliwal North (km 0) to Lady Grey (49.79 km). The project comprises various schedules which includes road works, intersection widening at 45.95 km (Sterkspruit intersection), intersection widening at 49.79 km (Lady Grey intersection) and pedestrian walkways. The modifications to the road will ensure better flow of traffic for motorists and safer conditions for pedestrians using the road.

The proposed activities include the excavation of gravel to an average depth of 6 m and footprint of 4.98 ha. No permanent infrastructure will be placed on site. Only mobile and temporary structures will be used during the operational period of the borrow pit.

Excavation will be done on the whole area after topsoil has been cleared and stockpiled. The total volume of the area will be excavated for gravel which will be temporarily stockpiled and later loaded as and when required by the construction schedules. Inert- and spoil material, followed by topsoil will be reinstated at completion of the project.

Refer to Figure 2 and Appendix 2 for a Site Layout plan of the proposed activities on the site.



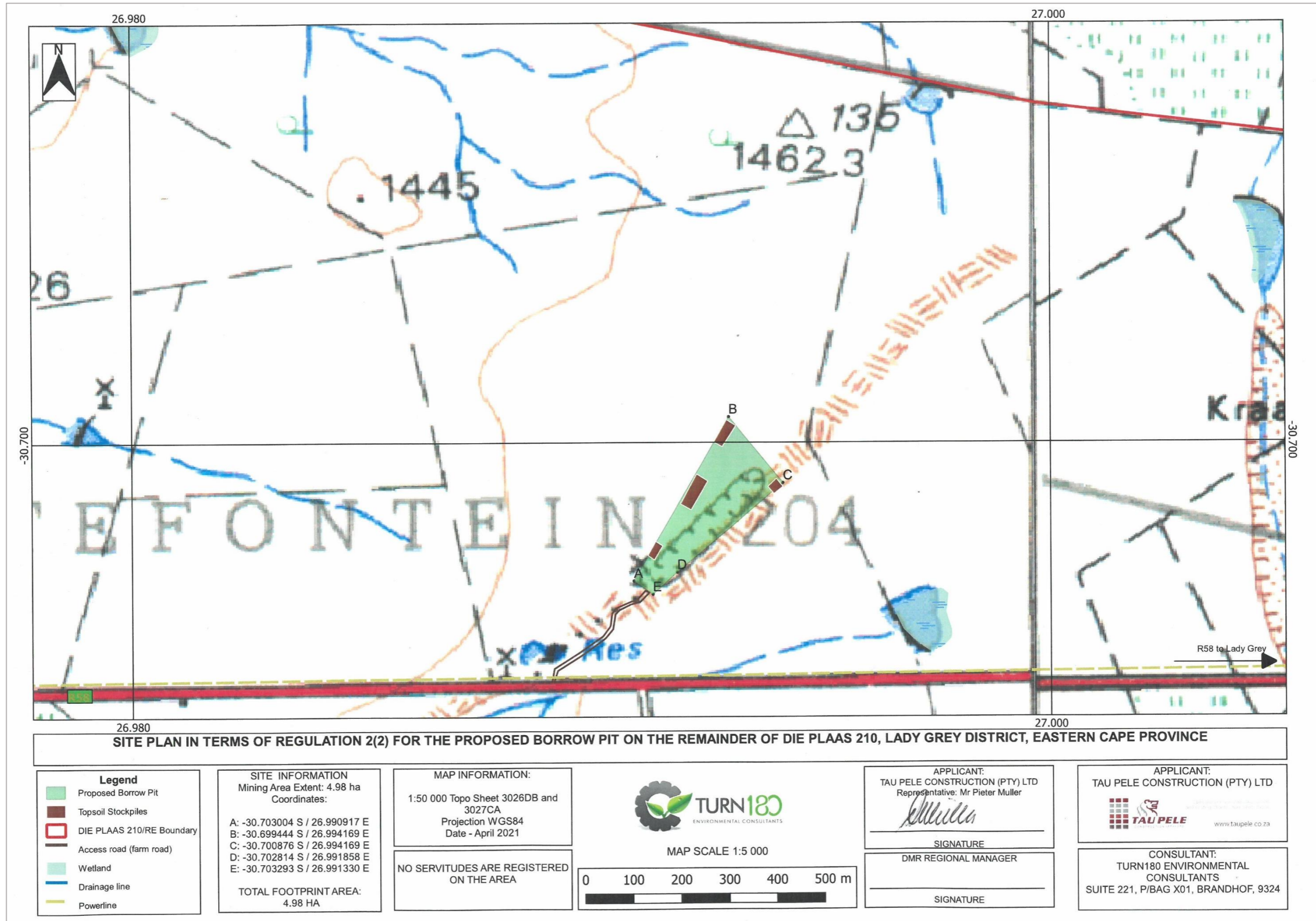


Figure 2: Site Plan and associated activities of the Proposed Borrow Pit (indicated in green).

**(i) Listed and specified activities**

<b>NAME OF ACTIVITY</b> (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.)	<b>Aerial extent of the Activity</b> <b>Ha or m<sup>2</sup></b>	<b>LISTED ACTIVITY</b> <b>Mark with an X where applicable or affected.</b>	<b>APPLICABLE LISTING NOTICE</b> <b>(GNR 544, GNR 545 or GNR 546)</b>
Clearance of 4.98 ha of indigenous vegetation, topsoil and overburden from the excavation area. Separate and safe stockpiling of topsoil and overburden. Placement of ablution facilities (portable chemical toilet).	4.98ha	<b>X</b> Activity 27	GN. R. 327
Surface mining to excavate gravel from the borrow pit, loading and hauling to road building sites.	4.98ha	<b>X</b> Activity 21(a) and (b)	GN. R. 327

Activities authorised in terms of the NEMA listed activities under the 2014 EIA Regulations as amended are the following:

**GN.R. 327**

- **Activity 21(a) and (b):** "Any activity including the operation of that activity which requires a mining permit in terms of Section 27 of the Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), including - (a) associated infrastructure, structures and earthworks, directly related to the extraction of a mineral resource; or (b) the primary processing of a mineral resource including winning, extraction, classifying, concentrating, crushing, screening and washing."
- **Activity 27:** "The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation."

The activity will require a mining permit as the footprint of the area is less than 5 ha.

The proposed mining area is located more than 100 metres from the edge of a watercourse or wetland. However, the Department of Water Affairs ("DWA") will be consulted to determine if a Water Use Licence ("WUL") will be required.

**(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)

**Mining method – Project Phases**

The project phases for the extraction of gravel from the borrow pit does not include any construction of infrastructure apart from the provision of adequate fencing and signage. All equipment to be used will be mobile and temporary. The site preparation and excavation of the gravel will take place through the following steps:

- **Pre-mining phase and site establishment**

- Site preparation: Demarcation and fencing off the mining area to the extent being applied for (less than 5 ha). Demarcation and upgrading of access and haul roads.
- Land clearing: Clearance of vegetation of the borrow area to the extent being applied for.
- Stripping and stockpiling of topsoil ahead of the mining face: Areas will be dedicated for storage of topsoil and mined material prior to the commencement of stripping. Topsoil (however sparse) and seed-bearing material will be stockpiled and kept separate for use during rehabilitation. Measures will be put in place to minimise the potential of wind and water erosion of the soil stockpiles. The topsoil and overburden will be stored in areas where it will not be disturbed during the borrow pit operation.
- Stripping and stockpiling of subsoil and overburden: Overburden material that cannot be used in the road construction processes would be used in reshaping of the site during rehabilitation.
- Placement of temporary ablution facilities (chemical toilets).

- **Operational phase**

The gravel will be extracted using an excavator. Due to the nature of the material no blasting or crushing is required. The planned mining sequence is as follows:

- Excavation of required material: Gravel will be excavated from the borrow area by using an excavator in order to remove required volumes of material. The borrow pit will comprise of only one compartment and will be mined to an average depth of 6 m below the natural ground level.
- No mineral processing will be required.
- Stockpiling of material: All material will have demarcated stockpiling areas to be used during mining operations at the borrow pit site. Specific stockpiles for topsoil and overburden removed during the pre-mining and mining phase will be stored separately and used during the rehabilitation and closure of the borrow pit area.
- Transfer gravel to tipper trucks: The excavated gravel will be removed with front-end loaders and will be loaded onto tipper trucks to transport the material. Material will be transported directly from site as and when it is required for the scheduled upgrading processes along the R58 road.
- The mining equipment to be used includes the following: 1 x Excavator, 1 x bulldozer, 1 x front-end loader, 4 x tipper trucks.
- Stormwater management: Due to the presence of the natural drainage line south of the mining area, preventative stormwater management measures will be put in place and will be included in the EMPr.

- **Rehabilitation and Closure**

- Rehabilitation will occur by filling the excavated area with available overburden stockpiled material, followed by the spreading of topsoil, compaction, and levelling of soils to create slopes that are stable and compatible with the surrounding landscape.
- Reshaping of the disturbed land will create landforms with gentle slopes and reinstate natural drainage patterns.
- Revegetation of plant species will be consistent with post-mining land use objectives. Vegetation will be allowed to grow naturally, with the aim that the land will be returned to suitable long-term desired land-uses which includes agricultural, grazing and arable land. The growth of alien species and noxious weeds and pests will be prevented and controlled as far as practically possible.
- No stockpiled material will remain on the site after rehabilitation has been completed.
- All equipment will be removed from the site, including the portable chemical toilets.
- Any residual waste will be collected and removed from site. General waste will be disposed of at an authorised landfill site in the area. Any potential hazardous material left on site will be managed appropriately and disposed of at an authorised hazardous waste facility.
- The pit will be fenced off to provide a safe environment and to prevent easy access to the site.
- Tau Pele Construction will ensure that the pit is left in an environmentally acceptable state and to the satisfaction of the Department of Mineral Resources and the landowner.

❖ **Services**

The following supporting activities will be required:

- Access: An existing access road will be used to the site. No new access roads will be created. The current farm road will be used to allow the movement of trucks to and from the borrow pit.
- Ablution facilities: Chemical toilets will be provided for the employees for the duration of the operation of the borrow pit.
- Waste Management: Refuse bins will be made available. All general waste generated on the site will be collected and disposed of at a registered landfill site.

#### e) Policy and Legislative Context

<b>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT</b> (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)	<b>REFERENCE WHERE APPLIED</b>	<b>HOW DOES THIS DEVELOPMENT COMPLY WITH AND RESPOND TO THE LEGISLATION AND POLICY CONTEXT.</b>  (E.g. In terms of the National Water Act a Water Use License has/ has not been applied for)
National Environmental Management Act (Act 107 of 1998) 2014 Regulations	Department of Environmental Affairs	Environmental Authorisation is needed. The following activities will be applied for: Activity 21(a) and (b) and Activity 27 of GN. R. 327
Conservation of Agriculture Resources Act (Act 43 of 1993)	Department of Agriculture, Forestry and Fisheries	No cultivated land will be affected.
National Heritage Resources Act (Act 25 of 1999)	South African Heritage Resource Agency	Phase 1 HIA conducted
Mine Health and Safety Act and Regulations (Act 29 of 1996)	Department of Mineral Resources	Implemented by contractor on site
Minerals and Petroleum Resources Development Act (Act 28 of 2002)	Department of Mineral Resources	Environmental Authorization and mining permit applied for

#### 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).

The proposed mining activities will provide gravel for upgrading and special maintenance of the national route R58 between Aliwal North and Lady Grey. The upgraded road infrastructure will ensure road safety and an integrated transport system and networks that benefits all in the community, especially those using the road for daily commute. High traffic volumes of personal motor vehicles as well as public transport vehicles (buses and taxis) commuting between these two towns result in potholes and wash boarding of the road surface which is extremely hazardous to drive on. Therefore, the upgrading of the road will have a positive effect on road users making use of the road.

For the improvements and maintenance of the road infrastructure, the department requires material for road building which can be obtained from the borrow pit. Therefore, the need for this borrow pit development has been triggered by the need for upgrading of the road R58 from Aliwal North to Lady Grey. The upgrading of the R58 road will be beneficial to the residents of the villages and farms by which the road passes by but also the greater Eastern Cape population, especially the towns of Aliwal North and Lady Grey. The widening of intersections will ease traffic flow while pedestrian crossings will force motorists to slow down which will make the road safer for pedestrians. Furthermore, the road construction processes will result in job creation for locals involved in the construction activities. This will have a positive impact on the local economy directly related to these individuals and their families.

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

The location of the proposed borrow pit is preferred for the following reasons:

The preferred site already contains a historical borrow pit and as a result is already degraded by this activity. Exposed mining faces of the existing pit displays in-situ weathered dolerite overlain by a thin residual soil cover. Investigation of the historically mined pit showed that the required material for the road construction is available in the mine permit footprint and can be sourced from the pit, with subsequent mining activities extending in a north-western direction to a total mined area of not more than 5 ha. The gravel is weathered and loose, and as a result blasting will not be required to loosen the material. Excavators will be used to rip the gravel after which it will be loaded onto tipper trucks and hauled to the road construction sites.

The preferred site can be accessed via the R58 national road. Entrance to the site will be provided by an existing farm dirt road which will be upgraded for the movement of trucks. The preferred site is located adjacent to the R58 road project, hence haulage distance to the required construction sites will be reduced.

Vegetation: The proposed borrow pit falls within the Aliwal North Dry Grassland. The vegetation type is currently listed as being Least Concern under the National List of Threatened Ecosystems (Notice 1477 of 2009). The proposed borrow pit does not fall within a Critical Biodiversity Area (“CBA”), indicating a relatively low conservation value of the area of interest. The majority of the site has been significantly modified from the natural condition due to previous stockpiling and processing activities associated with the mining of the existing pit.

