HERITAGE IMPACT ASSESSMENT

(REQUIRED UNDER SECTION 38(8) OF THE NHRA (No. 25 OF 1999)

FOR THE PROPOSED AMENDMENT OF THE KIMBERLEY QUARRY ENVIRONMENTAL MANAGEMENT PROGRAMME FOR PORTION 39 OF THE FARM SPIJT FONTEIN NO 122, LOCATED IN THE SOL PLAATJE MUNICIPALITY OF THE NORTHERN CAPE

Type of development:

Mining Right

Client:

Greenmined Environmental (Pty) Ltd

Applicant:

OMV Kimberley Mining (Pty) Ltd

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APPROVAL PAGE

Project Name	Kimberley Quarry
Report Title	Heritage Impact Assessment for the Proposed Amendment of the Kimberley Quarry Environmental Management Programme for Portion 39 of the farm Spijt Fontein No 122, located in the Sol Plaatje Municipality of the Northern Cape
Authority Reference Number	**NC 30/5/1/2/2/0287 MR**
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Applicant Name	OMV Kimberley Mining (Pty) Ltd

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Amendments on Document

Date	Report Reference Number	Description of Amendment

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REPORT OUTLINE

Appendix 6 of the GNR 326 EIA Regulations published on 7 April 2017 provides the requirements for specialist reports undertaken as part of the Environmental Authorisation (EA) process. In line with this, Table 1 provides an overview of Appendix 6 together with information on how these requirements have been met.

Table 1. Specialist Report Requirements.

Requirement from Appendix 6 of GN 326 EIA Regulation 2017	Chapter
(a) Details of - (i) the specialist who prepared the report; and (ii) the expertise of that specialist to compile a specialist report including a curriculum vitae.	Section a
(b) Declaration that the specialist is independent in a form as may be specified by the competent authority.	*Declaration of Independence*
(c) Indication of the scope of, and the purpose for which, the report was prepared.	Section 1
(cA) An indication of the quality and age of base data used for the specialist report.	Section 3.4.
(cB) A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change.	Section 9
(d) Duration, Date and season of the site investigation and the relevance of the season to the outcome of the assessment.	Section 3.4
(e) Description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used.	Section 3
(f) Details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of site plan identifying site alternatives.	Sections 7, 8 and 9
(g) Identification of any areas to be avoided, including buffers.	Sections 7,8 and 9
(h) Map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers.	Section 8
(I) Description of any assumptions made and any uncertainties or gaps in knowledge.	Section 3.7
(j) A description of the findings and potential implications of such findings on the impact of the proposed activity including identified alternatives on the environment or activities.	Section 1.3
(k) Mitigation measures for inclusion in the EMPr.	Sections 9.1 and 9.5
(l) Conditions for inclusion in the environmental authorisation.	Sections 9.1 and 9.5
(m) Monitoring requirements for inclusion in the EMPr or environmental authorisation.	Section 9.6
(n) Reasoned opinion - (i) As to whether the proposed activity, activities or portions thereof should be authorised; (iA) Regarding the acceptability of the proposed activity or activities; and (ii) If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan.	Section 9.3
(o) Description of any consultation process that was undertaken during the course of preparing the specialist report.	Section 5
(p) A summary and copies of any comments received during any consultation process and where applicable all responses thereto.	Refer to the EIA report
(q) Any other information requested by the competent authority.	No other information requested at this time

Executive Summary

OMV Kimberley Mining (Pty) Ltd, is updating the EMPr for the Kimberley Quarry located on Portion 39 of the farm Spijt Fontein No 122. The 2025 environmental performance audit concluded that the 2011 environmental management programme (EMPR) of Kimberley Quarry does not fully comply with Appendix 4 of the EIA Regulations (GNR 982 of 2014) (as amended). The Quarry has since made various changes and/or improvements on site, and management identified the need to amend/update the EMPR to adequately manage and/or mitigate the environmental impacts associated with the activity as well as ensure legal compliance. The Project area is in the Sol Plaatje Municipality within the Frances Baard District Municipality in the Northern Cape. OMV Kimberley Mining (Pty) Ltd appointed Greenmined Environmental (Pty) Ltd as the independent environmental assessment practitioner (EAP) to update the EMPr to ensure legal compliance. Greenmined Environmental (Pty) Ltd, in turn, appointed Beyond Heritage to conduct a Heritage Impact Assessment (HIA) for the Project and the study area was assessed through a desktop assessment and by a non-intrusive pedestrian field survey. Key findings of the assessment include:

- The 380 ha Project area is located south of Kimberley, positioned along the N12. The southern portion of the Project area is heavily transformed by the active Raumix quarry, with existing mining infrastructure and large extraction pits, some likely representing earlier phases of quarrying. The northern section of the Project area remains largely natural, comprising overgrown grass coverage with sporadic tree cover.
- During the survey, ruins (KG001) consisting of a partially demolished structure and a large pile of building rubble was recorded. The ruins are likely associated with previous mining activities and are of low significance;
- According to the South African Heritage Resource Authority (SAHRA) Paleontological sensitivity map the study area is of insignificant, moderate, and high palaeontological sensitivity, and an independent study was commissioned for this aspect (Bamford 2025).

The impact on heritage resources is expected to be low, and the Project can be authorised provided that the recommendations in this report are adhered to and based on the SAHRA's approval.

Recommendations:

The following recommendations for Environmental Authorisation apply and the Project may only proceed after receiving comment from SAHRA:

- Due to the risk of associated graves, ruins at KG001 will require strict monitoring by the ECO if mining is extended into this area for potential subsurface finds;
- Development activities must be confined to the approved development footprint only;
- Monitoring of the Project area by the ECO during all phases for heritage and paleontological chance finds, if chance finds are encountered to implement the Chance Find Procedure for the Project as outlined in Section 9.2

Declaration of Independence

Specialist Name	Lara Lucija Kraljević
Declaration of Independence	I declare, as a specialist appointed in terms of the National Environmental Management Act (Act No 107 of 1998) and the associated 2014 Environmental Impact Assessment (EIA) Regulations (as amended), that I: • I act as an independent specialist in this application; • I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant; • I declare that there are no circumstances that may compromise my objectivity in performing such work; • I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity; • I will comply with the Act, Regulations and all other applicable legislation; • I have no, and will not engage in, conflicting interests in the undertaking of the activity; • I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority; • All the particulars furnished by me in this form are true and correct; and • I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 49 A of the Act.
Signature	
Date	17/11/2025

a) Expertise of the specialist

Lara Kraljević completed her masters in archaeology at the University of Pretoria specialising in chemical and mineralogical studies of Iron Age ceramics. Lara is an accredited member of the Association of South African Professional Archaeologists (ASAPA) (#661). She has authored over 100 impact assessments in Gauteng, Limpopo, Mpumalanga, Northern Cape, Eastern Cape, and North West Provinces in South Africa.

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ABBREVIATIONS

ASAPA	Association of South African Professional Archaeologists
BGG	Burial Ground and Graves
CFPs	Chance Find Procedures
CMP	Conservation Management Plan
CoGHSTA	Co-operative Governance, Human Settlements and Traditional Affairs
CRR	Comments and Response Report
CRM	Cultural Resource Management
DFFE	Department of Fisheries, Forestry and Environment,
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment*
EIA	Early Iron Age*
EAP	Environmental Assessment Practitioner
EMPr	Environmental Management Programme
ESA	Early Stone Age
ESIA	Environmental and Social Impact Assessment
GIS	Geographical Information System
GPS	Global Positioning System
GRP	Grave Relocation Plan
HIA	Heritage Impact Assessment
LIA	Late Iron Age
LSA	Late Stone Age
MEC	Member of the Executive Council
MIA	Middle Iron Age
MPRDA	Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
MSA	Middle Stone Age
NCHM	National Cultural History Museum
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NID	Notification of Intent to Develop
NoK	Next-of-Kin
PRHA	Provincial Heritage Resource Agency
SADC	Southern African Development Community
SAHRA	South African Heritage Resources Agency

**Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations and must be read and interpreted in the context it is used.*

GLOSSARY

Archaeological site	Remains of human activity over 100 years old
Earlier Stone Age	~ 2.6 million to 250 000 years ago
Middle Stone Age	~ 250 000 to 40-25 000 years ago
Later Stone Age	~ 40-25 000, to the historic period
The Iron Age	~ AD 400 to 1840
Historic	~ AD 1840 to 1950
Historic building	Over 60 years old

1 Introduction

Greenmined Environmental (Pty) Ltd appointed Beyond Heritage to conduct a Heritage Impact Assessment (HIA) for updating the EMPr for the Kimberley Quarry located on Portion 39 of the farm Spijt Fontein No 122, located in the Sol Plaatje Municipality of the Northern Cape (Figure 1.1 - 1.3).

