

HERITAGE IMPACT ASSESSMENT

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

FOR THE PROPOSED KEDAKE RESOURCES FISH FARM, MEYERTON,
GAUTENG PROVINCE

Type of development:

Aquaculture facility

Client:

CSIR

Client info:

Ms. Karabo Mashabela

E – mail: kmashabela1@csir.co.za

Developer: Kedake Resources (Pty)Ltd



HCAC - Heritage Consultants

Private Bag X 1049

Suite 34

Modimolle

0510

Tel: 082 373 8491

Fax: 086 691 6461

E-Mail: jaco.heritage@gmail.com

Report Author:

Mr. J. van der Walt

Project Reference:



HCAC Project number 217116

Report date:

November 2017

APPROVAL PAGE

Project Name	Proposed Fish Farming project, Plot 19 Klipview, Midvaal Local Municipality, Meyerton-Gauteng Province
Report Title	For the Proposed Kedake Resources Fish Farm, Meyerton, Gauteng Province
Authority Reference Number	TBC
Report Status	Final Report
Applicant Name	Kedake Resources (Pty)Ltd

	Name	Signature	Qualifications and Certifications	Date
Document Compilation	Jaco van der Walt		MA Archaeology ASAPA #159	November 2017
	Marko Hutten		BA Hons Archaeology	November 2017

DOCUMENT PROGRESS**Distribution List**

Date	Report Reference Number	Document Distribution	Number of Copies
27 November 2017	217116	CSIR	Electronic Copy

Amendments on Document

Date	Report Reference Number	Description of Amendment

INDEMNITY AND CONDITIONS RELATING TO THIS REPORT

The findings, results, observations, conclusions and recommendations given in this report are based on the author's best scientific and professional knowledge as well as available information. The report is based on survey and assessment techniques which are limited by time and budgetary constraints relevant to the type and level of investigation undertaken and HCAC reserves the right to modify aspects of the report including the recommendations if and when new information becomes available from ongoing research or further work in this field, or pertaining to this investigation.

Although HCAC exercises due care and diligence in rendering services and preparing documents, HCAC accepts no liability, and the client, by receiving this document, indemnifies HCAC against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by HCAC and by the use of the information contained in this document.

This report must not be altered or added to without the prior written consent of the author. This also refers to electronic copies of this report which are supplied for the purposes of inclusion as part of other reports, including main reports. Similarly, any recommendations, statements or conclusions drawn from or based on this report must make reference to this report. If these form part of a main report relating to this investigation or report, this report must be included in its entirety as an appendix or separate section to the main report.

COPYRIGHT

Copyright on all documents, drawings and records, whether manually or electronically produced, which form part of the submission and any subsequent report or project document, shall vest in HCAC.

The client, on acceptance of any submission by HCAC and on condition that the client pays to HCAC the full price for the work as agreed, shall be entitled to use for its own benefit:

- The results of the project;
- The technology described in any report; and
- Recommendations delivered to the client.

Should the applicant wish to utilise any part of, or the entire report, for a project other than the subject project, permission must be obtained from HCAC to do so. This will ensure validation of the suitability and relevance of this report on an alternative project.

REPORT OUTLINE

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

Table 1. Specialist Report Requirements.

Requirement from Appendix 6 of GN 326 EIA Regulation 2017	Chapter
(a) Details of - (i) the specialist who prepared the report; and (ii) the expertise of that specialist to compile a specialist report including a curriculum vitae	Section a Section 12
(b) Declaration that the specialist is independent in a form as may be specified by the competent authority	<i>Declaration of Independence</i>
(c) Indication of the scope of, and the purpose for which, the report was prepared	Section 1
(cA) an indication of the quality and age of base data used for the specialist report	Section 3.4 and 7.1.
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	9
(d) Duration, Date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 3.4
(e) Description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Section 3
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 8 and 9
(g) Identification of any areas to be avoided, including buffers	Section 8 and 9
(h) Map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	Section 8
(I) Description of any assumptions made and any uncertainties or gaps in knowledge	Section 3.7
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity including identified alternatives on the environment or activities;	Section 9
(k) Mitigation measures for inclusion in the EMPr	Section 9
(l) Conditions for inclusion in the environmental authorisation	Section 9
(m) Monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 9
(n) Reasoned opinion - (i) as to whether the proposed activity, activities or portions thereof should be authorised; (iA) regarding the acceptability of the proposed activity or activities; and (ii) if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Section 9.2
(o) Description of any consultation process that was undertaken during the course of preparing the specialist report	Section 6
(p) A summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Refer to BA report
(q) Any other information requested by the competent authority	Section 10

Executive Summary

The CSIR are conducting a Basic Assessment for the proposed Kedake Fish Farm on Plot 19 Klipview A.H, Meyerton. HCAC was appointed to conduct a Heritage Impact Assessment to determine the presence of cultural heritage sites and the impact of the proposed development on these non-renewable resources. The study area was assessed both on desktop level and by a field survey. The field survey was conducted as a non-intrusive pedestrian survey to cover the extent of Plot 19 as development plans are not available at this stage, however no existing infrastructure (houses etc.) will be demolished or impacted on by the proposed fish farm.