Fresh water: No freshwater sources were identified within the footprint area of the proposed borrow pit or 100 m thereof. The nearest drainage line is situated 250 m to the south of the proposed borrow pit, and the edge of the nearest wetland is situated 380 m from the proposed borrow pit. The existing borrow pit contains two small portions where ponding occurs and leads to the formation of artificial wetland conditions. However, these do not perform any significant ecological functions, are completely artificial in nature and will therefore not have any conservation value. Turn 180 notified the Department of Water and Sanitation (“DWS”) of the project and distributed the necessary documents, information and reports for commenting. No indications on whether a Water Use licence (“WUL”) will be required were received after the 30-day review period of the Draft Basic Assessment Report.

Heritage: According to the site assessment findings of the Heritage Impact Assessment (“HIA”) there are no signs of heritage/ archaeological features identified within the proposed footprint of the borrow pit. The proposed site however lies in a high sensitivity area in terms of palaeontological significance due to the possibility of chance finds of fossils in the Molteno Formation sediments.

Noise and dust impacts: Noise and dust impacts are of low significance as no crushing will take place and measures will be implemented to suppress dust generated by haulage trucks moving on the site. The preferred site is located 2 km from the nearest neighbouring farm and 215 m north of the R58 national road. The anticipated noise levels are not expected to impact the neighbouring farm. The R58 is an existing source of noise.

The anticipated environmental impacts will be minimal based on the current status of the area which is already disturbed by previous mining and agricultural activities.

## **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) Property alternatives:**

No property alternatives were considered as the preferred site will provide the correct quality and quantity of gravel required for the upgrades of the segment of the R58 road between Aliwal North and Lady Grey. The gravel can easily be obtained through the extension of the existing borrow pit. The preferred site is in close proximity to the road works which will result in minimal haulage costs. The intention is to use the available farm road to access the site, which will ultimately reduce the impact / environmental footprint of the proposed borrow pit.

**(b) Type of activity alternatives:**

No activity alternatives have been considered for this project as the gravel material from the preferred site is deemed satisfactory quantity and quality for the purpose (road works, maintenance, intersection upgrades) for which it is intended.

**(c) Design or layout alternatives:**

No design or layout alternatives have been assessed. No complicated surface infrastructure will be required on site and therefore no design or layout alternatives were deemed necessary. The entire development footprint will be excavated and thereafter rehabilitated.

**(d) Technology alternatives**

No technology alternatives have been identified. The method selected for removing the gravel is as per operational description of borrow-pit mining activities. Due to the nature of the material to be mined, excavation using an excavator and front-end-loaders is feasible and no other technology alternatives were considered for this project.

**(e) Operational alternatives**

No operational alternatives were considered. Operations will consist of excavating dolerite gravel material. The slopes of the borrow pit will be re-shaped as excavations continue, which means that rehabilitation will consist of landscaping as excavations progresses.

**(f) No- go alternative**

Mining is required to excavate the gravel needed for the upgrades of the R58 national road. The “No-go” alternative is the option of not undertaking mining activities and not constructing a borrow pit at the project site. The site will remain in its current state and there will be no additional immediate impact on the vegetation. Should the authorisation for the borrow pit not be granted, the roadworks and upgrades will not be constructed. Effectively, the contractor (and SANRAL) will have to obtain gravel from other sources, or identify a new site, which would compromise the timeframes and financial viability for the R58 upgrades project. The socio-economic benefit and most notably the future development of the area will be lost if the mining activities of the borrow pit is not undertaken.

**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 EIA regulations specify that a public participation process must be conducted as an integral part of the EIA. This chapter outlines the public participation process followed in terms of the requirements contained in Section 41 of Government Notice No. R. 326, the 2014 Regulations as amended. The public participation process entailed the following activities (Please refer to Appendix 6):



## ❖ **Notification of Interested and Affected Parties (I&AP)**

As stipulated in Section 41(b) of the EIA Regulations G.N.R 326 written notice was sent to the following interested and affected parties informing them of the proposed activities.

- Joe Gqabi District Municipality
- Walter Sisulu Local Municipality - Municipal Manager
- Walter Sisulu Municipality - Ward 11 Ward councillor
- South African Heritage Resource Agency
- Eastern Cape Heritage Authority
- Department of Water and Sanitation
- Department of Agriculture, Land Reform and Rural Development
- Department of Economic, Tourism and Environmental Affairs
- Eastern Cape Department of Mineral Resources
- Department of Rural Development and Land Reform
- ESKOM
- SANRAL (Eastern Cape Department of Roads and Public Works)

### ○ **Background Information Document (“BID”)**

A BID containing a summary of the details of the proposed project and of the EIA process that was to follow, with comment sheets, was sent via email to all I&APs on 20 January 2021 (Appendix 6).

### ○ **Notification of Landowners, Neighbours, Councillors, Municipality and Organs of State**

Mr Pieter De Wet is the owner of Die Plaas 210 (Vlaktefontein 210) and has given his consent for the project to take place on his land.

The adjacent landowners in a radius of 2 km from the proposed borrow pit was notified. This only included Mr Ebbie Hattingh from the farm Mooivlei. Due to the large extent of Die Plaas 210 (Vlaktefontein 210) and the position of the borrow pit, which is located in the northern portion of the farm the anticipated noise and dust levels is not expected to impact the other adjacent landowners, as they are situated at a distance of at least 5 km from the site.

The Joe Gqabi District Municipality and the Walter Sisulu Local Municipality together with all other affected organs of state were informed of the proposed activity via a BID attached to a letter addressed to each individual landowner and sent to them via email (See Appendix 6 for the I&AP Register).

## ❖ **Newspaper Notification**

An advertisement detailing information about the project was placed in the Aliwal Weekblad (Aliwal Weekly) Newspaper on 29 January 2021 (Appendix 6). The advertisement was a notification with regards to the consultation process that was in progress, as well as calling for the registration of I&AP's. The advertisement provided I&AP's 30 days to register and to submit their comments in writing to Turn 180 Environmental Consultants.

## ❖ **Site Notices**

Two site notices detailing information relevant and required information of the project was erected at the entrance to the property and to the site on 12 January 2021 (Appendix 6).

## ❖ **Register of Interested and Affected Parties**

In accordance with the requirements of Regulation 42, of Government Notice No. R 326, a register of I&AP's has been maintained and updated throughout this project. Kindly refer to Appendix 6 for a copy of the register.

## ❖ **Comments and Response Report**

Copies of all I&AP correspondence are included in Appendix 6.

All I&AP's written comments have been recorded and responded to. Kindly refer to Appendix 6 for a copy of the Comments and Response Report.

The Draft Basic Assessment Report (“**BAR**”) was also distributed to all authorities and adjacent landowners. A 30-day review period was allowed for I&AP to submit their comments in writing to Turn 180 Environmental Consultants (included in the Comments and Response Report in Appendix 6).

**iii) Summary of issues raised by I&APs**

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

<b>Interested and Affected Parties</b>  <b>List the names of persons consulted in this column, and</b>  <b>Mark with an X where those who must be consulted were in fact consulted.</b>	<b>Date</b>  <b>Comments</b>  <b>Received</b>	<b>Issues raised</b>	<b>EAPs response to issues as mandated by the applicant</b>	<b>Section and paragraph reference in this report where the issues and or response were incorporated.</b>
<b><u>AFFECTED PARTIES</u></b>				
<b>Landowner/s</b>				
Pieter Jacobus De Wet	<b>X</b>	No issues raised.		
<b>Lawful occupier/s of the land</b>				
Same as above		No issues raised		
<b>Landowners or lawful occupiers on adjacent properties</b>				
Mr Ebbie Hattingh	<b>X</b>	No issues raised.		
<b>Municipal councillor</b>				
Ward 11 Ward Councillor	<b>X</b>	No issues raised.		
<b>Municipality</b>				
Municipal Manager Mr. Zolile Williams	<b>X</b>	No issues raised.		
Acting Municipal Manager Mr. Z. Nongeni	<b>X</b>	No issues raised.		
<b>Organs of state (Responsible for infrastructure that may be affected Roads Department, Eskom, Telkom, DWA etc</b>				

Department of Roads and Transport, Eastern Cape (SANRAL) Ms Nenekazi Songxaba Mr Gideon Machethe	X		No issues raised.		
Department of Water and Sanitation (DWS) Dr T. Ntuli	X		No issues raised.		
Eastern Cape Heritage Resources Authority (ECPHRA) Mr S. Mokhanya	X		No issues raised.		
ESKOM Mr J Geeringh	X		No issues raised.		
South African Heritage Resource Agency (SAHRA)	X		No issues raised.		
<b>Communities</b>	N/A				
<b>Dept. Land Affairs</b>	X				
Department of Rural Development and Agrarian Reform Ms Khanyi Tsiki	X	29/01/2021	Upon a site visit to the proposed borrow pit, concerns were raised by Ms Tsiki of the soil depth and fertility of the soil in the footprint to be disturbed by mining. She indicated that mining and rehabilitation of the borrow pit should occur in a manner that will retain the agricultural potential of the land.	The proposed borrow pit site consists of residual soil cover overlying Molteno sediment outcrop and weathered dolerite. Topsoil will be stockpiled separately, and the integrity of the soil will be retained. The borrow pit will be rehabilitated properly after the gravel has been excavated. The project area will be returned to an acceptable post-mining state and its previous land-use, which is grazing.	Section A.3.h(iv.1.a) and A3.h(viii), Appendix 4 and Appendix 6.3
Department of Agriculture, Land Reform and Rural Development Ms Nomsa Moyo	X	27/01/ 2021	Our concerns on the proposed borrow pit mining will be on the activities which may result on degradation of natural agricultural resources e.g. soil, water and vegetation. The borrow pit mining should be undertaken in a manner that will have no or minimal impacts on natural agricultural resources.	The excavation of gravel from the proposed site will not impact on water resources, as the site is located more than 100 m away from the edge of any wetlands and watercourses. The topsoil will be stockpiled separately, and care will be taken to retain the integrity of the soil. Topsoil will be re-instated, and the area will be revegetated during the rehabilitation phase to return the land to its pre-mining use, i.e. grazing.	Section A.3.h(iv.1.a) and A.3.h(viii), Appendix 4 and Appendix 6.3
<b>Traditional Leaders</b>	N/A				
<b>Dept. Environmental Affairs</b>	X				
Department of Economic Development and Environmental Affairs Mr T. Babane	X		No issues raised.		
<b>Other Competent Authorities affected</b>					

Department of Mineral Resources	X	09/04/2021	The DMR advised the applicant to apply for a Water Use Licence (“WUL”) from the Department of Water and Sanitation (“DWS”).	<p>An Ecological and Wetland Assessment was conducted on the proposed site to delineate wetlands and watercourses in or in near proximity of the proposed borrow pit activities. The findings of the Wetland assessment were as follows: “No watercourses or wetlands occur near the site with the nearest watercourse being a small but distinct drainage line to the south (approximately 250 m). This drainage line flow to the south of the site and is highly unlikely that it will be affected by the development. The site itself does not contain any concentrated runoff patterns, wetlands or watercourses though the existing borrow pit does cause two small portions where ponding occurs and leads to the formation of artificial wetland conditions. However, these do not perform any significant ecological functions, are completely artificial in nature and will therefore not have any significant conservation value.”</p> <p>Turn 180 notified the Department of Water and Sanitation (“DWS”) of the project and distributed the necessary documents, information and reports for commenting.</p>	Section A.3.h(iv.1.a), A.3.h(iv.1.c) and A3.h(viii) and Appendix 6.3.
<b><u>OTHER AFFECTED PARTIES</u></b>		N/A			
<b><u>INTERESTED PARTIES</u></b>		N/A			

**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 baseline environmental conditions were investigated during a site assessment comprising an Ecological and Wetland study by DPR Ecologists & Environmental Services (“DPR”), as well as a Phase 1 Heritage Impact Assessment (“HIA”) by Paleo Field Services. The findings are attached to this report in Appendix 3.

• **Geographical location**

The proposed borrow pit is located on the Remainder of the farm Die Plaas (Vlaktefontein 210), in the Lady Grey District, within the Walter Sisulu Local Municipality. The site is situated approximately 20 km to the west of the small town of Lady Grey and approximately 30 km to the east of Aliwal North. The proposed site covers an area of approximately 4.98 ha. The site can be accessed from the R58 national road and entrance to the site via an existing farm gate and road.

• **Geology and soil**

The regional geology comprises of layers of gritty sandstone and grey mudstone of the Tarkastad Subgroup, within the Upper Triassic Molteno Formation, Karoo Supergroup (Cairncross et al., 1995, Johnson et al., 2006). The geology on site comprises of weathered Molteno sediments outcrop, of which a sandstone layer is prominent along the perimeter of the site (DPR, 2021). Dolerite intrusions in these layers are present but not abundant, as is the case on the site. A prominent weathered dolerite dyke is, however, present that was previously mined from the existing borrow pit.

The soils on the site are considered shallow (<450 mm), and of poor suitability for arable agriculture where climate permits. Plinthic catena, undifferentiated upland duplex or margalitic soils are common (NPAT 2001 database).

• **Topography**

The topography of the site is dominated by an undulating plain with the site itself located on a low rise which has a gentle but visible slope from the south-east to the north-west (DPR, 2021). The topography on the site has however been altered by the excavation caused by the previous borrow pit, which had left a depression but is largely free-draining. The site has an elevation of 1461 mamsl along the north eastern border, decreasing to 1456 mamsl along the western border and clearly indicates that the site has a gentle slope from east to west.

