



PHASE 1 ARCHAEOLOGICAL DESKTOP STUDY FOR THE PROPOSED DEVELOPMENT OF MALEBOGO TOWNSHIP

PROPOSED DEVELOPMENT FOR THE MALEBOGO TOWNSHIP, MALEBOGO EXT 2: ERVEN 1174 AND 1175 AND ERF 2233 MALEBOGO EXT 9 (PARK), MALEBOGO EXT 3: ERF 1315 & 1316; ERF 1316 (PARK), HERTZOGVILLE, TOKOLOGO LOCAL MUNICIPALITY, LEJWELEPUTSWA DISTRICT MUNICIPALITY, FREE STATE.

PREPARED FOR:

LEFATSE Environmental Planning Services (PTY) Ltd

PREPARED BY:

SKY-LEE FAIRHURST & HEIDI FIVAZ

JAN ENGELBRECHT

UBIQUE HERITAGE CONSULTANTS

30 AUGUST 2021

Web: www.ubiquecrm.com

Mail: info@ubiquecrm.com

CSD Supplier Number MAAA0586123

Client: LEFATSE Environmental Planning Services (PTY) Ltd

Contact Person: Hanri van Jaarsveld
E-mail: hanri@lefatsegroup.co.za
www.lefatsegroup.co.za

Heritage Consultant: UBIQUE Heritage Consultants
www.ubiquecrm.com
info@ubiquecrm.com

Contact Person: Jan Engelbrecht (archaeologist and lead CRM specialist)
Member of the Association of Southern African Professional
Archaeologists: Member number: 297
Email: jan@ubiquecrm.com

Heidi Fivaz (archaeologist)
Member of the Association of Southern African Professional
Archaeologists: Member number: 433
Email: heidi@ubiquecrm.com

Sky-Lee Fairhurst (archaeologist)
Application for Membership Pending for Association of Southern African
Professional Archaeologists.
Research Assistant
Email: sky@ubiquecrm.com

Declaration of independence:

We, Jan Engelbrecht and Heidi Fivaz, partners of UBIQUE Heritage Consultants, hereby confirm our independence as heritage specialists and declare that:

- we are suitably qualified and accredited to act as independent specialists in this application;
- we do not have any vested interests (either business, financial, personal or other) in the proposed development project other than remuneration for the heritage assessment and heritage management services performed;
- the work was conducted in an objective and ethical manner, in accordance with a professional code of conduct and within the framework of South African heritage legislation.



Signed:

J.A.C. Engelbrecht, H. Fivaz & S. Fairhurst
UBIQUE Heritage Consultants

Date: 2021-08-29

Copyright: This report is confidential and intended solely for the use of the individual or entity to whom it is addressed or to whom it was meant to be addressed. It is provided solely for the purposes set out in it and may not, in whole or in part, be used for any other purpose or by a third party, without the author's prior written consent.

SUMMARY OF SPECIALIST EXPERTISE

JAN ENGELBRECHT

CRM ARCHAEOLOGIST

Jan Engelbrecht is accredited by the Cultural Resources Management section of the Association of Southern African Professional Archaeologists (ASAPA) to undertake Phase1 AIAs and HIAs in South Africa. He is also a member of the Association for Professional Archaeologists (ASAPA). Mr Engelbrecht holds an honours degree in archaeology (specialising in the history of early farmers in southern Africa (Iron Age) and Colonial period) from the University of South Africa. He has 12 years of experience in heritage management. He has worked on projects as diverse as the Zulti South HIA project of Richards Bay Minerals, research on the David Bruce heritage site at Ubombo in Kwa-Zulu Natal, and various archaeological excavations and historical projects. He has worked with many rural communities to establish integrated heritage and land use plans and speaks Zulu fluently. Mr Engelbrecht established Ubique Heritage Consultants in 2012. The company moved from KZN to the Northern Cape and is currently based at Askham in the Northern Cape within the Mier local municipality in the Kgalagadi region. He had a significant military career as an officer, whereafter he qualified as an Animal Health Technician at Technikon RSA and UNISA. He is currently studying for his MA Degree in Archaeology.

HEIDI FIVAZ

ARCHAEOLOGIST & OBJECT CONSERVATOR

Heidi Fivaz has been a part of UBIQUE Heritage Consultants since 2016 and took over ownership in 2018. She is responsible for project management, surveys, research and report compilation. She holds a B.Tech. Fine Arts degree (2000) from Tshwane University of Technology, a BA Culture and Arts Historical Studies degree (2012) from UNISA and received her BA (Hons) Archaeology in 2015 (UNISA). She has received extensive training in object conservation from the South African Institute of Object Conservation and specialises in glass and ceramics conservation. She is also a skilled artefact and archaeological illustrator. Ms Fivaz was awarded her MA in Archaeology (with distinction) in 2021 by the University of South Africa (UNISA), focusing on historical and industrial archaeology. She is a professional member of the Association of South African Archaeologists and has worked on numerous archaeological excavation and surveying projects over the past ten years.

SKY-LEE FAIRHURST

ARCHAEOLOGIST

Sky-Lee Fairhurst has been informally part of UBIQUE Heritage Consultants since 2019. She is responsible for research, desktop studies, report compilation and surveys. Miss Fairhurst obtained her BA in Archaeology and Biblical archaeology in 2016 and her BA Hons in Archaeology (*cum laude*) at the University of South Africa (UNISA) in 2018, focussing on research themes such as gender, households and Late Iron Age settlements. She is currently pursuing her interest in southern African agropastoral societies as an MA Archaeology student at the University of South Africa (UNISA). She is skilled at artefact and archaeological illustrations. Over the past nine years, she has obtained considerable excavation experience and has worked on various sites, including Historical, Iron Age sites and Palaeontological.

EXECUTIVE SUMMARY

Project description

UBIQUE Heritage Consultants were appointed by LEFATSE Environmental Planning Services (PTY) Ltd as independent heritage specialists to conduct a cultural heritage desktop assessment in accordance with Section 38 of the NHRA and the National Environmental Management Act 107 of 1998 (NEMA) and to determine the possibility of heritage and archaeological resources within the proposed development areas Malebogo EXT 2: Erven 1174 and 1175 and erf 2233 Malebogo Ext 9 (Park), and Malebogo Ext 3: Erf 1315 & 1316; Erf 1316 (Park), which are earmarked for the proposed township development of the Malebogo township, Hertzogville, Tokologo Local Municipality, Lejweleputswa District Municipality, Free State.

Findings of Heritage Desktop Study

The study area has been subject to various anthropogenic disturbances. Informal housing, continuous development and movement through the proposed infill areas mean that the study areas are unlikely to produce any in-situ heritage resources.

The HIA Desktop Study has found that no Heritage or Archaeological Impact Assessments have been undertaken in or directly adjacent to the proposed development areas. However, heritage sites and resources ranging from low to high significance have been documented on the periphery of a 15-100 km radius from the study area. These sites provide the data necessary to anticipate the heritage resources and probable significance that might accompany any projected heritage resource.

The background study revealed that the majority of the documented lithic material is of low and medium significance. These sites are predominantly open-air sites with low-density surface scatters or isolated occurrences. Due to the proposed development areas being situated within the town and the previous and current informal occupation and surface disturbance, any above ground lithic material would likely be out of context. Therefore, it is considered that the occurrence of lithic material within the development areas is low. However, the possibility of open-air Stone Age sites/occurrences in the development area should not be disregarded.

Several rock-art sites have been recorded southeast and southwest of the study area, all of which are further than 50 km from the proposed development footprint. Rock art, specifically engravings, may be present in open-air rocky outcrop sites. The possibility of rock art or engravings at the proposed development areas are considered to be very low.

Iron Age sites have been recorded approximately 155 km east of the proposed development area. This suggests that the likelihood of such sites being present in the development area is low.

Archaeological traces of historical/colonial era features and artefacts attributed to regional colonial farming and settlement history and the Anglo-Boer War have been recorded in the wider region, specifically to the south, southwest, and southeast. The town was established and occupied

during the early 1900s. Thus, colonial-era material and features (such as middens, artefacts and structural features) within the development areas are considered probable. However, due to the previous and current informal occupation and surface disturbance, any above ground colonial material would likely be out of context.

The probability of graves and burials are low. However, the likelihood of graves and burials should not be disregarded since graves, and informal cemeteries can be expected anywhere in the landscape. For example, family cemeteries can be anticipated close to farmsteads, while informally marked graves containing fieldstone cairns and headstones may be found in the veldt.

Recommendations

A range of heritage sites occurs in the wider region. Every site is relevant to the Heritage Landscape, but it is projected that only a few sites in the study area could have conservation value. This recommendation is based on studies undertaken in the broader area of the proposed infill township development properties. The following conclusions apply:

1. Due to the disturbed nature of the study area, we recommend that the project be exempt from a complete AIA study with field assessment. This is, however, subject to agreement by the South African Heritage Resources Agency.
2. The scoping study has revealed that several Stone Age occurrences/sites have been recorded in the region. No studies have been conducted on the earmarked properties. The probability of open-air Stone Age occurrences on the properties is low. It is also likely that any surface Stone Age occurrences would be out of context since the proposed development areas have been subjected to informal occupation and surface disturbance (such as footpaths).
3. Very few sites relating to the Iron Age have been recorded in the vicinity of the proposed township development. IA sites are not uncommon in the area. However, it is improbable that IA sites/artefacts are present at the proposed development sites.
4. Various colonial/historical era structures and features have been recorded in a ± 50 km radius of the development area that represents the region's regional colonial farming, mining, and Anglo-Boer war history. No studies have been conducted on the property. One site recorded historical rectangular stone wall features approximately 15 km south-southeast of the development. The town of Hertzogville was established in the early 1900s. Therefore, any structures and features (such as middens) dating to this period would likely be significant. However, surface archaeological material in the study area would likely be out of context. It is recommended that if any such features relating to the historical/colonial era are discovered during development, that a specialist should be contacted immediately to confirm their presence and to ensure that the proper mitigation measures are taken.
5. Formal and informal graveyards, as well as pre-colonial graves, occur widely across southern Africa. It is commonly recommended that these sites are preserved from development. Any graveyard(s), grave(s) or burial(s) would likely be of High Local Significance. The presence of any grave sites must be confirmed during a field survey and

public consultation. Should any graves or burial sites be present on-site, it is recommended that any graves be fenced off with a 50 m buffer/safety zone. A field survey must be completed to ensure that all graves in the area are recorded and that the correct mitigation measures are implemented. Should it be impossible to avoid graveyard(s), grave(s) or burial(s) sites during development, mitigation in the form of grave relocation could be undertaken. This is, however, a lengthy and costly process. Grave relocation specialists should be employed to manage the liaison process with the communities and individuals who by tradition or familial association might be interested in these graves or burial grounds and manage the permit acquisition from the SAHRA Burial Ground and Graves (BGG) Unit.

6. Limitations of this Desktop Scoping report are determined by the amount of information available on the South African Heritage Resources Information System (SAHRIS) and the clarity of satellite imaging. Surface or sub-surface archaeological sites, graves and informal cemeteries could be directly impacted during the proposed township development. This Desktop Scoping report represents an estimation of the probability of heritage sites/artefacts located on/near the development footprint, based on available data. Due to the lack of previous Heritage Assessments within the area, the probability of archaeological occurrences in the development area is considered high. However, it is also likely that the surface occurrences would be out of context due to the current conditions of the proposed development areas. A visual guide or rudimentary Chance Finds Protocol has been developed for this project. It is recommended that the developer refers to it during development.
7. Hidden or sub-surface sites may exist in the area. We recommend that if any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are uncovered during development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. If unmarked human burials are discovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490) must be alerted immediately as per section 36(6) of the NHRA. A professional archaeologist or palaeontologist must be contracted as soon as possible to inspect the findings. If the newly unearthed heritage resources are of high significance, a Phase 2 rescue operation may be required with permits issued by SAHRA. UBIQUE Heritage Consultants and its personnel will not be held liable for such oversights or costs incurred as a result of such oversights.



Table of Contents

SUMMARY OF SPECIALIST EXPERTISE	v
EXECUTIVE SUMMARY	vi
Project description	vi
Findings of Heritage Desktop Study	vi
Recommendations.....	vii
Table of Figures.....	x
ABBREVIATIONS	vii
GLOSSARY	vii
1. INTRODUCTION.....	1
1.1. Scope of study	1
1.2. Assumptions and limitations.....	1
2. TERMS OF REFERENCE	3
2.1. Statutory Requirements	3
2.1.1. General	3
2.1.2. National Heritage Resources Act 25 of 1999	4
2.1.3. Heritage Impact Assessments/Archaeological Impact Assessments.....	4
2.1.4. Definitions of heritage resources	4
2.1.5. Management of Graves and Burial Grounds.....	5
3. STUDY APPROACH AND METHODOLOGY	7
3.1. Desktop study	7
3.1.1. Literature review.....	7
3.1.2. Determining significance	7
3.1.3. Assessment of development impacts.....	9
3.2. Report.....	10
4. PROJECT OVERVIEW.....	11
4.1. Technical information.....	11
4.2. Description of the affected environment	15
5. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND.....	19
5.1. Region	19
5.1.1. Stone Age.....	19
5.1.2. Iron Age	21
5.1.3. Historical period	23
5.2. Local	25
6. IDENTIFIED RESOURCES AND HERITAGE ASSESSMENTS	26
6.1. Heritage sensitivity in the region	27
6.2. Identified heritage resources.....	27
6.3. Discussion.....	29
6.3.1. Stone Age.....	29

6.3.2. Iron Age	31
6.3.3. Historical Period	31
6.3.4. Graves and Burial Sites	32
Free State, HERTZOGVILLE, Main Cemetery	32
Free State, HERTZOGVILLE, NG Kerk Gedenkmuur.....	32
7. CHANCE FIND PROTOCOL.....	34
7.1. Stone Age Finds	34
7.2. Iron Age Period Finds.....	36
7.3. Historical Period Finds	37
7.4. Graves	39
8. CONCLUSION	42
BIBLIOGRAPHY	43

Table of Figures

Figure 1 Proposed Infill township establishment plan. Image provided by the client.	12
Figure 2 Proposed Re-layout of Erven 848, 1174, 1175. Image provided by the client.	13
Figure 3 Proposed Re-layout of Erven 1315, 1316, 1324, 1931, 1932. Image provided by the client.	13
Figure 4 Locality of the project indicated on 1:250 000 Topo-cadastral map.	14
Figure 5 Locality of the project, indicated on Google Earth Satellite imagery.	14
Figure 6 Indication of the vegetation types around the study area (namely: Kimberley Thornveld, Schmidtsdrift Thornveld and Western Free State Clay Grassland).....	15
Figure 7 Aerial views of the topography of the different affected properties.	16
Figure 8 Variety of photographs of the proposed development areas. Images provided by client.	18
Figure 9 Map from the 1900s indicating the towns and farms in the area. Image: https://digitalcollections.lib.uct.ac.za/	25
Figure 10 The Project area indicated on the Heritage Screening tool (https://screening.environment.gov.za/).....	27
Figure 11 Map composite of heritage resources recorded from previous HIA/AIAs in the area... ..	28
Figure 12 Selection of various formal and informal ESA, MSA, and LSA stone tools. LSA lithics may be accompanied by coarse low-fired earthenware (h, i, j). Photos: UBIQUE Heritage Consultants.	35
Figure 13 Iron Age house structures (a-b), small livestock kraal and cattle kraal (c-d), upper grindstone (e), in situ potsherds (f), and surface scatter potsherds (g). Photos: UBIQUE Heritage Consultants.	37
Figure 14 Various Historical structures (a-h) and artefacts (i-o). Photos: UBIQUE Heritage Consultants.	39
Figure 15 Various grave treatments, formal and informal. Photos: UBIQUE Heritage Consultants.	41

ABBREVIATIONS

AIA:	Archaeological Impact Assessment
ASAPA:	Association of South African Professional Archaeologists
BIA:	Basic Impact Assessment
CRM:	Cultural Resource Management
ECO:	Environmental Control Officer
EIA:	Environmental Impact Assessment*
EIA:	Early Iron Age*
EMP:	Environmental Management Plan
ESA:	Earlier Stone Age
GPS:	Global Positioning System
HIA:	Heritage Impact Assessment
IA:	Iron Age
LSA:	Later Stone Age
MEC:	Member of the Executive Council
MIA:	Middle Iron Age
MPRDA:	Mineral and Petroleum Resources Development Act
MSA:	Middle Stone Age
NEMA:	National Environmental Management Act
NHRA:	National Heritage Resources Act
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 it must be read and interpreted in the context it is used.*

GLOSSARY

Archaeological:	<p>material remains resulting from human activity which are in a state of disuse and are in or on land and are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;</p> <ul style="list-style-type: none"> – rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and is older than 100 years (as defined and protected by the National Heritage Resources Act (NHRA) (Act No. 25 of 1999) including any area within 10 m of such representation; – wrecks, being any vessel or aircraft, or any part thereof, which were wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation; – features, structures and artefacts associated with military history, which are older than 75 years and the sites on which they are found.
Stone Age:	The first and longest part of human history is the Stone Age, which began with the appearance of early humans between 3-2 million years ago. Stone

Age people were hunters, gatherers and scavengers who did not live in permanently settled communities. Their stone tools preserve well and are found in most places in South Africa and elsewhere.

