

# HERITAGE IMPACT ASSESSMENT

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

FOR THE PROPOSED CLEARING OF INDIGENOUS VEGETATION FOR CROP LANDS  
AND RELATED INFRASTRUCTURE ON THE FARM: ZWARTBERG 72 MR, WITHIN  
BLOUBERG LOCAL MUNICIPALITY, CAPRICORN DISTRICT, LIMPOPO PROVINCE

**Type of development:**

Agricultural Development

**Client:**

Tua Conserva Environmental and Conservation Services CC

**Developer:**

ALZ Producente



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Project number 2210

Report date:

January 2022

## APPROVAL PAGE

<b>Project Name</b>	Zwartberg farming
<b>Report Title</b>	Heritage Impact Assessment for the proposed clearing of indigenous vegetation for crop lands and related infrastructure on the farm: Zwartberg 72 MR, within the Blouberg Local Municipality, Capricorn District, Limpopo Province
<b>Authority Reference Number</b>	TBC
<b>Report Status</b>	Final Report
<b>Applicant Name</b>	ALZ Producente

<b>Responsibility</b>	<b>Name</b>	<b>Qualifications and Certifications</b>	<b>Date</b>
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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 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 Section 12
(b) Declaration that the specialist is independent in a form as may be specified by the competent authority	<i>Declaration of Independence</i>
(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 and 7.1.
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	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;	Section 8 and 9
(g) Identification of any areas to be avoided, including buffers	Section 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
(l) 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	Section 10.1
(l) Conditions for inclusion in the environmental authorisation	Section 10. 1.
(m) Monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 10. 5.
(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 10.3
(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; and	Refer to EIA report
(q) Any other information requested by the competent authority	N.A

### Executive Summary

Tua Conserva Environmental and Conservation Services CC was appointed as the Environmental Assessment Practitioner (EAP) by ALZ Produsente to undertake the required Environmental Authorisation Process for the proposed clearing of indigenous vegetation for crop lands and related infrastructure on the farm Zwartberg 72 MR, within the Blouberg Local Municipality, Capricorn District, Limpopo Province.

Beyond Heritage was appointed to conduct a Heritage Impact Assessment (HIA) for the project and the study area was assessed on desktop level and by a non-intrusive pedestrian field survey. Key findings of the assessment include:


- The study area is used as a game farm with historical cultivation in some areas dating to the 1960's to now;
- In a cultivated field the ephemeral remains of a Late Iron Age Site (SB004) were recorded, possibly dating to the Letsibogo *facies* of the Moloko tradition, likely dating to AD 1500 – 1700. The site is of low significance due to the level of disturbance to the site through repeated ploughing and planting;
- Other finds were limited to Middle Stone Age (MSA) background scatters (Observation point SB001, SB002, SB003 and SB005) of low significance;
- The area is of moderate paleontological sensitivity an independent study was conducted (Bamford 2022). The study concluded that the impact on the palaeontological heritage of the area is very low.

The impact of the project on heritage resources are low and the project can commence provided that the recommendations in this report are adhered to, based on the South African Heritage Resource Authority (SAHRA) 's approval.

### Recommendations:

- Implementation of a chance find procedure for the project.
- It is recommended that if any artefacts (e.g., bone, ceramics) is uncovered in the area where SB004 is located all operations must be stopped, and an archaeologist must be contacted to assess the find.

**Declaration of Independence**

<b>Specialist Name</b>	Jaco van der Walt
<b>Declaration of Independence</b>	<p>I declare, as a specialist appointed in terms of the National Environmental Management Act (Act No 108 of 1998) and the associated 2014 Environmental Impact Assessment (EIA) Regulations, that I:</p> <ul style="list-style-type: none"> <li>• I act as the independent specialist in this application;</li> <li>• 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;</li> <li>• I declare that there are no circumstances that may compromise my objectivity in performing such work;</li> <li>• 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;</li> <li>• I will comply with the Act, Regulations and all other applicable legislation;</li> <li>• I have no, and will not engage in, conflicting interests in the undertaking of the activity;</li> <li>• 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;</li> <li>• All the particulars furnished by me in this form are true and correct; and</li> <li>• I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.</li> </ul>
<b>Signature</b>	
<b>Date</b>	02/02/2022

**a) Expertise of the specialist**

Jaco van der Walt has been practising as a CRM archaeologist for 15 years. He obtained an MA degree in Archaeology from the University of the Witwatersrand focussing on the Iron Age in 2012 and is a PhD candidate at the University of Johannesburg focussing on Stone Age Archaeology with specific interest in the Middle Stone Age (MSA) and Later Stone Age (LSA). Jaco is an accredited member of ASAPA (#159) and have conducted more than 500 impact assessments in Limpopo, Mpumalanga, North West, Free State, Gauteng, KZN as well as he Northern and Eastern Cape Provinces in South Africa.

Jaco has worked on various international projects in Zimbabwe, Botswana, Mozambique, Lesotho, DRC Zambia, Guinea and Tanzania. Through this, he has a sound understanding of the IFC Performance Standard requirements, with specific reference to Performance Standard 8 – Cultural Heritage.

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**ABBREVIATIONS**

ASAPA: Association of South African Professional Archaeologists
BGG Burial Ground and Graves
BIA: Basic Impact Assessment
CFPs: Chance Find Procedures
CMP: Conservation Management Plan
CRR: Comments and Response Report
CRM: Cultural Resource Management
DEA: Department of Environmental Affairs
EA: Environmental Authorisation
EAP: Environmental Assessment Practitioner
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EIA Practitioner: Environmental Impact 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
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)

Early 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 recently, 100 years ago)

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

## 1 Introduction and Terms of Reference:

Beyond Heritage was appointed to conduct a HIA for the proposed clearing of indigenous vegetation for crop lands and related infrastructure on the farm Zwartberg 72 MR, within the Blouberg Local Municipality, Capricorn District, Limpopo Province (Figure 1.1 to 1.3). The report forms part of the Environmental Impact Assessment (EIA) and Environmental Management Programme Report (EMPr) for the development.

The aim of the study is to survey the proposed development footprint to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to 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. It is also conducted to protect, preserve and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999). 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, Stone Age scatters and an Late Iron Age site were recorded. General site conditions and features on sites were recorded by means of photographs, GPS locations and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report. SAHRA as a commenting authority under section 38(8) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) require all environmental documents, compiled in support of an Environmental Authorisation application as defined by NEMA EIA Regulations section 40 (1) and (2), to be submitted to SAHRA for commenting. 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).

### 1.1 Terms of Reference

#### Field study

Conduct a field study to: (a) locate, identify, 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 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 ASAPA.

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

ALZ Produsente is proposing clearing of indigenous vegetation for crop lands and related infrastructure. Project components and the location is outlined under Table 2 and 3.

**Table 2: Project Description**

<b>Project area</b>	Zwartberg 72 MR,
<b>Magisterial District</b>	Blouberg Local Municipality, Capricorn District, Limpopo Province
<b>Central co-ordinate of the development</b>	22°48'17.74"S 28° 7'49.19"E
<b>Topographic Map Number</b>	2228 CC

**Table 3: Infrastructure and project activities**

<b>Type of development</b>	Agricultural Clearing
<b>Size of development</b>	940 Hectare
<b>Project Components</b>	The proposed project is for the clearing of indigenous vegetation for croplands, necessary infrastructure such as pipelines and storage dams.

### 1.3 Alternatives

No alternatives were provided to be assessed although the extent of the area assessed allows for siting of the development to minimise impacts to heritage resources.