The aim of the study was to survey the proposed development footprint to understand the cultural layering of the area, and if heritage features are found, to assess their importance within local, provincial, and national context. It further served to assess the impact of the proposed Project on non-renewable heritage resources. The study will submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner. Recommendations are included to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999) (NHRA).

The report outlines the approach and methodology utilized before and during the survey, which includes:

- Phase 1, review of relevant literature;
- Phase 2, the physical surveying of the area on foot and by vehicle;
- Phase 3, reporting the outcome of the study.

During the survey, ruins were recorded in the study area. General site conditions and features in the study area were recorded by means of photographs, GPS locations and descriptions. Possible impacts were identified, and mitigation measures are proposed in this report.

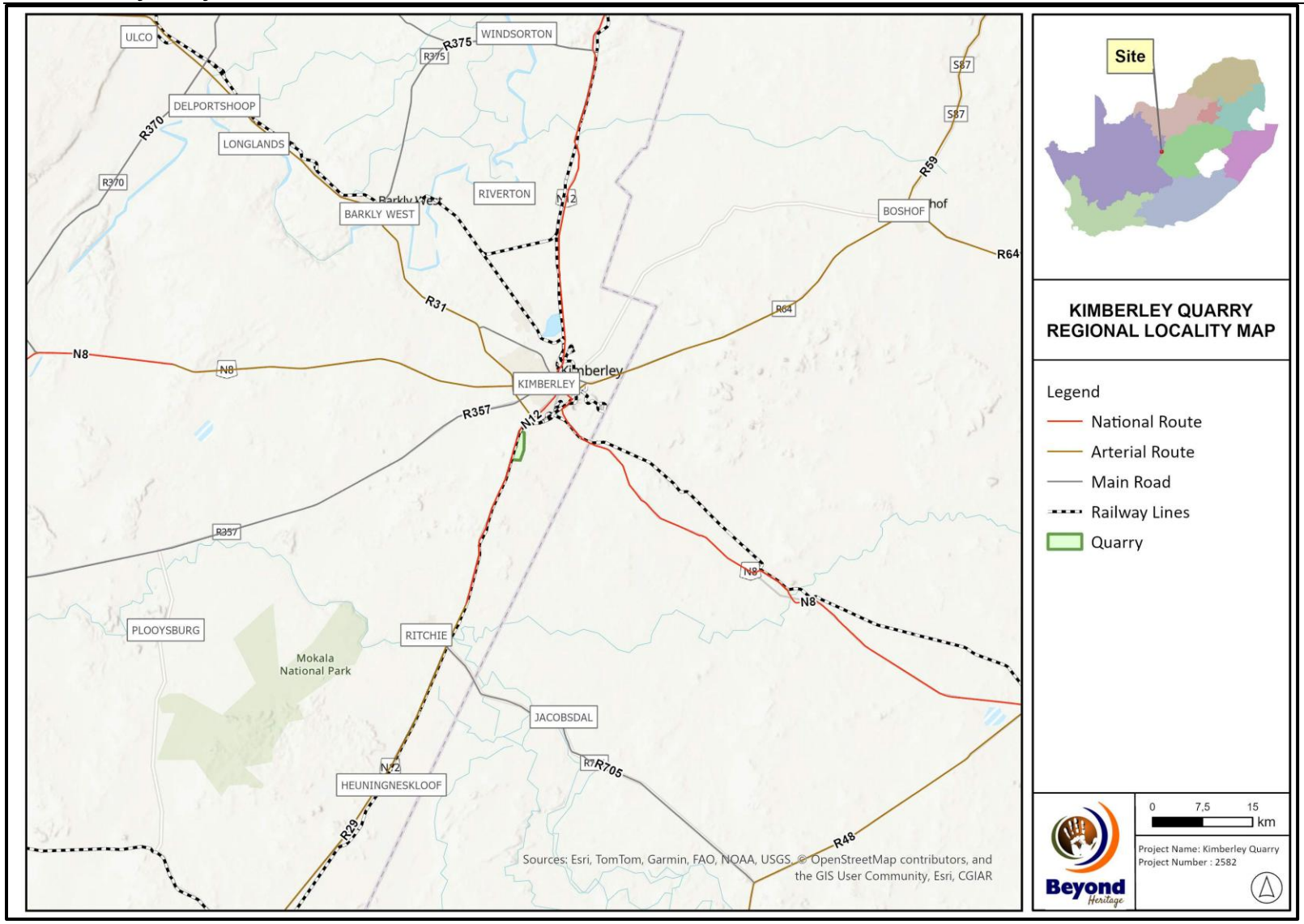


Figure 1.1.Regional setting of the Project.

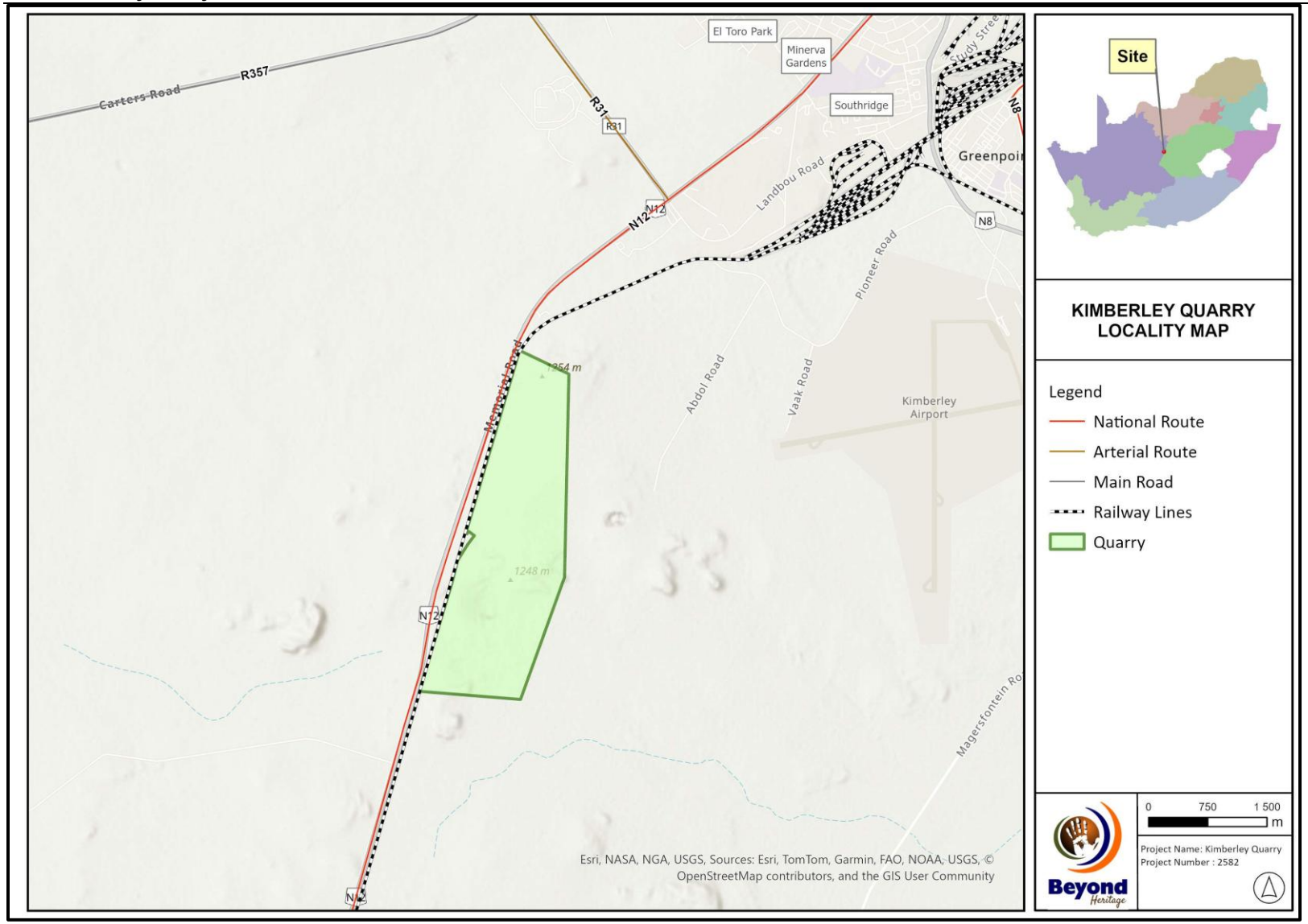


Figure 1.2. Local setting of the Project.