Earlier Stone Age: >2 000 000 - >200 000 years ago
 Middle Stone Age: <300 000 - >20 000 years ago
 Later Stone Age: <40 000 - until the historical period

Iron Age: (Early Farming Communities). Period covering the last 1800 years, when immigrant African farmer groups brought a new way of life to southern Africa. They established settled villages, cultivated domestic crops such as sorghum, millet and beans, and herded cattle as well as sheep and goats. As they produced their own iron tools, archaeologists call this the Iron Age.
 Early Iron Age: AD 200 - AD 900
 Middle Iron Age: AD 900 - AD 1300
 Later Iron Age: AD 1300 - AD 1850

Historic: Period of arrival of white settlers and colonial contact.
 AD 1500 to 1950

Historic building: Structures 60 years and older.

Fossil: Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.

Heritage: That which is inherited and forms part of the National Estate (historic places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999).

Heritage resources: These mean any place or object of cultural significance, tangible or intangible.

Holocene: The most recent geological period that commenced 10 000 years ago.

Palaeontology: Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site that contains such fossilised remains or traces

Cumulative impacts: "Cumulative Impact", in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity that may not be significant, but may become significant when added to existing and reasonably foreseeable impacts eventuating from similar or diverse activities.

Mitigation: Anticipating and preventing negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.

A 'place': a site, area or region;
 – a building or other structure which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure;

- a group of buildings or other structures which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures;
- an open space, including a public square, street or park; and
- in relation to the management of a place, includes the immediate surroundings of a place.

'Public monuments and memorials': mean all monuments and memorials—

- erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government; or
- which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual;

'Structures': any building, works, device or other facility made by people and which are fixed to land, and include any fixtures, fittings and equipment associated therewith.



1. INTRODUCTION

1.1. Scope of study

The project involves the proposed infill development of the Malebogo township, on the Malebogo EXT 2: Erven 1174 and 1175 and erf 2233 Malebogo Ext 9 (Park). The idea is to include Erf 848 as part of the "offset" for the park for stormwater retention purposes, as this area is the lowest point, and Malebogo Ext 3: Erf 1315 & 1316; Erf 1316 (Park). UBIQUE Heritage Consultants were appointed by LEFATSE Environmental Planning Services (PTY) Ltd as independent heritage specialists in accordance with the National Environmental Management Act 107 of 1998 (NEMA) and in compliance with Section 38 of the National Heritage Resources Act 25 of 1999 (NHRA), to conduct a cultural heritage desktop assessment (AIA/HIA) of the proposed development area.

The desktop assessment aims to identify and report any heritage resources that may fall within the development footprint; to summarise the determined impact of the proposed development on any sites, features, or objects of cultural heritage significance; to assess the significance of any identified resources; and to assist the developer in managing the documented heritage resources in an accountable manner, within the framework provided by the National Heritage Resources Act (Act 25 of 1999) (NHRA).

South Africa's heritage resources are rich and widely diverse, encompassing sites from all periods of human history. Resources may be tangible, such as buildings and archaeological artefacts, or intangible, such as landscapes and living heritage. Their significance is based on their aesthetic, architectural, historical, scientific, social, spiritual, linguistic, economic or technological values; their representation of a time or group; their rarity; and sphere of influence.

Natural (e.g. erosion) and human (e.g. development) activities can jeopardise the integrity and significance of heritage resources. In the case of human activities, a range of legislation exists to ensure the timeous and accurate identification and effective management of heritage resources for present and future generations.

The result of this investigation is presented within this heritage desktop report. It comprises the recording of previously identified heritage resources present/absent and offers recommendations for managing them within the proposed development context.

1.2. Assumptions and limitations

It is assumed that the description of the proposed project, as provided by the client, is accurate. Furthermore, it is assumed that the public consultation process undertaken as part of the Basic Assessment process is comprehensive and does not have to be repeated as part of the heritage impact assessment.

The significance of the sites, structures and artefacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of

preservation and research potential. The various aspects are not mutually exclusive, and the evaluation of any site is done with reference to any number of these aspects. Cultural significance is site-specific and relates to the content and context of the site.

Although all possible care has been taken during the intensive desktop study to identify sites of cultural importance within the development area, it is essential to note that some heritage sites may have been missed due to the limitations of the digital survey. The digital survey is dependent on available data sources and the visibility of heritage resources in satellite imagery. No field survey has been conducted, and all heritage sites/possibility of heritage features are based on the desktop study and digital survey. No sub-surface investigations (i.e. excavations or sampling) were undertaken since a permit from SAHRA is required for such activities. Therefore, should any heritage features and/or objects such as architectural features, stone tool scatters, artefacts, human remains, or fossils be uncovered or observed during construction, operations must be stopped, and a qualified archaeologist contacted for an assessment of the find. Observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that the heritage specialist has been able to assess the significance of the site (or material) in question.



2. TERMS OF REFERENCE

An HIA/AIA and screening report must address the following key aspects:

- the identification and mapping of all heritage resources in the area affected;
- an assessment of the significance of such resources in terms of heritage assessment criteria set out in regulations;
- an assessment of the impact of the development on heritage resources;
- an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
- if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- plans for mitigation of any adverse effects during and after completion of the proposed development.

In addition, the HIA/AIA and screening report should comply with the requirements of NEMA, including providing the assumptions and limitations associated with the study; the details, qualifications and expertise of the person who prepared the report; and a statement of competency.

2.1. Statutory Requirements

2.1.1. General

The Constitution of the Republic of South Africa Act 108 of 1996 is the source of all legislation. Within the Constitution the Bill of Rights is fundamental, with the principle that the environment should be protected for present and future generations by preventing pollution, promoting conservation and practising ecologically sustainable development. With regard to spatial planning and related legislation at national and provincial levels the following legislation may be relevant:

- Physical Planning Act 125 of 1991
- Municipal Structures Act 117 of 1998
- Municipal Systems Act 32 of 2000
- Development Facilitation Act 67 of 1995 (DFA)

The identification, evaluation and management of heritage resources in South Africa are required and governed by the following legislation:

- National Environmental Management Act 107 of 1998 (NEMA)
- KwaZulu-Natal Heritage Act 4 of 2008 (KZNHA)
- National Heritage Resources Act 25 of 1999 (NHRA)
- Minerals and Petroleum Resources Development Act 28 of 2002 (MPRDA)

2.1.2. National Heritage Resources Act 25 of 1999

The NHRA established the South African Heritage Resources Agency (SAHRA) together with its Council to fulfil the following functions:

- coordinate and promote the management of heritage resources at the national level;
- set norms and maintain essential national standards for the management of heritage resources in the Republic and to protect heritage resources of national significance;
- control the export of nationally significant heritage objects and the import into the Republic of cultural property illegally exported from foreign countries;
- enable the provinces to establish heritage authorities which must adopt powers to protect and manage certain categories of heritage resources; and
- provide for the protection and management of conservation-worthy places and areas by local authorities.

2.1.3. Heritage Impact Assessments/Archaeological Impact Assessments

Section 38(1) of the NHRA of 1999 requires **the responsible heritage resources authority to notify the person who intends to undertake a development that fulfils the following criteria to submit an impact assessment report if there is reason to believe that heritage resources will be affected by such event:**

- the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- the construction of a bridge or similar structure exceeding 50m in length;
- any development or other activity that will change the character of a site—
 - exceeding 5000m² in extent; or
 - involving three or more existing erven or subdivisions thereof; or
 - involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- the rezoning of a site exceeding 10 000m² in extent; or
- any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

2.1.4. Definitions of heritage resources

The NHRA defines a heritage resource as any place or object of cultural significance, i.e. of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. These include, but are not limited to, the following wide range of places and objects:

- living heritage as defined in the National Heritage Council Act No 11 of 1999 (cultural tradition; oral history; performance; ritual; popular memory; skills and techniques; indigenous knowledge systems; and the holistic approach to nature, society and social relationships);
- Ecofacts (non-artefactual organic or environmental remains that may reveal aspects of past human activity; definition used in KwaZulu-Natal Heritage Act 2008);
- places, buildings, structures and equipment;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;

- landscapes and natural features;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds;
- public monuments and memorials;
- sites of significance relating to the history of slavery in South Africa;
- movable objects, but excluding any object made by a living person; and
- battlefields.

Furthermore, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of—

- its importance in 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; and
- its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.

2.1.5. Management of Graves and Burial Grounds

- **Graves younger than 60 years** are protected in terms of Section 2(1) of the Removal of Graves and Dead Bodies Ordinance 7 of 1925 as well as the Human Tissues Act 65 of 1983.
- **Graves older than 60 years, situated outside a formal cemetery administered by a local Authority** are protected in terms of Section 36 of the NHRA as well as the Human Tissues Act of 1983. Accordingly, such graves are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of NHRA) is applicable to graves older than 60 years that are situated outside a formal cemetery administered by a local authority. Graves in the category located inside a formal cemetery administered by a local authority will also require the same authorisation as set out for graves younger than 60 years over and above SAHRA authorisation.

The **protocol for the management of graves older than 60 years situated outside a formal cemetery administered by a local authority** is detailed in Section 36 of the NHRA:

(3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

- (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

(5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—

- (a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and
- (b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

(6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority—

- (a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
- (b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.



3. STUDY APPROACH AND METHODOLOGY

3.1. Desktop study

The first step in the methodology was to conduct a desktop study of the heritage background of the area and the site of the proposed development. This entailed the scoping and reading of historical texts/records as well as previous heritage studies and research around the study area.

3.1.1. Literature review

A survey of the literature was undertaken to obtain background information regarding the area. Through researching the SAHRA APM Report Mapping Project records and the SAHRIS online database (<http://www.sahra.org.za/sahris>), it was determined that few archaeological or historical studies had been performed within the broader vicinity of the study area.

The study area is contextualised by incorporating data from previous Cultural Resource Management (CRM) reports done in the area and an archival search. The objective of this is to extract data and information on the area in question, looking at archaeological sites, historical sites, and graves in the area. In addition, a concise account of the archaeology and history of the broader study area was compiled from available sources, including those listed in the bibliography.

3.1.2. Determining significance

Heritage resources are considered of value if the following criteria apply:

a.	It is important in the community or pattern of South Africa's history;
b.	It has uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
c.	It has the potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
d.	It is vital in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
e.	It exhibits particular aesthetic characteristics valued by a community or cultural group;
f.	It is essential in demonstrating a high degree of creative or technical achievement at a particular period;
g.	It has a strong or unique association with a particular community or cultural group for social, cultural or spiritual reasons;
h.	It has a strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
i.	It is of significance relating to the history of slavery in South Africa.

Levels of significance of the various types of heritage resources observed and recorded are determined by the following criteria:

CULTURAL & HERITAGE SIGNIFICANCE	
LOW	A cultural object found out of context, not part of a site or without any related feature/structure in its surroundings.
MEDIUM	Any site, structure or feature is regarded as less important due to several factors, such as date, frequency and uniqueness. Likewise, any important object found out of context.
HIGH	Any site, structure or feature is regarded as important because of its age or uniqueness. Graves are always categorised as of a high importance. Likewise, any important object found within a specific context.

Field Ratings or Gradings are assigned to indicate the level of protection required and who is responsible for national, provincial, or local protection.

FIELD RATINGS & GRADINGS	
National Grade I	Heritage resources with exceptional qualities to the extent that they are of national significance and should therefore be managed as part of the national estate.
Provincial Grade II	Heritage resources with qualities provincial or regional importance, although it may form part of the national estate, it should be managed as part of the provincial estate.
Local Grade IIIA	Heritage resources are of local importance and worthy of conservation. Therefore, it should be included in the heritage register and not be mitigated (high significance).
Local Grade IIIB	Heritage resources are of local importance and worthy of conservation. Therefore, it should be included in the heritage register and mitigated (high/ medium significance).
General Protection Grade IVA	The site/resource should be mitigated before destruction (high/ medium significance).
General protection Grade IVB	The site/resource should be recorded before destruction (medium significance).
General protection Grade IVC	Phase 1 is considered as sufficient recording, and it may be demolished (low significance).

3.1.3. Assessment of development impacts

A heritage resource impact may be defined broadly as the net change, either beneficial or adverse, between the integrity of a heritage site with and without the proposed development. Beneficial impacts occur wherever a proposed development actively protects, preserves, or enhances a heritage resource by minimising natural site erosion or facilitating non-destructive public use. More commonly, development impacts are of an adverse nature and can include:

- destruction or alteration of all or part of a heritage site;
- isolation of a site from its natural setting; and / or
- introduction of physical, chemical or visual elements out of character with the heritage resource and its setting.

Beneficial and adverse impacts can be direct or indirect and cumulative, as implied by the examples. Although indirect impacts may be more difficult to foresee, assess and quantify, they must form part of the assessment process. The following assessment criteria have been used to assess the impacts of the proposed development on possible identified heritage resources:

Criteria	Rating Scales	Notes
Nature	Positive	An evaluation of the type of effect the construction, operation and management of the proposed development would have on the heritage resource.
	Negative	
	Neutral	
Extent	Low	Site-specific affects only the development footprint.
	Medium	Local (limited to the site and its immediate surroundings, including the surrounding towns and settlements within a 10 km radius);
	High	Regional (beyond a 10 km radius) to national.
Duration	Low	0-4 years (i.e. duration of construction phase).
	Medium	5-10 years.
	High	More than 10 years to permanent.
Intensity	Low	Where the impact affects the heritage resource in such a way that its significance and value are minimally affected.
	Medium	Where the heritage resource is altered, and its significance and value are measurably reduced.
	High	Where the heritage resource is altered or destroyed to the extent that its significance and value cease to exist.
Potential for impact on irreplaceable resources	Low	No irreplaceable resources will be impacted.
	Medium	Resources that will be impacted can be replaced, with effort.
	High	There is no potential for replacing a particular vulnerable resource that will be impacted.