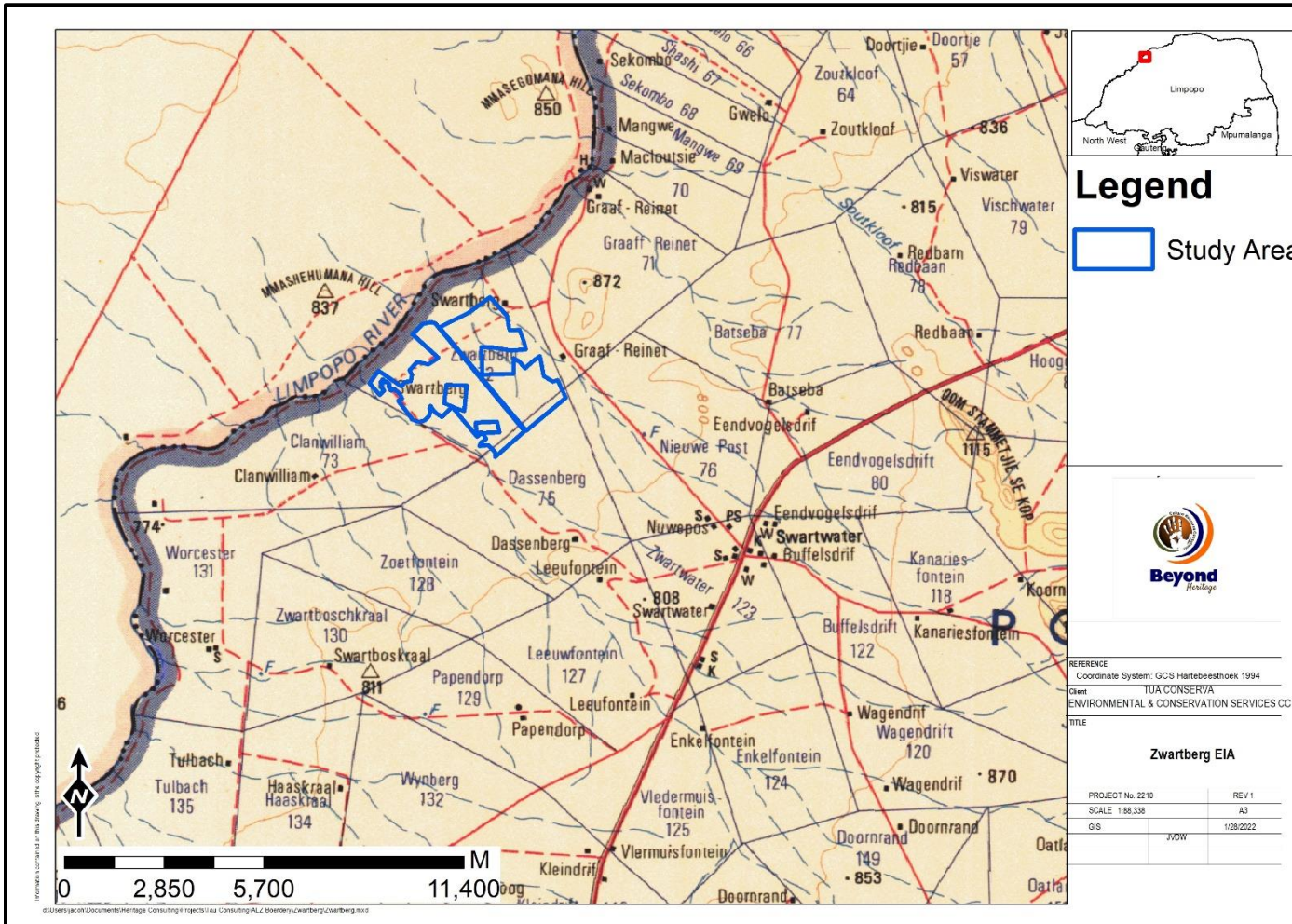


Figure 1.1. Regional setting (1: 250 000 topographical map) of the project.

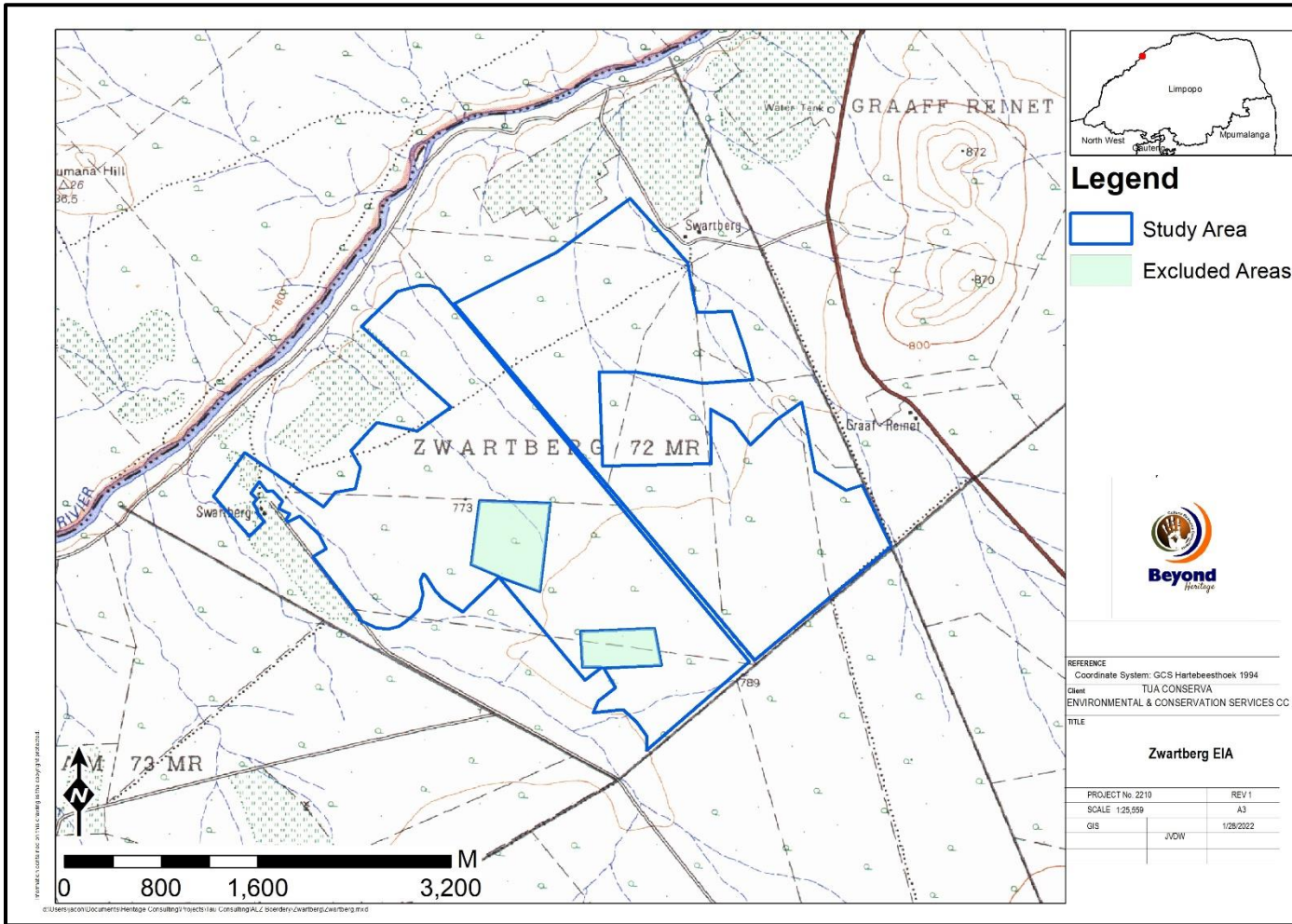


Figure 1.2. Local setting of the project (1: 50 000 topographical map) showing the development footprint.