• **Vegetation**

The proposed site is located in the Aliwal North Dry Grassland (Gh2) vegetation type (Mucina and Rutherford, 2006; DPR, 2021). This vegetation type is currently listed as being of Least Concern (LC) under the National List of Threatened Ecosystems (Notice 1477 of 2009) (National Environmental Management Biodiversity Act, 2004). The proposed site is notably disturbed and has little natural indigenous vegetation. The natural vegetation type present in the area is grassland, and where the vegetation is modified from the natural conditions, pioneer grass species and dwarf karroid shrubs are abundant (DPR, 2021). The site does not contain threatened or red-listed species and such species are also unlikely to occur due to the previous clearance of natural grass layer. The existing borrow pit is largely free draining but contain small patches which have become inundated where wetland conditions have established. These are however completely artificial and do not provide and ecologically important functions and they therefore have a low conservation value. A full Ecological and Wetland assessment report of the proposed borrow pit area, compiled by DPR Ecologists and Environmental Services, is provided in Appendix 3.

- **Animals**

Assessments by DPR (2021) suggest that it is considered unlikely that mammals of concern would occur on the site, as the baseline environment is already modified grassland due to previous mining and associated activities. The baseline habitat and mammal population are therefore also already modified. Mammal species which are rare and endangered are often habitat specific and sensitive to habitat change. The modified nature of the site therefore makes the occurrence of such species unlikely. Common species found in the area and on the proposed site include Porcupine and Aardvark. These species are relatively wide-spread and not of high conservation significance. Refer to ecological report by DPR (2021) in Appendix 3.

- **Water resources**

There are no major rivers or dams located within 100 m from the proposed borrow pit. The nearest water course is a small but distinct drainage line to the south of the site (approximately 250 m). This drainage line flows to the south of the site and is unlikely to be affected by the excavation activities of the borrow pit. The proposed borrow pit footprint itself does not contain any concentrated runoff patterns, wetlands, or watercourses. Although it is unlikely that runoff from the borrow pit site will affect the drainage line to the south, preventative measures will be implemented to control and divert stormwater runoff, which includes the construction of a low-berm around the perimeter. The proposed site falls within the D12F quaternary catchment of the Orange River Water Management Area (WR2012).

- **Groundwater**

Groundwater occurs in the weathered shallow Karoo aquifer with a water level of 8 to 16 m deep. The groundwater level on the farm is approximately 30 mbgl. Due to the presence of dolerite in the area, occasional perched aquifers may be present on the proposed site. The aquifers in the area may be classified as minor moderately yielding with variable water quality. Due to the shallow depth of the excavation of the proposed borrow pit (< 6 mbgl), it is unlikely that the groundwater table will be affected by the mining activities.

- **Heritage resources and Palaeontology**

A Phase 1 Heritage Resources Assessment (“HIA”) was undertaken by Paleo Field Services in February 2021. According to the HIA, the proposed development footprint will primarily impact geologically recent residual soils and Molteno Formation exposures. The disturbance of Molteno sediments (coarse-medium grained sandstone) at the site may be considered a potentially high palaeontological impact due to intact fossils that may become exposed as overburden is removed as the excavation of the gravel proceeds. The project site has a high palaeontological sensitivity according to the SAHRIS palaeo-sensitivity map.

However, no fossils or potential fossil exposures were observed within the existing borrow pit during the site assessment. Nonetheless, the Molteno formation is known to contain an abundance of plant fossils, particularly the seed fern *Dicroidium* (Anderson and Anderson, 1985), silicified woods and palynomorphs. Important insect fauna and rare fish, conchostracans, bivalves, invertebrate trace fossils and dinosaur tracks are also recorded. For this reason, the Molteno formation exposure may be of potentially high palaeontological significance if the excavation encounters one of these fossil types within the sediments. Paleo Field Services indicated the development may proceed and recommended that a professional palaeontologist occasionally monitors the excavations during the operational phase of the project. A Chance Find protocol (Paleo Field Services, 2021) for palaeontology was recommended to be followed in the event that fossil material is discovered within or found eroding out of intact sedimentary rocks during the operational phase of the project (refer Appendix 3).

In terms of the archaeological heritage, the footprint is assigned a rating of General Protection C (“GP.C”). Dolerite is considered moderately significant as many quarry sites (“factory sites”) are found at the foot of dolerite hills where hornfels or other metasediment outcrop occur (Paleo Field Services, 2021).

There is also no aboveground evidence of building structures older than 60 years, Stone Age archaeological remains, Iron Age structures, graves or material of cultural significance within the confines of the borrow pit footprint. Paleo Field Services (2021) indicated that the development may proceed if all excavation activities are restricted to within the boundaries of the footprint.

- **Climate**

The area is located within a summer rainfall region with an average mean annual precipitation of between 500 mm and 600 mm per annum and a mean annual temperature of 14°C. The climate is temperate but with cold winters and frost occurring in excess of 50 days (Mucina & Rutherford, 2006 and Water Resources of South Africa, 2005). The proposed mining area is located in evaporation zone 20A with an annual evaporation of between 1 600mm and 1 700mm (Water Resources of South Africa, 2005). Please refer Figure 3 and Figure 4 in this report.



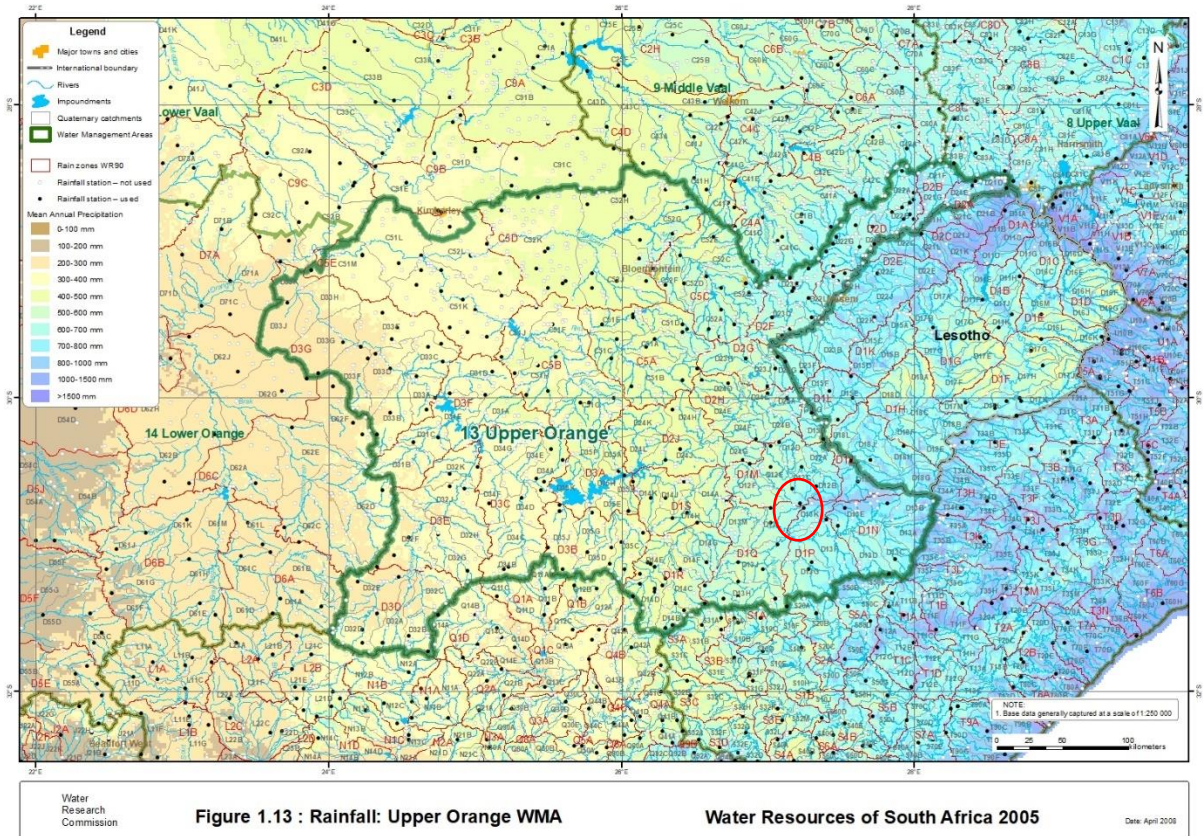


Figure 3: Annual rainfall for rainfall regions of South Africa.

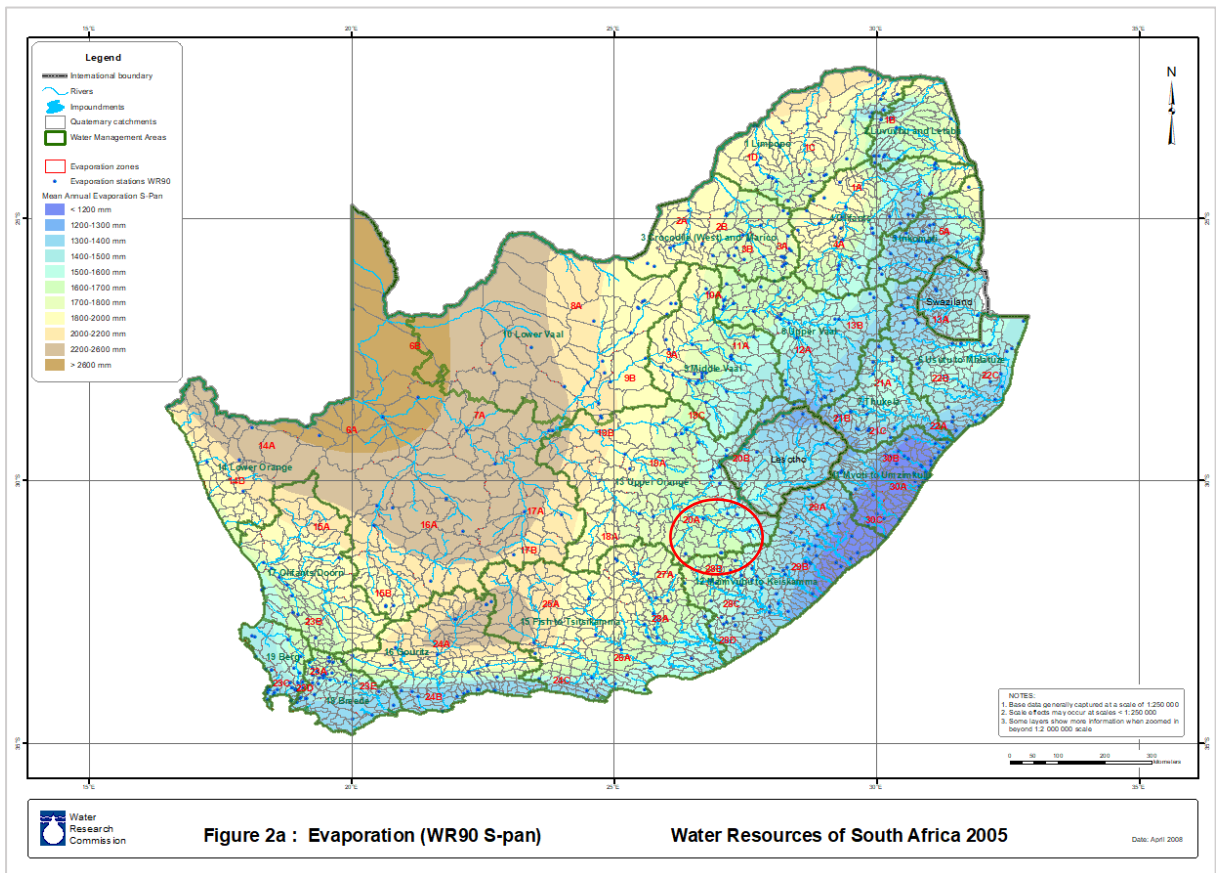


Figure 4: Annual evaporation and Evaporation Zones of South Africa.

## (b) Description of the current land uses.

The proposed borrow pit is situated on land classified as vacant, surrounded by cultivated agricultural land with the R58 national road to the south of the site. Current agricultural activities include animal grazing, with a windmill, solar panel pump and farm dam. An old borrow pit is located within the perimeter of the new proposed borrow pit. The activities at the old borrow pit ceased several years ago and the entire area is currently dormant. The area where the proposed access road will be situated (between the borrow pit and the R58 road) features no structures and has the same vegetation cover than the borrow pit area. It must be noted that the access road is a gravel road and is situated next to the R58 with an overhead electrical powerline at the entrance to the property. Figure 5 to Figure 10 shows the current condition of the vegetation cover and land-uses on the proposed site.



Figure 5: General view of the site showing the low relief of the terrain (looking north east). The land is currently used for grazing.



Figure 6: Previously disturbed area (left) by old borrow pit activities and associated vs surrounding natural grassland (right) (photo courtesy of D. Van Rensburg).



Figure 7: Photograph of existing access road and gate entering the site from the R58 and the powerline overhead (looking north). (Photo with permission from Dr. L. Rossouw).



Figure 8: Photograph of the old borrow pit with remnants of previous mining infrastructure rubble.