Criteria	Rating Scales	Notes
Consequence, (a combination of extent, duration, intensity, and the potential for impact on irreplaceable resources).	Low	A combination of any of the following: - Intensity, duration, extent and impact on irreplaceable resources are all rated low. - Intensity is low and up to two of the other criteria are rated medium. - Intensity is medium, and all three other criteria are rated low.
	Medium	Intensity is medium, and at least two of the other criteria are rated medium.
	High	Intensity and impact on irreplaceable resources are rated high, with any combination of extent and duration. Intensity is rated high, with all the other criteria being rated medium or higher.
Probability (the likelihood of the impact occurring)	Low	It is highly unlikely or less than 50 % likely that an impact will occur.
	Medium	It is between 50 and 70 % certain that the impact will occur.
	High	It is more than 75 % certain that the impact will occur, or it is definite that the impact will occur.
Significance (all impacts including potential cumulative impacts)	Low	Low consequence and low probability. Low consequence and medium probability. Low consequence and high probability.
	Medium	Medium consequence and low probability. Medium consequence and medium probability. Medium consequence and high probability. High consequence and low probability.
	High	High consequence and medium probability. High consequence and high probability.

3.2. Report

The results of the desktop research are compiled in this report. The identified heritage resources and anticipated and cumulative impacts that the development of the proposed project may have on the identified heritage resources is presented objectively. Alternatives, should any significant sites be impacted adversely by the proposed project, are offered. All effort will be made to ensure that all studies, assessments and results comply with the relevant legislation and the code of ethics and guidelines of the Association of South African Professional Archaeologists (ASAPA). The report aims to assist the developer in managing the documented heritage resources in a responsible manner and protecting, preserving, and developing them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

4. PROJECT OVERVIEW

UBIQUE Heritage Consultants were appointed by LEFATSE Environmental Planning Services (PTY) Ltd as independent heritage specialists to conduct a cultural heritage desktop assessment in accordance with Section 38 of the NHRA and the National Environmental Management Act 107 of 1998 (NEMA) to determine the impact of the proposed township development in the Tokologo Municipal area. The project is focussed on infill planning in Hertzogville on Malebogo EXT 2: erven 1174 and 1175 and erf 2233 Malebogo Ext 9 (Park; Area 0,3516ha) to include Erf 848 as part of the "offset" for the park for stormwater retention purposes, as this area is the lowest point, as well as Malebogo Ext 3: Erf 1315 & 1316; Erf 1316 (Park; Area 1,4465ha).

The project has a high priority with the municipality due to the ongoing court cases and high risk of riots. The proposed development areas have been subjected to waste and rubble dumping, dirt tracks and informal housing.

The proposed township development will involve (a) formalising erven with the associated movement of existing informal houses to allow practical and cost-effective service delivery, (b) the installation of services that would connect to the existing municipal services, and (c) Internal access roads.

4.1. Technical information

Project description	
Project name	Phase 1 Archaeological Desktop Study for The Proposed Development Of Malebogo Township
Description	The project is focussed on infill planning in Hertzogville on Malebogo EXT 2: erven 1174 and 1175 and erf 2233 Malebogo Ext 9 (Park; Area 0,3516ha), and Malebogo Ext 3: Erf 1315 & 1316; Erf 1316 (Park; Area 1,4465ha).
Developer	
Menar Capital (Pty) Ltd	
Property details	
Province	Free State
District municipality	Lejweleputswa District Municipality
Local municipality	Tokologo Local Municipality
Topo-cadastral map	1:250 000 WGS 2824
Erf Number	Malebogo EXT 2: Erven 1174 and 1175 and erf 2233 Malebogo Ext 9 (Park) and Malebogo Ext 3: Erf 1315 & 1316; Erf 1316 (Park)
Town	Hertzogville
Development footprint size	1315: 5.368 ha 1316: 1.446 ha 1174: 2.486 ha 1175: 4.0959 ha 2233: 0.3516 ha
Land use	
Previous	1315: Existing informal settlement. 1316: Existing informal settlement. 1174: Undeveloped school site. 1175: Undeveloped school site.
Current	1315: Existing informal settlement.

	1316: Existing informal settlement. 1174: Undeveloped school site. 1175: Undeveloped school site. 2233: Zoned open space. According to the town planner, this is not a functional park and no indication could be found for its purpose
Rezoning required	No
Sub-division of land	No
Development criteria in terms of Section 38(1) NHRA	
Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length.	Yes
Construction of bridge or similar structure exceeding 50m in length.	No
Construction exceeding 5000m ² .	Yes
Development involving three or more existing erven or subdivisions.	Yes
Development involving three or more erven or divisions that have been consolidated within the past five years.	No
Rezoning of site exceeding 10 000m ² .	No
Any other development category, public open space, squares, parks, recreation grounds.	No



Figure 1 Proposed Infill township establishment plan. Image provided by the client.

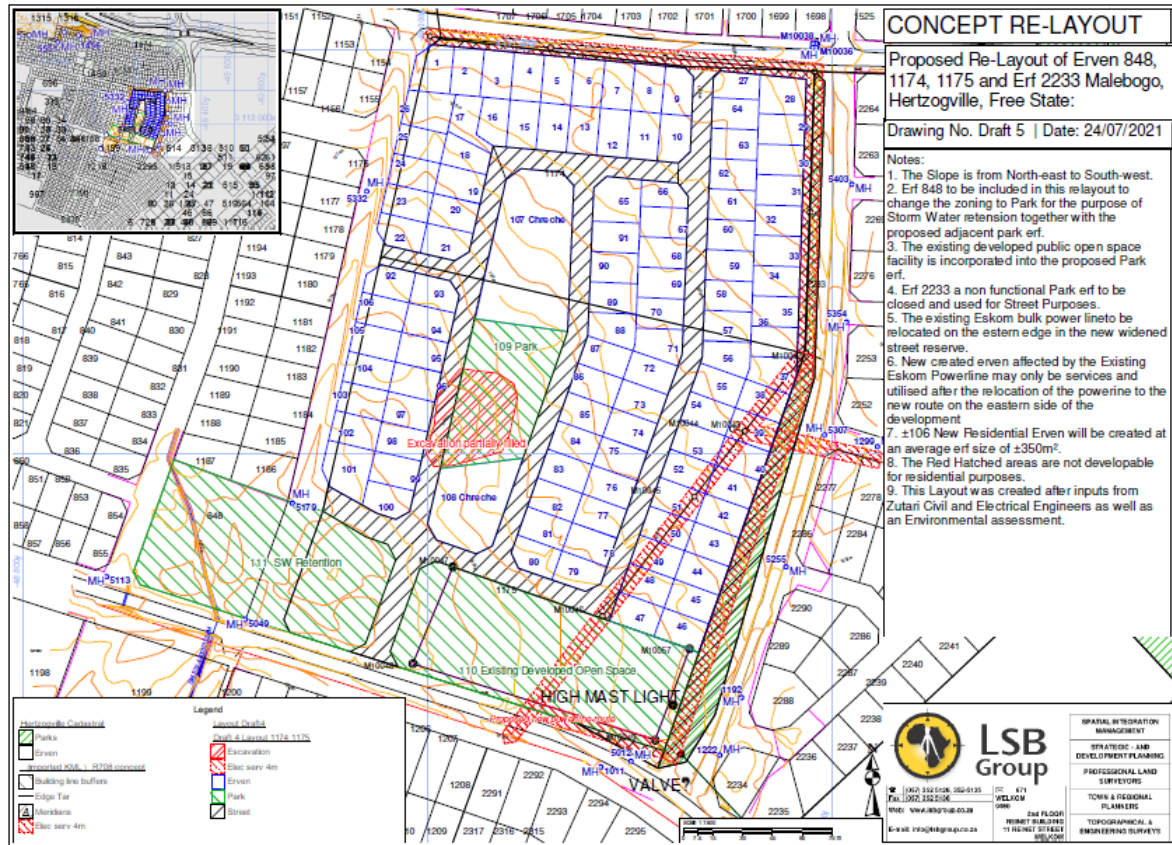


Figure 2 Proposed Re-layout of Erven 848, 1174, 1175. Image provided by the client.

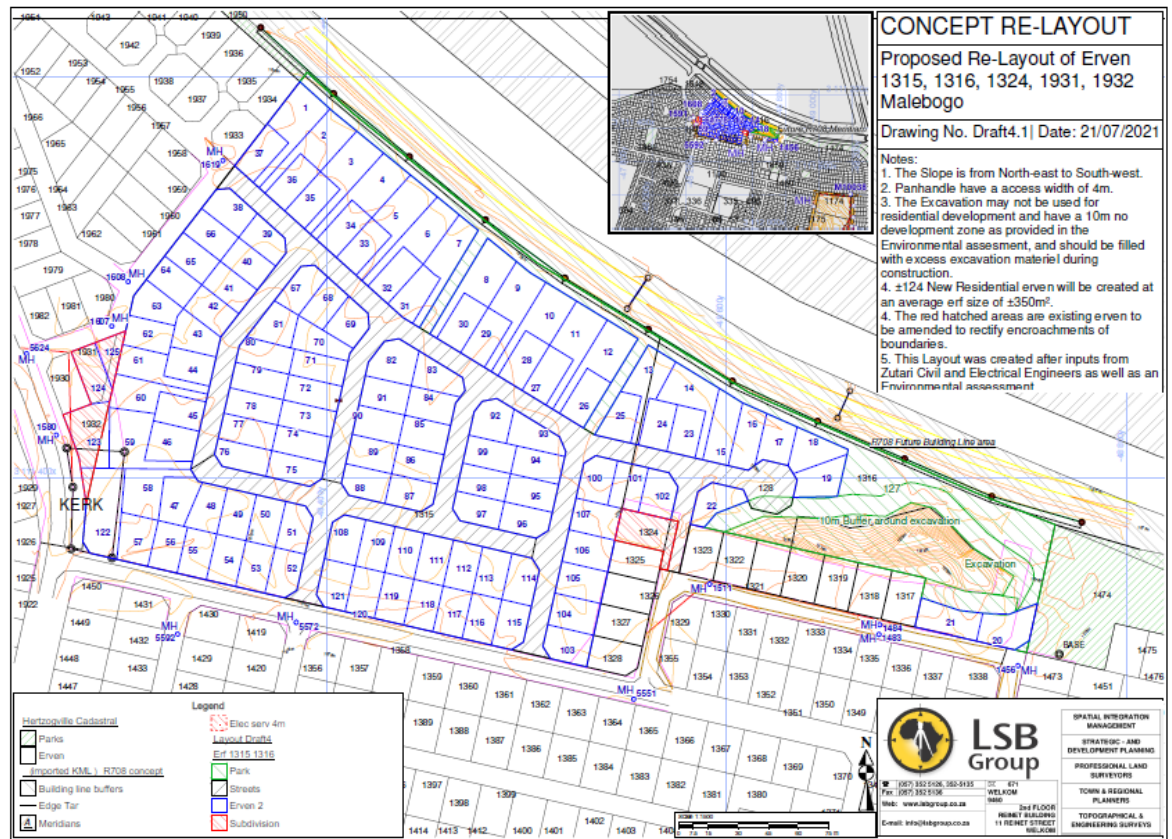


Figure 3 Proposed Re-layout of Erven 1315, 1316, 1324, 1931, 1932. Image provided by the client.

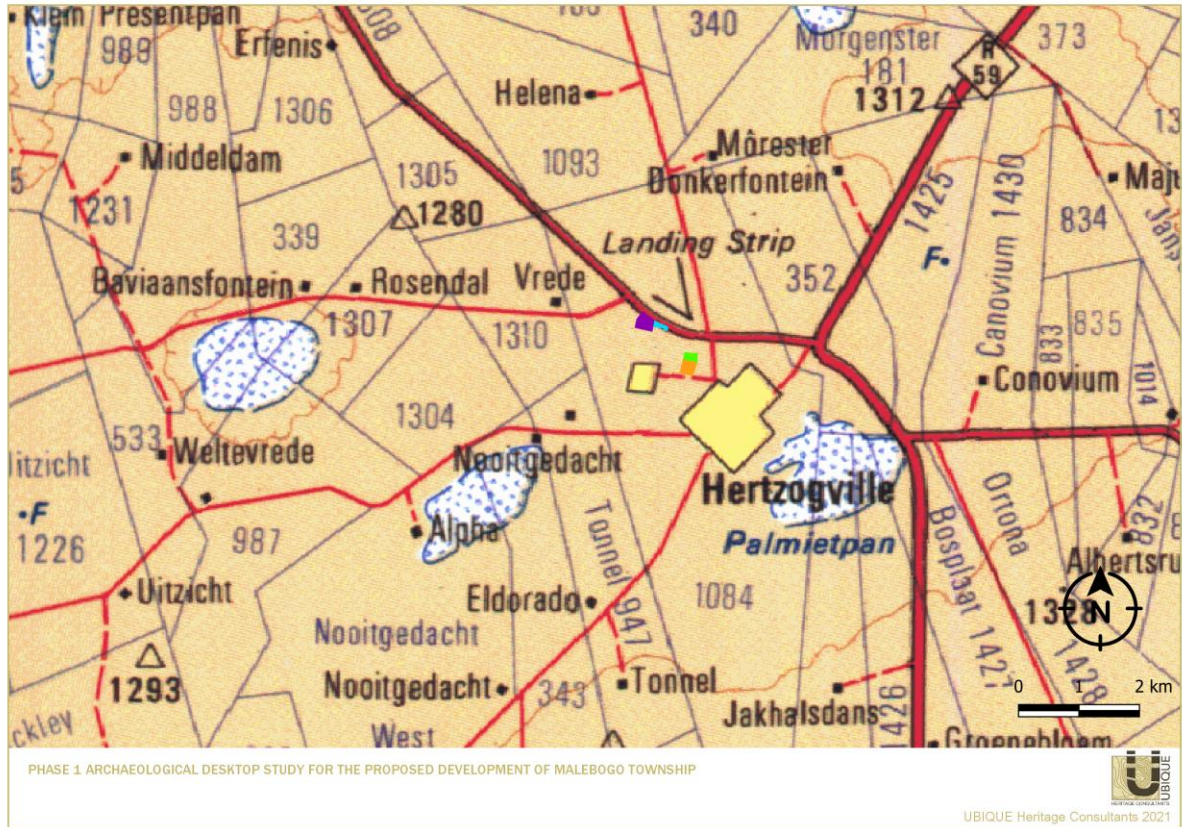


Figure 4 Locality of the project indicated on 1:250 000 Topo-cadastral map.



Figure 5 Locality of the project, indicated on Google Earth Satellite imagery.