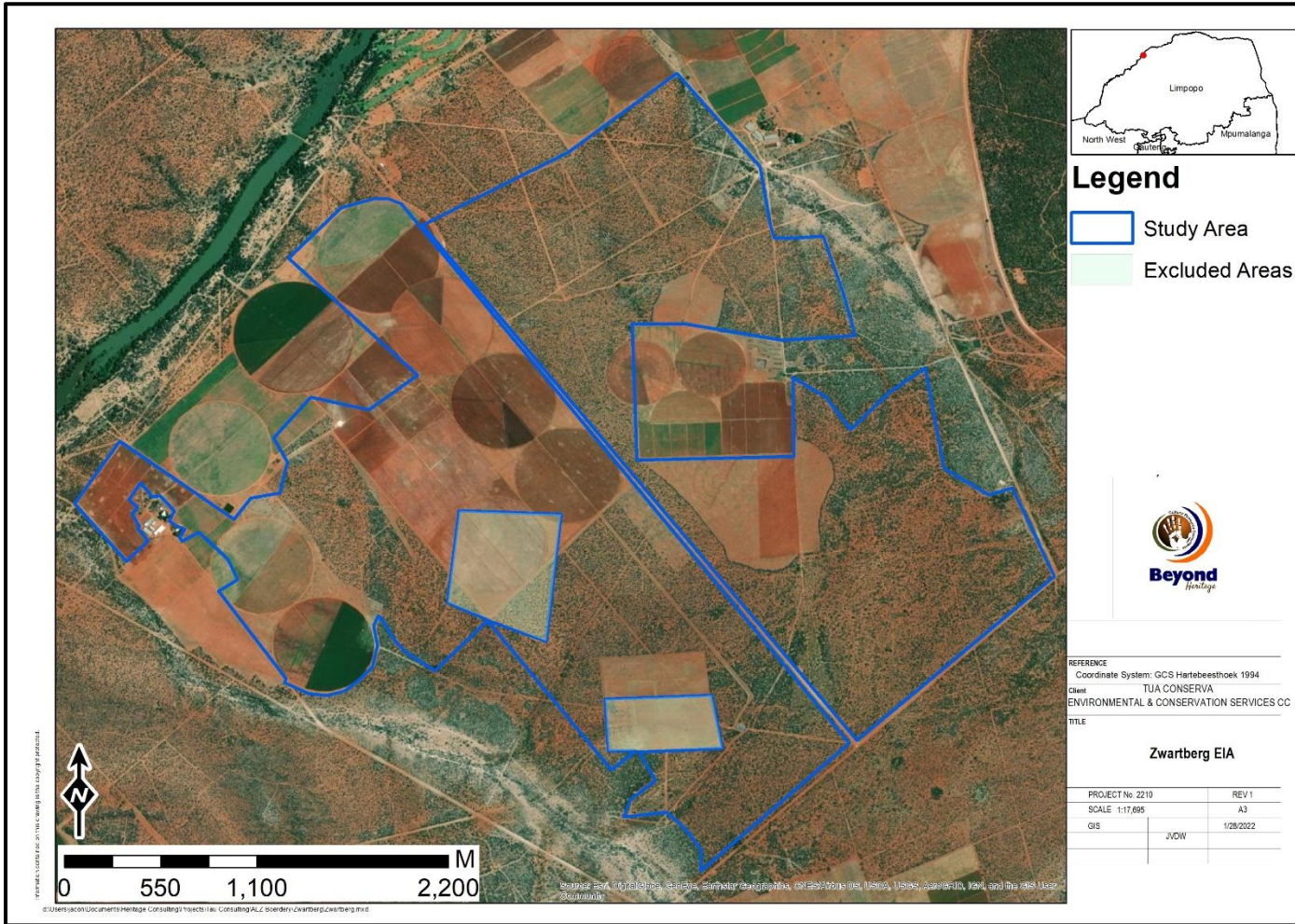


Figure 1.3. Aerial image of the study area, note the extend of historical cultivation.



## 2 Legislative Requirements

The HIA, as a specialist sub-section of 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)
- Mineral and Petroleum Resources Development Act (MPRDA), Act No. 28 of 2002 - Section 39(3)(b)(iii)

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;
- Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- Assess the negative and positive impact of the development on these resources; and
- Make recommendations for the appropriate heritage management of these impacts.

The HIA should be submitted, as part of the impact assessment report or EMPr, to the PHRA if established in the province or to 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.

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 HIA's 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. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 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. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human Tissues Act (Act 65 of 1983) 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), as well as the Human Tissues Act (Act 65 of 1983) 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. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare. 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 Section 24 of Act 65 of 1983 (Human Tissues Act).

### **3 METHODOLOGY**

#### **3.1 Literature Review**

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).

#### **3.2 Genealogical Society and Google Earth Monuments**

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located; these locations were marked and visited during the fieldwork phase. The database of the Genealogical Society was consulted to collect data on any known graves in the area.

#### **3.3 Public Consultation and Stakeholder Engagement:**

Stakeholder engagement is a key component of any EA 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 was to capture and address any issues raised by community members and other stakeholders during key stakeholder and public meetings. The process involved:

- Placement of advertisements and site notices
- Stakeholder notification (through the dissemination of information and meeting invitations);
- Stakeholder meetings undertaken with I&APs;
- Authority Consultation
- The compilation of Basic Assessment Report (BAR).

### 3.4 Site Investigation

The aim of the site visit was to:

- survey the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest;
- record GPS points of sites/areas identified as significant areas;
- determine the levels of significance of the various types of heritage resources recorded in the project area.

**Table 4: Site Investigation Details**

	<b>Site Investigation</b>
Date	24 – 28 January 2022
Season	Summer – Heritage visibility across the project area was consistently low due to the high degree of disturbance by historical farming activities like cultivated fields, deforestation, and pivot systems. The thick vegetation that covers the areas not yet cultivated also limited visibility in these areas. The study area was however sufficiently covered to understand the heritage character of the area (Figure 3.1).

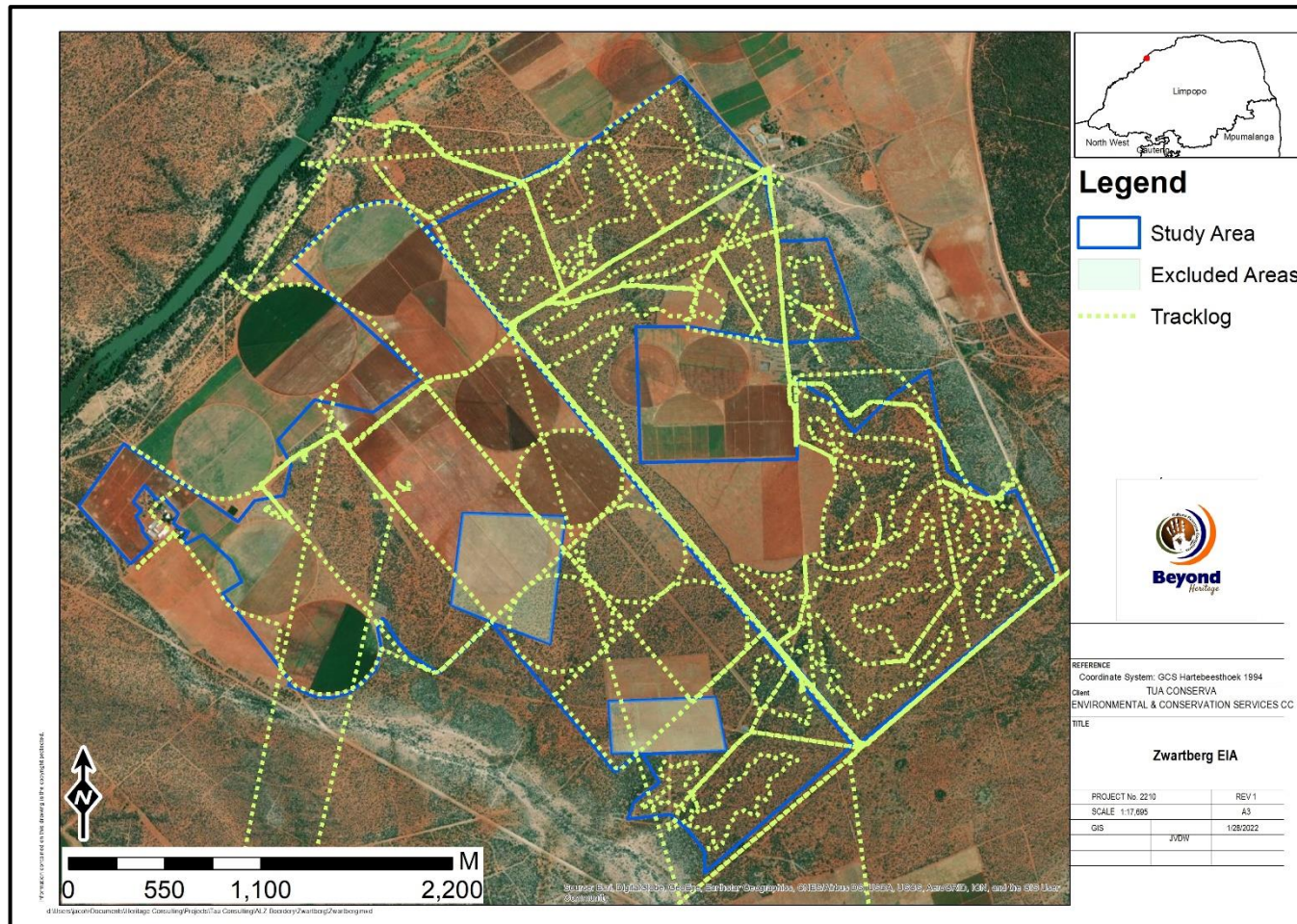


Figure 3.1: Tracklog of the survey path in green. Existing cultivated fields are not yet reflected on aerial imagery available but are demarcated by circular track paths around pivot fields.

### 3.5 Site Significance and Field Rating

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.

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 10 of this report.

**Table 5. Heritage significance and field ratings**

<b>FIELD RATING</b>	<b>GRADE</b>	<b>SIGNIFICANCE</b>	<b>RECOMMENDED MITIGATION</b>
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 Limitations and Constraints of the study

The authors acknowledge that the brief literature review is not exhaustive on 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. Similarly, the depth of cultural deposits and the extent of heritage sites cannot be accurately determined due its subsurface nature. This report only deals with the footprint area of the proposed development and consisted of non-intrusive surface surveys. This study did not assess the impact on medicinal plants and intangible heritage as it is assumed that these components would have been highlighted through the public consultation process if relevant. 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

The population size of the Blouberg Municipality is 162 629.99% are black African, with white population being the second highest at 0,6% and coloureds are less than one hundred in number as per Census 2011 results. For every 100 women there are 86 men. Most of the people speak Sepedi as the first language at 89,5%, followed by IsiNdebele at 5,1% and Xitsonga at 2,6%. The other official languages make up 2,9%.

Only 1% of the population had tertiary education qualifications, 9% completed secondary education and 17% of the population had no schooling.

Economic drivers of the area include shopping centres, platinum and iron ore mining exploration, methane gas exploration as well as Venetia mine underground projects. These projects aim to grow the economy and reduce the unemployment rate in Blouberg municipality.