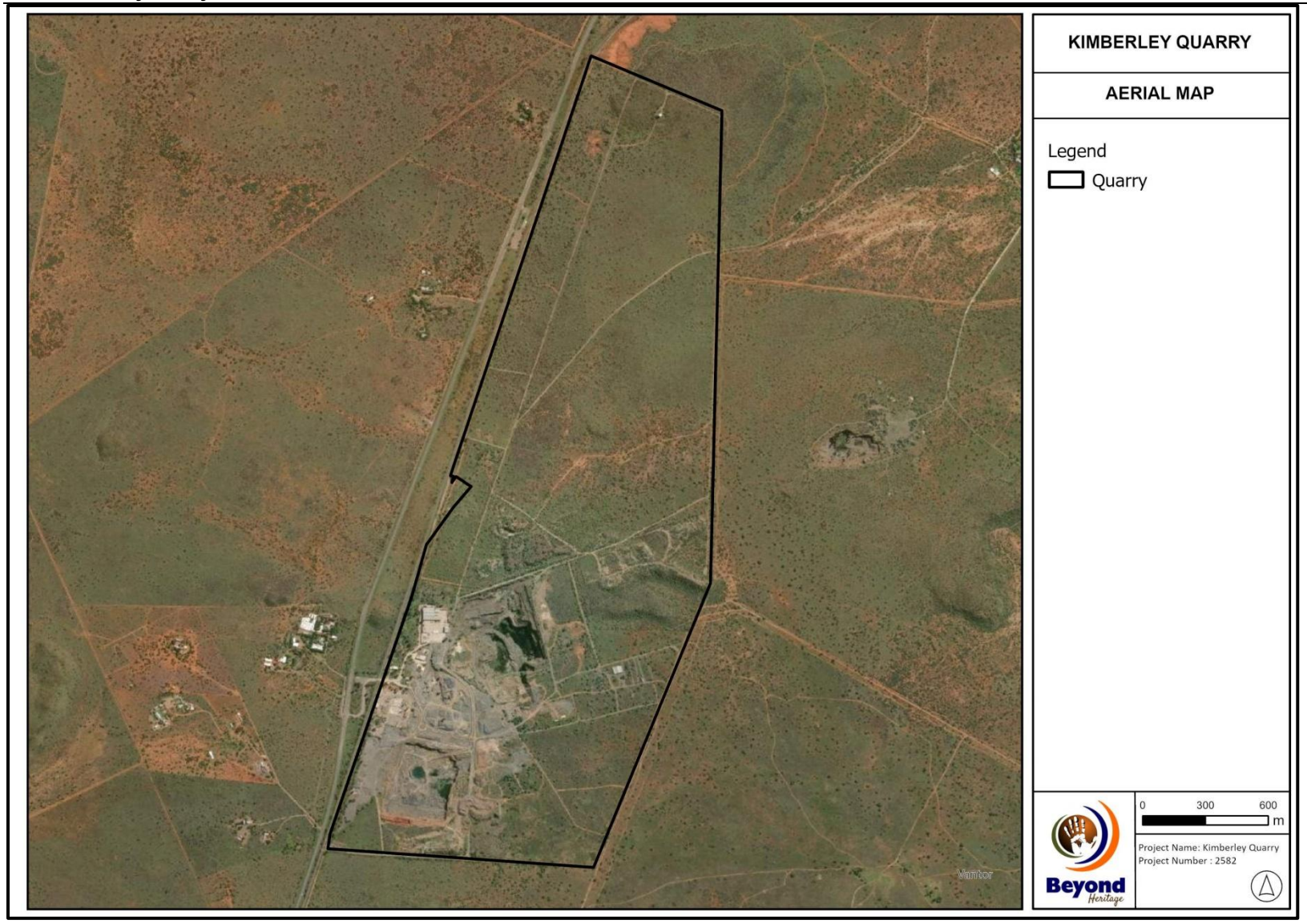


Figure 1.3. Aerial image of the Project area.

1.1 Terms of Reference

The following Terms of Reference were adhered to in conducting this HIA.

Field study

Conduct a field study to: (a) survey the development footprint to understand the heritage character of the impact area; b) record GPS points of sites/areas identified as significant areas; c) determine the levels of significance of the various types of heritage resources affected by the proposed development.

Reporting

Report on the identification of anticipated and cumulative impacts the operational units of the proposed Project activity may have on the identified heritage resources for all 3 phases of the project, i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with the relevant legislation, SAHRA minimum standards and the code of ethics and guidelines of Association of South African Professional Archaeologists (ASAPA).

Recommendations are provided to assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999).

1.2 Project Description

Project components and the location of the Kimberley Quarry Project are outlined in Tables 2 and 3.

Table 2. Project Description

Magisterial District	Sol Plaatje Local Municipality within the Frances Baard District Municipality
Central co-ordinates of the development	28°48'56.77"S 24°43'4.72"E
1:50 000 Topographic Map Number	2824 DC

Table 3. Infrastructure and project activities

Type of development	Mining
Project Details: Update the EMPr for the Kimberley Quarry to mine aggregate (dolerite), gravel, sand (manufactured) from hard rock and stone aggregate gravel over 370.2447 ha of Portion 39 of the farm Spijt Fontein No 122, located in the Sol Plaatje Municipality of the Northern Cape.	

1.3 Alternatives

No alternatives were provided, but the area assessed allows for siting of the development to avoid impacts to heritage resources.

2 Legislative Requirements

The HIA, as a specialist study to the EIA, is required under the following legislation:

- National Heritage Resources Act ((NHRA), Act No. 25 of 1999)
- National Environmental Management Act ((NEMA), Act No. 107 of 1998 - Section 23(2)(b))

A Phase 1 HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of heritage specialist input is to:

- Identify any heritage resources, which may be affected;
- Assess the nature and degree of significance of such resources;
- Assess the negative and positive impact of the development on these resources; and
- Make recommendations for the appropriate heritage management (or avoidance) of these impacts.

The HIA should be submitted, as part of the impact assessment report or EMPr, to the Provincial Heritage Resource Agency (PHRA) or to The South African Heritage Resources Agency (SAHRA). SAHRA will ultimately be responsible for the evaluation of Phase 1 HIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 HIA reports and additional development information, as per the impact assessment report and/or EMPr, to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 HIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

SAHRA as a commenting authority under section 38(8) of the NHRA require all environmental documents, compiled in support of an EA application as defined by the National Environmental Management Act (NEMA) (Act No 107 of 1998) to be submitted to SAHRA for commenting. Environmental Impact Assessment (EIA) Regulations section 40 (1) and (2). The Environmental Impact Assessment (EIA) Regulations, Government Notice Regulation (GN) R.982 were published on 04 December 2014 and promulgated on 08 December 2014. Together with the EIA Regulations, the Minister also published GN R.983 (Listing Notice No. 1), GN R.984 (Listing Notice No. 2) and GN R.985 (Listing Notice No. 3) in terms of Sections 24(2) and 24D of the NEMA, as amended) Upon submission to SAHRA the project will be automatically given a case number as reference. As such the EIA report and its appendices must be submitted to the case as well as the EMPr, once it's completed by the Environmental Assessment Practitioner (EAP).

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level). Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with SAHRA. ASAPA is based in South Africa, representing professional archaeology in the SADC region. ASAPA is primarily involved in the overseeing of ethical practice and standards regarding the archaeological profession. Membership is based on proposal and secondment by other professional members.

Phase 1 HIAs are primarily concerned with the location and identification of heritage sites situated within a proposed development area. Identified sites should be assessed according to their significance (refer to Section 3.5). Relevant conservation or mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Section 3 of the NHRA distinguishes nine criteria for places and objects to qualify as 'part of the national estate' if they have cultural significance or other special value. These criteria are:

- Its importance in/to the community, or pattern of South Africa's history;
- Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- Sites of significance relating to the history of slavery in South Africa

Conservation or mitigation recommendations, as approved by SAHRA, are to be used as guidelines in the developer's decision-making process.

Phase 2 archaeological projects are primarily based on salvage/mitigation excavations preceding development destruction or impact on a site. Phase 2 excavations can only be conducted with a permit, issued by SAHRA to the appointed archaeologist. Permit conditions are prescribed by SAHRA and includes (as minimum requirements) reporting back strategies to SAHRA and deposition of excavated material at an accredited repository.

In the event of a site conservation option being preferred by the developer, a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement. After mitigation of a site, a destruction permit must be applied for with SAHRA by the applicant before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36 and GNR 548 as well as the SAHRA BGG Policy 2020. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 of the National Heritage Resources Act (NHRA), as well as the National Health Act of 2003 and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5]) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation. If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance No. 7 of 1925) re-instituted by Proclamation 109 of 17 June 1994 and implemented by CoGHSTA as well as the National Health Act 2003 and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. Authorisation for exhumation and reinternment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. To handle and transport human remains, the institution conducting the relocation should be authorised under the National Health Act of 2003.