4.2. Description of the affected environment

The development areas fall predominantly in the Kimberley and Schmidtsdrift Thornveld vegetation types, surrounded by the Highveld salt pans (depressions in the plateau landscape containing water bodies). The Kimberley vegetation is primarily characterised by slightly irregular plains, with a well-developed tree layer of *Acacia erioloba*, *A. tortilis*, *A. karroo* and *Boscia albitrunca*. The grass layer is open with uncovered soil, and the shrub layer consists of dense stands of *Tarchonanthus camphoratus* and *A. mellifera*. According to Mucina & Rutherford (2006), the geology and soil in the north and west can be typified by Andesitic lavas of the Allanridge Formation and in the south and east are fine-grained sediments of the Karoo Supergroup. Deep sandy to loamy soils of the Hutton soil form on slightly undulating sandy plains. The Schmidtsdrift thornveld is characterised mainly by a mostly closed shrubby thornveld with *Acacia mellifera* and *A. tortilis*. Grasses, bulbous and annual herbaceous plant species are prominent in the landscape. Dwyka diamictites and Ecca shales of the Karoo Subgroup are characteristic of the landscape. Moreover, shale and dolomite of the Schmidtsdrif Subgroup (Griqualand West Supergroup) are also present. There are sporadic occurrences of surface limestone. The landscape is also typified by well-drained, shallow, stony soil with large angular rocks on the surface (Mucina & Rutherford 2006).

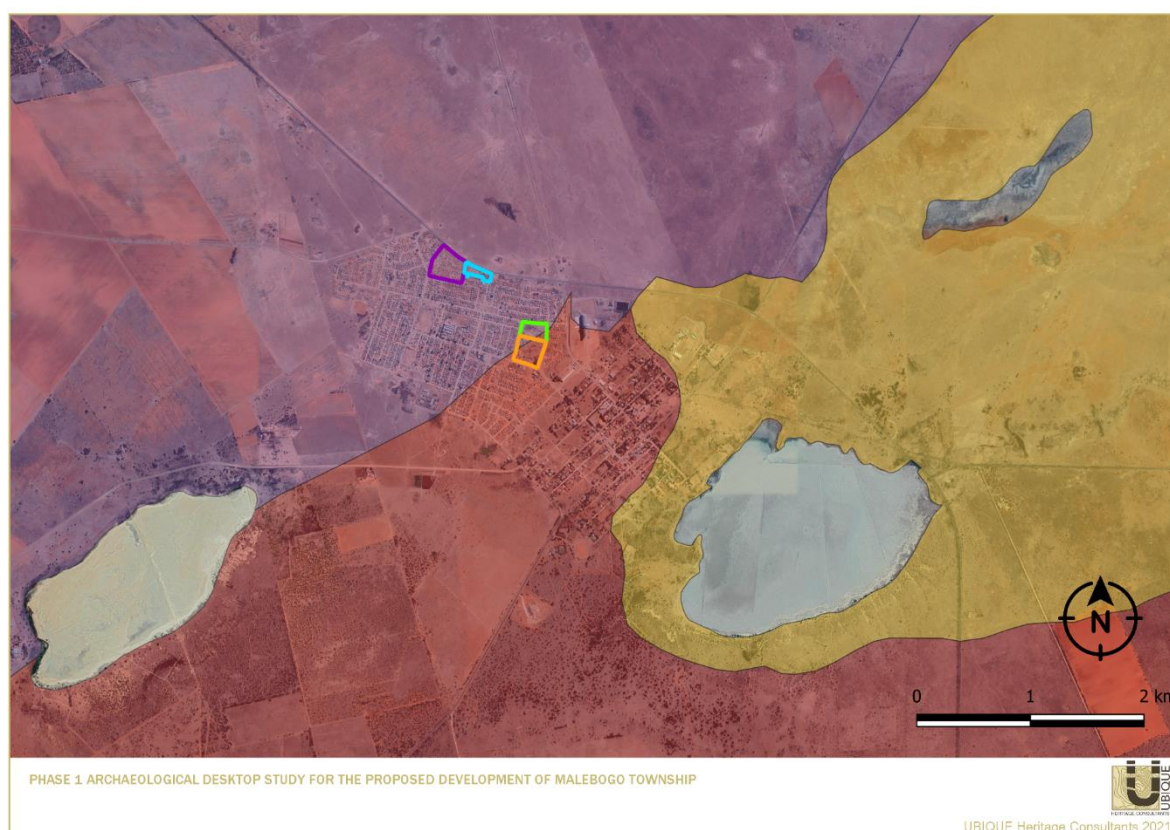
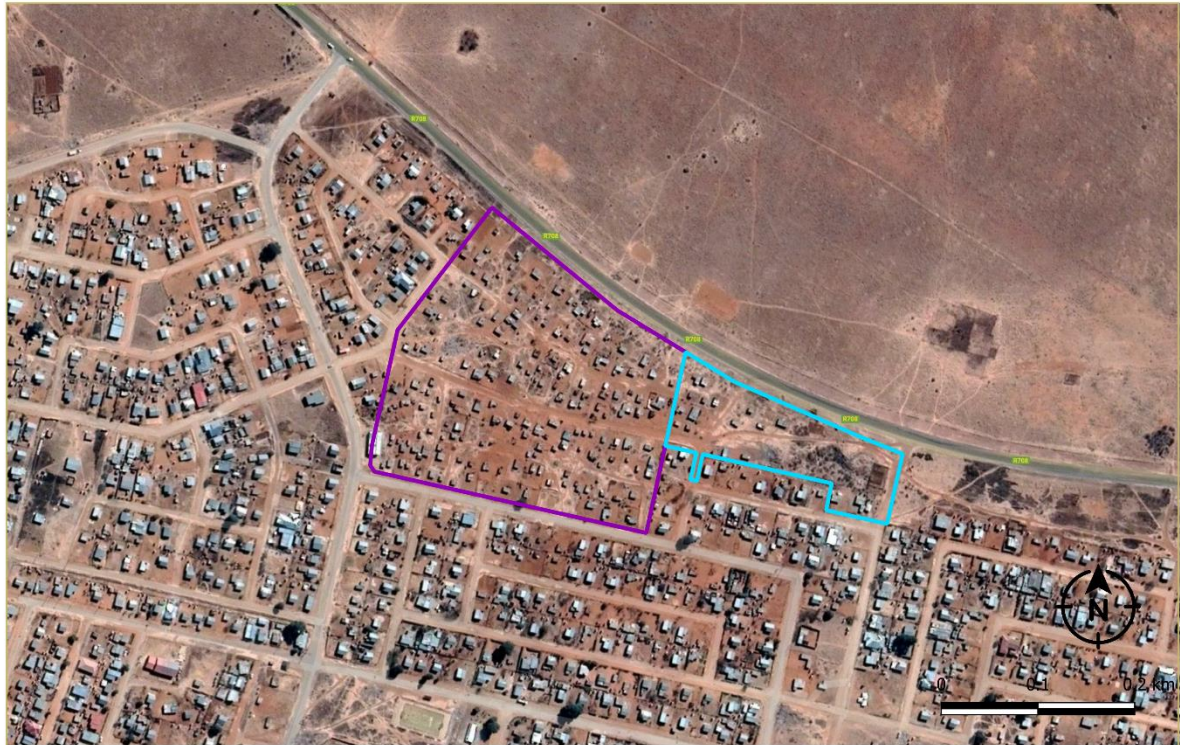


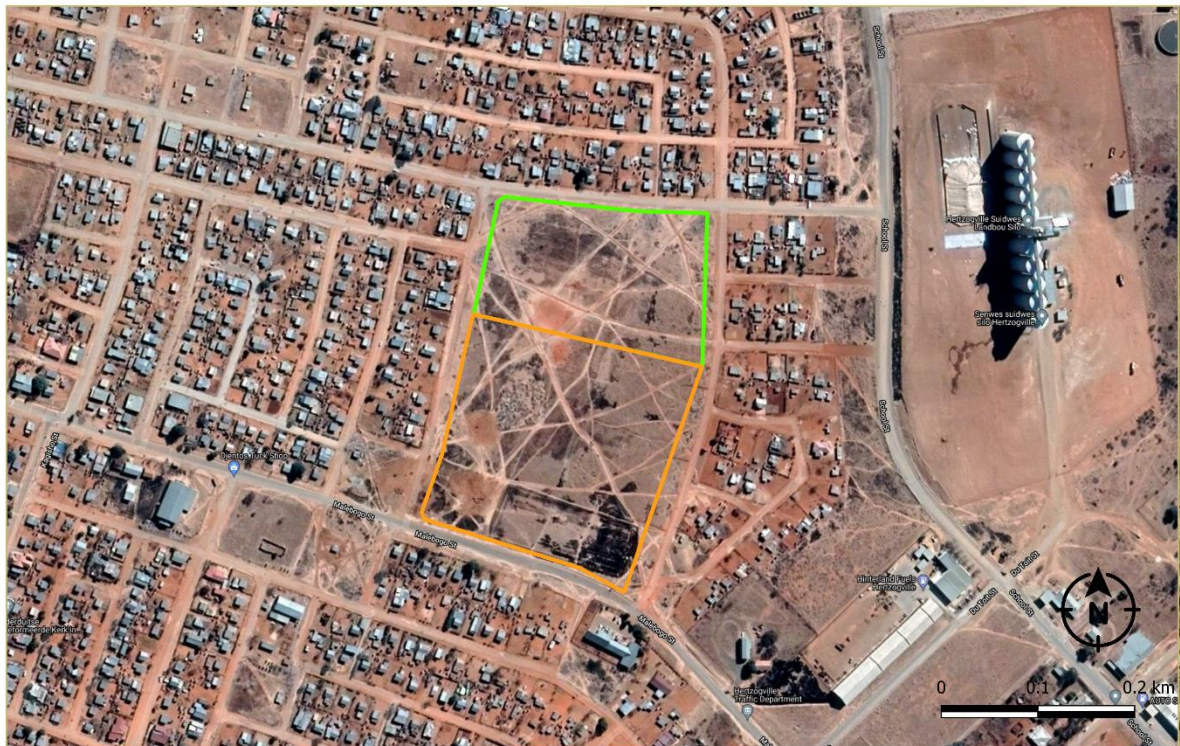
Figure 6 Indication of the vegetation types around the study area (namely: Kimberley Thornveld, Schmidtsdrift Thornveld and Western Free State Clay Grassland).



PHASE 1 ARCHAEOLOGICAL DESKTOP STUDY FOR THE PROPOSED DEVELOPMENT OF MALEBOGO TOWNSHIP



UBIQUE Heritage Consultants 2021



PHASE 1 ARCHAEOLOGICAL DESKTOP STUDY FOR THE PROPOSED DEVELOPMENT OF MALEBOGO TOWNSHIP



UBIQUE Heritage Consultants 2021

Figure 7 Aerial views of the topography of the different affected properties.





Figure 8 Variety of photographs of the proposed development areas. Images provided by client.

The proposed development areas have been subjected to surface disturbance such as rubbish dumping and footpaths, as well as informal settlements (Figure 8 [i-j]). The probability of any archaeological material on the surface relating to the Stone Ages, Iron Ages and Historical/Colonial era would be low, and likely out of context.

5. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND

5.1. Region

South Africa has a very long and varied history of human occupation (Deacon & Deacon 1999). This occupation has been dated to approximately 2mya (million years ago) (Mitchell 2002). Briefly, the archaeology of South Africa can be divided into three “major” periods, namely: the Stone Age, the Iron Age and the Historical period. Various archaeological and historical sites have been identified and documented throughout South Africa, including the Free State Province. The Free State Province has a rich and diverse history. The area was sparsely populated until the arrival of the Boers (Voortrekkers) by the end of the 18th century.

5.1.1. Stone Age

The history of the Free State is reflected in a rich archaeological landscape, with a wealth of pre-colonial archaeological sites (Mlilo 2017). Numerous sites have been identified and documented across the region. These sites have been dated to the Earlier, Middle and Later Stone Age.

In southern Africa, the Stone Age can be divided into three periods. It is, however, critical to note that dates are relative and only provide a broad framework for interpretation. The division of the Stone Age, according to Lombard et al. (2012), is as follows:

- Earlier Stone Age (ESA): >2 000 000 - >200 000 years ago
- Middle Stone Age (MSA): <300 000 - >20 000 years ago
- Later Stone Age (LSA): <40 000 - until the historical period

In short, the Stone Age refers to humans that mainly utilised stone as their technological marker. Each sub-division is formed by industries where the assemblages share attributes or common traditions (Lombard et al. 2012). The ESA is characterised by flakes produced from pebbles, cobbles and percussive tools, as well as objects created later during this period, such as large hand axes, cleavers and other bifacial tools (Klein 2000). The MSA is associated with small flakes, blades and points. The aforementioned is generally suggested to have been made and utilised for hunting activities and had numerous functions (Wurz 2013). Fine-grain quartzite, quartz, silcrete, chalcedony, and hornfels are common materials used for MSA stone artefacts (Binneman et al. 2011; Tomose 2013). MSA stone artefacts, including ESA artefacts, occur in secondary contexts for various reasons, such as natural events (erosion) or animal and human disruptions (Tomose 2013). Furthermore, the LSA is characterised by microlithic stone tools, scrapers and flakes (Binneman 1995; Lombard et al. 2012). The LSA is also associated with rock art.

The wider geological region of the Free State has been inhabited since the ESA onward. This interpretation is supported by the discovery of stone tools and lithics dating from the Early, Middle, and Late Stone Ages in various locations. However, according to Kruger (2018), these are usually found near rivers, such as the Doring Spruit north of Kroonstad, the Vals River, and the Sand River south of Ventersburg. In the Free State, the earliest known industry of the ESA is the Victoria West Industry, which also spreads into the Northern Cape. The Victoria West Stone Industry can be found

in the Free State area along the Vaal River basin. However, it is believed that the prepared cores of the Victoria West industry indicate a transitional period in the Stone Age industry from the Acheulian into the MSA. The Victoria West industry is often seen as an evolutionary step toward the Levallois Prepared Core Technique. This likely signifies the outwards spread of the Stone Age technology (Tomose 2013).

ESA stone artefacts and lithics in the Free State are commonly found as open-air surface scatters, either as individual occurrences or in vast numbers. ESA artefacts/occurrences can also, very rarely, be found in association with other archaeological heritage, plant, and material remains (Binneman et al. 2011). According to Binneman et al. (2011), South African exceptions include Wonderwerk in the Northern Cape near Kimberly, the Montagu Cave in the Western Cape Province, and Amanzi Springs near Uitenhage bone and plant material were discovered in situ associated with the stone artefacts.

The MSA artefacts eventually replaced the dominant large hand axes and cleavers that characterised the ESA. This transition or distinction in the archaeological record has been dated to around 250 000 years ago. Smaller artefacts dominate the archaeological record during this time period, with the flake and blade industry being the most prominent. This industry innovation is thought to have peaked about 120 000 years ago. Throughout southern Africa, archaeologists can generally find surface scatters from the blade and flake industries (Tomose 2013). The early MSA stone industry known as the Mangosia had a wide distribution and stretched across the Limpopo, the Qriqualand in Northern Cape, Natal, the Cape Point and the Free State (Binneman et al. 2011; Tomose 2013). Artefacts associated with the Mangosia industry in the Free State are known to have been produced from the indurate shale raw material (Binneman et al. 2011). The MSA tools include flakes, blades and points and mainly occur as surface scatters. Other industries within the MSA include are the Howieson's Poort which is known to have a wide distribution throughout southern Africa, including the Free State province, the Orangia (128 000 to 75 000 years ago) and the Florisbad (dominant in the Free State province) and Zeekoegat industries (between 64 000 and 32 000 years ago) (Tomose 2013).