## 5 Results of Public Consultation and Stakeholder Engagement:

### 5.1.1 Stakeholder Identification

Adjacent landowners and the public at large were informed of the proposed activity as part of the BA process. Site notices and advertisements notifying interested and affected parties were placed at strategic points and in local newspapers as part of the process.

## 6 Literature / Background Study:

### 6.1 Literature Review (SAHRIS)

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). The study area is situated 12 km north of the town Swartwater based on existing studies for the area (Table 6) archaeological and/or historical sites, features or material culture are absent in the surrounding areas of Zwartberg Farm 72 MR (e.g., Pelsler & van der Walt 2020; 2021).

**Table 6. Previous Heritage and Archaeological impact assessments studies consulted for the compilation of this report**

Author	Year	Project	Findings
Pelsler, A.J.	2011	Desktop Heritage Assessment Study for prospecting rights application on various farms near Alldays in the Musina & Blouberg Magisterial Districts, Limpopo Province	Desktop study
Gaigher, S.	2012	Proposed Venetia Photovoltaic (PV) Concentrated Photovoltaic (CPV) Solar Energy facility Gotha Farm, Phase 1 (up to 100MW), near Alldays in the Limpopo Province	Not specified
Gaigher, S.	2013	Proposed Venetia Photovoltaic (PV) Concentrated Photovoltaic (CPV) Solar Energy facility Gotha Farm, Phase 1 (up to 100MW), near Alldays in the Limpopo Province. Revised Report	Not specified
Pelsler, A.J., van der Walt, J.	2020	Phase 1 HIA report for the Marnitz Kraal boreholes on portions of the farms Cochín-China 46LR, Bristol 17LR & Naples 35LR near Marnitz in the Limpopo Province	None
Roodt, F.	2020	Phase 1 heritage impact assessment of the proposed development of a township on the remaining extent of portion 4 of the Alldays 295 MS within Blouberg local municipality of Capricorn District.	None
Pelsler, A.J., van der Walt, J.	2021	Phase 1 HIA report for various exploration boreholes on the farms Neederland 45LR, Minorca 31LR & Yarmouth 152MR between Marnitz and Tolwe in the Limpopo Province.	None
van Schalkwyk, J.A.	2021	Phase 1 Cultural Heritage Impact Assessment: The proposed development of the Steamboat Graphite Mine on portions of the farms Steamboat 305-MR and Inkom 306-MR, Blouberg Local Municipality, Capricorn District, Limpopo Province.	Low number of MSA stone tools Single grave marked by circular stones (historic era) Historic mining area.

#### 6.1.1 Genealogical Society and Google Earth Monuments

No known grave sites are indicated in the study area.

### 6.2 Background to the general area



### 6.2.1 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 contains sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. For (CRM) purposes it is often only expected/ possible to identify the presence of the three main phases.

Yet sometimes the recognition of cultural groups, affinities or trends in technology and/or subsistence practices, as represented by the sub-phases or industrial complexes, is achievable (Lombard 2012). The three main phases can be divided as follows:

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

The archaeological and historical record is more prevalent within the nearby Blouberg area, Makgabeng Plateau and the Greater Mapungubwe landscape (e.g., Eastwood & Smith 2005; Bradfield et al. 2009; Forssman 2013).

It is possible, but unlikely that significant ESA or MSA lithic material will occur in the immediate study area. One of the closest known sites, is Kudu Koppie located within the Mapungubwe National Park well to the east of the study area. Other rock shelters of significance include, but are not limited to, Cave of Hearths and Olieboomspoor in the Waterberg to the south west. Archaeological research in the province demonstrate that the region was utilised since the ESA and throughout the MSA (e.g., Mason, 1962, 1988; Pollarolo et al. 2010).

The earliest evidence for LSA occupation is around 11 000 years ago at Balerno Main Shelter, also situated within the Greater Mapungubwe Landscape (van Doornum 2008). While archaeological excavations at Leholamogoa shelter indicates that hunter-gatherers have inhabited the Makgabeng plateau to the south since the last 2000 years until the onset of the 19<sup>th</sup> century (Bradfield et al. 2009). Ceramics first appear in the archaeological record of the Greater Mapungubwe Landscape about 1850 years ago (Hall & Smith 2000; van Doornum 2008; Forssman 2013). Prior to ca. 2000 years ago ceramics are absent from archaeological sequences in southern Africa (e.g., Sadr 2008). Thus, ceramics indicates contact between hunter-gatherers, with either Bantu-speaking farmers or possibly Khoekhoe herders. Archaeological evidence confirming the presence of herder communities is currently lacking, although their artwork is present in the region (e.g., Eastwood & Smith 2005).

### 6.2.2 The Iron Age

The Iron Age 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: Most of the first millennium AD.
- The Middle Iron Age: 10th to 13th centuries AD
- The Late Iron Age: 14th century to colonial period.

The Iron Age is characterised by the ability of these early people to manipulate and work Iron ore into implements that assisted them in creating a favourable environment to make a better living. As mixed farmers, Iron Age people usually lived in semi-permanent settlements consisting of pole-and-daga (mud mixed with dung) houses and grain bins arranged around a central area for cattle (Huffman, 1982). Usually, these settlements with the 'Central Cattle Pattern' (CCP) were sited near water and good soils that could be cultivated with an iron hoe.

The Middle Iron Age spans the 10th to the 13th Centuries A.D. and includes cultures such as K2 and Mapungubwe. The Late Iron Age began in the 14th Century up to the colonial period and includes traditions such as Icon and Letaba (Hutten 2015). The Limpopo Valley, particularly to the north-east of the study area, is well known for its Early and Middle Iron Age sites in the vicinity of the Shashe-Limpopo confluence and related Zhizo settlements spread to the north and west as the Toutswe culture (contemporary with K2, circa 1000 A.D.) of the Mahalapye-Palapye area of Botswana (Huffman 2007) and north of the study site.

Sotho/Tswana groups arrived in the region during the following century and the ceramic style was collectively named Moloko (Evers 1983). Huffman renamed the first phase of Moloko to the Icon facies. Sites with Icon type pottery extend north and south of the Soutpansberg and westwards across the study area and northwards into Botswana. Icon sites range from 1300 - 1450 AD.

The second phase of Moloko can be divided into the Letsibogo-, Madikwe- and Olifantspoort-facies of which the Letsibogo facies is most relevant to the study area ( $\pm$  1500 – 1700 AD). The Letsibogo facies is poorly documented but occurs along the Limpopo River to the west and south of the confluence with the Shashe (Huffman 2007). The western parts of Limpopo Province are known for large Sotho-Tswana sites that have been the focus of intensive archaeological investigations (Evers 1983; Mason 1986; Pistorius 1992, Hutten 2015).

The Ba Birwa settled in the region from the 1700's (Bonner & Carruthers 2003). The Ba-Tlokwa (from the east), Bagananwa (from the west and south) and Ndebele (from the north) had periodic influences on the Ba-Birwa from the study area through conflict, trade and intermarriage during the 18th and 19th Centuries. The Bagananwa group settled in the Blouberg region (to the east) during the early 1800's. The Bagananwa originated from the earlier Bahurutshe chiefdom further to the south (Rustenburg/Zeerust). After their split with the Bahurutshe these people moved to Shoshong and then to Tshwapong in Botswana (Bonner & Carruthers 2003).

### 6.2.3 Historical Information

The first Europeans to reside close by the study area was Coenraad de Buys and his family. Between 1815 and 1825, de Buys stayed in the Blouberg area, until he moved to the Soutpansberg in 1825. During the late 1840s, after the town of Schoemansdal was established and more Europeans traversed the region, a Berlin Missionary Society was established at Blouberg in 1860, and shortly after at Makgabeng. At first relations between the locals and settlers were cordial, but as colonial rule became geographically closer to the Hananwa, settler demands for land, labour, livestock and taxes increased. Being on the periphery of the ZAR colonial domain, the Hananwa were mindful of their political independence. Chief Matseokwane gained political dominance over a large area of what is now Limpopo Province. As a result of his prominence, the local Hananwa were perceived to be a threat by the ZAR government. Mainly because of the supposed risk posed by an independent community, but also for other reasons, such as the non-payment of taxes and the refusal by the Hananwa to move to another location, ultimately culminated in the Maleboho War of 1894. Soon after the South African War (1899-1902) followed, which led to formal British administration of the area (van Schalkwyk 1995; Makhura 1997; de Jongh 2004; van Schalkwyk & Smith 2004).

With regards to modern history that had a socio-political impact on the area, the South African Union was formed in 1910, soon after World War I (1914-1918) broke out, followed by World War II (1939-1945). These events led to urbanisation along with socio-economic and political change within South Africa, that eventually resulted in the modern-day South Africa (Giliomee & Mbenga 2007).