3 METHODOLOGY

3.1 Literature Review and background study

A brief survey of available literature was conducted to extract data and information on the area in question to provide general heritage context into which the development would be set. This literature search included published material, unpublished commercial reports and online material, including reports sourced from the South African Heritage Resources Information System (SAHRIS). Findings are included in Section 6.1 and 6.2.

3.2 Genealogical Society and Google Earth Monuments

Google Earth and 1:50 000 topographic maps of the area were utilised to identify possible places of heritage sensitivity might be located; these locations were marked and visited during the fieldwork phase. The database of the Genealogical Society of South Africa (GSSA) was consulted to collect data on any known graves in the area. Results are included in Section 6.3.

3.3 Public Consultation and Stakeholder Engagement:

Stakeholder engagement is a key component of any EIA process, it involves stakeholders interested in or affected by the proposed development. Stakeholders are provided with an opportunity to raise issues of concern (for the purposes of this report only heritage related issues will be included). The aim of the public consultation process undertaken by the EAP was to capture and address any issues raised by community members and other stakeholders. Results are included in Section 5 and the final EIA report.

3.4 Site Investigation

The aim of the site visit was to:

a) survey the proposed Project area to understand the heritage character of the area and to record, photograph and describe sites of archaeological, historical or cultural interest;

b) record GPS points of sites/areas identified as significant areas;

c) determine the levels of significance of the various types of heritage resources recorded in the Project area.

Table 4. Site Investigation Details

	Site Investigation
Date	29 October 2025
Season	Spring – Archaeological visibility was low due to surface disturbances of previous mining activities as well as the active quarry. The development footprint was however sufficiently covered to understand the heritage character of the area (Figure 3.1).

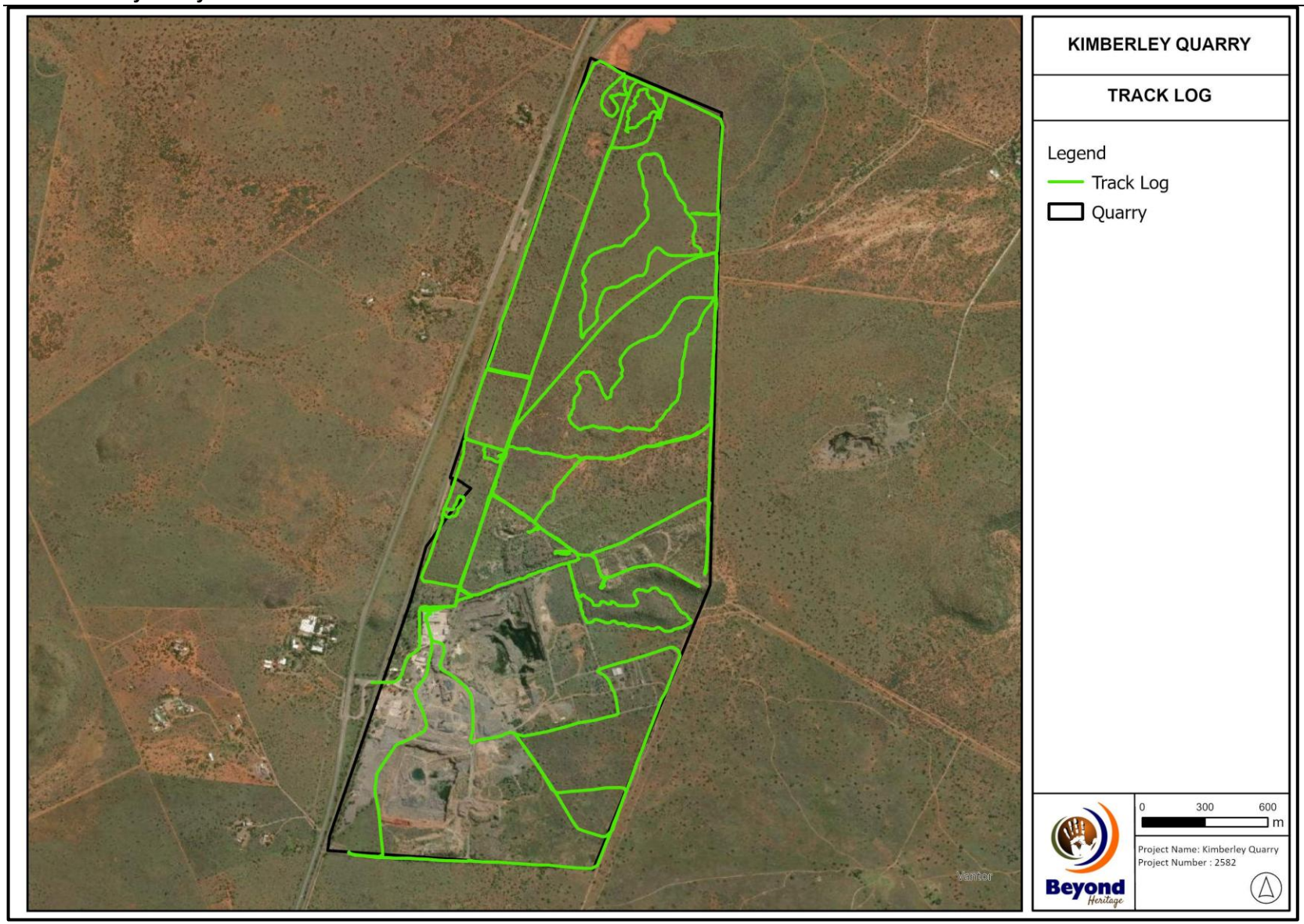


Figure 3.1. Tracklog of the survey path in green.

3.5 Site Significance and Field Rating

The presence and distribution of heritage resources define a ‘heritage landscape’. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire Project area, or a representative sample, depending on the nature of the project. In the case of the proposed Project the local extent of its impact necessitates a representative sample and only the footprint of the areas demarcated for development were surveyed. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface. This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The following criteria were used to establish site significance with cognisance of Section 3 of the NHRA:

- The unique nature of a site;
- The integrity of the archaeological/cultural heritage deposits;
- The wider historic, archaeological and geographic context of the site;
- The location of the site in relation to other similar sites or features;
- The depth of the archaeological deposit (when it can be determined/is known);
- The preservation condition of the sites; and
- Potential to answer present research questions.

In addition to this criteria field ratings prescribed by SAHRA (2006), and acknowledged by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 9 of this report.

Table 5. Heritage significance and field ratings

FIELD RATING	*GRADE*	*SIGNIFICANCE*	*RECOMMENDED MITIGATION*
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP. A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP. B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

3.6 Impact Assessment Methodology

The criteria below are used to establish the impact rating on sites:

- The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
- The **duration**, wherein it will be indicated whether:
  - the lifetime of the impact will be of a very short duration (0-1 years), assigned a score of 1;
  - the lifetime of the impact will be of a short duration (2-5 years), assigned a score of 2;
  - medium-term (5-15 years), assigned a score of 3;
  - long term (> 15 years), assigned a score of 4; or
  - permanent, assigned a score of 5;
  - The **magnitude**, quantified on a scale from 0-10 where; 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
  - The **probability of occurrence**, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1-5 where; 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
  - The **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and
  - the **status**, which will be described as either positive, negative or neutral.
  - the degree to which the impact can be reversed.
  - the degree to which the impact may cause irreplaceable loss of resources.
  - the *degree* to which the impact can be mitigated.

The **significance** is calculated by combining the criteria in the following formula:
S = (E+D+M) P
S = Significance weighting
E = Extent
D = Duration
M = Magnitude
P = Probability

The **significance weightings** for each potential impact are as follows:

- < 30 points: Low (i.e., where this impact would not have a direct influence on the decision to develop in the area),
- 30-60 points: Medium (i.e., where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- 60 points: High (i.e., where the impact must have an influence on the decision process to develop in the area).

3.7 Assumptions and limitations of the study

- The authors acknowledge that the brief literature review is not exhaustive of the literature of the area.
- Due to the nature of heritage resources and pedestrian surveys, the possibility exists that some features or artefacts may not have been discovered/recorded and the possible occurrence of graves and other cultural material cannot be excluded. This limitation is successfully mitigated with the implementation of a Chance Find Procedure (CFP) and monitoring of the study area by the Environmental Control Officer (ECO).
- This report only deals with the footprint area of the proposed development and consisted of non-intrusive surface surveys.
- According to the NHRA public participation should be conducted for the Project and it is assumed that the social/environmental team included this in the process run by EAP with inputs from the heritage consultant. Additional social consultation in terms of graves (relocation process) will be handled as a next phase of study if required.
- Field data were recorded by handheld GPS and Mobile GPS applications. It must be noted that during the process of converting spatial data to final drawings and maps the accuracy of spatial data may be compromised. Printing or other forms of reproduction might also distort the spatial distribution in maps. Due care has been taken to preserve accuracy.
- This study did not assess the impact on medicinal plants and intangible heritage as it is assumed that these components will be highlighted through the public consultation process if relevant. This process is facilitated by the EAP and if not done this can be considered a significant limitation and as a potential Project risk. It is possible that new information could come to light in future, which might change the results of this Impact Assessment.