The LSA archaeological record is often associated with the San hunter-gatherers. However, the LSA also included Khoekhoe pastoralists from about 2 000 years ago. In the Karoo (Northern Cape regions), the Free State Province, and Lesotho, dark or black fine-grained chalcedony would have been the preferred material. Smithfield settlement sites are more commonly found among hills and ridges. The LSA archaeology is rich and varied. Archaeologists often find stone artefacts, beads (ostrich eggshell beads are dominant), pottery, and rock art relating to the LSA. Rock art can be either in the form of paintings or engravings (Tomose 2013).

Most of the studies and surveys that have been conducted throughout the Free State have recorded Stone Age sites and surface scatters of Stone Age artefacts (ranging from the ESA, MSA and LSA) (e.g. Fourie 2020; Morris 2014; Orton 2015; 2016a, b, c, d and e). Several examples of stone tool "factory" sites have been found at, but not limited to, Ventershoek near Wepener and Mooifontein near Zastron, at Spitzkop near Smithfield, and the Smithfield Townlands (Fourie 2020). Materials associated with the MSA/LSA have also been reported around the Vredefort Dome. Some of these materials (such as scrapers, blades, cores, flakes, hammerstones, and small microlithic tools that occur as scattered finds) have been found in open-air areas, especially near the Vaal River as well as in caves. They are associated with transhumance (Mlilo 2017). Stone tool open-air sites were discovered near Rouxville at Goedemoed, Weenkop, and Wesselsdal and in the Aliwal North District at Middelplaats Melkspruit Grassridge Farm. Grinding hollows and grooves have been recorded as well as boulders with cupules ground into it (Orton 2016 c and e).

Rock engravings can be found in the South African interior, where suitable rock exists (Orton 2016). Various rock engraving/art sites have been recorded in the Free State. Numerous high-quality engravings on smooth rocks depict a wide range of figures executed in both incised line and pecking techniques (Mlilo 2017). The National Museum, Bloemfontein, lists numerous examples of rock art (Orton 2016).

5.1.2. Iron Age

The Iron Age (IA) is characterised by the use of metal (Coertze & Coertze 1996: 346). There is some controversy about the periods within the IA. Van der Ryst & Meyer (1999) have suggested that there are two phases within the IA, namely:

- Early Iron Age (EIA) 200 – 1000 A.D
- Late Iron Age (LIA) 1000 – 1850 A.D

However, Huffman (2007) suggests instead that there are three periods within the Iron Age, these periods are:

- Early Iron Age (EIA) 250 – 900 A.D
- Middle Iron Age (MIA) 900 – 1300 A.D
- Late Iron Age (LIA) 1300 – 1840 A.D

Thomas Huffman believes that the Middle Iron Age should be included within this period; his dates have been widely accepted in the IA field of archaeology.

The South African Iron Age is generally characterised by farming communities who had domesticated animals, cultivated plants, manufactured and made use of ceramics and beads, smelted iron for weapons and manufactured tools (Hall 1987). Iron Age people were often mixed farmers/agropastoralists. These agropastoralists generally chose to live in areas with sufficient water for domestic use along with arable soil that could be cultivated with an iron hoe. Most Iron Age (IA) settlements that were built by agropastoralists were permanent settlements (with a few exceptions, of course). They consisted of features such as houses, raised grain bins, storage pits and animal kraals/byres, which contrasts with the temporary camps of pastoralists and hunter-gatherers (Huffman 2007). It is evident in the archaeological record that IA groups had migrated with their material culture (Huffman 2002).

The EIA was a gradual spread or expansion of settlements of different indigenous people groups, which took place over a long period (Matenga 2019). Around 200 A.D., agriculturalist peoples arrived in southern Africa from West and East Africa, bringing with them settled agriculture, metalworking, animal husbandry, pottery production, and social stratification, all in contrast to the Stone Age lifeways (Huffman 2007; Mlilo 2017). There are very few sites ascribed to the EIA in the country's central and western areas (Matenga 2019), which could be because IA communities appear to have favoured the country's eastern regions due to rainfall patterns. The summer rainfall climates were favourable for ploughing and growing crops like sorghum and millet. The first

evidence of IA communities in the Free State has been recorded in the south-eastern region. The majority of current data regarding Iron Age cultures in the Free State dates from the 16th and 18th centuries when they passed over the Vaal River and came into contact with the San hunter-gatherers (Tomose 2013).

The material and features recorded at IA sites throughout the Free State and southern Africa include stonewalled settlements, pottery, iron and metal implements, beads, rainmaking sites and features, spear sharpening grooves on rock surfaces and grindstones, among many other types of materials (Tomose 2013). The Free State's IA archaeology is distinguished by the widespread distribution of stonewalled sites over flat-topped ridges and hills. Stonewalls and stonewalled settlements are some of the many prominent features of the Iron Age people. Stonewalled settlements dating to the IA have been widely documented in parts of the Free State (Morris 2016). The Caledon River Valley, known to have been inhabited by the Fokeng (Sotho speakers), is one of the well-known and well-documented areas in the Free State region with evidence of Iron Age farmers. The Fokeng moved to Metlaeeng after living in the foothills of Ntsuana-tsatsi between Frankfort and Vrede (Tomose 2013). The site of Doornpoort in the Free State has two recent occupations that yield evidence for various usages of faunal material. The site has been associated with Sotho-Tswana speakers. Cattle dominate the faunal assemblages for the occupation, which dates back to about 1700 A.D. However, according to Badenhorst (2010: 94), few cattle remains were recovered from the late 19th to early 20th centuries, with caprines dominating the faunal assemblage. The Rinderpest disease, which killed large numbers of cattle herds, is most likely to blame for the shift in livestock usage and consumption. Moreover, the Afrikaner colonialism's influence in the former Orange Free State (OFS) can also be seen as a potential explanation for this change (Badenhorst 2010: 94).

The spatial organisation plays an essential role among IA communities. In general, it is characterised by the central position of the stock/cattle byres and placing the main swelling area on the perimeter of a settlement. The LIA is known for its massive stonewalled sites and the importance of livestock, personal status, kinship, social organisation, and males and females' roles within their settlement patterns. The pottery styles associated with this settlement type are generally characterised by shallow line incisions in bands and triangles below the rim and on the shoulder, combined with straight or curved lines and areas of red ochre burnish on the body of clay vessels. Batswana groups such as the Rolong and Thlaping have been associated with sites with bilobial dwellings. The Kubung people have also been linked to such sites. According to oral tradition and radiocarbon dating, several sites were inhabited from the 16th and 17th centuries to the early 19th century in Ventersburg and from the 18th century to the early 19th century in Bothaville (Kruger 2018). The Later Iron Age (LIA) is commonly associated with the Sotho and Tswana, divided into a variety of facies based on ceramic studies (Huffman 2007). In the Kroonstad area, extensive stonewalled settlements have been discovered and possibly date from the 16th century. Elaborate LIA stonewall sites on the farm Middenspruit 151 adjacent to Bospoort have been reported by Dreyer (2006). The walls are in differing preservation and deterioration states, with little evidence of wall-robbing, while some of the other structures are in good condition.

A single lower grinding stone was discovered next to one of the walls at one of the sites. On a southern portion of Middenspruit, he noted pottery, an upper grinding stone, and an unknown copper object (Kruger 2018). Interestingly, stonewalled sites in the Vrede Fort Dome have been associated with the Fokeng (Matenga 2019). The Askoppies site, located close to Vredefort Dome, is a large IA settlement with over 20 individual homesteads between 8 and 15 scalloped areas. Archaeological material recovered from the site includes seashells, pottery, ivory bangles, iron spears, a glass bead, hippo tusks, cuprous earrings, bone pendants, slag, smelting furnace remains, and tuyeres (Mlilo 2017). Researchers who have surveyed and studied the general area agree that the Vredefort Dome Conservancy area and its surroundings are rich in LIA dating from

the 17th century to the early 19th century (Mlilo 2017). The Botanical Garden in the Free State is known to have been inhabited by IA Basotho dwellers. Pottery remains have been found here and are displayed in the Education Centre (SANBI 2021).

It is also believed that several IA communities north of the Vaal River (in the Limpopo Province) had practised the tradition of making rock art. Rock art is frequently connected to the later period in the IA when the farming communities had different encounters between other communities and the colonial settlers. The Makgabeng rock art is known for its depictions of conflict scenes associated with the Malebogo Wars (the war between Chief Malebogo of the Hananwa people and President Kruger of the Zuid Afrikaansche Republiek [ZAR]). In the Free State, rock art has also been linked to IA communities by association and is believed to have not been directly engraved or made by them. For instance, cattle paintings depict conflict scenes in the south-eastern Orange Free State (Tomose 2013). The figures include “hour-glass” Sotho shields, which has been argued to refer to the period of conflict and unrest known as the Difiqane/Mfecane (Binneman et al. 2011; Tomose 2013). Another known rock art site recorded in the Free State is on the Farm Kwartelfontein near Smithfield. Some rock art in the Free State depict cattle, sheep, and men walking with hunting dogs (Tomose 2013).

5.1.3. Historical period

The Historical/Colonial period generally refers to the last 500 years when European settlers and colonialism entered southern Africa (Binneman et al. 2011). It is believed that the historical period began with the arrival of Korana raiders in the area in the late 18th century. Soon after, in the 19th century, followed the arrival of traders, adventurers, and missionaries (Kruger 2018). The settlers were generally self-sufficient, surviving primarily on cattle/sheep farming and hunting (Van Schalkwyk 2014).

With the arrival of the Europeans, in the region north of the Orange River, by the end of the 18th century, the area was still sparsely populated. The bulk of the inhabitants seem to have been members of the Bechuana division of the Bantu speakers. Koranas were also in the Orange and Vaal valleys and Bushmen in the Drakensberg and western borders. The Griquas settled north of the Orange River in the early 19th century. Chief Mosilikatze (Mzilikazi) and his Matabele, between 1817 and 1831, ravaged the nation, and numerous large areas were depopulated. In 1824, Dutch farmers from the Cape Colony arrived in the country searching for pasture for their flocks. They were followed by the first parties of the Great Trek in 1836. The Voortrekkers had left Cape Colony for various reasons, but essentially to escape British sovereignty (Hillier and Cana 1911: 154).

When the Voortrekkers started on the Great Trek out of the Cape Colony, some settled just north of the Orange River, which formed the boundary between the Cape Colony and the rest of South Africa (SAHO 2019). They established several towns and farms there. However, they soon clashed with some of the indigenous groups of the country, especially the Basotho (SAHO 2019). The emigrants soon ran into Mzilikazi, who led Zulus (Matabele) raiding parties against Boer hunters who had crossed the Vaal without first receiving permission from the chieftain. Retaliation ensued, and in November 1837, Mzilikazi was decisively defeated by the Boers and fled northward. Meanwhile, another group of emigrants had arrived at Thaba'nchu, where the Wesleyans had a mission station for the BaRolong. Chief Moroko treated the emigrants with great kindness, and the Boers maintained good ties with the BaRolong (Hillier and Cana 1911: 154).

The constitution of the Orange Free State was sanctioned on the 7th of April 1854, three weeks after the renunciation of British sovereignty. In 1853, the Boers proclaimed the region the Orange Free State (OFS), a Boer republic. In 1854, the Bloemfontein Convention recognised the OFS as an independent territory (SAHO 2019).

The Basotho were founded by Moshoeshoe (also referred to as Moshesh) after the Mfecane. The Voortrekkers had fought against Moshoeshoe and his Basotho countless times. The battles were brought on by arguments about who had a claim over which land as well as where the border lies between the OFS and the Basotho kingdom (SAHO 2019). It is said that Moshoeshoe requested British protection to defend his Kingdom during the lengthy Second Basotho War, which lasted from 1864 to 1868 (SAHO 2019). In 1868, Moshoeshoe and his country were placed under British protection (Hillier and Cana 1911: 156). The Basotho kingdom was designated as a British protectorate, and the thirty years of strife between the Boers and the Basotho had ended (Hillier and Cana 1911 156; SAHO 2019). Trying to appease the Boers, the British had granted most of the Basotho's fertile land to the OFS. In turn, this created the current Lesotho borders along with the Free State (SAHO 2019).

The economy of South Africa, up until the 1860s, was primarily based on agriculture and trade. However, the discovery of diamonds led to the beginning of industrialisation in South Africa (SAHO 2019). Like their Transvaal neighbours, the Free State Boers had fallen into financial difficulties due to the conflicts with the Basothos. Paper money had been introduced, and the notes, known as "bluebacks", quickly fell to less than half their nominal value. Barter was the primary mode of exchange for goods and services, and many cases of bankruptcy occurred in the state. Nonetheless, just as British annexation rescued the Transvaal from ruin in 1877, so did the influx of British and other settlers to the diamond fields in the early 1870s return public credit and individual wealth to the Free State's Boers. The diamond fields had a ready market for stock and agricultural products. Farmers started to make more money, and the public credit was restored. The government called in and redeemed the "bluebacks" after it regained par worth. The wealthiest diamond mine discovered in the Free State at the time was at Jagersfontein (Hillier and Cana 1911: 157).

The Anglo-Boer War broke out in 1899. The OFS helped the ZAR to fight against the British. This was a significant turning point in the history of South Africa and was the last full-scale war fought on South African soil. In 1902 the Boers had lost the war. As a consequence, their republics had become British colonies. The OFS was renamed the Orange River Colony. However, in 1910, it became one of the provinces of the new Union of South Africa and was renamed the OFS. Many years later, in 1995, after South Africa transitioned to democracy, the OFS was renamed the Free State (SAHO 2019; Britannica 2021). Interestingly, the Vaal River played an essential role during the Anglo-Boer War, forming a physical barrier that could only be crossed in a few areas. The ZAR forces burned the majority of the bridges in an attempt to hold the British at bay (Van Schalkwyk 2014). According to Van Schalkwyk (2014), the town of Vereeniging was where the peace negotiations had taken place between the Boer and British forces. However, the treaty was signed in Pretoria (Van Schalkwyk 2014).

In the Free State, there are various monuments, buildings (and their architectural styles) on farmsteads, statues and memorials associated with the various events that occurred during the Colonial/Historical period in the region (Tomose 2013). During the South African (Anglo-Boer) War (1899-1902), British forces were stationed near the Botanical Garden. The dam was constructed to keep water for their horses, and the stone wall can still be seen today. The Monk's Head beacon

and an old stone wall commemorate a British patrol path used during the battle. Piles of horseshoes discovered near the nursery complex suggest that it was once home to a farrier's shop (SANBI 2021). Moreover, the south-eastern Free State is rich in historical encounters, tales, and material culture/remains from the Boer War. Binneman et al. (2011) remark that Bloemfontein's surroundings played an essential role in Boer War history. Colesburg is well-known for its historical events. In 1845, a skirmish between the Boers and the Griquas took place near Colesburg. Moreover, at Alleman's Drift near Colesburg, Adam Kok and many British individuals created a beacon proclaiming the whole nation from that point forward to be British territory, except areas in control by the Portuguese and native tribes (Binneman et al. 2011).

5.2. Local

The town of Hertzogville was established in 1915. It is said to have been established on the farm Donkerfontein (PathFinda 2018; Raper 1987). However, the 1900 map below refers to the farm as Palmietpan. Hertzogville received municipal status in 1924. The town was named after James Barry Munnik Hertzog. Hertzog was the prime minister of the Union of South Africa between 1924 to 1939 (PathFinda 2018; Raper 1987).