**Figure 9: Aerial photograph of the existing access road going past a farm dam and solar panel.**



**Figure 10: Aerial photograph of the existing old borrow pit striking SW-NE.**

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

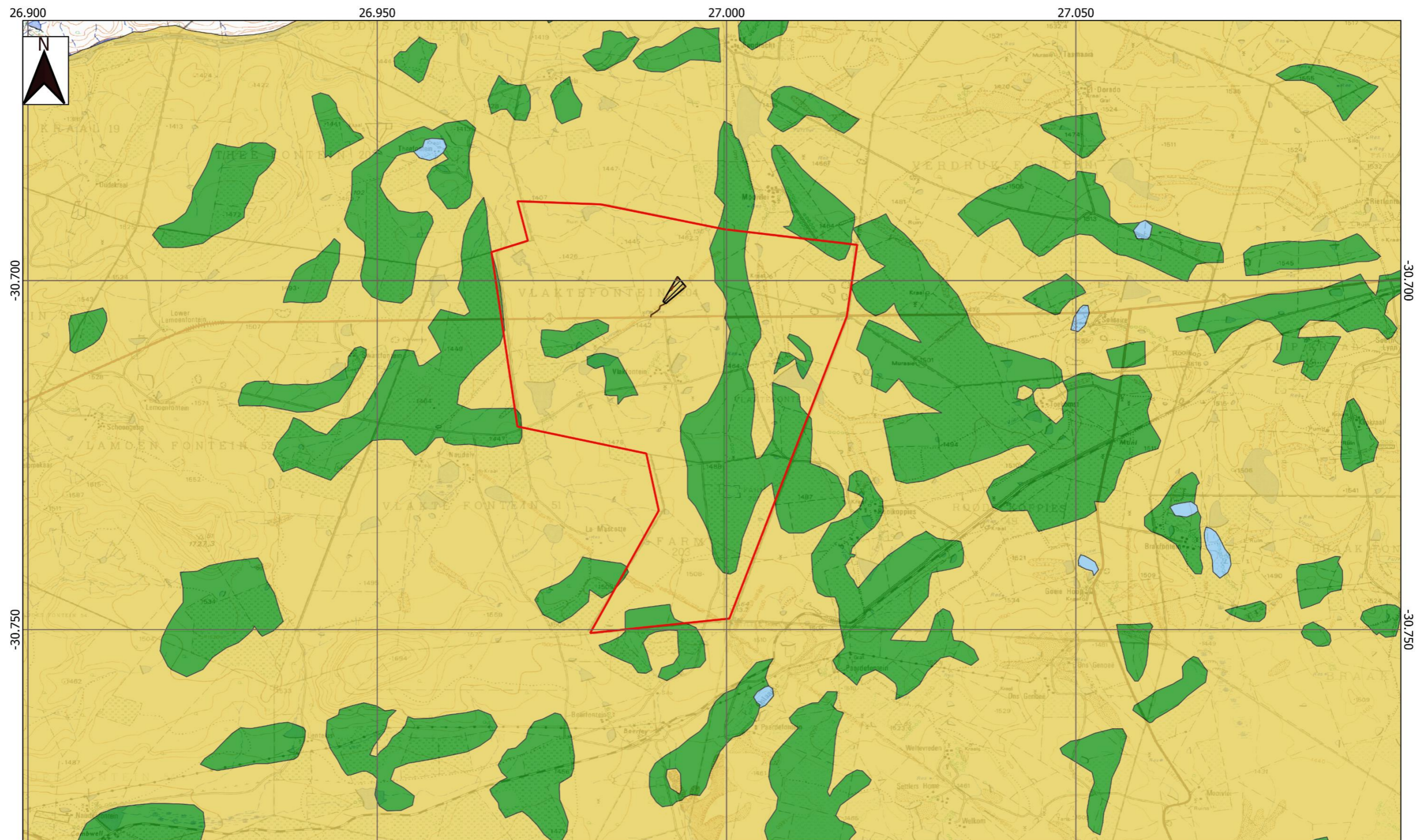
The proposed site is currently being used for animal grazing and does not contain significant infrastructure except for the existing farm road, windmill, solar panel-powered pump and farm dam. An overhead powerline is present at the entrance to the farm from the R58 national road. The farm portion where the borrow pit is situated is fenced along the side adjacent to the R58, as well as on the eastern and western side of the proposed pit. The existing fence and farm gates will be used to control access to the site. The nearest residential properties are approximately 2 km to the north of the site and consists of the farmhouse and associated buildings of the northern neighbour Mooivlei farm.

There are no significant environmental features located on the footprint of the proposed borrow pit area. The vegetation composition has been modified and transformed from the natural grassland due to the previous borrow pit activities, and currently contains pioneer grass species and dwarf karroid shrubs growing in large areas. There are no watercourses on the footprint of the proposed borrow pit, and the site is more than 100 m from the edge of the nearest wetland or watercourse. There is, however, a small drainage line located 250 m to the south of the proposed borrow pit. The drainage line is not located near the excavation and prevalent runoff patterns should prevent the borrow pit activities from having any significant impacts on the drainage line. The developer will still need to divert clean runoff around the site which should be easily attainable by implementing a low berm around the perimeter. The existing borrow pit itself is largely free draining although small patches become inundated where wetland conditions have established. These are however completely artificial and do not provide ecologically important functions and they therefore have a low conservation value. No other elements of exceptional conservation value could be identified (refer to the Ecological and Wetland Assessment by DPR (2021) in Appendix 3).

No heritage sites have been identified in the area. The proposed site is assigned an archaeological site rating of Low Significance (Generally Protected C) (Paleo Field Services, 2021). Based on palaeontological significance, the project footprint, however, falls in an area of Very High Sensitivity (SAHRIS sensitivity map) due to the high potential of fossil finds in the Molteno formation sediments occurring as overburden of the gravel to be extracted. Visual inspections of the Molteno outcrops and existing borrow pit did not yield immediate signs of fossils, however, it is possible to unearth fossils during excavation of these sediments.

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

Refer to Figure 11 as well as Appendix 2 for a land use map.



LAND USE MAP OF THE PROPOSED SITE OF THE ESTABLISHMENT OF A BORROW PIT ON THE REMAINDER OF THE FARM DIE PLAAS 210 (VLAKTEFONTEIN 210), LADY GREY DISTRICT, EASTERN CAPE

<p><b>MAP INFORMATION:</b></p> <p>Coordinate System: GCS WGS84</p> <p>1:50 000 Topo Sheet 3026DB and 3027CA</p> <p>April 2021</p>	<p><b>SITE INFORMATION:</b></p> <p>Coordinates of proposed site: 30°42'6.42"S / 26°59'33.08"E</p> <p>Site footprint: 4.98 ha</p> <p>NO SERVITUDES REGISTERED ON AREA</p>	<p><b>CONSULTANT:</b></p> <p>Turn180 Environmental Consultants Suite 221, P/Bag X01, Brandhof</p> 	<p><b>APPLICANT:</b></p> <p>Tau Pele Construction (Pty) Ltd</p>  <p>Specialists in new road construction and existing infrastructure rehabilitation www.taupele.co.za</p>	<p>MAP SCALE 1:50 000</p> 	<p><b>Legend</b></p> <p>  Proposed Borrow Pit   Die Plaas (Vlaktefontein) 210/RE  <b>Land use</b>   COMMERCIAL / INDUSTRIAL   CONSERVATION   CULTIVATED LAND   FORESTRY   MINING   RESIDENTIAL   SUBSISTENCE FARMING   VACANT / UNSPECIFIED </p>
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Figure 11: Land use map of the proposed borrow pit.

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).

Activity	AFFECTED ENVIRONMENT	MAIN POTENTIAL IMPACTS	SIGNIFICANCE	PHASE
<b>1. Upgrading of roads</b>  <b>NOTE: There is an existing road to the site which will be used by the mining vehicles.</b>	Soil	<ul style="list-style-type: none"> <li>Surface compaction due to vehicle movement.</li> </ul>	Low	Site Establishment & Operational
	Land use	<ul style="list-style-type: none"> <li>Loss of land use to support grazing.</li> </ul>	Low	Site Establishment, Pre-mining Operational, Decommissioning & Closure
	Vegetation	<ul style="list-style-type: none"> <li>Clearing of vegetation for road area.</li> </ul>	Low	Site Establishment
	Fauna	<ul style="list-style-type: none"> <li>Destruction/change/disturbance of habitat.</li> <li>Injury or death to wildlife because of vehicle movement.</li> </ul>	Low	Site Establishment, Pre-mining & Operational
<b>2. Clearing of vegetation and stockpiling of topsoil.</b>	Soil	<ul style="list-style-type: none"> <li>Clearing of vegetation and stockpiling of soil may lead to soil erosion.</li> </ul>	Low-medium	Site Establishment, Pre-mining & Operational
	Vegetation	<ul style="list-style-type: none"> <li>Clearing and loss of vegetation of the entire mining area.</li> </ul>	Low-medium	Pre-mining & Operational
	Fauna	<ul style="list-style-type: none"> <li>Destruction/change/disturbance of habitat.</li> <li>Injury or death to wildlife because of vehicle movement.</li> </ul>	Low	Pre-mining & Operational
	Water resources	<ul style="list-style-type: none"> <li>Siltation of the small drainage line by stormwater.</li> </ul>	Low	Pre-mining & Operational
	Heritage	<ul style="list-style-type: none"> <li>Unearthing of heritage resources.</li> </ul>	Low	Pre-mining
<b>3. Excavation of gravel</b>	Geology	<ul style="list-style-type: none"> <li>Loss of gravel during excavation.</li> </ul>	Medium	Operational
	Topography	<ul style="list-style-type: none"> <li>The excavation of ±6m deep will form a temporary depression</li> </ul>	Medium	Operational & Decommissioning
	Soil	<ul style="list-style-type: none"> <li>Removal of topsoil and stockpile next to excavation may lead to loss of soil and erosion.</li> </ul>	Low-medium	Operational

		<ul style="list-style-type: none"> <li>• Surface compaction due to infrastructure and vehicle movement.</li> </ul>		
	Noise pollution	<ul style="list-style-type: none"> <li>• Generation of noise because of mining related activities.</li> </ul>	Medium	Operational & Decommissioning
	Air Quality	<ul style="list-style-type: none"> <li>• Dust generation because of movement of excavation and construction vehicles.</li> </ul>	Low-medium	Pre-mining, Operational & Decommissioning
	Fauna	<ul style="list-style-type: none"> <li>• Destruction/change/disturbance of habitat.</li> <li>• Injury or death to wildlife because of vehicle movement.</li> </ul>	Low	Operational & Decommissioning
	Land use	<ul style="list-style-type: none"> <li>• Loss of natural vegetation for grazing purposes.</li> </ul>	Medium	Operational, Decommissioning & Closure
	Socio economics	<ul style="list-style-type: none"> <li>• Job creation and service rendered to mining operation and road construction.</li> </ul>	Low +	Pre-mining & Operational
	Interested and affected parties	<ul style="list-style-type: none"> <li>• Mining on site will affect the land-use of the landowner on very small scale.</li> </ul>	Low	Pre-mining & Operational
	Water resources	<ul style="list-style-type: none"> <li>• Siltation of the drainage lines</li> </ul>	Low	Operational
	Heritage	<ul style="list-style-type: none"> <li>• Unearthing of heritage resources (archaeological artifacts)</li> <li>• Unearthing of palaeontological resources (fossils)</li> </ul>	Low (artifacts) High (fossils)	Operational
<b>4. Loading and hauling of gravel</b>	Noise pollution	<ul style="list-style-type: none"> <li>• The loading of gravel onto tipper trucks will raise the noise levels, but it will be localised to the site.</li> </ul>	Moderate	Operational
	Air quality	<ul style="list-style-type: none"> <li>• Dust generation during loading of gravel.</li> </ul>	Moderate	Operational

Refer to Impact Assessment in Appendix 4.

**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).

The environmental significance assessment methodology is based on the following determination:

$$\text{Environmental Significance} = \text{Overall Consequence} \times \text{Overall Likelihood}$$

**Determination of Consequence**

Consequence analysis is a mixture of quantitative and qualitative information and the outcome can be positive or negative. Several factors can be used to determine consequence. For the purpose of determining the environmental significance in terms of consequence, the following factors were chosen: **Severity/Intensity, Duration and Extent/Spatial Scale**. Each factor is assigned a rating of 1 to 5, as described in the tables below.

**Determination of Severity**

Severity relates to the nature of the event, aspect or impact to the environment and describes how severe the aspects impact on the biophysical and socio-economic environment is (Table 1). Table 1 will be used to obtain an overall rating for severity, taking into consideration the various criteria.

**Table 1: Rating of Severity.**

Type of criteria	Rating				
	1	2	3	4	5
Quantitative	0-20%	21-40%	41-60%	61-80%	81-100%
Qualitative	Insignificant / Non-harmful	Small / Potentially harmful	Significant / Harmful	Great / Very harmful	Disastrous / Extremely harmful
Social/ Community response	Acceptable / I&AP satisfied	Slightly tolerable / Possible objections	Intolerable/ Sporadic complaints	Unacceptable / Widespread complaints	Totally unacceptable / Possible legal action
Irreversibility	Very low cost to mitigate/ High potential to mitigate impacts to level of insignificance / Easily reversible	Low cost to mitigate	Substantial cost to mitigate / Potential to mitigate impacts / Potential to reverse impact	High cost to mitigate	Prohibitive cost to mitigate / Little or no mechanism to mitigate impact / Irreversible
Biophysical (Air quality, water quantity and quality, waste production, fauna and flora)	Insignificant change / deterioration or disturbance	Moderate change / deterioration or disturbance	Significant change / deterioration or disturbance	Very significant change / deterioration or disturbance	Disastrous change / deterioration or disturbance

**Determination of Duration**

Duration refers to the amount of time that the environment will be affected by the event, risk or impact, if no intervention e.g. remedial action takes place (Table 2).

**Table 2: Rating of Duration.**

Rating	Description
1: Low	Almost never / almost impossible
2: Low-Medium	Very seldom / highly unlikely
3: Medium	Infrequent / unlikely / seldom
4: Medium-High	Often / regularly / likely / possible
5: High	Daily / highly likely / definitely

### Determination of Extent/Spatial Scale

Extent refers to the spatial influence of an impact be local (extending only as far as the activity or will be limited to the site and its immediate surroundings), regional (will have an impact on the region), national (will have an impact on a national scale) or international (impact across international borders) (Table 3).