4 Description of Socio-Economic Environment

According to StatsSA the Sol Plaatjie Municipality has a total population of 270 078 people, of which 62% are black African. The coloured population consists of 27,9%, and the white population consists of 8,7%. In the Sol Plaatjie Municipality, 4,1% of people have no schooling, 6,7% have some form of primary schooling, and 3,7% have completed primary schooling. Of the people age 20 and older, 36,9% have some form of secondary education, 35,9% have matric, and 11,8% have higher education. 66,6% of people have access to piped water in their dwellings (statssa.gov.za).

5 Results of Public Consultation and Stakeholder Engagement:

In line with the NHRA, stakeholder engagement is a key component of any EA process, and this is conducted by the EAP, it involves stakeholders interested in or affected by the proposed development. At the time of writing no heritage concerns have been raised. Additionally, the 2011 EMPR notes that the mining and remaining farm was investigated by Dr David Morris during 2000. Unfortunately, this report was lost over the years. The EMPR (Fouche 2025) also states that site management confirmed that there are no sites of archaeological or cultural importance within the mining area. The local community also did not identify any site of historical importance, and to date no complaints with regard to the impact of the mine on surrounding land uses has been received. (Fouche 2025).

6 Contextualising the study area

6.1 Archaeological Background

A brief summary of archaeological and historical events in South Africa is included in Figure 6.1 and the background to the study area is discussed below.

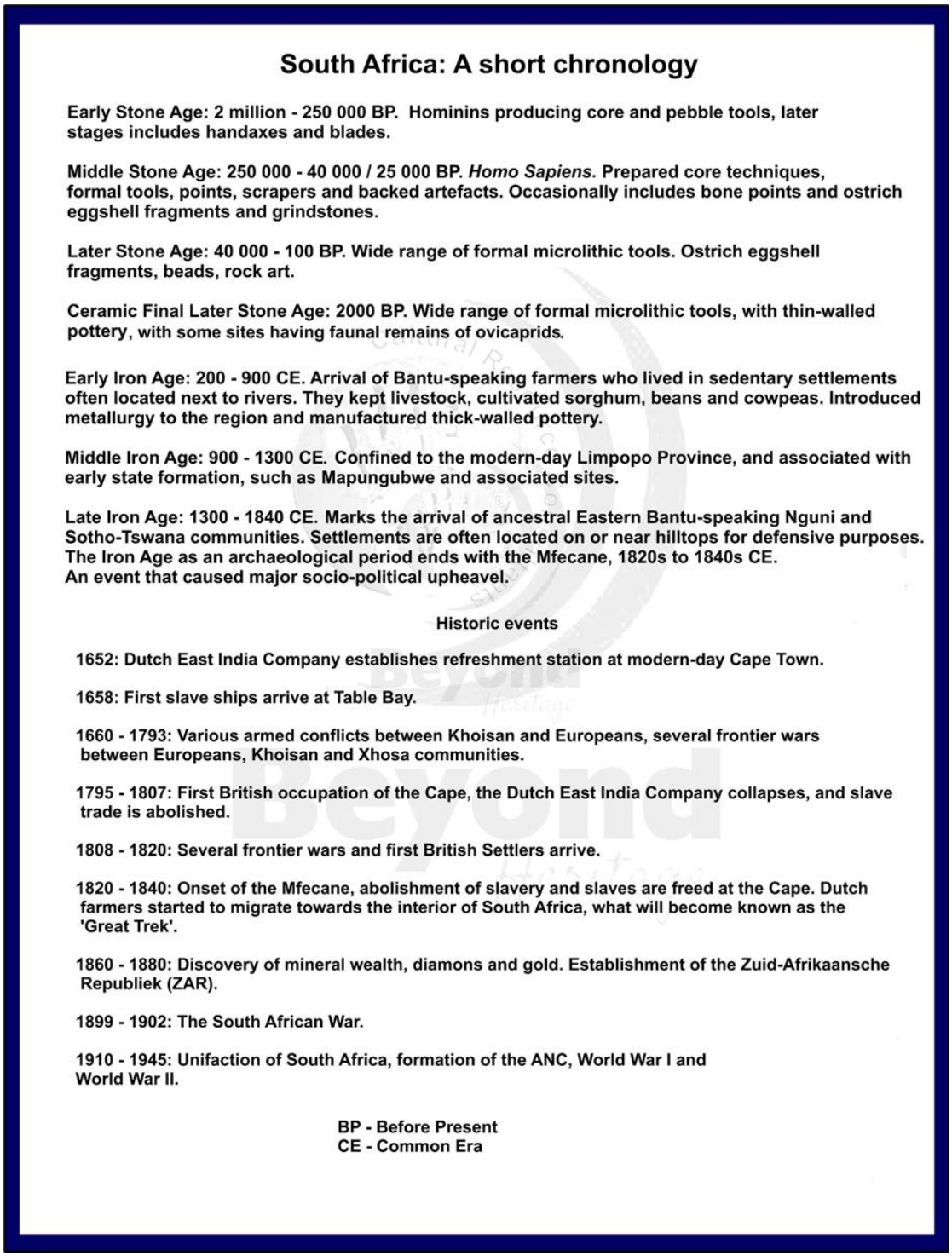


Figure 6.1. Summary of archaeological and historical events in South Africa.

The archaeological record for the greater study area consists of the Stone Age, Iron Age, and Historical period.

6.1.1 The Stone Age

South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, the Middle Stone Age, and the Earlier Stone Age. Each of these phases contain sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. The three main phases can be divided as follows;

- Later Stone Age (LSA); associated with Khoi and San societies and their immediate predecessors. Recently to ~30 thousand years ago
- Middle Stone Age (MSA); associated with Homo sapiens and archaic modern humans. 30-300 thousand years ago.
- Earlier Stone Age (ESA); associated with early Homo groups such as Homo habilis and Homo erectus. 400 000-> 2 million years ago.

Since there are no caves in the study area, no LSA or MSA sites of high significance is expected, although isolated finds or background scatter (Orton 2016) can occur anywhere on the landscape. Of importance to the Project area is the occurrence of significant ESA sites located in the Vaal River gravel terraces to the west of the Project area, including Canteen Kopje, Pniel 1 and 6, Power's Site, Riverview Estate and Rietputs 15 (Chazan et al 2013, Beaumont and Morris 1990). The study area is located south of the rock engraving site of Wildebeeskuil, containing more than 400 images and many further pecked or rubbed markings are spread over a small hill. The site was declared a Provincial Heritage Site in 2008.

Rock engravings have also been documented at Driekopseiland, located near Kimberley. This site is notable for showcasing over ninety percent of geometric engraving sites, reflecting its unique archaeological significance (Morris 1990).

6.1.2 Iron Age

Bantu-speaking people moved into Eastern and Southern Africa about 2,000 years ago (Mitchell 2002). These people cultivated sorghum and millets, herded cattle and small stock and manufactured iron tools and copper ornaments. Because metalworking represents a new technology, archaeologists call this period the Iron Age. Characteristic ceramic styles help archaeologists to separate the sites into different groups and time periods. The Iron Age as a whole represents the spread of Bantu speaking people and includes both the Pre-Historic and Historic periods. It can be divided into three distinct periods:

- The Early Iron Age (EIA): Most of the first millennium AD.
- The Middle Iron Age (MIA): 10th to 13th centuries AD.
- The Late Iron Age (LSA): 14th century to colonial period.

No Sites dating to the Early or Middle Iron Age have been recorded or is expected for the study area. The same goes for the Later Iron Age period where the study area is situated outside the southern periphery of distribution of Late Iron Age stone walled settlements in the greater area.

6.1.3 Historical Information

The discovery of diamonds along the Orange River in 1866 sparked a rush of fortune seekers to the region. By 1871, the world's largest diamond mines were established around Kimberley, following the discovery of diamonds at Colesberg Kopje, De Beers New Rush, and Voortuitzicht (Raper 2004). Kimberley grew rapidly, becoming a key South African destination and a symbol of British Empire prosperity. It was a trailblazer, featuring the continent's first electric streetlights and Africa's first Stock Exchange. The consolidation of diamond mines brought stability and development to Kimberley.