### **6.3 Graves and Burial Sites**

No known graves are indicated on databases consulted but graves and cemeteries are widely distributed across the landscape and can be expected anywhere. During the site visit Mr Adriaan de Beer was consulted and he indicated the presence of two graves to the north and outside of the study area. These graves are located well away from the impact area and not further described here.

## **7 Description of the Physical Environment**

The proposed developments are situated on the farm Zwartberg 72 MR, ±120 km north-west from Blouberg Local Municipality, between the R572 and the Limpopo River and can be accessed via the district road along the river, in Capricorn District of the Limpopo Province. The surrounding areas is primarily for game, cattle, and crop farming. According to Mucina & Rutherford (2006), the study area is situated in the Central Bushveld Bioregion with Sweet Bushveld (SVcb19) vegetation and Ecological Status is Least Threatened. The project area is located inland from the Limpopo River. The study area consists of large sections that have been disturbed by historical cultivation activities. Uncultivated areas are characterised by various small trees, shrubs and tall grass that limits heritage visibility. The study area is covered in a thick layer of reddish sandy soil with exposed calcrete outcrops. interspersed calcrete outcrops that are exposed above the sandy layer. Figure 7.1 to 7.4 illustrate the general site conditions.



Figure 7.1. Vegetation surrounding cultivated fields.



Figure 7.2. General site conditions with historical cultivation visible.



Figure 7.3. Bush clearing next to existing cultivated fields.



Figure 7.4. Calcrete outcrops in the study area.

## 8 Findings of the Survey

### 8.1 Heritage Resources

Large sections of the study area are disturbed from a heritage perspective by farming activities (most notably cultivation) and heritage finds were limited to isolated finds and low density scatters (> 1 per 4m<sup>2</sup>) of MSA artefacts. The lithics are made from a variety of raw material ranging from igneous and metamorphic rocks, the latter represented by a high frequency of quartzite. The study area is marked by Quaternary sands and soils (more than a meter thick) with a few calcrete outcrops and it is at these locations were the lithics were recorded. These finds are classified as background scatter (Orton 2016) and are generally speaking of low significance. In addition one ephemeral Late Iron Age site was recorded that has been impacted on by cultivation. Stylistically the single decorated pot shard show strong affinity with the Letsibogo ceramic *facies* ( $\pm$  1500 – 1700 AD). The Letsibogo *facies* has been poorly documented (Huffman

2007), and this feature is one of very few known Iron Age sites within the broader area. The site is located on a small, elevated area marked by shallow sand cover on top of the calcrete substrata. The lack of features and material cultural at this site suggest that this site could have been a seasonal cattle post. Repeated ploughing and planting over the site altered the 600mm of soil on top of the calcrete and very little is exposed in this disturbed matrix. With the shallow topsoil disturbed very little if any anthropogenic deposit remains and the site is from a research perspective of low significance. General site conditions, site distribution and selected artefacts are illustrated in Figure 8.1 – 8.9). Recorded observations are briefly described in Table 7.

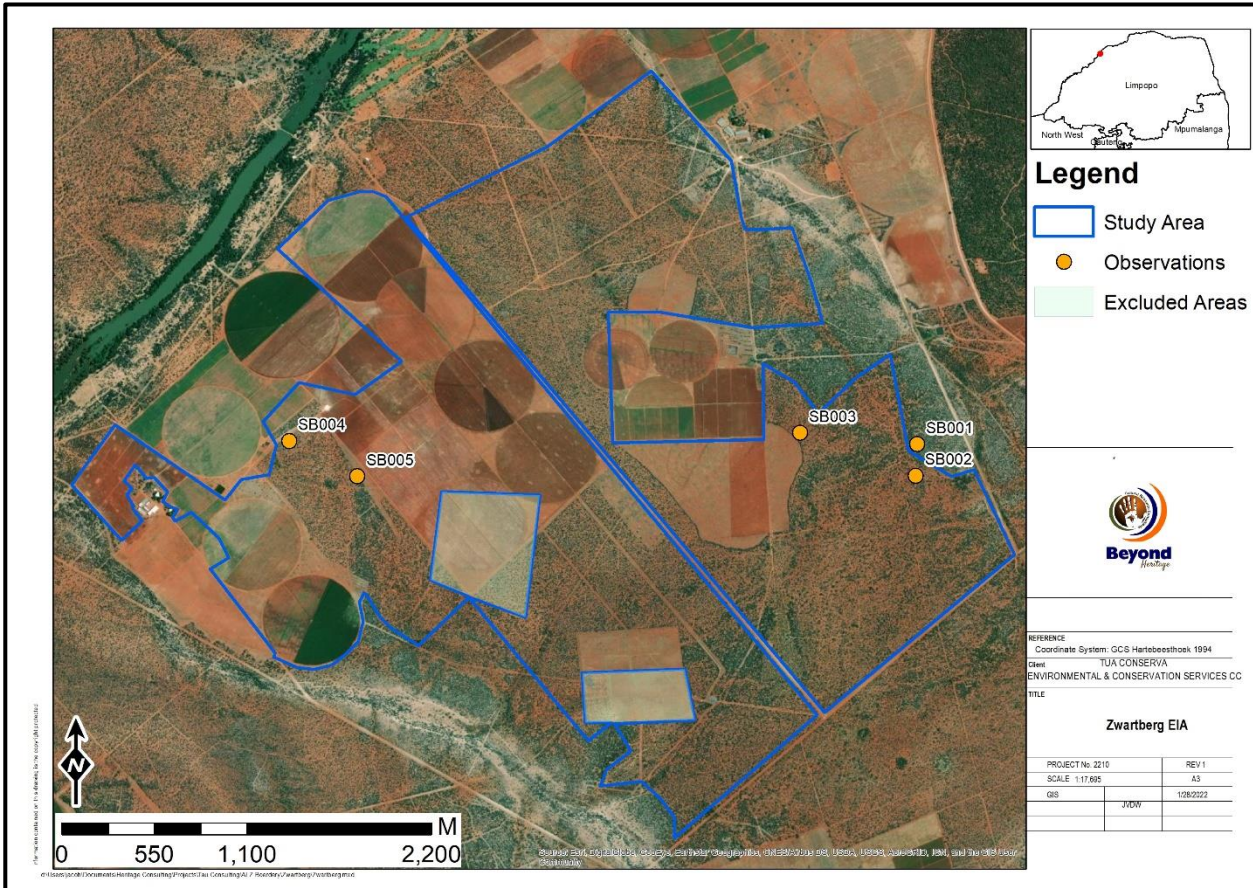


Figure 8.1. Site distribution map.

Table 7. Sites recorded in the study area.

Label	Location	Type Site	Description	Significance and Field Rating
SB001	-22.8090034, 28.1503973	Stone Age Findspot	Small assemblage of MSA flakes with no formal tools. Artifacts are made on igneous material with artefact density less than 1 per 4m <sup>2</sup> . The artefacts are located where the calcrete substrate protrudes through the quaternary sand cover.	Low Significance GP C
SB002	-22.8106444, 28.1505803	Stone Age Findspot	A single MSA flake located on the reddish topsoil.	Low Significance GP C
SB003	-22.8083957, 28.144002	Stone Age Findspot	Small scatter of MSA flakes and a blade core on Quartzite exposed by a quarry.	Low Significance GP C
SB004	-22.8088152, 28.1167497	Iron Age Site	A general scatter of isolated ceramics were identified on a slightly elevated area within an agricultural field measuring 12 meters in diameter. The ceramics show evidence of burnish and red ochre. One decorated piece was noted consisting of lines of punctates separating bands with red ochre and black burnish.	Medium Significance GP B
SB005	-22.8107289691 28.1203809846	Stone Age Find Spot	Isolated Stone Age artefacts.	Low Significance GP C



Figure 8.2. Dorsal and ventral views of artefacts recorded at SB001.



Figure 8.3. Isolated MSA flake at SB002.



Figure 8.4. Flakes and blade core recorded at SB003.



Figure 8.5. Quartzite pebble with a single removal at SB003.



Figure 8.6. General view of SB004.



Figure 8.7. Collection of all the visible ceramics at SB004.



Figure 8.8. Decorated pieces at SB004 consisting of lines of punctates separating red and black bands.



## 8.2 Cultural Landscape

The cultural landscape of the region is a rural area that is marked by extensive by agricultural activities. Historically the study area was cultivated from at least the 1960's that intensified over the years included infrastructure like gravel tracks, roads and fences (Figure 8.9 to 8.12).