Figure 9 Map from the 1900s indicating the towns and farms in the area. Image: <https://digitalcollections.lib.uct.ac.za/>

Minimal historical background could be found on Hertzogville. The histories of the surrounding towns such as Hoopstad, Bultfontein, Dealesville, and Boshof provide some more insight into the local history. The first attempt to establish the town of Hoopstad was made in 1862. However, there was a disagreement on where this town should be situated. Eventually, it was decided to lay

out two towns in 1876, namely Bultfontein and *Hauptstad* (Hoopstad). Hoopstad was initially named *Hauptstad*, after the surveyor A. P. Haupt. The name, however, would have caused confusion, as it means is 'capital'. Therefore, *Hauptstad* was eventually renamed Hoopstad (city/town of hope). Hoopstad obtained municipal status in 1905 (Raper 1987; Ruralexploration n.d.). The first stone for the NG church at Hoopstad was laid in 1891 by F.W. Steyn (the then-president of the Free State). A memorial honouring Japie Greyling can be found at the church. Japie Greyling was a child hero – he refused to reveal the location of the commando in which his father served, even when threatened with execution (Ruralexploration n.d.). The town of Bultfontein was established on the farm Bultfontein. The farm was owned and named by A. McCullum in the 1870s. It obtained municipal status in 1938 (Raper 1987). According to Raper (1987), Bultfontein's name means "hill fountain".

The town of Dealesville was founded on the farm Klipfontein and named after its owner, John Henry Deale. It was proclaimed a township in 1899. However, it only achieved municipal status in 1914. A Voortrekker Monument was constructed here in honour of the Voortrekkers (Free State info n.d.; Wikipedia-Dealesville 2021).

Boshof was established in March 1856 on the farm Vanwyks-vlei by Dr Andrew Murray. In 1839, a farmer, D.S. Fourie, purchased the land from Dawid Danster, a Griqua. Eventually, in 1855, Fourie sold the land to the Dutch Reformed Church (DRC). The town was named after Jacobus Nicolaas Boshof (1808-1881), the erstwhile Orange Free State's second President (1855-59). Boshof received municipal status in 1872 (Boshof n.d.; Raper 1987). It is believed that *Volkspeler* (folk dance), a traditional dance of Afrikaans-speaking South Africans, originated in Boshof. The first *Volkspeler* is said to have been performed on the farm Vuisfontein. Several memorials for *Volkspeler* still exist in the area such as the Folk Dancing Monument honouring Dr S.H. Pellissier. Dr S.H. Pellissier had introduced *Volkspeler* to the town. Interestingly, the site where Boer General Christiaan de Wet ambushed British soldiers moving on Bloemfontein, namely the Poplar Grove Battlefield is situated near Boshof. A historic Gunpowder House from the Anglo-Boer War can also be found in Boshof. Moreover, there are several historic buildings at Boshof, such as the old jail (constructed in 1891- originally meant for Kroonstad) and the Town Hall (completed in 1905). On Middendeel Farm, a monument tablet can be found, which was placed there to honour General De Villebois. General De Villebois was a French aristocrat and the head of the Foreign Legion of troops (who fought on the Boers' side during the Anglo-Boer War). The town also features a Voortrekker Monument, which was erected in 1938 to commemorate the 100th anniversary of the Groot Trek of 1838 (Boshof n.d; StayZA 2021).



6.1. Heritage sensitivity in the region

The Heritage Screening tool (<https://screening.environment.gov.za/>) shows low to medium significance with locations of high sensitivity towards the northeast, west, northwest, and southwest of the proposed project areas.

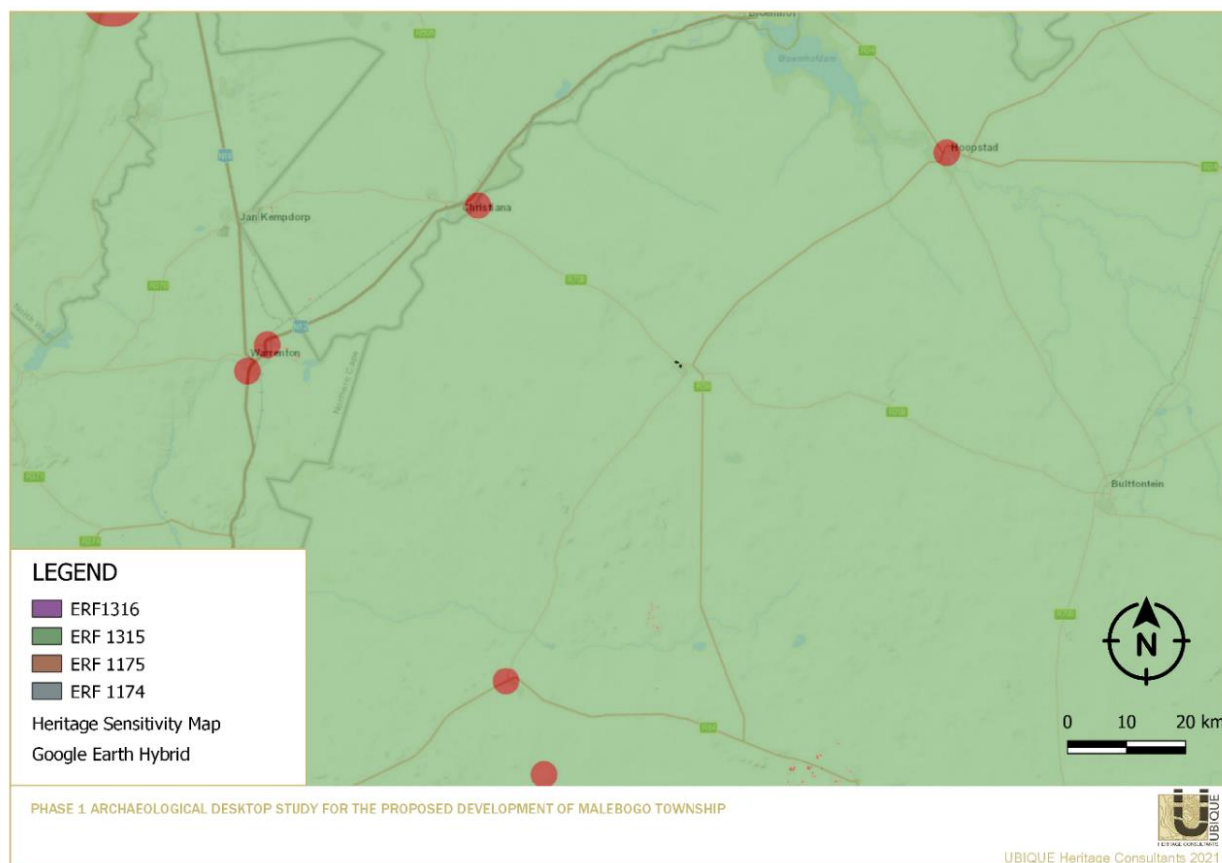


Figure 10 The Project area indicated on the Heritage Screening tool (<https://screening.environment.gov.za/>)

6.2. Identified heritage resources

The desktop study revealed that little to no Heritage Assessments had been conducted on or directly adjacent to the proposed areas for development. However, numerous studies were completed in the broader landscape at and around Boshof, Bultfontein, Dealesville, and Hoopstad. The assessments reported on cultural material and features relating to the Stone Age, Iron Age and Historical/Colonial era, which appear to be consistent with the history of the Free State. Several studies encountered minimal and/or no archaeological materials/remains (e.g. Coetzee 2019; Dreyer 2008b; Hutten 2011a; Magoma 2013 and Mlilo 2017).

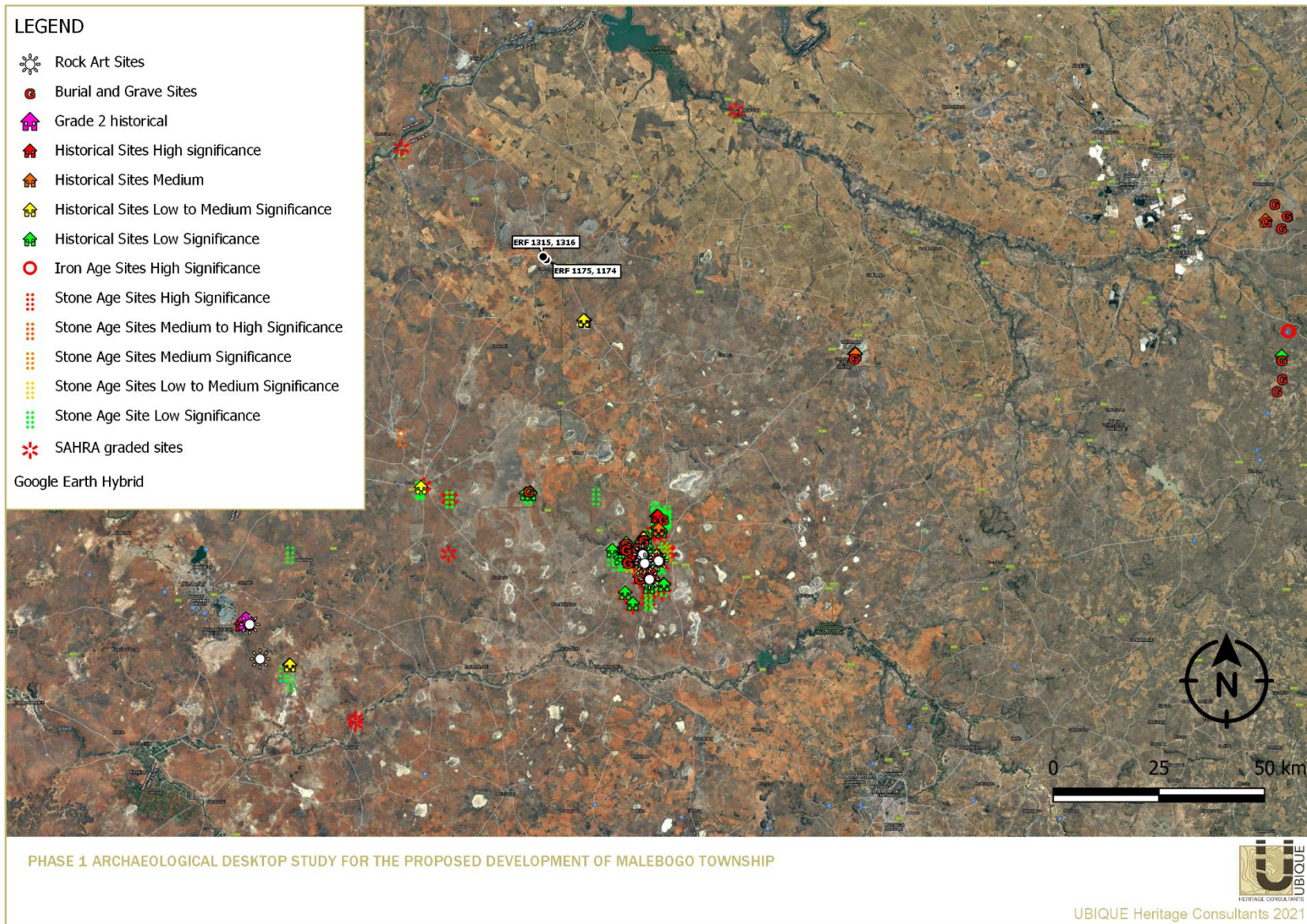


Figure 11 Map composite of heritage resources recorded from previous HIA/AIAs in the area.

6.3. Discussion

6.3.1. Stone Age

Scatters of stone artefacts have been reported by, but not limited to, Dreyer (2004; 2008a), Hutten (2011b), Kaplan (2020), Kitto & Angel (2018), Morris (2014a and b), Orton (2016; 2016 a, b, c, d and e), Rossouw (2011; 2017) and Van der Walt (2013). However, most of the Stone Age artefacts reported in the assessments range between low to medium significance. The majority of the scatters can be ascribed to the MSA and a few ESA and LSA occurrences.

Stone Age sites were recorded in various locations to the southeast and southwest of the study area, most notably in open-air settings. Recorded assemblages in the consulted HIA/AIAs include ESA, MSA, and LSA material. The documented occurrences predominantly contain low-density surface scatters of debris flakes, blades, chunks, cores, grindstones (fragments) and points. For example, several low densities of MSA lithics and isolated occurrences have been recorded by Rossouw (2011), and several approximately 47-60 km southwest and southeast of the proposed development areas by Kitto and Angel (2018), Van der Walt (2013), and Kaplan (2020). Morris (2014b) also recorded low densities of MSA scatters roughly 100 km southwest of Hertzogville. Medium to high densities of MSA artefacts have been recorded approximately 48 km south (Angel & Kitto 2018) and about 100 km southwest of Hertzogville (Morris 2014b). According to Rossouw (2017), several ESA and MSA stone tools have been recovered during mining operations in 1930 and 1955 at Pniel near Nooitgedacht.

Kaplan (2020) recorded weathered hornfels, MSA flakes, blades, chunks and cores during the field assessment for the proposed Visserpan Solar PV facility in 2019. He also noted broken grindstones and a silcrete flake (Kaplan 2020). Hutten (2011b) reported extensive scatters of MSA and LSA flakes, blades and cores, 47 km southwest of the current study area. Several uncapped and weathered stone tool flakes were recorded by Rossouw (2017) at the remainder of the Farm Dutoitspan 119 (now Rooifontein 1722), Boshof District. ±99 km southwest. Morris (2014a) recorded several MSA and LSA artefacts Proposed Boundary Solar Energy Facility on the farm Karreeboom 1716, roughly 90 km southwest of Hertzogville. Additionally, several MSA and LSA scatters (some of which were more dense) and isolated occurrences were recorded by Orton (2015) during his assessment of eleven Solar PV Facilities and Supporting Electrical Infrastructure near Dealesville. A small irregular circular alignment of rocks was found during the same survey. Orton (2015) postulates that this structure may date to the LSA. He also found a probable Khoekhoe occupation site. This site has engraved geometric rock art, bedrock grinding hollows and numerous flaked stone artefacts in hornfels (Orton 2015). Various artefacts pertaining to the MSA and LSA were also recorded by Orton (2016 a, b, c, d and e) during his surveys of the Watt, Edison, Marconi, Faraday and Maxwell PV 100 MW Photovoltaic Facility near Dealesville. The most notable finds were several grinding hollows and grooves and a small boulder with three 'cupules' ground into it.

Scatters of highly weathered and patinated LSA flakes have been recorded by Dreyer (2004; 2008a) approximately 53 km and 80 km southwest of Hertzogville.

6.3.1.1. Rock Art

Several of the consulted HIA and AIAs had documented rock art. The closest rock art (engravings) sites, possibly of Bushmen and Khoekhoen origin, were approximately 63 km southeast of the proposed development. These were noted by Orton (2015). The engravings include an ostrich and antelope such as eland. Although they are of recent age, Orton (2015) also noted several engravings and graffiti in the form of names, dates and other motifs engraved or scratched onto dolerite boulders.

Another series of rock engravings (near ground bedrock patches and two historical stock enclosures) were noted by Orton (2016 a, b, c, d and e) during his surveys. The rock engravings are of Khoekhoen and Bushmen origin. Coetzee (2017b) also recorded a rock art site with engravings during his investigation for a Prospecting Right Application of Diamond Alluvial, Diamond General and Diamond Kimberlite near Kimberley on a portion of the Farm Rooifontein 1722 approximately 97 km southwest of Hertzogville. This site has been given the field rating significance of Provincial Level (Grade II) (Coetzee 2017b).