Kimberley played a transformative role in South Africa's history. As noted by HF Oppenheimer, the diamond discoveries marked the country's shift from an agricultural economy to an industrial one (Roberts 1976). These developments, initiated by earlier diamond finds in Barkly West and Colesberg Kopje, provided the financial resources, technology, and skills necessary for the later exploitation of the Transvaal goldfields.

6.1.4 Anglo-Boer War

Kimberley endured a significant siege during the Anglo-Boer War, beginning on 14 October 1899, when Boer forces swiftly attempted to capture the town. Although initially unprepared, the town's defenders mounted an effective improvised defence that thwarted the Boers' efforts. Cecil John Rhodes, who had amassed his fortune in Kimberley and controlled its mining operations, moved into the town at the start of the siege. His presence was contentious due to his role in the Jameson Raid, a key precursor to the war. Despite ongoing conflicts with military leaders, Rhodes played a pivotal role in organizing the town's defence (Pretorius 2000).

The Boers bombarded Kimberley using superior artillery to compel surrender. In response, De Beers engineers created a unique weapon dubbed "Long Cecil," which was soon met by an even larger Boer siege gun that terrorized residents, forcing many to seek refuge in the Kimberley Mine. Public demand to relieve sieges at Kimberley, Ladysmith, and Mafeking led the British military to revise its strategy. Initial relief attempts, led by Lord Methuen, were thwarted at the Modder River and Magersfontein battles.

Ultimately, after 124 days, Kimberley's siege ended on 15 February 1900, when a cavalry division under Lieutenant-General John French, as part of Lord Roberts's broader forces, successfully relieved the town (Pretorius 2000).

6.1 Literature Review (SAHRIS)

Several Cultural Resource Management (CRM) surveys are on record for the larger area, and the relevant results of these studies are briefly discussed below and outlined in Table 6.

Table 6. Studies consulted for the project.

Author	Year	Project	Findings
Loock, J.	2005	Palaeontological Report on Slypklip North No. 32, Kimberley, NC.	No sites were identified
Beaumont, P.	2007	Phase 1 Heritage Impact Assessment Report on the Farm Eureka 200 near Kimberley, Frances Baard District Municipality, Northern Cape Province.	No sites were identified
Morris, D.	2011	HIA for the proposed Kabi Kimberley Solar PV Plant and associated infrastructure near Kimberley, Northern Cape.	No significant heritage traces found
Becker, E.	2012	Phase 1 Heritage Impact Assessment Kimberley to De Aar.	Requires ongoing input from a professional registered Archaeologist
Hutten, M.	2012	Heritage Impact Assessment for the proposed Dioflash Solar Park south-east of Kimberley, Free State Province.	No sites were identified
Hutten, M.	2013	Heritage Impact Assessment for the Proposed Pulida Solar Park south-east of Kimberley, Free State Province.	Three Late Stone Age heritage sites identified in total. Two sites containing stone artefacts, one site containing lithic artefacts
Almond, J.E.	2013[a]	Palaeontological specialist assessment: combined desktop and field-based study: Proposed 16 MTPA expansion of Transnet's existing Manganese ore export railway line & associated infrastructure between Hotazel and the Port of Ngqura, Northern & Eastern Cape.	Paleontological sites identified but they have low heritage significance
Almond, J.E.	2013[b]	Proposed 16 Mtpa expansion of Transnet's existing manganese ore export railway line and associated infrastructure between Hotazel and the Port of Ngqura, Northern and Eastern Cape. Part 3: Kimberley to De Aar, Northern Cape	Paleontological sites identified but they have low heritage significance
Rossouw, L.	2021	Phase 1 Heritage Impact Assessment for a proposed new Nursing College facility in Kimberley, NC Province.	No sites were identified.
Rossouw, L.	2022	Phase 1 Heritage Impact Assessment for proposed new Petrol Station on farm Platfontein 68, Kimberley, NC Province.	No sites were identified.
Gaigher, S.	2014	Heritage Impact Assessment Report for the Proposed Expansion to the Samy's Wholesalers Warehouse, Kimberley- Northern Cape Province.	Possible graves.
Van Ryneveld, K.	2005	Cultural Resources Management Impact Assessment: (Portions of) Leeuwpoort 161, Kimberley District, Northern Cape, South Africa	No sites were identified.

6.2 Google Earth and the Genealogical Society of South Africa (Graves and Burial Sites)

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where archaeological and historical sites might be located. The database of the Genealogical Society of South Africa indicated no known grave sites within the study area.

7 Heritage Baseline

7.1 Description of the Physical Environment

The vegetation of the Project area belongs to the Kimberley Thornveld of the Savanna Biome. It is described as plains often slightly irregular with well-dveloped tree layer with *Acacia erioloba, A. tortilis, A. karroo* and *Boscia albitrunca* and well-developed shrub layer with occasional dense stands of *Tarchonanthus camphortus* and *A. mellifera.* Grass layer open with much uncovered soil (Mucina & Rutherford, 2006).

The 380 ha Project area is located south of Kimberley, positioned along the N12. The southern half of the study area comprises an active quarry operated by Raumix, containing associated infrastructure and large open pits, some of which appear to be historical. The northern half contrasts sharply with this, consisting of open grassland with scattered trees. The broader landscape is fairly flat and underlain by red sandy soils, with several low hills dispersed throughout the area. Scattered portions of the property show evidence of earlier mining activities that have since been rehabilitated.

Based on the EMPr (Fouche 2025) the 2011 EMPR noted that the quarry operations at the Kimberley Quarry had been ongoing for the past 40 years (±54 years by 2025), and the stone crushing operation has been in existence for approximately 30 years.

General site conditions are indicated in (Figure 7.1 to 7.4).

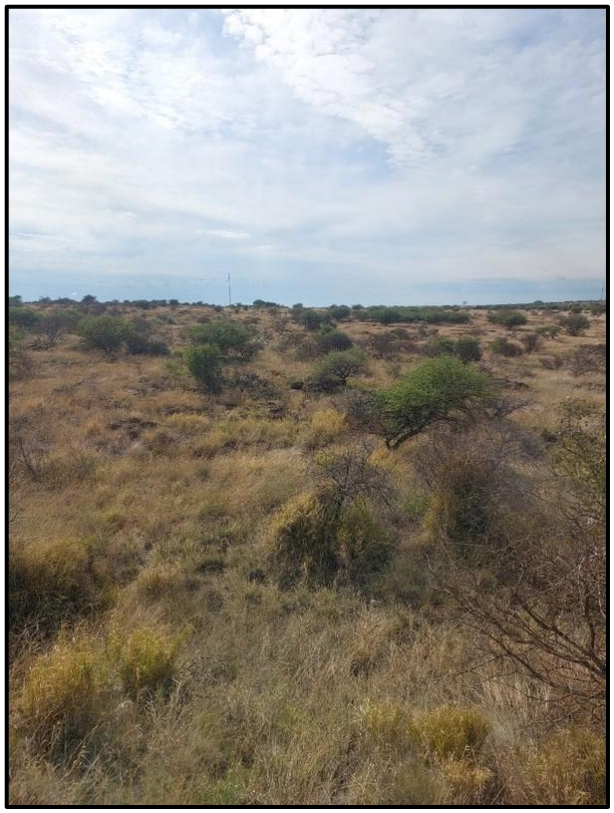


Figure 7.1. Overgrown grasses across the northern portion of the Project area.

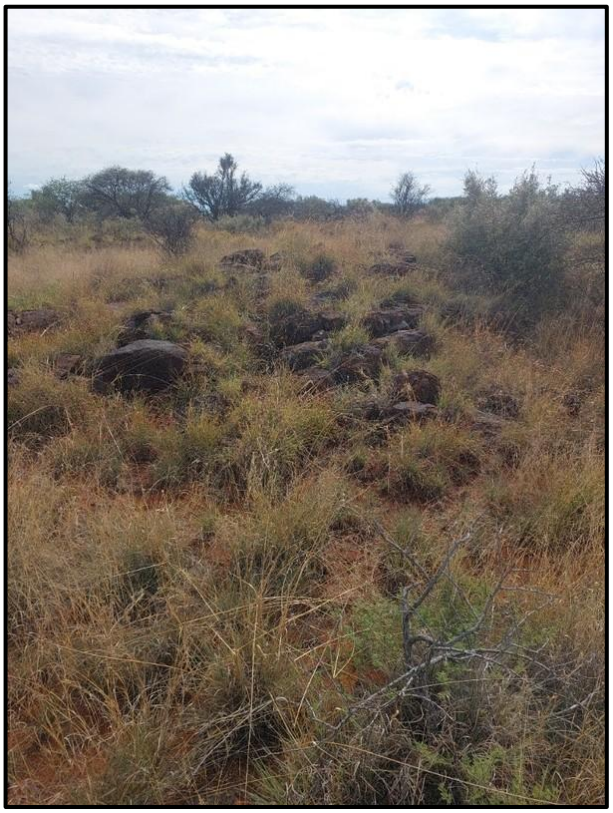


Figure 7.2. Overgrown grasses across the northern portion of the Project area.