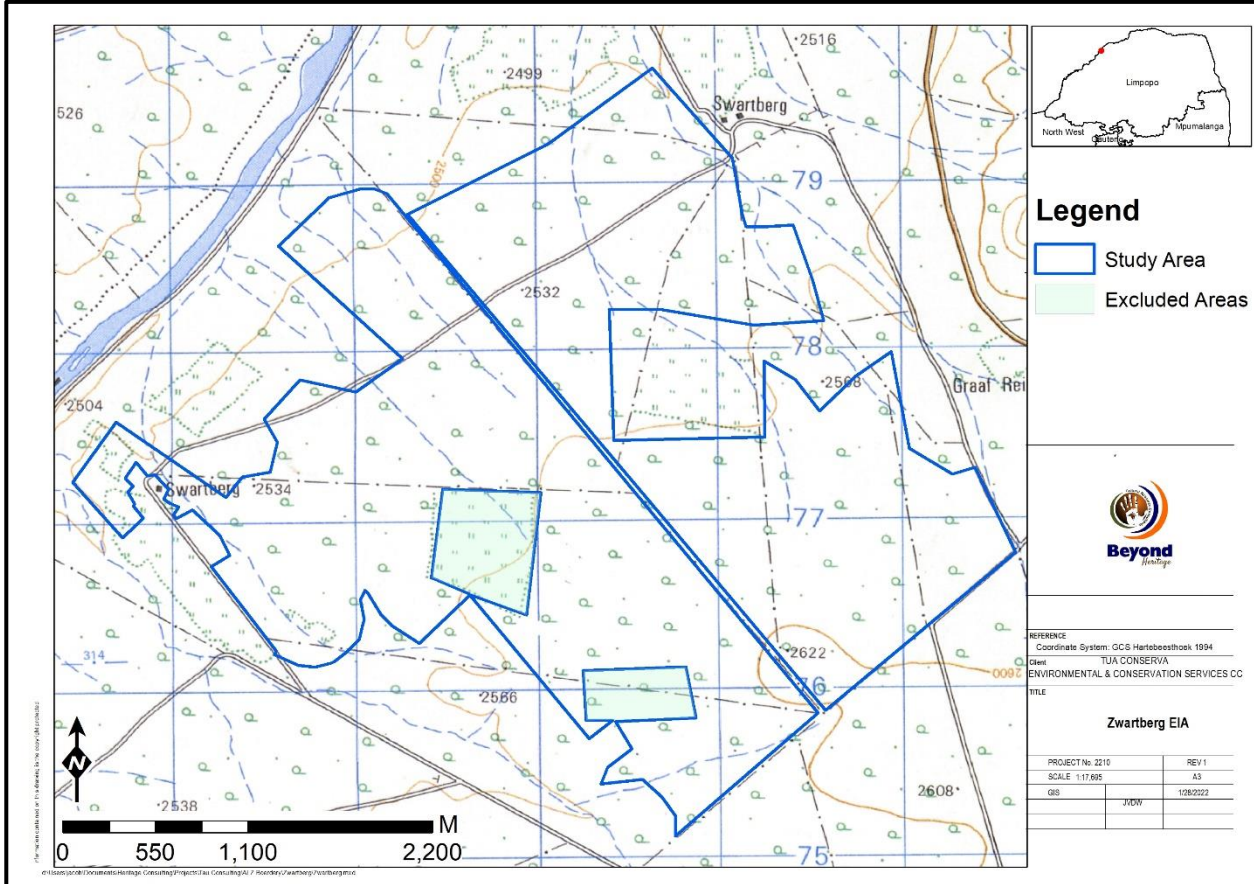


Figure 8.9. 1961 Topographic map of the study area. Cultivation was practised with sparse settlement of the area.

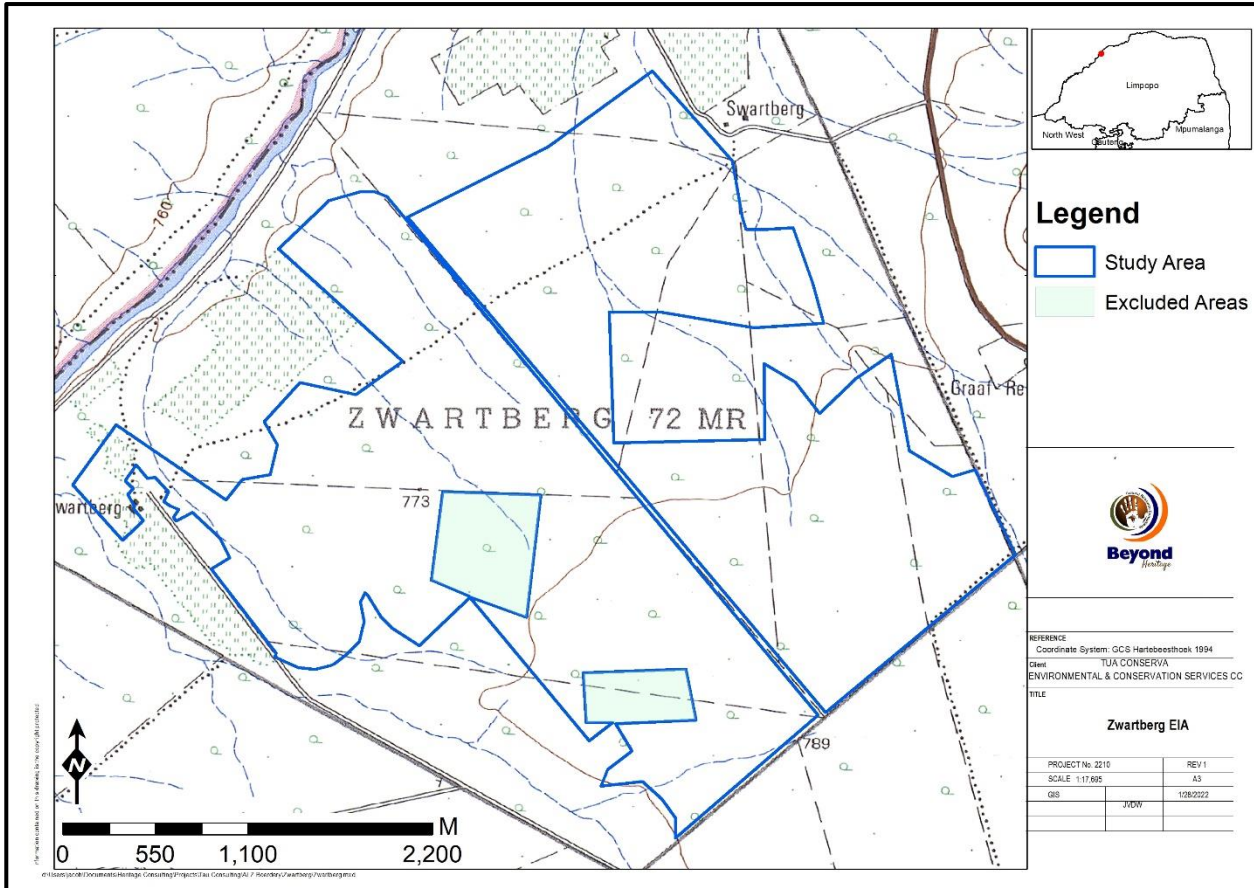


Figure 8.10. 1983 Topographic map of the study area indicating numerous tracks and new cultivated fields with a new farmstead outside of the study area.