**Table 3: Rating of Extent/ Spatial Scale**

Rating	Description
1: Low	Immediate, fully contained area
2: Low-Medium	Surrounding area
3: Medium	Within Business Unit area of responsibility
4: Medium-High	Within Mining Boundary Area
5: High	Regional, National, International

### Determination of Overall Consequence

Overall consequence is determined by adding the factors determined above and summarised below, and then dividing the sum by 4 (Table 4).

**Table 4: Example of calculating Overall Consequence.**

Consequence	Rating
Severity	Example 4
Duration	Example 2
Extent	Example 4
SUBTOTAL	Example 10
TOTAL CONSEQUENCE:(Subtotal divided by 4)	Example 2.5

### Likelihood

The determination of likelihood is a combination of Frequency and Probability. Each factor is assigned a rating of 1 to 5, as described and in Tables 5 and 6.

### Determination of Frequency

Frequency refers to how often the specific activity, related to the event, aspect or impact, is undertaken (Table 5).

**Table 5: Rating of Frequency.**

Rating	Description
1: Low	Once a year or once / during construction / LOM
2: Low-Medium	Once / more in 6 Months



3: Medium	Once / more a Month
4: Medium-High	Once / more a Week
5: High	Daily

### Determination of Probability

Probability refers to how often the activity/event or aspect has an impact on the environment (Table 6).

**Table 6: Rating of Probability.**

Rating	Description
1: Low	Almost never / almost impossible
2: Low-Medium	Very seldom / highly unlikely
3: Medium	Infrequent / unlikely / seldom
4: Medium-High	Often / regularly / likely / possible
5: High	Daily / highly likely / definitely

### Overall Likelihood

Overall likelihood is calculated by adding the factors determined above and summarised below, and then dividing the sum by 2 (Table 7).

**Table 7: Example of calculating the Overall Likelihood.**

Consequence	Rating
Frequency	Example 4
Probability	Example 2
SUBTOTAL	Example 6
TOTAL LIKELIHOOD (Subtotal divided by 2)	Example 3

### Determination of Overall Environmental Significance

The multiplication of overall consequence with overall likelihood will provide the environmental significance, which is a number that will then fall into a range of LOW, LOW-MODERATE, MODERATE, MODERATE-HIGH or HIGH, as shown in the table below (Table 8).

**Table 8: Determination of Overall Environmental Significance.**

Significance or Risk	Low	Low-Moderate	Moderate	Moderate-High	High
Overall Consequence X Overall Likelihood	1 - 4.9	5 - 9.9	10 - 14.9	15 – 19.9	20 - 25

### Qualitative description or magnitude of Environmental Significance

This description is qualitative and is an indication of the nature or magnitude of the Environmental Significance. It also guides the prioritisations and decision-making process associated with this event, aspect or impact (Table 9).

**Table 9: Description of the environmental significance and the related action required.**

Significance	Low	Low-Moderate	Moderate	Moderate-High	High
Impact Magnitude	Impact is of very low order and therefore likely to have very little real effect. Acceptable.	Impact is of low order and therefore likely to have little real effect. Acceptable.	Impact is real, and potentially substantial in relation to other impacts. Can pose a risk to the company	Impact is real and substantial in relation to other impacts. Pose a risk to the company. Unacceptable	Impact is of the highest order possible. Unacceptable. Fatal flaw.
Action Required	Maintain current management measures. Where possible improve.	Maintain current management measures. Implement monitoring and evaluate to determine potential increase in risk. Where possible improve	Implement monitoring. Investigate mitigation measures and improve management measures to reduce risk, where possible.	Improve management measures to reduce risk.	Implement significant mitigation measures or implement alternatives.

**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)

No site layout plan alternatives were considered. Concerns raised during the 30-day public review period regarding the layout will be incorporated into the Final BAR and EMP. The borrow pit will be rehabilitated properly after the gravel has been sourced and the affected parties will be given opportunity to give their input on the finishing off and rehabilitation of the borrow pit.

Advantages of site layout:

- The site layout does not encroach any ecological sensitive areas and is more than 100 m from the edge of any watercourses or wetlands. The activities associated with the preferred site layout will not have a negative impact on the water resources in the area.
- This proposed site layout is situated in a geological and topographical location where the gravel is accessible, and extraction is feasible by surface excavation using an excavator. The gravel is minable through surface mining techniques and no blasting is required, as it is loose weathered material. Minimal impacts on the surrounding environment are expected due to localised nature of the mining activities.
- The layout of the proposed borrow pit is such that it will be a continuation of the old borrow pit, with expansion in a north-westerly direction.

Disadvantages of site layout:

- The site is located in a palaeontological potentially high-sensitive area with the consequence that there is a potential of unearthing valuable intact fossils during the operational phase.

**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).

The following mitigation measures will be implemented to minimise potential impacts on the environment and preserve the agricultural potential of the affected borrow area:

**Loss of vegetation:**

- Clearance of vegetation will be restricted to the absolute minimum required to facilitate access and undertake the mining activities. Disturbance of topsoil and vegetation rootstock will be kept to a minimum.
- Mining activities will not occur outside the demarcated boundaries of the borrow pit area.
- Only the designated access road will be used to gain access to the mining area.
- No open fires will be allowed on site as the site will be treated as a fire-free zone.
- A permit must be obtained to transplant protected / red data species to other areas where it will not be disturbed. However, it is not anticipated that there are any of these species which will be disturbed.
- Rehabilitation following the excavation activities must ensure that appropriate indigenous plant species will be used and should be done as per the rehabilitation plan.
- Adequate monitoring of weed establishment and their continued eradication will be maintained. Where category 1 and 2 weeds/ invasive plant species occur, removal will take place by the property owner.

**Soil impacts (removal of topsoil, soil erosion, compaction, and contamination of soil):**

- The area to be cleared of vegetation will be kept to the extent applied for (<5ha).
- Careful consideration of appropriate machinery for the specific tasks, while minimising environmental damage by prohibiting unnecessary movements.
- The integrity of soil and seed-bearing soil will be retained by shallowly ripping the grass cover (only to the depth of the topsoil) before removal. This will ensure that the natural seed base and organic material is included in the stripping process.
- Topsoil will be stored separately from subsoil and overburden and will not be stored for longer than 1 year.
- The contractor will apply soil conservation measures and protect the stockpiles from wind and water erosion. Furthermore, stockpiles will not be allowed to be contaminated with oil, diesel, petrol, garbage or any materials which may later inhibit the growth of vegetation.
- No vehicles will be allowed to move over stockpiles soil or overburden material.
- Regular maintenance of vehicles to prevent diesel and hydraulic spillages on the road surface or in the pit.
- Low work surface gradients will be applied as far as possible, to control run-off flow rates and minimise channelling and soil erosion during high rainfall events.
- Topsoil will be returned to the mining excavation during rehabilitation, and together with the overburden, will aid in re-establishing a natural topography.
- Adequate monitoring of rehabilitation success will be done, and remedial action will be taken where required. All manmade materials will be removed from the site.

**Surface and groundwater quality and quantity:**

- Despite the absence of any watercourses or wetlands on the proposed site, clean runoff will still need to be diverted around the site which will be attainable by implementing a low berm around the perimeter.
- Stormwater on the mining area will not be allowed to drain into the small drainage line to the south of the site. Stormwater on the operation areas will be contained on the site and will be left to evaporate or used for dust suppression.
- Comply with all conditions of the National Water Act (Act 36 of 1998).
- The mining activities will occur more than 100 m from the edge of the nearest wetland and watercourses.
- Mining vehicles and equipment will be serviced regularly to prevent spillages of hydrocarbons.
- Any spill of potentially hazardous substances (e.g. oil, grease, etc.) should be cleaned and the spill managed immediately.
- Mining activities will not take place outside the mining boundaries.
- No water will be abstracted from groundwater without a Water Use License.
- The depth of the borrow pit will not exceed the water table. In the event that this occurs the DWA will be contacted, and an application will be submitted to them for the abstraction of the water.

- All potentially hazardous substances and hazardous waste will be stored in a bunded area with an impermeable surface and walls to contain any spills and stormwater. A controlled outlet will be placed in the wall to drain stormwater from the bunded area and disposing of it as hazardous waste.

#### **Ambient Air Quality:**

- A dust monitoring system will be implemented to monitor dust emissions from the operation.
- If dust becomes problematic, further management of the dust must be implemented. The borrow pit floor will be sprayed with water from time to time to reduce dust emissions during operations.
- The speed of trucks and other vehicles on the access road should be limited to 40 km/hour to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used.
- Mining activities that typically create high dust emissions will be limited during very windy conditions.
- Avoid unnecessary or excessive vehicle movement.

#### **Noise Levels:**

- Machines should be equipped with silencers.
- Machines should be maintained in a good working order to prevent excessive noise.
- Mining will only occur during normal working hours.
- Adequate ear protection will be provided for personnel in noisy areas.

#### **Waste management:**

- Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., shall be disposed and stored in a suitable container at a collecting point and collected on a regular basis and disposed of at an authorized waste disposal facility in the area. Specific precautions shall be taken to prevent refuse from being dumped on or in the vicinity of the site.
- Suitable covered receptacles shall be available at all times and conveniently placed for the disposal of waste for general and hazardous waste.
- Spills of any product such as paint, oil, cleaning agents etc. should be cleaned up immediately by removing the spillage together with the polluted soil and by disposing it at a recognised facility.
- All used oils, grease or hydraulic fluids, paints, thinners etc. that cannot be re-used shall be placed in a hazardous waste container for disposal at a suitable waste disposal facility.
- Temporary toilet facilities must be made available on-site during construction, operational and decommissioning phase.
- Sewage from these toilets should be managed appropriately and not be disposed of on site or the surrounding environment to cause water or other pollution.

#### **Loss of animals:**

- The hunting, capturing or trapping of fauna, including mammals, reptiles, birds and amphibians on the site should be strictly prohibited during operation of the borrow pit.
- Extra care will be taken to ensure that animals inhabiting the site are not buried alive, this is especially relevant to the antbear burrows in the existing pit area.
- Mining will not exceed the mining boundaries, which will limit the impact on animal habitats.

#### **Safety:**

- No employee at the proposed mining area will be allowed to wander on adjacent land without consent from that landowner.
- Employees at the mine will cook food and eat at home and will not be allowed to gather food from the environment surrounding the proposed mining site.
- Employees will be transported to and from work before and after every shift to ensure that no one trespasses on adjacent property.
- No employee will be permitted to stay at the mine if it is not during his shift. Employees not working, should be transported to their homes.

#### **Archaeology and Palaeontology:**

- A Phase 1 Heritage Impact Assessment (“**HIA**”) was conducted on the site.

- The area falls in a sensitive area in terms of Palaeontological significance due to the potential presence of fossils contained in the Molteno Formation sediments that could be unearthed during excavation. This will be managed by supervision of the activities and a Chance Find protocol to be performed when such a find occurs.
- The proposed site is assigned an archaeological rating of Low Significance (Generally Protected C).
- Although no artefacts or fossils were recorded on the site the following measures should be implemented:
  - Should any artefacts be unearthed on the site the mining should cease and a specialist and the SAHRA should be contacted to investigate the finding.
  - Refer to the Phase 1 HIA in Appendix 3

**ix) Motivation where no alternative sites were considered.**

The selected area is situated close to the R58 road for which the material will be used, being approximately 215 m from the road. The borrow pit footprint does not contain any trees, and the percentage vegetation cover is already reduced to low-medium by previous borrow activities, with a high number of dwarf shrubs growing on the area affected by the old borrow pit. The groundcover has also somewhat been altered due to grazing. There are no infrastructure or dwellings present on the proposed site.

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

Only one site layout was considered. The following factors contributed to the motivation of the preferred site of the borrow pit:

- The area selected is in close proximity to the R58 road and the road construction sites which minimises the distance of transporting the material.
- There is an existing access road in the form of a dirt farm road, which joins the R58 to the site,
- The site has moderate to low vegetation cover due to previous borrow pit and associated activities which has considerably decreased the vegetation density.
- The site has high potential, the gravel is available in the necessary volumes required for the road construction and can be obtained by surface mining.
- The site is located close to the R58 road which makes it easily accessible
- Dust and noise impacts will not be significant as blasting will not take place.

**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 were identified during the environmental impact assessment process and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.)**

An impact assessment was compiled for the impacts on the site (Refer to the Impact Assessment in Appendix 4). No alternatives to the preferred site were considered.

During the operation on site, risk assessments and further impact assessments will be carried out to identify, assess and rank the impacts and risks that the activity will have on the site.

**(i) The impacts identified were the following:**

Impact on geology and soil:

- Loss of topsoil.
- Loss of gravel during excavation.
- Surface compaction due to infrastructure and movement of vehicles.
- The excavation will leave a temporary depression

Land use and capability:

- Land cannot be used for grazing for the duration of the mining activities.

Loss/damage of flora and fauna:

- Vegetation will be removed and the habitat of certain animal species on site will be damaged. The Aliwal North Dry Grassland is the natural flora but is already modified to medium-low density ground cover. Mining activities will be restricted to the mining boundaries.

Impact on surface- and groundwater:

- Spillages of hazardous waste, littering or effluent spills may cause contamination of water.
- Siltation of the small drainage line, although improbable if adequate stormwater management is applied to divert clean water runoff.

Air quality:

- Dust generation may cause higher dust levels in the area which may contribute to moderately increased air pollution in the area.