The table below provides a list of the known rock art sites on the SAHRA database.

Site/Object Name	Site ID	Nid	Coordinates	Site type	Site Reference	Province
Dealesville	132108	547019	-28.714861, 25.718806	Rock Art	DLS051	Free State
Dealesville	132053	546806	-28.728556, 25.750250	Rock Art	DLS002	Free State
Dealesville	132056	546815	-28.727083, 25.749444	Rock Art	DLS005	Free State
Dealesville	132057	546818	-28.685000, 25.709194	Rock Art	DLS006	Free State
Dealesville	132091	546950	-28.674917, 25.735056	Rock Art	DLS036	Free State
Dealesville	132097	546968	-28.704972, 25.721306	Rock Art	DLS042	Free State
Dealesville	132098	546975	-28.705194, 25.721611	Rock Art, Artefacts	DLS043	Free State
Dealesville	132105	547010	-28.714889, 25.719278	Rock Art	DLS048	Free State
Dealesville	132106	547013	-28.714778, 25.719139	Rock Art	DLS049	Free State
Dealesville	132107	547016	-28.714833, 25.718806	Rock Art	DLS050	Free State
Dealesville	132112	547033	-28.738639, 25.745806	Rock Art	DLS055	Free State
Dealesville	132127	547091	-28.668306, 25.705056	Rock Art	DLS069	Free State
Dealesville	132128	547094	-28.668528, 25.704889	Rock Art	DLS070	Free State
Dealesville	132129	547098	-28.668444, 25.704389	Rock Art	DLS071	Free State
Dealesville	132134	547122	-28.668806, 25.703889	Rock Art	DLS076	Free State
Dealesville	132135	547125	-28.668806, 25.704139	Rock Art	DLS077	Free State
Dealesville	132136	547128	-28.668639, 25.703861	Rock Art	DLS078	Free State
Edison PV	131899	545776	-28.660167, 25.665972	Rock Art	ESN023	Free State
Maxwell PV	132860	552249	-28.660167, 25.665972	Rock Art	MPV046	Free State
Marconi	132927	552478	-28.660167, 25.665972	Rock Art	MRN036	Free State
Watt PV	132247	547615	-28.660167, 25.665972	Rock Art	WTPV024	Free State

Watt PV	132254	547684	-28.668972, 25.700556	Rock Art	WTVP031	Free State
Watt PV	132255	547695	-28.669000, 25.700389	Rock Art	WTVP032	Free State

6.3.2. Iron Age

According to the consulted HIA/AIAs, no EIA or MIA sites have been identified in the study area. Van Schalkwyk (2019) identified LIA stone-walled features representing early Sotho settlement (associated with the Leghoya - Sesotho-speaking groups in the area from the late 16th century). The site is comprised of house structures with courtyards and (probable) livestock pens. Van Schalkwyk (2019) mentions a second site. Even though he does not provide much detail on the second site, it is presumed to be similar to the first.

6.3.3. Historical Period

Minimal colonial-era features have been recorded near the proposed development area. The closest site is roughly 15 km south-southeast of the town of Hertzogville, was a survey by Van der Walt (2012) during his assessment for the proposed Hertzogville (15MW) photovoltaic plant on Albert and Wigt farm No 1036. He recorded several rectangular stone wall features (Van der Walt 2012). Several assessments recorded sites and artefacts relating to the Historical/Colonial period, although the majority of these sites are situated further than 50 km from the proposed development areas. They consist mainly of 19th and 20th-century farming infrastructure, in the form of stone kraals, and farmhouses or farm-related features. Some of the structural features are related to mining activities and the Anglo-Boer war. For example, Dreyer (2004) recorded several tin can remains with typical coarse soldering dating from the Anglo-Boer War (1899-1902) and a possible ash heap approximately 53 km southwest of the proposed development areas. Various artefacts such as rusted iron sheets, the base of purple glass bottle with an illegible imprinted word, as well as soil with ashy colourations pointing to evidence of settlement (a probable workers camp) were recorded by Matenga (2019) during the survey of the Farm Blaauwboschfontein 229, Boshof District, approximately 48 km south of Hertzogville. Kitto and Angel (2018) noted stone foundations of an old farmhouse and smaller structures of red-clay bricks associated with the old farmhouse, and a rectangular foundation, likely a porch, as well as an old Mineshaft roughly 48 km south of Hertzogville. Rossouw (2013) recorded and mapped the remains of five rectangular stone foundations, ±67 km west of the proposed development area during impact assessment of the proposed township extension at Phahameng, Bultfontein.

Orton (2016 a, b, c, d and e) recorded several ruined stone kraals, farmhouses, various other smaller foundations as well as light scatters of artefacts and a domestic ash midden. Orton (2015) also noted several historical structures such as small ruined structures, several ruined dry stone-walled structures, historic kraals, and old farmhouse, and a small structure that might once have been a shepherd's hut as well as scatters of historical artefacts associated with structural remains.

To the southwest of Hertzogville (±98 km away), Coetzee (2017b) recorded a historic mine and refuse dump and a historical water furrow, all of which are associated with the late 19th-century early 20th-century mining activities that took place in the region. A probable small kraal, rectangular building foundations, and middens were recorded by Morris (2014a) during the assessment of the proposed Boundary Solar Energy Facility on the farm Karreeboom 1716. Morris (2014a) also noted 19th and 20th century cultural material such as metal items, glass bottles, and a borrow pit with 20th century and 21st-century dumping. During the same survey, Morris

(2014a) recorded a feature believed to be an OFS Custom House and associated material such as window glass, a nail, bottle glass and a piece of a mouth organ.

6.3.4. Graves and Burial Sites

Numerous HIA/AIA reports recorded graves and cemeteries. However, the majority are further than 50 km from the development area. For example, surveys at Blaawboschfontein (approximately 47 km from Hertzogville) revealed disturbed burial grounds (not visible from the surface). These graves were exposed human remains and objects associated with burial, such as a rusted metal sheet cover and decomposed timber frames of coffins (Matenga 2019; Kitto and Angel 2019). Moreover, the majority of the reports recorded graves southeast of the study area. For example, a small, abandoned graveyard containing five graves was noted during the assessment for the proposed Visserspan solar PV facility on the farm Visserspan no. 40 near Dealesville (roughly 58 km from the proposed development area) by Kaplan (2020). Orton (2016a, b, c, d, and e) noted various graves and graveyards. The grave types varied from formalised (clustered and fenced into small graveyards) to informal and isolated graves. A cluster of dolerite rocks that could possibly be a grave and two graveyards, one on Constantia and one on Walviskuil, were also noted by Orton (2015) during his surveys. Several of the graves at Constantia date back into the late 19th century.

Recorded graves/burials/cemeteries

Name	Cemetery ID	Site Type	Coordinates	URL Reference link
Free State, HERTZOGVILLE, Main Cemetery	2789	cemetery	-28 08.143, 25 30.415	https://graves-at-egggsa.org/main.php?g2_itemId=36187
Free State, HERTZOGVILLE, NG Kerk Gedenkmuur	6318	cemetery	-28 07.707, 25 30.388	https://graves-at-egggsa.org/main.php?g2_itemId=4004782

Burial grounds and graves on SAHRA database

Site/Object Name	Site ID	Nid	Coordinates	Site type	Site Reference	Province
Dealesville	132061	546839	-28.685083, 25.673083	Burial Grounds & Graves	DLS010	Free State
Dealesville	132070	546869	-28.714750, 25.698444	Burial Grounds & Graves	DLS019	Free State
Dealesville	132092	546953	-28.675278, 25.735056	Burial Grounds & Graves	DLS037	Free State
Edison PV	131882	545721	-28.658222, 25.693194	Burial Grounds & Graves	ESN006	Free State
Edison PV	131885	545727	-28.657111, 25.693194	Burial Grounds & Graves	ESN009	Free State
Edison PV	131886	545729	-28.658889, 25.694556	Burial Grounds & Graves	ESN010	Free State
Edison PV	131891	545742	-28.660556, 25.669917	Burial Grounds & Graves	ESN015	Free State
Edison PV	131902	545786	-28.660417, 25.666528	Burial Grounds & Graves	ESN026	Free State
Edison PV	131904	545790	-28.660278, 25.666389	Burial Grounds & Graves	ESN028	Free State
Edison PV	131908	545802	-28.657639, 25.671861	Burial Grounds & Graves	ESN032	Free State
Watt PV	13229	547516	-28.658222, 25.693194	Burial Grounds & Graves	WTVP008	Free State
Watt PV	132232	547526	-28.657111, 25.693194	Burial Grounds & Graves	WTVP011	Free State
Watt PV	132233	547529	-28.658889, 25.694556	Burial Grounds & Graves	WTVP012	Free State
Watt PV	132237	547560	-28.660556, 25.669917	Burial Grounds & Graves	WTVP016	Free State

Watt PV	132249	547633	-28.660417, 25.666528	Burial Grounds & Graves	WTVPO26	Free State
Watt PV	132250	547636	-28.660278, 25.666389	Burial Grounds & Graves	WTVPO7	Free State
Watt PV	132253	547666	-28.676056, 25.684444	Burial Grounds & Graves	WTVPO30	Free State
Watt PV	132258	547704	-28.657639, 25.671861	Burial Grounds & Graves	WTVPO35	Free State
Marconi	132900	552391	-28.658222, 25.693194	Burial Grounds & Graves	MRN009	Free State
Marconi	132903	552400	-28.657111, 25.693194	Burial Grounds & Graves	MRN012	Free State
Marconi	132904	552407	-28.658889, 25.694556	Burial Grounds & Graves	MRN013	Free State
Marconi	132912	552431	-28.660556, 25.669917	Burial Grounds & Graves	MRN021	Free State
Marconi	132930	552490	-28.660417, 25.666528	Burial Grounds & Graves	MRN039	Free State
Marconi	132932	552501	-28.660278, 25.666389	Burial Grounds & Graves	MRN041	Free State
Marconi	132947	552551	-28.657639, 25.671861	Burial Grounds & Graves	MRN056	Free State
British military cemetery, Vendusiedrift, Boshof District	26521	19442	-28.974454, 25.093964	Burial Grounds & Graves	9/2/303/0001/0 03	Free State
British Military Cemetery, Wessels, Boshoff	136628	569450	-28.542173, 25.246291	Burial Grounds & Graves, Monuments & Memorials	DC18/NAMM/00 10	Free State
Catherine's Fancy 831, Boshof, Free State Province	128591	511656	-28.551670, 25.462450	Burial Grounds & Graves	Relocation of 6 graves from the Farm Catherine's Fancy 831, Boshof, Free State	Free State

7. CHANCE FIND PROTOCOL

The following section aims to assist the developer in identifying and managing heritage resources during development proactively. The Chance Find Protocol is not intended to replace heritage assessment or site interpretation. However, it is a visual guide of the most recognizable heritage resources that could be expected in the study area, based on the results of the Desktop Study.

7.1. Stone Age Finds

Stone tools dating from the ESA, MSA, and LSA could be expected within the study area. Low-density (low-density =< 10 lithics per m²; high-density => 10 lithics per m²) open-air surface scatters are the most common lithic occurrence documented by previous HIA/AIAs within the region. Stone tools can also be found in sediments near rivers, pans, or elevated outcrops and rock shelters around water sources. Stone Age debris is also commonly found around drainage lines and exposed surfaces. Stone tools comprise any lithic material that has been shaped or flaked by cognisant anthropogenic activity. These include informal lithics like flakes or knapping waste or formally shaped tools like retouched flakes, scrapers, blades and handaxes.





Figure 12 Selection of various formal and informal ESA, MSA, and LSA stone tools. LSA lithics may be accompanied by coarse low-fired earthenware (h, i, j). Photos: UBIQUE Heritage Consultants.

The Later Stone Age period is characterised by the inclusion of coarse low-fired earthenware, which can often be found in association with lithics (Figure 12 [h, i, j]). In addition, upper and lower grindstones might be present on settlement sites.

7.2. Iron Age Period Finds

Iron Age settlement sites are often characterised by circular scalloped stone-walled enclosures, livestock kraals and circular house structures. Generally, artefacts can be found around/inside the circular structures. Middens are rubbish dumps often associated with the remains of structures. More extensive communal middens may often be present at Iron Age Sites. Middens can be identified by ash deposits and concentrations of artefacts such as earthenware, both decorated and undecorated, glass beads, clay beads, Ostrich Eggshell (OES) beads and fresh-water shell beads, as well as faunal material. In addition, upper and lower grindstones might be present on the surface.





Figure 13 Iron Age house structures (a-b), small livestock kraal and cattle kraal (c-d), upper grindstone (e), in situ potsherds (f), and surface scatter potsherds (g). Photos: UBIQUE Heritage Consultants.

7.3. Historical Period Finds

The Historical or Colonial Period are tangible within the landscape as a variety of different features. For example, sites can vary from permanent settlements like farmscapes or ephemeral like military encampments. Any structure older than 60 years falls under the purview of the NHRA and should be assessed for its unique significance. Structures' construction can range from fieldstone, low-fired mud brick, or bricks and concrete. Middens are rubbish dumps often associated with the remains of structures or an encampment site located within the landscape. Middens can be identified by ash deposits and a concentrated surface distribution of artefacts, such as glass, ceramics, and metal.







Figure 14 Various Historical structures (a-h) and artefacts (i-o). Photos: UBIQUE Heritage Consultants.

7.4. Graves

Graves and informal cemeteries can be expected anywhere in the landscape. For example, family cemeteries can be anticipated close to farmsteads, while informal graves with fieldstone cairns or headstones could also be located seemingly random in the veldt. Whether fenced or unfenced, formal graves are easy to identify; however, fieldstone graves could become barely recognizable for numerous reasons over time. Grave treatment ranges from marble, fieldstone, cement/concrete, and bricks.

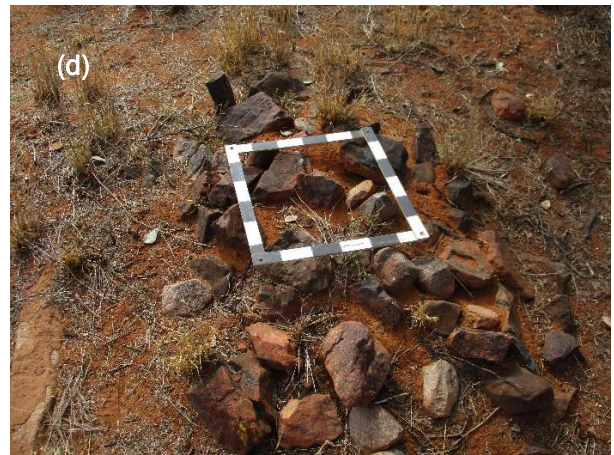




Figure 15 Various grave treatments, formal and informal. Photos: UBIQUE Heritage Consultants.

It is important to note that some burials may not have been marked on the surface, or the grave indicators may have been displaced. The unexpected excavation of sub-surface human remains is a rare but probable scenario.