Figure 7.3. Active quarry within the Project area.

Figure 7.4. Active quarry within the Project area.

7.2 Heritage Resources

Heritage observations within the study were limited to ruins assumed to be associated with previous mining activities and was recorded as a Waypoint. The features have been broken down and only standing walls of one feature remains. The feature has no roof, windows, doors or door frames. The feature also has been visibly altered over the years. Therefore its heritage significance is low. General site conditions and site distribution of the recorded observations are illustrated in Figure 7.5 and briefly described in Table 7. Selected features are illustrated in Figure 7.6 to 7.7.

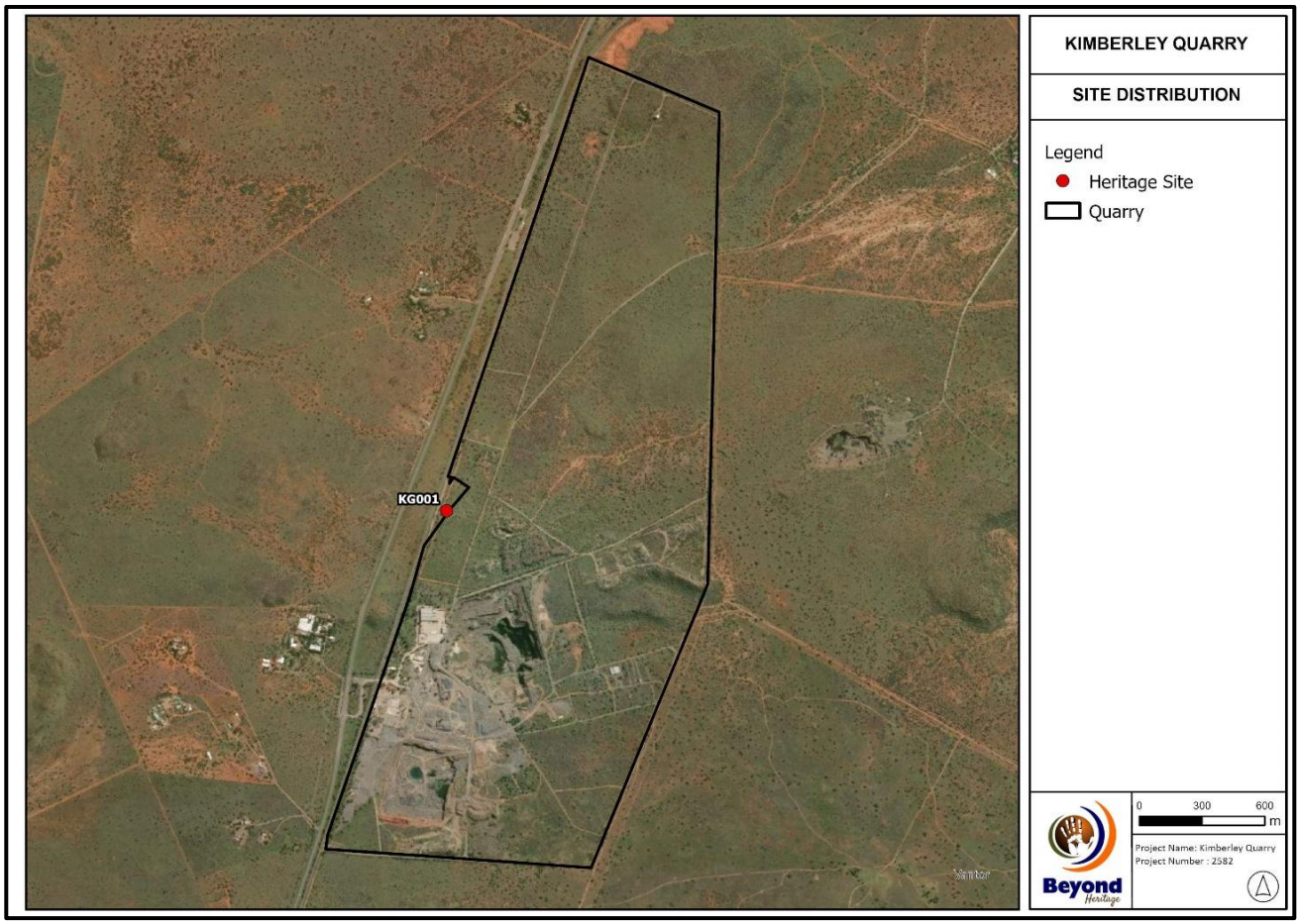


Figure 7.5. Site distribution map within the Project area.

Table 7. Sites recorded in the study area.

LABEL	LATITUDE	LONGITUDE	DESCRIPTION	SIGNIFICANCE
KG001	28°48'56.37"S	24°42'42.82"E	Demolished structural ruins likely associated with previous mining infrastructure with piles of building rubble. The features have been broken down and only standing walls of one feature remains. The feature has no roof, windows, doors or door frames. The feature also has been visibly altered over the years, and the purpose of the structure is unknown. Based on the extent of the destruction of the features it has no conservation value.	Low Significance GP C

Figure 7.6. View of a partially demolished structure at KG001. There is no roof, windows or doors and only partial walls remain. **Additions and alterations to the structure are also visible**

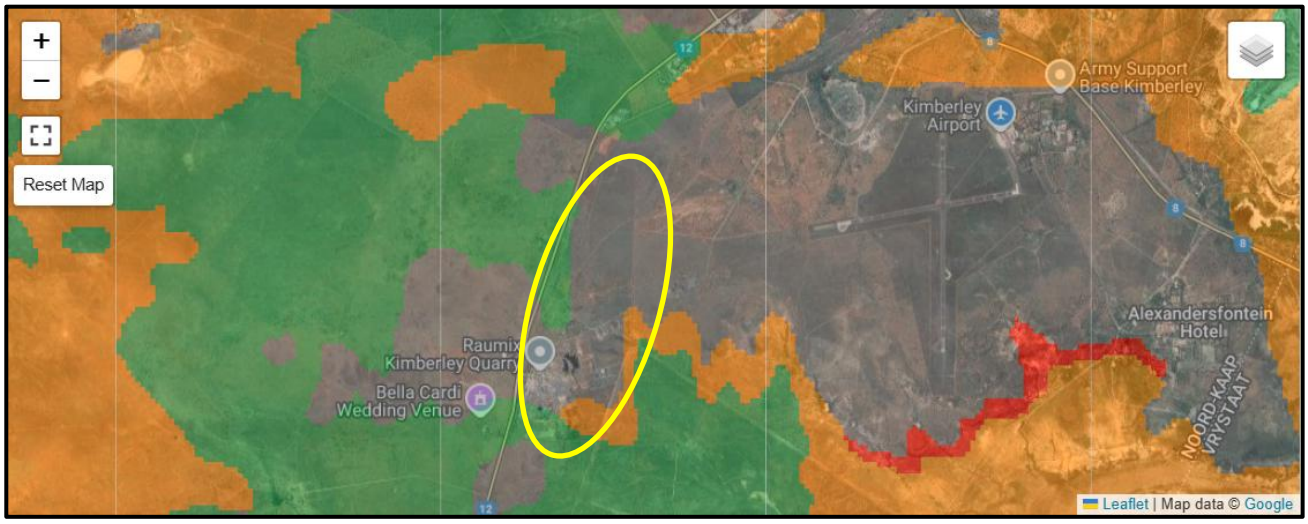
Figure 7.7. Building rubble at KG001.

7.3 Cultural Landscape

The study area is situated within a larger landscape which has seen extensive mining from Historical times onwards as well as rapid diamond mining of the region together with associated development of residential areas. The study area has been subject to quarry operations for the past 40 years (±54 years by 2025), and the stone crushing operation has been in existence for approximately 30 years. A Brick and Block-making yard (Blockpave), Ready-mix Plant (OMV) and Asphalt Plant (National Asphalt) were established within the footprint of the mining area. Only the brick and block-making yard remains operational. The ready-mix yard has been vacated but not formally decommissioned, and the former asphalt plant area is currently utilised as a salvage yard by the mine. Sub-contractors are periodically engaged for contract crushing and mining activities and typically establish temporary site camps within the mining boundaries during operations (Fouche 2025).