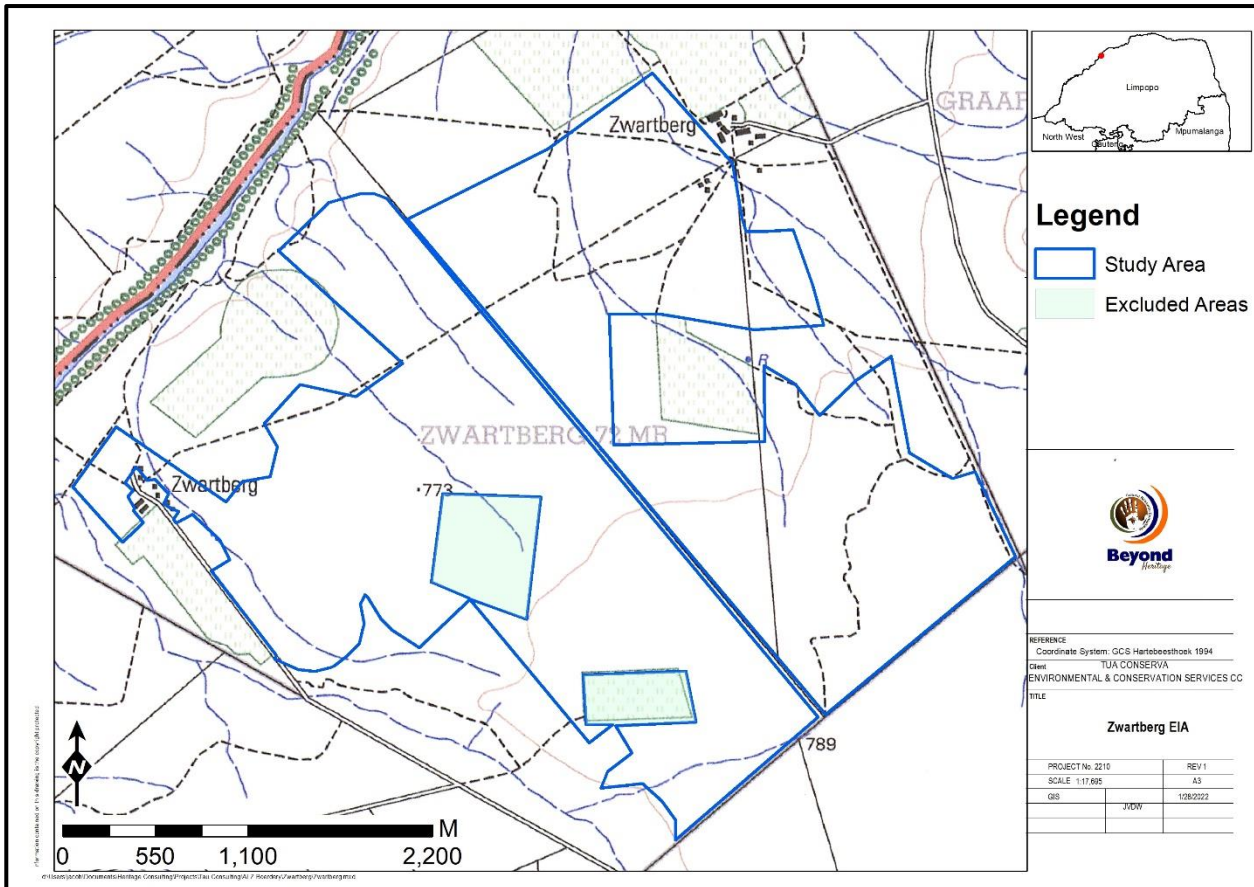


Figure 8.11. 1999 Topographic map of the study area. Intensification of settlement and farming activities is evident.

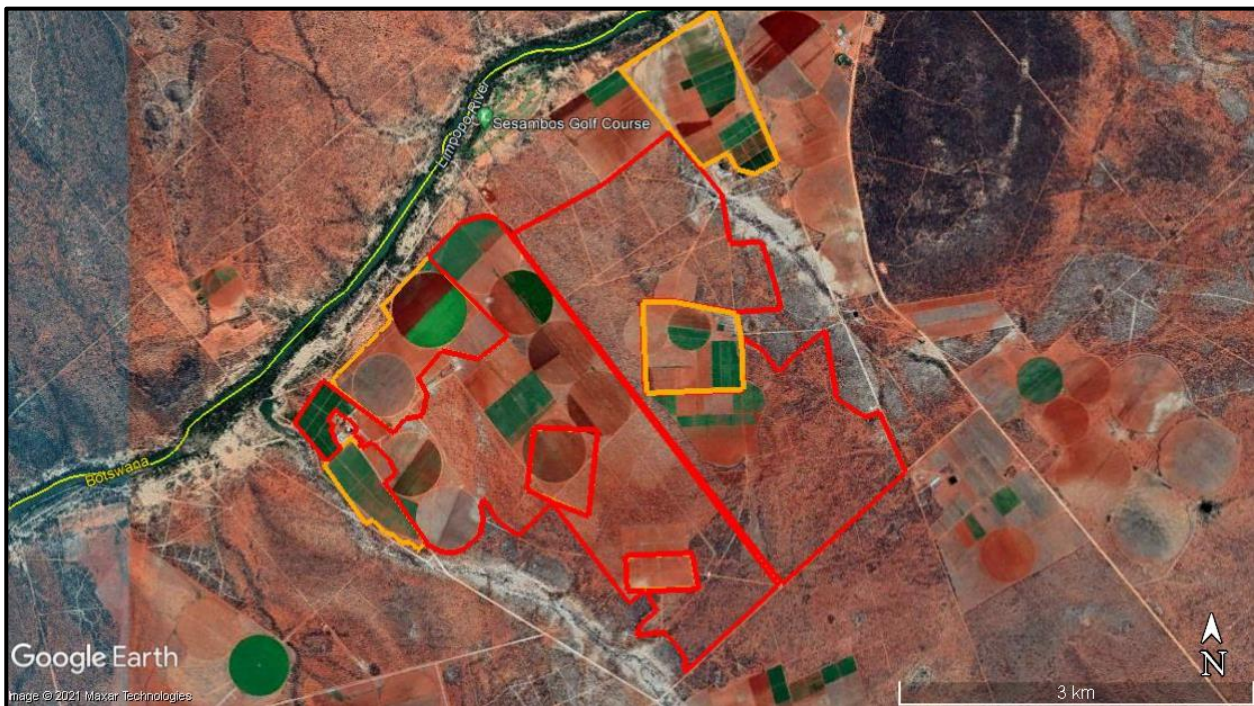


Figure 8.12. 2020 Google Earth image of the study area showing extensive cultivation.

### 8.3 Paleontological Heritage

Based on the SAHRA Paleontological map the study area is of moderate sensitivity an independent study was conducted for this aspect (Figure 8.13). Bamford (2022) concluded that it is extremely unlikely that any fossils would be preserved in the Quaternary sands and soils that will be cleared of indigenous vegetation for agricultural developments so the impact on the palaeontological heritage would be very low.



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 8.13. Paleontological sensitivity of the study area as indicated on the SAHRA Palaeontological sensitivity map.

## 9 Potential Impact

Impacts to heritage resources without mitigation within the project footprint will be permanent and negative and occur during the vegetation clearing and initial cultivation. The recorded Stone Age scatters (SB001, SB002, SB003 and SB005) are out of context and scattered too sparsely to be of significance and the impact on these observations is low. The Letsibogo Iron Age site (SB004) has been disturbed by previous cultivation activities and with the shallow topsoil disturbed very little if any anthropogenic deposit remains and the site is from a research perspective of low significance. The impact has already occurred and continued cultivation will not result in further impact.

Cumulative impacts considered as an effect caused by the proposed action that results from the incremental impact of an action when added to other past, present, or reasonably foreseeable future actions. (Cornell Law School Information Institute, 2020). Cumulative impacts occur from the combination of effects of various impacts on heritage resources. The importance of identifying and assessing cumulative impacts is that the whole is greater than the sum of its parts. In the case of this project, impacts can be mitigated to an acceptable level. However, this and other projects in the area can have a negative impact on Iron Age sites in the area where these sites have been destroyed unknowingly. Additional impacts can be successfully mitigated with the implementation of a chance find procedure (Table 8 and 9).

### 9.1.1 Impact Assessment for the Project

Table 8. Impact assessment of the proposed project on Heritage resources

<b>Nature:</b> During the construction phase 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.		
	<b>Without mitigation</b>	<b>With mitigation (Preservation/excavation of site)</b>
<b>Extent</b>	Local (2)	Local (2)
<b>Duration</b>	Permanent (5)	Permanent (5)
<b>Magnitude</b>	Minor (2)	Minor (2)
<b>Probability</b>	Probable (3)	Probable (3)
<b>Significance</b>	<b>27 (Low)</b>	<b>27 (Low)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Not reversible	Not reversible
<b>Irreplaceable loss of resources?</b>	Yes	Yes
<b>Can impacts be mitigated?</b>	NA	NA
<b>Mitigation:</b>		
<ul style="list-style-type: none"> <li>Stone Age find spots (Sites SB 001 – 003 and 005) are made up of sparsely scattered Stone Age artefacts, the artefacts are out of context and of no significance apart from mentioning it in this report.</li> <li>It is recommended that if any artefacts (e.g., bone, ceramics) is uncovered in the area where SB004 is located all operations must be stopped, and an archaeologist must be contacted to assess the find.</li> <li>Implementation of a chance find procedure for the project.</li> </ul>		
<b>Cumulative impacts:</b>		
Other authorised projects (e.g., agricultural projects) in the area could have a cumulative impact on the heritage landscape. The added impact of the Zwartberg project is seen as low to medium as the developments are in line with surrounding land use, therefore minimising additional impacts on the cultural landscape although historical activities have impacted on Iron age sites. The impact on physical heritage sites is considered to be low as no sites of significance will be impacted on by new developments.		
<b>Residual Impacts:</b>		
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.		

## 10 Conclusion and recommendations

Large sections of the study area are disturbed from a heritage perspective by farming activities, most notably cultivation that was practised from the 1960's (Figure 8.9) and heritage finds were limited to Stone Age find spots and an ephemeral Later Iron Age site. The Stone Age findspots consists of isolated finds and low density scatters (> 1 per 4m<sup>2</sup>) of MSA artefacts. The lithics are made from a variety of raw material ranging from igneous and metamorphic rocks, the latter represented by a high frequency of quartzite. The study area is marked by Quaternary sands and soils (on average more than a meter thick) with a few calcrete outcrops and it is at these locations were the lithics were recorded. These finds are classified as background scatter (Orton 2016) and are generally speaking of low significance.