Noise levels:

- The excavation of gravel with subsequent loading and hauling of the material will have an impact on the ambient noise levels.

Aesthetics:

- The mining activities may have an impact on the aesthetic of the area, which is surrounded by farms and mountainous terrain. Motorists using the road will most be affected by this aspect.

Impact on cultural and heritage resources/sites:

- There may be an impact on artefacts and fossils on the uncovering thereof.

Socio-economic conditions:

- There will be a positive impact on the socio-economic condition of the residents of the area with more employment opportunities created, especially indirectly at the road construction sites.

**(ii) Extent to which the risks/impacts can be avoided or minimized by mitigation measures:**

Impact on soil and geology:

- The loss of soil cannot be avoided as excavation will take place. However, topsoil loss can be avoided if soil is stockpiled correctly to avoid erosion on the site. If topsoil is stockpiled and not used for other purposes, the impact will be avoided.

Land use and capability:

- The land use of the mining area will change and grazing of animals will not be possible on large areas of the site. However, the impact will be temporary as the site will be rehabilitated to the original land use (i.e. agriculture) at the end of the project.

Loss/damage of flora and fauna:

- Vegetation will be lost during the clearing of the site. However, the impact will be temporary as the site will be revegetated during rehabilitation.
- Existing animal habitats may be disturbed/damaged, and animals present on site will leave the site during the duration of the operation. However, it is expected that animals will return after rehabilitation of the site, as was the case after the previous activities at the old borrow pit was completed.

Impact on surface- and groundwater:

- With the implementation of the correct mitigation measures and best practices for the storage and handling of hazardous substances and the maintenance of vehicles and machinery, the impact on soil- and groundwater can be avoided.
- The mining area falls outside the buffer zone of the wetland south-east to the site.
- Stormwater and clean water runoff on the mining area will be managed by implementing a low berm on the perimeter of the site.

Air quality:

- Dust emissions may occur due to excavation, loading and hauling. It is likely that there might also be dust emissions from the use of the dirt road on which the site is accessed. If dust becomes a problem, dust control measures will be implemented.

Noise levels:

- Noise will be generated at the mining site as a result of the mining activities (i.e. excavation, earth moving, loading). The impact can be minimized by mitigation but cannot be avoided. Regular servicing of vehicles and machinery and working at daytime hours will minimize the impact and possible disturbance to adjacent landowners.

Aesthetics:

- There may be a negative aesthetic impact on passing motorists (the site is close to a road) However, the site will always be kept clean and neat by correct waste disposal measures and housekeeping.

Impact on cultural and heritage resources/sites:

- It is not expected that there will be any impact on the cultural or historic sites/artefacts as the site. Fossils that may be unearthed during operation should be managed according to instructions of the Chance Find Protocol contained in the HIA, Appendix 3.

Socio-economic conditions:

- There will be a positive impact on the socio-economic condition of the community in the area where road construction will take place.

**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).

<b>NAME OF ACTIVITY</b>  (E.g. For prospecting - drill site, site camp, ablation 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, ablation, stores, workshops, processing plant, storm water control, berms, roads, pipelines, power lines, conveyors, etc...etc...etc.)	<b>POTENTIAL IMPACT</b> (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...)	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated  (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	<b>SIGNIFICANCE if not mitigated</b>	<b>MITIGATION TYPE</b>  (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..	<b>SIGNIFICANCE if mitigated</b>
Site Establishment activities (fencing, signage, and access information)	Loss of vegetation	Visual character Land use	Pre-mining	Medium	Remedy through rehabilitation, limit footprint of vegetation clearing to the area applied for.	Low
	Habitat destruction	Visual character	Pre-mining	Low	Remedy through rehabilitation, minimise footprint	Low
	Soil erosion and Visual scarring	Visual character	Pre-mining	Medium	Remedy through rehabilitation, minimise footprint	Low
Clearance of vegetation and removal of topsoil	Destruction of flora and habitat	Land use, visual character	Operational phase	Low	Remedy through rehabilitation, limit footprint and limit removal of vegetation to the area applied for.	Low
	Loss of agricultural potential (loss of grazing land)	Land use management	Operational phase	Low	Limit footprint loss of agricultural land surface; Control loss of agricultural potential through soil conservation techniques.	Low



	Soil erosion	Land use	Operational phase	Medium	Stop through appropriate storage of topsoil; control through soil conservation methods.	Low
	Visual Scarring	Visual character	Operational phase	Low	Remedy through rehabilitation, minimise the footprint of vegetation clearance.	Low
Excavation of gravel	Dust emissions	Air quality	Operational phase	Medium	Control through dust control measures such as dust suppression throughout the life of mine.	Low
	Noise	Noise	Operational phase	Low	Control by using silencers on mine vehicles where practical and working only in daylight hours.	Low
	Slope instability	Topography	Operational phase	Low	Control through slope control measures	Low
	Drainage disruption	Drainage	Operational phase	Low	Control through clean runoff water control measures in the form of a low berm on the perimeter of the borrow pit	Low
	Soil erosion	Land use	Operational phase	Low	Stop through appropriate storage of topsoil, overburden and excavated material; control through slope control, remedy through rehabilitation	Low
	Visual scarring	Visual character	Operational phase	Low	Remedy through rehabilitation of already worked areas.	Low
	Destruction of Heritage Resources	Heritage issues	Operational phase	Moderate	Control through monitoring of excavation face. Remedy through Chance Find Protocol.	Medium-Low
Stockpiling of topsoil and overburden	Soil Erosion	Land degradation	Operational phase	Low	Stop through appropriate storage of topsoil and protection against wind,	Low

	Invasion of alien species	Land use, land degradation, visual character	Operational phase	Medium	Control through eradication measures, Control through appropriate storage, Remedy through rehabilitation and Manage through monitoring.	Low
	Soil contamination	Land degradation	Operational phase	Low	Stop through servicing and maintenance of operational machinery	Low
	Visual Scarring	Visual character	Operational phase	Low	Control through slope control measures, Control through eradication of invasive plant species.	Low
Material handling, loading and transportation	Dust	Air quality	Operational phase	Medium	Control through dust control measures in the form of dust suppression	Low
	Noise	Noise	Operational phase	Low	Control through noise control measures and working in daylight hours only.	Low
	Soil contamination from oil/fuel leaks	Land degradation	Operational phase	Low	Stop through maintenance, servicing of vehicles, operational control measures.	Low
	Risk of accidents	Safety	Operational phase	Low	Stop through site management protocols, prevent by health and safety inductions of personnel.	Low
Removal of machinery and re-shaping of the borrow pit	Soil contamination from oil/ diesel leaks.	Land degradation	Decommissioning and closure	Low	Stop through operational measures such as drip trays, servicing, and maintenance of vehicles	Low
	Noise	Noise	Decommissioning and closure	Low	Control through noise control measures such as silencers, working during daylight hours only.	Low
	Dust	Air quality	Decommissioning and closure	Medium	Control through dust control measures, such as dust suppression with water.	Low

	Disruption of surface drainage	Water movement	Decommissioning and closure	Low	Control through storm water controls, remedy by rehabilitation and re-shaping of the borrow pit area to fit in with the surrounding natural landscape and drainage slopes.	Low
Waste disposal	Increased risk of fire	Safety	Operational, Decommissioning and closure	Low	Avoidance through waste disposal protocols such as separate bins and storage containers.	Low
	Soil contamination	Land degradation	Operational, Decommissioning and closure	Low	Avoidance through waste disposal protocols such as separate bins and sealed storage containers. Drip trays should be implemented where oil related wastes are disposed.	Low

The supporting impact assessment conducted by the EAP is attached as an appendix, marked **Appendix 4**.

#### Impact Assessment attached as Appendix 4.

#### 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.
Heritage Impact Assessment	<ul style="list-style-type: none"> <li>The area is classified as a potentially high sensitive area in terms of palaeontology. The proposed development may encounter intact fossil exposures within the Molteno Formation sediments. It is recommended that a professional palaeontologist occasionally</li> </ul>	<b>X</b>	A.3.h.iv(1)a; A.3.p.ii; ; A.3.m; A.3.t.i(2); B.1.(m)(1)

	<p>monitors future excavations during the operational phase of the project.</p> <ul style="list-style-type: none"> <li>In terms of Archaeological significance, it is recommended that the excavation activities are restricted to within the boundaries of the footprint in order to preserve heritage artifacts that may occur outside the boundaries of investigation i.e. outside the footprint of the development.</li> </ul>		
Ecological and Wetland Assessment.	<ul style="list-style-type: none"> <li>Despite the absence of any watercourses or wetlands, it is recommended that the proposed borrow pit still needs to divert clean runoff around the site which should be achieved by implementing a low berm around the perimeter.</li> <li>Monitoring of weed establishment and their continued eradication must be maintained. Category 1 and 2 weeds must be eradicated according to the Conservation of Agricultural Resources Act, No. 43 of 1983 and National Environmental Management: Biodiversity Act, No. 10 of 2004.</li> <li>It is recommended that rehabilitation of the mining area should be adequate and at least include the following: <ul style="list-style-type: none"> <li>1)Overburden and tailings resulting from the mining operations should be returned to excavations in order to aid in re-establishing a more natural topography.</li> <li>2)The topography of the site should be re-instated as far as possible.</li> <li>3)Eradication and monitoring of weed establishment should take place and should be extended after cessation of mining.</li> <li>4) Topsoil should be removed prior to mining where still present, protected from wind erosion and weed establishment and replaced on the site during rehabilitation.</li> <li>5) Adequate monitoring of rehabilitation success should be done and remedial action taken where required.</li> <li>6)After mining has ceased all manmade materials should be removed from the site, i.e. structures, concrete, waste.</li> </ul> </li> </ul>	<b>X</b>	A.3.h.iv(1)a; A.3.p.ii.; A.3.m; A.3.t.i(2); B.1.(m)(1)

Specialist Reports attached as Appendix 3.

## I) Environmental impact statement

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

The key findings of the EIA for the proposed borrow pit includes the following:

- **Freshwater resources:** Based on the findings of the Ecological and Wetland assessment (Appendix 3), there are no wetlands or watercourses located within the proposed borrow pit site, nor within 100 m thereof. It is highly unlikely that the borrow pit poses a threat to the freshwater ecology of the area. Nonetheless, implementation of stormwater runoff diversion measures in the form of a low berm, is recommended to ensure potential risks are minimised as far as possible.
- **Ecology:** There are no environmental sensitive areas which could prevent the development of the proposed borrow pit, provided that the recommendations made for mitigation and management measures are implemented. Due consideration should be given to the management of weed establishment, erosion, and inhabiting fauna (Antbear burrows) during the life of mine of the borrow pit. Indigenous vegetation should be protected, and areas should not be cleared outside the boundary of the borrow pit.
- **Heritage:** No objects of heritage (archaeological or palaeontological) significance were identified within or in close proximity of the proposed borrow pit. The HIA indicate a high potential for the discovery of (intact) fossils during the operational life of mine but this does not prevent the development of the proposed borrow pit, provided that the borrow pit occasionally be monitored for signs or fossil finds. The contractor should take necessary precautions of any person removing or damaging any finds. The attached Chance Protocol should be followed by the contractor, should a specialist not be on site when a fossil is unearthed. If any fossil is uncovered, work in the immediate vicinity should stop and may only continue when clearance is given in writing by the palaeontologist or the Eastern Cape Heritage Authority.
- **Change in land-form and use:** The cumulative negative impact on the environment is considered low due to the limited scale of the borrow pit (<5ha) and is overshadowed by the need for the gravel for the road construction, as well as the scarcity of this type of development in the surrounding area. Rehabilitation measures will ensure that the land returns to its former use (i.e agricultural) albeit in a modified way.
- **Erosion, noise and dust, waste:** These impacts are of low significance, provided that the mitigation measures included in the EMP are adhered to.
- **Socio-economic and Health&Safety:** The development will have positive and negative socio-economic impacts. Possible employment opportunities will be created for the locals during the construction of the road segments. However, possible health and safety risks could occur during operation. The negative impacts are however low if adequate training and skills development is employed.

### (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**.

Attached as Appendix 2.

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

No alternatives were considered. A summary of the positive and negative impacts and risks of the proposed activity is as follows:

Negative impacts:

- Destruction of indigenous vegetation and loss of preferred habitat
- Loss of soil and agricultural potential – however minimal
- Land degradation due to soil erosion as a result of exposed soil and topsoil

- Unearthing of fossils
- Change in land-form and use
- Disruption of surface drainage during heavy rainfall
- Air quality deterioration due to fugitive dust emissions from material handling stockpiles, visual impacts and noise impacts
- Safety and security impacts

Positive impacts:

- Possibility of employment opportunities for the local communities
- The sourced gravel will contribute towards infrastructure upkeep between the towns of Aliwal North and Lady Grey

### **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.**

Surface and groundwater quality and quantity:

- Storm water management measures will be implemented to divert clean storm water around the mining area. Clean runoff needs to be diverted around the site by implementing a low berm around the perimeter.
- Comply with all conditions of the National Water Act (Act 36 of 1998).
- Any spill of potentially hazardous substances (e.g. oil, grease, etc.) should be cleaned and the spill managed immediately.
- Storm water mitigation measures will be implemented to ensure that clean run-off water is not contaminated by any activities related to the proposed project
- Mining activities will not take place outside the mining boundaries.

Ambient Air Quality:

- A dust monitoring system will be implemented to monitor dust emissions from the operation.
- If dust becomes problematic, further management of the dust must be implemented.
- The speed of trucks and other vehicles on the access road should be limited to 40 km/hour to avoid dangerous conditions, excessive dust or excessive deterioration of the road being used.