7.4 Paleontological Heritage

According to the SAHRA palaeontological sensitivity map, the study area is of insignificant, moderate, and high insignificant palaeontological sensitivity (Figure 7.8), and an independent study was conducted for this aspect (Bamford 2025).



Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	Desktop study is required
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Figure 7.8. Palaeontological sensitivity map of the study area (yellow polygon).

8 Assessment of impacts

8.1 Impacts on tangible heritage resources

The main cause of impacts to heritage resources is physical disturbance of the cultural material itself and its context during removal of topsoil and vegetation as well as the excavations associated with the establishment of infrastructure.

The recorded ruin will be impacted by the mining activities, but it is of low heritage significance and is degraded to such an extent that the ruins potential to contribute to aesthetic, historic, scientific, and social aspects are non-existent, and the feature is of low significance with a GP C field rating.

Any additional effects to subsurface heritage resources can be successfully mitigated by implementing a chance find procedure. Mitigation measures as recommended in this report should be implemented during all phases of the project. Impacts of the project on heritage resources is expected to be low during all phases of the development if mitigation measures are followed.

8.1.1 Cumulative impacts

Cumulative impacts are expected to be low and can be mitigated to an acceptable level with the adherence of the mitigation measures presented in this report.

8.2 Impact Assessment Tables

Table 8. Impact assessment for ruin KG001

Nature: During the mining, activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects.		
	Without mitigation	**With mitigation (Preservation/ excavation of site)**
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Minor (2)	Minor (2)
Probability	Probable (3)	Improbable (2)
Significance	**24 (Low)**	**16 (Low)**
Status (positive or negative)	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	NA	NA
Mitigation: • Strict monitoring by the ECO due to the risk of graves; • Implementation of a chance find procedure for the project as outlined in Section 9.2.		
Residual Impacts: Although surface sites can be avoided or mitigated, there is a chance that completely buried sites would still be impacted on, but this cannot be quantified.		

9 Conclusion and recommendations

The study area is split into two distinct landscape zones whereby the southern portion is heavily transformed by the active Raumix quarry, with existing mining infrastructure and large extraction pits, some likely representing earlier phases of quarrying. In contrast, the northern section remains largely natural, comprising overgrown grass coverage with sporadic tree cover.

During the survey, heritage resources recorded were limited to a recorded ruin (KG001) consisting of a partially demolished structure and a large pile of building rubble. The ruins are likely associated with previous mining activities within the Project activities. The ruins potential to contribute to aesthetic, historic, scientific, and social aspects are non-existent, and the feature is of low significance with a GP C field rating. Often ruins may be associated with stillborn graves, and the site will require monitoring if mining extends into this area through the implementation of a Chance Find Procedure as outlined in Section 9.2.

According to the South African Heritage Resource Authority (SAHRA) Paleontological sensitivity map the study area is of insignificant, moderate, and high palaeontological sensitivity, and an independent study was commissioned for this aspect (Bamford 2025).

The impact to significant heritage resources is expected to be low provided that the recommendations in this report are adhered to, based on the South African Heritage Resource Authority (SAHRA) ’s approval.

9.1 Recommendations for condition of authorisation

The following recommendations for Environmental Authorisation apply and the Project may only proceed based on approval from SAHRA:

- Due to the risk of associated graves, ruins at KG001 will require strict monitoring by the ECO if mining extends into this area for potential subsurface finds;
- Development activities must be confined to the approved development footprint only;
- Monitoring of the Project area by the ECO during mining for heritage and paleontological chance finds, if chance finds are encountered to implement the Chance Find Procedure for the Project as outlined in Section 9.2

9.2 Chance Find Procedure

9.2.1 Heritage Resources

The possibility of the occurrence of subsurface finds cannot be excluded. Therefore, if during any operations any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped, and a qualified archaeologist must be contacted for an assessment of the find and therefor chance find procedures should be put in place as part of the EMP. A short summary of chance find procedures is discussed below and monitoring guidelines applicable to the Chance Find procedure is discussed below and monitoring guidelines for this procedure are provided in Section 9.5.

This procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.

- If during the pre-construction phase, construction, operations or closure phases of this Project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or heritage site, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.
- The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

9.2.2 Monitoring Programme for Palaeontology – to commence once the excavations / drilling activities begin.

1. The following procedure is only required if fossils are seen on the surface and when drilling/excavations commence.
2. When excavations begin the rocks and discard must be given a cursory inspection by the environmental officer or designated person. Any fossiliferous material (trace fossils, fossils of plants, insects, bone or coalified material) should be put aside in a suitably protected place. This way the Project activities will not be interrupted.
3. Photographs of similar fossils must be provided to the developer to assist in recognizing the fossil plants, vertebrates, invertebrates or trace fossils in the shales and mudstones (for example see Bamford 2025). This information will be built into the EMP's training and awareness plan and procedures.
4. Photographs of the putative fossils can be sent to the palaeontologist for a preliminary assessment.
5. If there is any possible fossil material found by the developer/environmental officer then the qualified palaeontologist sub-contracted for this Project, should visit the site to inspect the selected material and check the dumps where feasible.
6. Fossil plants or vertebrates that are considered to be of good quality or scientific interest by the palaeontologist must be removed, catalogued and housed in a suitable institution where they can be made available for further study. Before the fossils are removed from the site a SAHRA permit must be obtained. Annual reports must be submitted to SAHRA as required by the relevant permits.
7. If no good fossil material is recovered, then no site inspections by the palaeontologist will be necessary. A final report by the palaeontologist must be sent to SAHRA once the Project has been completed and only if there are fossils.
8. If no fossils are found and the excavations have finished, then no further monitoring is required.

9.3 Reasoned Opinion

The overall impact of the Project with the recommended mitigation measures is acceptable and residual impacts can be managed to an acceptable level through implementation of the recommendations made in this report. The socio-economic benefits also outweigh the possible impacts of the development if the correct mitigation measures are implemented for the Project.

9.4 Potential risk

Potential risks to the proposed Project are the occurrence of intangible features and unrecorded cultural resources (of which graves, and subsurface cultural material are the highest risk). This can cause delays during construction, as well as additional costs involved in mitigation and possible layout changes. The stakeholder engagement process will assess intangible heritage resources further if this is listed as a concern.

9.5 Monitoring Requirements

Day to day monitoring can be conducted by the ECO. The ECO or other responsible persons should be trained along the following lines:

- *Induction training:*
  - Responsible staff identified by the developer should attend a short course on heritage management and identification of heritage resources.
  - Staff should also receive training on the CFP.
- *Site monitoring and watching brief*: As most heritage resources occur below surface, all earth-moving activities need to be routinely monitored in case of accidental discoveries. The greatest potential impacts are from pre-construction and construction/ mining activities. The ECO should monitor all such activities. If any heritage resources are found, the chance finds procedure must be followed as outlined above.

Table 9. Monitoring requirements for the Project

Heritage Monitoring					
Aspect	**Area**	**Responsible for monitoring and measuring**	**Frequency**	**Proactive or reactive measurement**	**Method**
Cultural Heritage Resource Chance Find	Entire Project area	ECO	Weekly (All phases)	Proactively	If risks are manifested (accidental discovery of heritage resources) the chance find procedure should be implemented: 1. Cease all works immediately; 2. Report incident to the Sustainability Manager; 3. Contact an archaeologist to inspect the site; 4. Report incident to the competent authority; and 5. Employ reasonable mitigation measures in accordance with the requirements of the relevant authorities. Only recommence operations once impacts have been mitigated.

9.7 Management Measures for inclusion in the EMPr

Table 10. Heritage Management Plan for EMPr implementation

Area	Mitigation measures	Phase	Timeframe	Responsible party for implementation	Target	Performance indicators (Monitoring tool)
General Project area	Monitoring of the Project area by the ECO during for chance finds, if chance finds are encountered to implement the Chance Find Procedure for the project	Mining	Weekly	Applicant Construction Contractor	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 34, 35, 36 and 38 of NHRA	ECO Checklist/Report
General Project Area	Development activities must be confined to the approved development footprint only.	Mining	Mining	Applicant Construction Contractor	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 34, 35, 36 and 38 of NHRA	ECO Checklist/Report
KG001.	Implementation of a heritage Chance Find Procedure as outlined in Section 9.2 with strict monitoring for graves by the ECO.	Mining	Mining	Applicant Construction Contractor ECO	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 34, 35, 36 and 38 of NHRA	ECO Checklist/Report

10 References

Almond, J.E. 2013a. Palaeontological specialist assessment: combined desktop and field-based study: Proposed 16 MTPA expansion of Transnet's existing Manganese ore export railway line & associated infrastructure between Hotazel and the Port of Ngqura, Northern & Eastern Cape.

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