Should it be impossible to avoid graveyard(s), grave(s) or burial(s) sites with the final development, mitigation in the form of grave relocation could be undertaken. This is, however, a lengthy and costly process. Grave relocation specialists need to be employed to manage the liaison process with the communities and individuals who by tradition or familial association might have an interest in these graves or burial ground; as well as manage the permit acquisition from the SAHRA Burial Grounds and Graves (BGG) Unit and the arrangements for the exhumation and re-interment of the contents of the graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

Hidden or sub-surface sites may exist in the area. No sub-surface testing may be conducted without a permit, and therefore sites may be missed during a field assessment. We recommend that if any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are uncovered during development, SAHRA APM Unit (Natasha Higgitt/Phillip Hine 021 462 5402) must be alerted as per section 35(3) of the NHRA. If unmarked human burials are discovered, the SAHRA Burial Grounds and Graves (BGG) Unit (Thingahangwi Tshivhase/Mimi Seetelo 012 320 8490) must be alerted immediately as per section 36(6) of the NHRA. A professional archaeologist or palaeontologist must be contracted as soon as possible to inspect the findings. If the newly unearthed heritage resources are of high significance, a Phase 2 rescue operation may be required with permits issued by SAHRA.

8. CONCLUSION

In conclusion, the HIA Desktop Study has found no Heritage and Archaeological Impact Assessments on the proposed development area. However, heritage sites and resources ranging from low to high significance have been documented on the periphery of a 15-100 km radius from the study area. These sites provide the reader with the data necessary to anticipate the sites' probable significance that might accompany any projected heritage resource.

The background study revealed that the majority of the documented lithic material is of low and medium significance. These sites are predominantly open-air sites with low-density surface scatters or isolated occurrences. Due to the proposed development areas being situated within the town and the previous and current informal occupation and surface disturbance, any above ground lithic material would likely be out of context. Therefore, it is considered that the occurrence of lithic material within the development areas is low. However, the possibility of open-air Stone Age sites/occurrences in the development area should not be disregarded.

Several rock-art sites have been recorded southeast and southwest of the study area, all of which are further than 50 km from the proposed development footprint. Rock art, specifically engravings, may be present in open-air rocky outcrop sites. The possibility of rock art or engravings at the proposed development areas are considered to be low.

Iron Age sites have been recorded approximately 155 km east of the proposed development area. Therefore, it suggests that the likelihood of such sites being present in the development area is low.

Archaeological traces of historical/colonial era features and artefacts attributed to the representation of the regional colonial farming history and colonial settlement and the Anglo-Boer War have been recorded in the wider region, specifically to the south, southwest, and southeast. The town was established and occupied during the early 1900s. Thus, colonial-era material and features (such as middens, artefacts and structural features) within the development areas are considered probable. However, due to the previous and current informal occupation and surface disturbance, any above ground colonial material would likely be out of context.

The probability of graves and burials are low. However, the likelihood of graves and burials should not be disregarded since graves, and informal cemeteries can be expected anywhere in the landscape. For example, family cemeteries can be anticipated close to farmsteads, while informally marked graves containing fieldstone cairns and headstones may be found in the veldt.

BIBLIOGRAPHY

- Badenhorst, S. 2010. Descent of Iron Age Farmers on Southern Africa during the last 2000 years. *African Archaeological Review*, 27:87–106.
- Binneman, J. F. 1995. Symbolic construction of communities during the Holocene Later Stone Age in the South–Eastern Cape. Unpublished PhD thesis. Johannesburg: University of the Witwatersrand
- Binneman, J., Booth, C. and Higgitt, N. 2011. An Archaeological Desktop Study And Phase 1 Archaeological Impact Assessment (Aia) For The Proposed Clidet Data Cable between Bloemfontein, Orange Free State and Graaff Reinet, Eastern Cape Province; Colesberg, Orange Free State and Port Elizabeth, Eastern Cape Province; George, Western Cape Province and Port Elizabeth, Eastern Cape Province and; Aliwal North and East London, Eastern Cape Province. Unpublished report. Albany Museum: Grahamstown.
- Coetzee, F. P. 2017a. Cultural Heritage Impact Assessment: Phase 1 Investigation Of The Proposed Gold Mine Operation By Gold One Africa Limited, Ventersburg Project, Lejweleputswa District Municipality, Matjhabeng Local Municipality, Free State. Unpublished report. Pretoria.
- Coetzee, F. P. 2017b. Cultural Heritage Impact Assessment: Phase 1 Investigation For A Prospecting Right Application Of Diamond Alluvial, Diamond General And Diamond Kimberlite Near Kimberley On A Portion Of The Farm Rooifontein 1722 (Previously Known As A Portion Of The Farm Dutoitspan 119), Tokologo Local Municipality, Lejweleputswa District Municipality, Free State Province. Unpublished report. Pretoria.
- Coetzee, F. P. 2019. Cultural Heritage Impact Assessment: Phase 1 Investigation For The Amendment Of An Existing Environmental Authorisation For An Existing Mining Right Of Corobrick (Pty) Ltd (Odendaalsrus Factory) On The Farm Hesters Rust 29, Near Welkom, Matjhabeng Local Municipality And Lejweleputswa District Municipality, Free State Province. Unpublished report. Pretoria.
- Coertze, P.J. & Coertze, R.D. 1996. *Verklarende vak woordeboek vir Antropologie en Argeologie*. R.D. Coertze: Pretoria.
- Deacon, H.J. & Deacon, J. 1999. *Human Beginnings in South Africa: Uncovering the secrets of the Stone Age*. David Phillips Publishers: Cape Town.
- Dreyer, C. 2004 Archaeological and Historical Investigation of the Proposed Residential Area at Boshof, Free State. Unpublished report. Brandhof: Bloemfontein.
- Dreyer, C. 2008a. First Phase Archaeological and Cultural Heritage Assessment of the Proposed Leisure Residential Developments at the Farms Serfonteinshoop 43, Napier 662 & Garvoch 367, Boshof, Free State. Unpublished report. Brandhof: Bloemfontein.
- Dreyer, C. 2008b. First Phase Archaeological And Cultural Heritage Investigation Of The Proposed Hlangana Groot Rivier Estate, Boshof, Free State. Unpublished report. Brandhof: Bloemfontein.
- Fourie, W. 2020. The Proposed Development Of The Eskom Melkspruit To Rouxville 132 Kv Overhead Powerline, Free State Province. Unpublished report. PSG Heritage.
- Hall, M. 1987. *The changing past: farmers, kings and traders in southern Africa. 200-1860*. Cape Town: David Philip.

- Hillier, A. P. and Cana, F. R. 1911. *Encyclopædia Britannica, Volume 20. 11th ed. Orange Free State* P:151-159.
- Huffman, T. 2002. Regionality in the Iron Age: the case of the Sotho-Tswana. *Southern African Humanities*, 14: 1–22.
- Huffman, T. 2007. *Handbook to the Iron Age*. Pietermaritzburg: University of Kwazulu-Natal Press.
- Hutten, M. 2011a. Heritage Impact Assessment For The Proposed Tikwana Solar Park Near Hoopstad, Free State Province. Unpublished report. Hutten Heritage Consultants. Louis Trichardt.
- Hutten, M. 2011b. Heritage Impact Assessment Heritage Impact Assessment For The Proposed Boshof Solar Park On The Farm Rabenthal North Of Boshof, Free State Province. Unpublished report. Hutten Heritage Consultants. Louis Trichardt.
- Kitto, J. and Angel, J. 2018. Heritage Impact Assessment Catherine's Fancy 831, Which Forms Part Of The Blaauwbosch Mine, Boshof District, Free State Province. Unpublished report. PGS Heritage (Pty) Ltd.
- Klein, R. G. 2000. The Earlier Stone Age of Southern Africa. *The South African Archaeological Bulletin*, 27(172): 107-122.
- Kruger, N. 2018. Archaeological Impact Assessment (Aia) Of Demaracted Areas On A Portion Of The Remainder Of The Farm Bospoort 558 For The Proposed Bospoort Sand Mine Project In The Fezile Dabi District Municipality, Free State Province. Unpublished report. Exigo3 Sustainability.
- Kaplan, J. 2020. *Archaeological Impact Assessment* Environmental Impact Assessment For The Proposed Visserspan Solar Pv Facility On The Farm Visserspan No. 40 Near Dealesville, Tokologo Local Municipality, Free State Province. Unpublished report. Agency for Cultural Resources Management. Rondebosch.
- Lombard, M., Wadley, L., Deacon, J., Wurz, S., Parsons, I., Mohapi, M. Swart, J. & Mitchell, P. 2012. South African and Lesotho Stone Age sequence updated. *South African Archaeological Bulletin* 67: 123-144.
- Magoma, M. 2013. Phase 1 Archaeological Impact Assessment Of The Proposed Development Of The Boshof Combined School In The Tokologo Municipality, Lejweleputswa District Municipality, Free State Province. Unpublished report. BoPhelo Environmental Consultant and GIS Specialist.
- Matenga, E. 2019. Phase I Heritage Impact Assessment (Including Palaeontological Assessment) Requested In Terms Of Section 38 Of The National Heritage Resources Act No 25/1999 For A Mining Right On Portion 4 Of The Farm Blaauwboschfontein 229, Boshof District, Free State Province. Unpublished report. Archaeological and Heritage Services Africa (Pty) Ltd. Pretoria
- Mitchell, P. 2002. *The archaeology of Southern Africa*. Cambridge: Cambridge University Press.
- Mlilo, T. 2017. Phase 1 Archaeological/Heritage Impact Assessment For Prospecting Rights To Prospect For Diamonds (Alluvial And Kimberlite) In Respect Of Remainder Of Kalkfontein A 13 Farm, Situated Within Boshof Local Municipality, Free State Province. Unpublished report. Integrated Specialist Services.

- Morris, D. 2014a. Proposed Boundary Solar Energy Facility On The Farm Karreeboom 1716, East Of Kimberley, In The Tokologo Local Municipality, Free State: Heritage Impact Assessment. Unpublished report. McGregor Museum: Bloemfontein.
- Morris, D. 2014 b. proposed Blackwood Solar Energy Facility On Portion 1 Of Pandamsfontein 1593, South East Of Kimberley, In The Tokologo Local Municipality, Free State: Scoping Phase Heritage Input. Unpublished report. McGregor Museum: Bloemfontein.
- Mucina, L. & Rutherford, M.C. (eds) 2006. *The vegetation of South Africa, Lesotho and Swaziland*. Strelitzia 19. SANBI: Pretoria.
- Orton, J. 2015. Heritage impact assessment for eleven Solar PV Facilities and Supporting Electrical Infrastructure near Dealesville in the Free State Province. Unpublished report. ASHA Consulting(Pty) Ltd.
- Orton, J. 2016 a. Heritage Impact Assessment: Scoping And Environmental Impact Assessment For The Proposed Development Of The Edison Pv 100 Mw Photovoltaic Facility Near Dealesville, Free State. Unpublished report. ASHA Consulting(Pty) Ltd.
- Orton, J. 2016 b. Heritage Impact Assessment: Scoping And Environmental Impact Assessment For The Proposed Development Of The Watt Pv 100 Mw Photovoltaic Facility Near Dealesville, Free State. Unpublished report. ASHA Consulting(Pty) Ltd.
- Orton, J. 2016 c. Heritage Impact Assessment: Scoping And Environmental Impact Assessment For The Proposed Development Of The Marconi Pv 100 Mw Photovoltaic Facility Near Dealesville, Free State. Unpublished report. ASHA Consulting(Pty) Ltd.
- Orton, J. 2016 d. Heritage Impact Assessment: Scoping And Environmental Impact Assessment For The Proposed Development Of The Faraday Pv 100 Mw Photovoltaic Facility Near Dealesville, Free State. Unpublished report. ASHA Consulting(Pty) Ltd.
- Orton, J. 2016 e. Heritage Impact Assessment: Scoping And Environmental Impact Assessment For The Proposed Development Of The Maxwell Pv 100 Mw Photovoltaic Facility Near Dealesville, Free State. Unpublished report. ASHA Consulting(Pty) Ltd.
- Raper, P. E. 1987. *Dictionary Of Southern African Place Names*. Head, Onomastic research Centre, HSRC.
- Rossouw, L. 2011. Phase 1 PIA And AIA Of Two Proposed Dams On The Farms Loverswalk 1063 And Smithskraal 1519, Boshof District, Fs.Unpublished report. Langenhovenpark. Bloemfontein.
- Rossouw, L. 2013. Phase 1 Palaeontological And Archaeological Impact Assessment Of The Proposed Township Extension At Phahameng, Bultfontein, Free State Province. Unpublished report. Paleo Field Services. Langenhovenpark. Bloemfontein.
- Rossouw, L. 2017. Phase 1 Archaeological Impact Assessment For A Mining Permit Application On The Remainder Of The Farm Dutoitspan 119 (Now Rooifontein 1722), Boshof District, Fs Province. Unpublished report. National Museum. Bloemfontein.
- Tomose, N. G. 2013. A Phase 1 Heritage Impact Assessment Study For The Proposed Photovoltaic (Pv) Solar Energy Facilities, Near Excelsior, Free State Province. Unpublished report.
- Van der Ryst, M.M. & Meyer, A. 1999. *Die Ystertydperk. Bergh, J.S. (red.). Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies*. Pretoria: J.L. van Schaik.

- Van der Walt, J. 2012 a. Archaeological Impact Assessment For the proposed Hertzogville (15MW) photovoltaic plant on Albert and Wigt farm No 1036 Free State Province. Unpublished report. Heritage Contracts and Archaeological Consulting, Johannesburg.
- Van der Walt, J. 2012 b. Archaeological Impact Assessment For the proposed Hertzogville PV 2 Solar energy on farm Albert 986 Free State Province. Unpublished report. Heritage Contracts and Archaeological Consulting. Johannesburg.
- Van Der Walt, J. 2013. Archaeological Impact Assessment For The Proposed Boshof - Les Marais \ Buitenfontein 5mw Solar Energy Facility Near The Town Of Boshoff In The Free State Province. Unpublished report. Heritage Contracts and Archaeological Consulting. Johannesburg.
- Van Schalkwyk, J. 2014. Cultural Heritage Impact Assessment For The Proposed Resort Development On A Portion Of The Farm Damlaagte 229, Ngwathe Local Municipality, Free State Province. Unpublished report.
- Van Schalkwyk, L. 2019. Heritage Impact Assessment Scoping Report Proposed Capacity Improvements To National Route 1, Section 16 Winburg Station (Km 89,8) And Ventersburg (Km 133,53) Lejweleputswa Distict Municipality, Free State Province. Unpublished Report. Ethembeni Cultural Heritage
- Wurz, S., 2013. Technological trends in the Middle Stone Age of South Africa between MIS 7 and MIS 3. *Current Anthropology*, 54(S8): S305-S319.

WEB

- <https://sahris.sahra.org.za/declaredsites> (Accessed 24/08/2021).
- <https://sahris.sahra.org.za/allsitesfinder> (Accessed 24/08/2021).
- <https://graves-at-eggssa.org/main.php> (Accessed 27/07/2021).
- <https://pathfinda.com/en/hertzogville> (Accessed 25/08/2021).
- <https://ruralexploration.co.za/Hoopstad.html> (Accessed 25/08/2021).
- <https://www.free-state-info.co.za/provinces/town/437/dealesville>(Accessed 25/08/2021).
- <http://www.boshof.co.za/History.htm> (Accessed 25/08/2021).
- <https://www.stayza.com/free-state-attractions-boshof-2/> (Accessed 25/08/2021).
- <https://www.sanbi.org/gardens/free-state/history/> (SANBI 2021) (Accessed 20/05/2021).
- <https://en.wikipedia.org/wiki/Dealesville> (Accessed 28/08/2021).