The Late Iron Age site has been impacted on by cultivation and is located on a small elevated area marked by shallow sand cover on top of the calcrete substrata. The site is marked by a handful of undecorated ceramics although two decorated pieces was noted. Stylistically the decorated pot shards show strong affinity with the Letsibogo ceramic *facies* ( $\pm$  1500 – 1700 AD). The Letsibogo facies has been poorly documented (Huffman 2007) in the area, and this feature is one of very few known Iron Age sites within the broader area. The lack of features and material cultural at this site suggest that this site could have been a seasonal cattle post. Repeated ploughing and planting over the site altered the 600mm of soil on top of the calcrete substrata and very little material culture is exposed in this disturbed matrix. With the shallow topsoil extensively disturbed very little if any anthropogenic deposit remains and the site is from a research perspective of low significance.

The area is of moderate paleontological sensitivity an independent study was conducted for this aspect by Prof Marion Bamford. The study concluded that it is extremely unlikely that any fossils would be preserved in the Quaternary sands and soils that will be cleared of indigenous vegetation for agricultural developments so the impact on the palaeontological heritage is considered very low.

The impact of the proposed project on heritage resources is considered low and it is recommended that the proposed project can commence on the condition that the following recommendations are implemented as part of the EMPr, based on approval from SAHRA:

### 10.1 Recommendations for condition of authorisation

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

#### Recommendations:

- Implementation of a chance find procedure for the project in the EMP'r as outlined below;.
- It is recommended that if any artefacts (e.g., bone, ceramics) is uncovered in the area where SB004 is located all operations must be stopped, and an archaeologist must be contacted to assess the find.

## **10.2 Chance Find Procedures**

### **10.2.1 Heritage Resources**

The possibility of the occurrence of subsurface finds cannot be excluded. Therefore, if during construction 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 therefore 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 requirements for this procedure are included in Section 10.5.

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.

### **10.3 Reasoned Opinion**

The overall impact of the project is considered to be low 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.

### **10.4 Potential risk**

Potential risks to the proposed project are the occurrence of intangible features, subsurface cultural material and unrecorded cultural resources (of which graves are the highest risk). This can cause delays during cultivation, as well as additional costs involved in mitigation, as well as possible no go areas.



### 10.5 Monitoring Requirements

General monitoring can be conducted by the Environmental Officers (EO). The EO 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.
- *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 the initial soil removal and subsequent earthworks during construction. The EO should monitor all such activities daily. If any heritage resources are found, the chance finds procedure must be followed as outlined above.

Monitoring requirements is outlined in Table 9.

**Table 9.** Heritage monitoring for the project

Heritage Monitoring					
Aspect	Area	Responsible for monitoring and measuring	Frequency	Proactive or reactive measurement	Method
Clearing activities and cultivation activities	Entire project area	EO/ Developer	Ongoing	Proactively	<ul style="list-style-type: none"> <li>• If risks are manifested (accidental discovery of heritage resources) the chance find procedure should be implemented:               <ol style="list-style-type: none"> <li>1. Cease all works immediately;</li> <li>2. Report incident to the Sustainability Manager;</li> <li>3. Contact an archaeologist/ palaeontologist to inspect the site;</li> <li>4. Report incident to the competent authority; and</li> <li>5. Employ reasonable mitigation measures in accordance with the requirements of the relevant authorities.</li> </ol> </li> </ul>

Heritage Monitoring					
Aspect	Area	Responsible for monitoring and measuring	Frequency	Proactive or reactive measurement	Method
					<ul style="list-style-type: none"> <li>• Only recommence operations once impacts have been mitigated.</li> </ul>
Clearing activities and construction	SB004	EO	Weekly (Preconstruction and construction phase)	Proactively	<ul style="list-style-type: none"> <li>• Ensure no encroaching occurs at the site;</li> <li>• Measure levels of change and compare with recorded baseline conditions;</li> <li>• Status quo will be recorded through photographs; and;</li> <li>• Results will be reported in the progress reporting.</li> </ul>

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**10.6 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)
<b>General project area</b>	Implement chance find procedures in case possible heritage finds are uncovered	Ongoing	Throughout the project	Applicant EAP	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35, 36 and 38 of NHRA	EO Checklist/Report

### **10.7 Knowledge Gaps**

Due to the subsurface nature of heritage resources, the possibility of discovery of heritage resources during the course of the project cannot be excluded. This limitation is successfully mitigated with the implementation of a chance find procedure.

## 11 References

- Bradfield, J., Holt, S. & Sadr, K. 2009. The last of the LSA on the Makgabeng Plateau, Limpopo Province. *South African Archaeological Bulletin* 64: 176-83.
- De Jongh, M. 2004. The Buysdorp conundrum: Constructing and articulating community and identity in Soutpansberg, Limpopo Province. *Anthropology Southern Africa* 27: 86-91.
- Eastwood, E., Van Schalkwyk, J. & Smith, B.W. 2002. Archaeological and rock art survey of the Makgabeng plateau, central Limpopo basin. *The Digging Stick* 19: 1-3.
- Eastwood, E.B. & Smith B.W. 2005. Fingerprints of the Khoekhoen: geometric and handprinted rock art in the Central Limpopo Basin, southern Africa. *South African Archaeological Society Goodwin Series* 9: 63-76.
- Forsman, T. 2013. Missing pieces: Later Stone Age surface assemblages on the greater Mapungubwe landscape, South Africa. *Southern African Humanities* 25: 65-85.
- Giliomee, H. Mbenga, B. 2007. *New history of South Africa*. Cape Town: Tafelberg Publishers.
- Hall, S.L. & Smith, B. 2000. Empowering places: Rock shelters and ritual control in farmer-forager interactions in the Northern Province. *The South African Archaeological Society Goodwin Series* 8: 30-46.
- Huffman, T.N. 2007. *Handbook to the Iron Age: The archaeology of pre-colonial farming societies in southern Africa*. Pietermaritzburg: University of KwaZulu-Natal Press.
- Huffman, T.N., 1982. Archaeology and ethnohistory of the African Iron Age. *Annual Review of Anthropology* 11, 133-50.
- Huffman, T.N., Van der Walt, J. 2011 Final Mafuta Heritage Report A field study prepared for Environmental Resources Management, Sasol Technology, SRK Consulting and Sustainable Environmental Solutions
- Hutton, M. 2012. Heritage Impact Assessment for the Tom Burke Solar development.
- Hutton, M. 2015. Heritage Impact Assessment for the Proposed Township Development at Tom Burke, Lephalale Local Municipality, Limpopo Province.
- Makhura, T. J. 1997. Mercenaries and Missionaries in the Boer Subjugation of the Bagananwa in the Northern Transvaal, 1894-1895. *South African Historical Journal* 36: 193-219.
- Mason, R.J. 1962. *Prehistory of the Transvaal*. Witwatersrand University Press, Johannesburg.
- Mason, R.J. 1988. Cave of Hearths, Makapansgat, Transvaal. Occasional Paper No. 21. Archaeological Research Unit, University of the Witwatersrand.
- Pollarolo, L., Wilkins, J., Kuman, K. & Galetti, L. 2010. Site formation at Kudu Koppie: A late Earlier and Middle Stone Age site in northern Limpopo Province, South Africa. *Quaternary International* 216: 151-161.
- Sadr, K. 2008. Invisible herders? The archaeology of Khoekhoe pastoralists. *Southern African Humanities* 20: 179-203.
- Pelser, A.J. & van der Walt, J. 2020. Phase 1 HIA report for the Marnitz Kraal boreholes on portions of the farms Cochin-China 46LR, Bristol 17LR & Naples 35LR near Marnitz in the Limpopo Province.
- Pelser, A.J. & van der Walt, J. 2021 Phase 1 HIA report for various exploration boreholes on the farms Neederland 45LR, Minorca 31LR & Yarmouth 152MR between Marnitz and Tolwe in the Limpopo Province.
- van Doornum, B.L. 2008. Sheltered from change: hunter-gatherer occupation of Balerno Main Shelter, Shashe-Limpopo confluence area, South Africa. *Southern African Humanities* 20: 249-84.
- van Schalkwyk, J.A. 1995. Ideologie en die konstruksie van'n landelike samelewing: 'n Antropologiese studie van die Hananwa van Blouberg. Unpublished PhD Dissertation: Pretoria: University of South Africa.
- van Schalkwyk, J.A. 2000. Excavation of a Late Iron Age site in the Makgabeng, Northern Province. *Southern African Field Archaeology* 9: 75-82.
- van Schalkwyk J.A. & Smith B.W. 2004. Insiders and Outsiders: Sources for Reinterpreting a Historical Event. In: Reid A.M., Lane P.J. (eds) *African Historical Archaeologies. Contributions to Global Historical Archaeology* pp: 325-346. Springer: Boston.
- Wits Archaeological Database (2009)
- Bamford, M., 2021. Palaeontological Impact Assessment for the proposed Filling Station and services on Farm Marnitzkraal 54LR, Lephalale Local Municipality, Limpopo Province