Noise Levels:

- Machines should be equipped with silencers.
- Machines should be maintained in a good condition to prevent excessive noise.
- All adjacent landowners will be notified of blasting.
- Mining will only occur during normal working hours.

Waste:

- Non-biodegradable refuse such as glass bottles, plastic bags, metal scrap, etc., shall be disposed and stored in a suitable container at a collecting point and collected on a regular basis and disposed of at an authorized waste disposal facility in the area. Specific precautions shall be taken to prevent refuse from being dumped on or in the vicinity of the site.
- Suitable covered receptacles shall be available at all times and conveniently placed for the disposal of waste for general and hazardous waste.
- Spills of any product such as paint, oil, cleaning agents etc. should be cleaned up immediately by removing the spillage together with the polluted soil and by disposing it at a recognised facility.
- All used oils, grease or hydraulic fluids, paints, thinners etc. that cannot be re-used shall be placed in a hazardous waste container for disposal at a suitable waste disposal facility.
- Temporary toilet facilities must be made available on site during construction, operational and decommissioning phase.
- Sewage from these toilets should be managed appropriately and not be disposed of on site or the surrounding environment to cause water or other pollution.

#### Loss of Vegetation:

- It is not anticipated that the vegetation on adjacent property will be influenced due to the proposed mining activities as these activities will be carried out on a specific site (i.e. the mining area).
- In addition, no open fires will be allowed on site as the site will be treated as a fire-free zone.
- A permit must be obtained to transplant protected / red data species to other areas where it will not be disturbed, although not anticipated that the borrow activities will encounter red listed species.
- Monitoring of weed establishment and their continued eradication must be maintained throughout the operational to closure phase, and the mining area should be rehabilitated in order to re-instate the natural grassland and topography after mining has ceased.

#### Loss of animals:

- Mining will not exceed the mining boundaries, which will limit the impact on animal habitats.
- The hunting, capturing or trapping of fauna, including mammals, reptiles, birds and amphibians, on the site will be strictly prohibited during operation of the borrow pit. In addition, extra care will be taken to ensure that animals inhabiting the site are not buried alive, this is specially relevant to the Antbear burrows in existing pit area.

#### Soil loss:

- Topsoil will be removed and stockpiled, if available, to preserve the soil for re-use during rehabilitation.
- Topsoil will not be used for filling or construction purposes.

#### Safety:

- No employee at the proposed mining area will be allowed to wander on adjacent land without consent from that landowner.
- Employees at the mine will cook food and eat at home and will not be allowed to gather food from the environment surrounding the proposed mining site.
- Employees will be transported to and from work before and after every shift to ensure that no one trespasses on adjacent property.
- No employee will be permitted to stay at the mine if it is not during his shift. Employees not working, should be transported to their homes.

#### Archaeology and Palaeontology:

- A Phase 1 Heritage Impact Assessment (“**HIA**”) was done on the site. No heritage sites have been identified in the area of the proposed borrow pit.
- The proposed site is assigned a site rating of Low Significance (Generally Protected C).
- Although no artefacts were recorded on the site the following measures should be implemented:
  - Should any artefacts/fossils be unearthed on the site the mining should cease and a specialist and SAHRA should be contacted to investigate the finding.

Refer to the Phase 1 HIA in Appendix 3

#### **n) Aspects for inclusion as conditions of Authorisation.**

Any aspects which must be made conditions of the Environmental Authorisation

A professional palaeontologist should be appointed to occasionally monitor the excavation during the operational phase of the project. If any (intact) fossils are unearthed during the operation of the borrow pit, mining operations should cease and a specialist and SAHRA should be notified to conduct the necessary studies.

Clearing of vegetation should be limited to the area being applied for only and the agricultural potential of the topsoil should be preserved by appropriate topsoil storage for later use during rehabilitation. These conditions should be adhered to so that the disturbed area can be restored as close as possible to its pre-mining state and use.

The applicant should appoint an independent environmental control officer to oversee compliance with the EMPR and make recommendations for the improvement of environmental performance during the life of mine of the borrow pit.

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

(Which relate to the assessment and mitigation measures proposed)

The scope of this investigation is limited to assessing the environmental impacts associated with the mining activities of the proposed borrow pit at a single field assessment, undertaken on 12 January 2021. Although the assessment was thorough, limitations exist in that palaeontological and archaeological artifacts are subterranean and only visible when disturbed. In terms of the Ecological study, it could be possible that some species and taxa within the study area may have been missed during the assessment, however the seasonal conditions were optimal for observation of most plant species.

**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 Basic Assessment has been undertaken in accordance with the EIA Regulations 2014 (as amended in 2017) in terms of Section 24 (5) of the National Environmental Management Act (Act No. 107 of 1998) (as amended). The project, in the EAP's opinion does not present any detrimental impacts on the receiving environment and its inhabitants. All impacts can be mitigated through measures and recommendations proposed by the specialist reports and EMPr. Moreover, the proposed borrow pit site contains an adequate volume of the gravel required to construct the road and thereby improve socio-economic conditions, by increasing road safety for commuters in this area.

The EAP recommends the borrow pit project be authorised based on the conditions specified in section p (ii) below.

**ii) Conditions that must be included in the authorisation**

- A professional palaeontologist should be appointed to occasionally monitor the excavation during the operational phase of the project to assess the excavation for indications of fossils. If any (intact) fossils are unearthed during the operation of the borrow pit, mining operations should cease and a specialist and SAHRA should be notified to conduct the necessary studies.
- In terms of archaeological impact, it is important that the excavation activities are restricted to within the boundaries of the proposed borrow pit footprint, to preserve potential artifacts that could be found in the non- surveyed area surrounding the borrow pit. The wider area is known for the occurrences of Stone Age localities ("factory sites") associated with the dolerite hills.
- Clearing of vegetation should be restricted to the area being applied for and the agricultural potential of the topsoil should be preserved by appropriate topsoil storage for later use during rehabilitation. These conditions should be adhered to so that the disturbed area can be restored as close as possible to its pre-mining state and land-use.
- The applicant should appoint an independent environmental control officer to oversee compliance with the EMPr and make recommendations for the improvement of environmental performance during the life of mine of the borrow pit.

**q) Period for which the Environmental Authorisation is required.**

The full validity of a mining permit term (i.e. 2 years) after which it will be renewed annually if necessary.

**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.**

I confirm that the undertaking is provided.



**s) Financial Provision**

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

R228 139,91

**i) Explain how the aforesaid amount was derived.**

The aforesaid amount was determined by the quantum calculation.

**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 amount will be provided for in the form of a financial guarantee given by the applicant to the DMR.

**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 person directly affected by the excavation of the gravel is the landowner of the farm (Mr. de Wet). The landowner will temporarily lose some grazing land until the borrow activities has been properly rehabilitated. Agreements and permission are in place with the landowner to utilise the borrow area, in the form of a signed landowner agreement.

Positive socio-economic impacts may occur in the form of possible employment opportunities for locals residing in the area where construction of the road is taking place. Moreover, the mining activities at the borrow pit and construction of the R58 road will provide skills development opportunities for those accrued to personnel employed by the relevant contractor assigned by the Department of Roads and Public Works, Eastern Cape. Although the borrow pit is a small-scale operation and does not guarantee the generation of a large number of jobs, there is a need to maximise the employment opportunities for the locals residing in the towns of Aliwal North and Lady Grey.

Another meaningful positive outcome of the borrow pit is that the gravel will be used for the upgrading of road infrastructure which will ensure increased road safety for all direct users of the road.

Negative socio-economic impacts on directly affected persons in the vicinity of the borrow pit and road construction include:

- Higher noise and dust levels (although unlikely).
- Reduced security in the area.
- Increased risks of fire.
- Community conflicts and tensions among those workers employed at the borrow area and road construction and those unemployed.

**(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)(j)(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).

- A Phase 1 Heritage Impact Assessment (“**HIA**”) was conducted on the site and included in Appendix 3. No above-ground evidence of heritage sites has been identified on the proposed site.

- The proposed site is assigned an Archaeological site rating of Low Significance (Generally Protected C),
- The proposed borrow pit is located in a Paleontologically potentially high-sensitive area.
- Although no artefacts or fossils were recorded above-ground, the following measures should be implemented during the operational phase of the project:

Should any fossil material be unearthed from the excavation, the mining activities should cease and a specialist and the SAHRA should be contacted to investigate the finding. If the newly discovered palaeontological resources prove to be significant, a Phase 2 rescue operation may be required subject to permits issued by SAHRA.

**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**).

Refer to the motivation in Section A.3.h.(i) of this report.

As the scale of the borrow pit, and the nature of the associated impacts of the gravel extraction activities will be limited, no reasonable, feasible alternative was therefore considered. Moreover, the proposed site already contains an old borrow pit and the area has already been significantly transformed from its natural state.

Mining is required to excavate the gravel needed for the upgrades of the R58 national road. The “No-go” alternative is the option of not undertaking mining activities and not constructing a borrow pit at the project site. The site will remain in its current state and there will be no additional immediate impact on the vegetation. Should the authorisation for the borrow pit not be granted, the roadworks and upgrades will not be constructed. Effectively, the contractor will have to obtain gravel from other sources, or identify a new site, which would compromise the timeframes and financial viability for the R58 upgrades project. The socio-economic benefit and most notably the future development of the area will be lost if the mining activities of the borrow pit is not undertaken.

# PART B

## ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

### 1) Draft environmental management programme.

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

The details of the EAP are provided in Part A, Section 3 (A).

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

The details are covered in Part A, as required.

### 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)

The map is attached in Appendix 2.

### d) Description of impact management objectives including management statements

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

The site will be rehabilitated, and topsoil will be returned to facilitate vegetation growth, to fit the end land use as determined by the landowner (and community). The land was used for agricultural purposes, in particular the grazing of livestock.

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

The proposed establishment of the borrow pit will not require any significant water usage during any of the developmental phases. Therefore, this section is not applicable.

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

The proposed establishment of the borrow pit will not require any water usage during any of the developmental phases and will not constitute a Water Use License as defined in the National Water Act (Act 36 of 1998). Therefore, this section is not applicable. The proposed borrow pit is located more than 100 m from the edge of the nearest water course and/or wetland. Turn 180 Environmental Consultants notified the Department of Water and Sanitation ("DWS") of the project and distributed the necessary documents, information and reports for commenting.

iv) Impacts to be mitigated in their respective phases

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

ACTIVITIES	PHASE	SIZE AND SCALE of disturbance	MITIGATION MEASURES	COMPLIANCE WITH STANDARDS	TIME PERIOD FOR IMPLEMENTATION
<p>(E.g. For prospecting - drill site, site camp, ablution facility, accommodation, equipment storage, sample storage, site office, access route etc...etc...etc</p> <p>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.)</p>	<p>(of operation in which activity will take place.</p> <p>State; Planning and design, Pre-Construction' Construction, Operational, Rehabilitation, Closure, Post closure).</p>	<p>(volumes, tonnages and hectares or m<sup>2</sup>)</p>	<p>(describe how each of the recommendations in herein will remedy the cause of pollution or degradation and migration of pollutants)</p>	<p>(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)</p>	<p>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.</p>
<p>Clearance of vegetation</p>	<p>Construction and Operational phase</p>	<p>4.98ha</p>	<p>The recommendations will prevent unnecessary loss of indigenous vegetation, erosion and contamination and siltation of drainage line.</p>	<p>Invasive species vegetation will be controlled. No areas outside mining area will be disturbed. The area will be rehabilitated. Vegetation will not unnecessarily be cleared. Stormwater management will be implemented to avoid contamination and siltation drainage lines and downgradient receiving area.</p>	<p>During the pre-mining phase, and operational phase as necessary.</p>
<p>Removal of topsoil and overburden</p>	<p>Operational</p>	<p>4.98ha</p>	<p>The recommendations will prevent unnecessary loss of topsoil, erosion and contamination and siltation of the drainage line.</p>	<p>Alien vegetation will be controlled. No areas outside mining area will be disturbed. Stormwater management will be implemented to avoid contamination and siltation of drainage lines and downgradient receiving area.</p>	<p>During operational phase</p>

				The area will be rehabilitated. Topsoil will not unnecessarily be removed. If dust becomes a problem, dust control measures will be implemented	
Excavation of gravel	Operational	1700 m <sup>3</sup> / month	The recommendations will prevent and manage any spills of hazardous substances. The recommendations will minimise noise and dust pollution.	Dust fallout measures will be taken. Noise levels will comply with OHS Act. Health test will be done on employees. Spills will be cleaned and waste management sufficient to prevent pollution or contamination. No areas outside mining area will be disturbed. The area will be rehabilitated.	During the operational phase. Rehabilitation - when mining ceases.
Stockpiling	Operational and Rehabilitation	1700 m <sup>3</sup> / month	Recommendations will prevent and manage spills of hazardous substances. Recommendations will limit or prevent erosion from occurring and divert clean water around stockpiles.	Alien vegetation will be controlled. Spills and waste will be cleaned and managed appropriately to avoid contamination/pollution. Soil will be preserved. Stormwater management will be implemented to avoid contamination and siltation of the drainage lines.	Commencement of stockpiling. Rehabilitation - when mining ceases.
Loading and transportation	Operational and Rehabilitation	1700 m <sup>3</sup> / month	Recommendations will prevent and manage spills of hazardous substances. Vehicles will be serviced to prevent spillage. A speed limit of 40 km/h will be enforced on site to reduce dust emissions.	Dust fallout measures will be implemented. Noise levels will comply to the of the OHS Act and medicals will be taken on employees.	Throughout the project Rehabilitation - when mining ceases.

**e) Impact Management Outcomes**

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

<b>ACTIVITY</b> (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.).	<b>POTENTIAL IMPACT</b>  (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	<b>ASPECTS AFFECTED</b>	<b>PHASE</b> In which impact is anticipated  (e.g. Construction, commissioning, operational Decommissioning, closure, post-closure)	<b>MITIGATION TYPE</b>  (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. <ul style="list-style-type: none"> <li>• Modify through alternative method.</li> <li>• Control through noise control</li> <li>• Control through management and monitoring</li> <li>• Remedy through rehabilitation..</li> </ul>	<b>STANDARD TO BE ACHIEVED</b>  (Impact avoided, noise levels, dust levels, rehabilitation standards, end use objectives) etc.
Clearance of vegetation and removal of topsoil and overburden	Loss of indigenous vegetation and topsoil. Increased potential for soil erosion. Invasion of alien plant species. Siltation of drainage line Dust and noise generation. Unearthing of heritage resources.	Soil Vegetation	Construction, Operational, Decommissioning	Topsoil will be stockpiled. Stormwater management will be implemented to avoid erosion. Mining will only take place within mining boundaries. Invasive alien plant species will be removed. Stormwater management will be implemented to avoid contamination and siltation of drainage lines. If dust becomes a problem, dust control measures will be implemented If any archaeological or palaeontological remains are found, work will stop immediately and SAHRA will be notified.	Minimise loss of indigenous vegetation. Minimised the extent of soil loss. No erosion. Minimal alien vegetation on site. Impacts to be contained and controlled within project area.
Excavation	Noise and dust generation. Contamination of ground- or surface water.	People Animals Air	Operational, Decommissioning	Machinery and vehicles will be serviced regularly. Work will only take place during normal daytime hours.	Noise and dust levels according to standards. No surface erosion. No soil loss. No contamination of ground- or surface water.

	Unearthing of heritage resources.			Adjacent landowners will be informed when blasting takes place. If dust becomes a problem, dust control measures will be implemented. Stormwater management will be implemented to avoid contamination of drainage lines. If any archaeological or palaeontological remains are found, work will stop immediately and SAHRA will be notified.	Minimal spillages. .
Stockpiling	Erosion Contamination of ground- or surface water. Invasion of alien plant species. Soil contamination. Siltation watercourse.	Soil	Construction, Operational, Decommissioning	Storm water will be managed from and around stockpiles to avoid erosion and siltation and contamination of drainage lines. Alien vegetation will be managed.	Minimal alien vegetation on site. No loss of soil. No erosion trenches. No contamination. No/minimal spillages. No siltation of the drainage lines and downgradient area.
Loading and transportation	Noise and dust generation.	People Animals Air	Operational, Decommissioning	Mining activities will only take place during normal daytime hours. Vehicle speeds will be restricted. Machinery and vehicles will be serviced regularly. If dust becomes a problem, dust control measures will be implemented.	No compaction other than roads. Noise and dust levels according to standards.

## 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).

<b>ACTIVITY</b> 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.).	<b>POTENTIAL IMPACT</b>  (e.g. dust, noise, drainage surface disturbance, fly rock, surface water contamination, groundwater contamination, air pollution etc....etc...)	<b>MITIGATION TYPE</b>  (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. • <b>Modify through alternative method.</b> • <b>Control through noise control</b> • <b>Control through management and monitoring</b> <b>Remedy through rehabilitation..</b>	<b>TIME PERIOD FOR IMPLEMENTATION</b>  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.	<b>COMPLIANCE WITH STANDARDS</b>  (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)
Clearance of vegetation and removal of topsoil and overburden.	Loss of vegetation and topsoil. Potential erosion. Invasion of alien plant species. Siltation and contamination of the watercourse. Dust and noise generation. Unearthing of palaeontological resources.	Topsoil will be stockpiled. Stormwater management will be implemented to avoid erosion. Mining will only take place within mining boundaries. Invasive alien plant species will be removed. If dust becomes a problem, dust control measures will be implemented If any archaeological or palaeontological remains are found, work will stop immediately and SAHRA will be notified.	During the site preparation and operational phase.	Alien vegetation will be controlled. No areas outside mining area will be disturbed. The area will be rehabilitated. Vegetation will not unnecessarily be cleared and topsoil will not be unnecessarily removed. Stormwater management will be implemented to avoid contamination and siltation of drainage lines and downgradient areas.



Excavation	Noise and dust generation. Contamination of ground- or surface water. Unearthing of heritage resources.	Machinery and vehicles will be serviced regularly. Work will only take place during normal daytime hours. If dust becomes a problem, dust control measures will be implemented. If any archaeological or palaeontological remains are found, work will stop immediately and SAHRA will be notified.	During the operational phase and Rehabilitation - when mining ceases.	Dust fallout measures will be taken. Noise levels will comply with OHS Act. Health test will be done on employees. Spills will be cleaned and waste management sufficient to prevent pollution or contamination. No areas outside mining area will be disturbed. The area will be rehabilitated. Stormwater management will be implemented to avoid contamination of surrounding area.
Stockpiling	Erosion. Invasion of alien plant species. Contamination of ground- or surface water. Soil contamination. Siltation of the watercourse.	Storm water will be managed from and around stockpiles to avoid erosion. Alien vegetation will be managed.	Commencement of stockpiling. Rehabilitation - when mining ceases.	Alien vegetation will be controlled. Spills and waste will be cleaned and managed appropriately to avoid contamination/pollution. Soil will be preserved. Stormwater management will be implemented to avoid siltation of the watercourse
Loading and transportation	Noise and dust generation.	Mining activities will only take place during normal daytime hours. Vehicle speeds will be restricted. Machinery and vehicles will be serviced regularly. If dust becomes a problem, dust control measures will be implemented.	Throughout the project Rehabilitation - when mining ceases.	Dust fallout measures will be implemented. Noise levels will comply to the of the OHS Act and medicals will be taken on employees.

**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 proposed borrow pit will be a temporary land use and will result in land being temporarily disturbed. Whilst measures will be implemented to reduce negative environmental impacts as they occur during the project life cycle the specific closure objectives are as follows:

- Overburden rocks and coarse material will be used to backfill the borrow pit once the excavation activities have been completed.
- The borrow pit will be shaped and no stockpiled material will remain on the site. The topography of the shaped area will align with the surrounding landscape and drainage patterns.
- The mining area will be levelled with topsoil and revegetated with the appropriate grass species (Aliwal North Dry Grassland).
- Temporary structures (chemical toilets, potable water tanks, refuse bins, generators) will be removed from the site.
- The soil will be checked for spillages from construction vehicles. Spills will be cleared to the point of infiltration and contaminated soil will be bagged and safely disposed at a licenced hazardous waste disposal site.
- All invasive weeds/ invasive plant species will be eradicated.

The implementation of the abovementioned objectives will align with the baseline environmental conditions as follows:

- The rehabilitated post-mining land surface will be stable, support vegetation growth, be erosion resistant and will be sustainable in the long term.
- The post-mining landscape will be non-polluting and downstream environmental impacts on the ecosystem due to drainage will be eliminated. The site will be left in a tidy condition with no remaining infrastructure.
- Unacceptable health hazards will be eliminated, which will ensure public safety and safety of the livestock of the farm, when the land is returned to its pre-mining use.

In establishing these measures, the need for long-term monitoring and maintenance will be reduced.

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

The consultation between the EAP, landowner, commenting authorities and other interested and affected parties during the 30-day public review period confirmed that the mining area will be used for agriculture (i.e. grazing). Confirmation was provided by the Department of Agriculture, Land Reform and Rural Development that the proposed borrow pitting site, after all of the material has been collected, should be restored to its original state so that the grazing potential of the area can be restored (Refer Appendix 6.3).

**(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.**

Refer to Appendix 2.

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

Rehabilitation takes place after the borrow pit has been used by the contractor for surface mining. The mitigation measures, rehabilitation plan and objectives for closure are aligned to return the affected land to agricultural use (i.e. grazing) after closure. The objectives and purposes of these and the management plans are specifically aligned to achieve the overarching objective of returning the mining area as close as possible to its pre-mining condition with no significant impact on the receiving environment and to successfully achieve the post-closure land use objectives.

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

The forecasted financial provisions required is included in Appendix 7.

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

The applicant provided financial guarantee of the amount as indicated in the quantum calculations. A Bank Financial Guarantee was issued as per the Financial Provision Assessment. This amount will be reviewed and upgraded on an annual basis.

For additional information, please see the following (Appendix 7):

- Financial and Technical Report
- Quantum of Closure
- Bank Financial Confirmation.

**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
Clearance of vegetation and removal of topsoil and overburden.	Loss of soil. Loss of vegetation. Establishment of alien vegetation. Dust and noise generation.	Clearance registers	Mine Supervisor	Monthly compliance monitoring
Excavation	Noise and dust. Surface disturbance. Soil loss. Surface- and ground water contamination.	Complaints register on site. Surface and groundwater test results must be available. Health test data and dust fallout results available.	Mine Supervisor	Monthly compliance monitoring
Stockpiling	Alien vegetation. Loss of topsoil. Erosion. Soil contamination. Siltation of drainage lines by stormwater.	Stockpile monitoring reports. Spill report documents	Mine Supervisor	Monthly compliance monitoring
Loading and transportation	Soil compaction. Noise and dust.	Health test data and dust fallout results available. Clearance registers.	Mine Supervisor	Monthly compliance monitoring
Waste management	Pollution. Surface- and groundwater contamination.	Disposal certificates	Mine Manager	Monthly compliance monitoring
Storm water management	Contamination of surface water and drainage lines	Surface and groundwater test results. Spill reports	Mine Manager	Monthly compliance monitoring

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

An independently appointed Environmental Control Officer (“ECO”) will conduct annually site inspections during the life cycle of the project to check that the contractor is carrying out environmental management measures. The ECO will compile an environmental compliance audit which will be made available to the Applicant and the competent authority.

**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.**

The Applicant will inform their employees of the potential risks and impacts through induction training. Training will occur in the following manners:

- Toolbox talks before any activities occur and providing employees on the specifics of their jobs.
- Weekly meetings.
- Induction of general environmental issues and mitigation measures.
- Signage on site and at the entrance/exits.
- Keeping records of all training done.

Discussions of the potential environmental impacts of operational activities between the Applicant and the employees:

- Raising awareness that everyone has the right to a clean environment and the responsibility of each of person to protect the environment.
- Importance of personal performance when dealing with environmental issues.
- Potential health and safety risks during operations and rehabilitation.
- Loss of remaining indigenous vegetation during clearing activities.
- Loss of available faunal habitat and biodiversity value.
- Contamination and degradation of soils.
- Compaction of soils through increased vehicular traffic.
- Increased potential for soil erosion.
- Establishment and spread of alien invasive plant species.
- Contamination of surface and ground water resources.
- Roads and traffic.
- Dust and air pollution

Additionally, all workers will be made aware of the following documents and the relevant content and conditions associated with each one:

- Environmental Management Programme report (EMPr) and the importance of complying with EMPr specifications.
- Mitigation measures that must be implemented when performing activities.
- Rehabilitation Plan
- Closure Plan

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

Once risks are identified and assessed, employees will be made aware of risks associated with the activities on site. Employees will be made aware of how to manage certain pollutants and dangerous goods, waste and effluent to minimize the risks on site.

The Applicant will undertake the following actions to minimise any impacts associated with the proposed borrow pit from affecting the receiving environment in a harmful way:

- Obtain Environmental Authorisation before commencing activities.
- Environmental Management Programme and ensure employees are familiar with the management procedures listed in the document.
- Improve competence and skills of employees and promote a culture of environmental protection on among all persons on the site.
- Mitigation measures: Procedures put in place to effectively minimise any identified high-risk areas to proactively control environmental incidents if they occur.
- Appointment of an Environmental Control Officer (“**ECO**”) to monitor the project compliance
- The issuing of an annual environmental compliance Report to the Competent Authority.

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

An annual performance assessment will be undertaken.


## References

- Cairncross, B., Anderson, J. M. and Anderson, H. M., 1995. Palaeoecology of the Triassic Molteno Formation Karoo Basin, South Africa; sedimentological and palaeontological evidence. *South African Journal of Geology* 98(4): 452 – 458.
- DPR Ecologists & Environmental Services. Report on the ecological assessment for the proposed borrow pit along the R58 Provincial Road between Aliwal North and Lady Grey, Eastern Cape Province, January 2021. Specialist Report to Turn180 Environmental Consultants, Bloemfontein.
- Johnson, M.R., et al. 2006. Sedimentary rocks of the Karoo Supergroup:461-499. In Johnson, M.R., Anhaeusser, C.R. and Thomas, R.J. eds .2006. *The geology of South Africa*. Geological Society of South African and Council for Geoscience, Pretoria
- Mucina, L. & Rutherford, M.C. (eds.) 2006. *The Vegetation of South Africa, Lesotho and Swaziland*. Strelitzia 19. South African National Biodiversity Institute, Pretoria.
- Paleo Field Services. Phase 1 Heritage Impact Assessment for extension of an existing borrow pit on the Farm Vlakfontein 210, near Aliwal North, Eastern Cape Province, February 2021. Specialist Report to Turn 180 Environmental Consultants, Bloemfontein.

**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:

Turn 180 Environmental Consultants  
\_\_\_\_\_  
Name of company:

24/05/2021  
\_\_\_\_\_  
Date:

  
\_\_\_\_\_  
Signature of the Commissioner of Oaths:

\_\_\_\_\_  
Date: 24/05/2021

Designation: admitted attorney.   
\_\_\_\_\_

Official stamp (below)

\_\_\_\_\_  
COMMISSIONER OF OATHS  
**DESEREE-LEE VAN DER WATT**  
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