No archaeological sites or material of significance was recorded during the survey. A paleontological desktop study was conducted by Rossouw (2017) that concluded: “


“It is recommended that the development may proceed without a phase 1 impact study, provided that any activity that will require > 1m deep x 1m² excavations into unweathered sedimentary bedrock within the proposed footprint will require once off monitoring by a professional palaeontologist during the construction phase of the development in case of chance exposure of stromatolite fossil remains, while such excavations are still open “. No further mitigation prior to construction is recommended in terms of the archaeological and paleontological components of Section 35 for the proposed development to proceed.

In terms of the built environment of the area (Section 34), no standing structures older than 60 years occur within the study areas. In terms of Section 36 of the Act no burial sites were recorded. If any graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation. No public monuments are located within or close to the study area. The area is rural in character and the proposed project is in line with the current land use and will not impact negatively on significant cultural landscapes or viewsapes. During the public participation process conducted for the project no heritage concerns was raised.

Due to the lack of significant heritage resources in the study area the impact of the proposed project on heritage resources is considered low and it is recommended that the proposed project can commence on the condition that the following recommendations are implemented as part of the EMPr and based on approval from SAHRA:

- Implementation of a chance find procedure.

Declaration of Independence

Specialist Name	Jaco van der Walt
Declaration of Independence	<p>I declare, as a specialist appointed in terms of the National Environmental Management Act (Act No 108 of 1998) and the associated 2014 Environmental Impact Assessment (EIA) Regulations, that I:</p> <ul style="list-style-type: none"> • I act as the independent specialist in this application; • I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant; • I declare that there are no circumstances that may compromise my objectivity in performing such work; • I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity; • I will comply with the Act, Regulations and all other applicable legislation; • I have no, and will not engage in, conflicting interests in the undertaking of the activity; • I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority; • All the particulars furnished by me in this form are true and correct; and • I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.
Signature	
Date	27/11/2017

a) Expertise of the specialist

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

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

TABLE OF CONTENTS

REPORT OUTLINE.....	4
EXECUTIVE SUMMARY	5
DECLARATION OF INDEPENDENCE.....	1
A) EXPERTISE OF THE SPECIALIST.....	1
ABBREVIATIONS.....	6
GLOSSARY.....	6
1 INTRODUCTION AND TERMS OF REFERENCE:.....	7
1.1 TERMS OF REFERENCE.....	7
2 LEGISLATIVE REQUIREMENTS.....	13
3 METHODOLOGY.....	15
3.1 LITERATURE REVIEW.....	15
3.2 GENEALOGICAL SOCIETY AND GOOGLE EARTH MONUMENTS.....	15
3.3 PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT:.....	15
3.4 SITE INVESTIGATION.....	15
3.5 SITE SIGNIFICANCE AND FIELD RATING.....	17
3.6 IMPACT ASSESSMENT METHODOLOGY.....	18
3.7 LIMITATIONS AND CONSTRAINTS OF THE STUDY	19
4 DESCRIPTION OF SOCIO ECONOMIC ENVIRONMENTAL.....	19
5 DESCRIPTION OF THE PHYSICAL ENVIRONMENT:.....	20
6 RESULTS OF PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT:.....	21
7 LITERATURE / BACKGROUND STUDY:.....	22
7.1 LITERATURE REVIEW.....	22
7.2 GENERAL HISTORY OF THE AREA	23
8. FINDINGS OF THE SURVEY.....	31
8.3. BUILT ENVIRONMENT (SECTION 34 OF THE NHRA).....	32
8.4. ARCHAEOLOGICAL AND PALAEOLOGICAL RESOURCES (SECTION 35 OF THE NHRA)	32
8.5. BURIAL GROUNDS AND GRAVES (SECTION 36 OF THE NHRA)	32
8.6. CULTURAL LANDSCAPES, INTANGIBLE AND LIVING HERITAGE.....	32
8.7. BATTLEFIELDS AND CONCENTRATION CAMPS	32
8.8. POTENTIAL IMPACT	32
9. CONCLUSION AND RECOMMENDATIONS.....	34

9.1. CHANCE FIND PROCEDURES 35

9.2 REASONED OPINION 35

10. REFERENCES..... 36

11. APPENDICES:..... 37

CURRICULUM VITAE OF SPECIALIST 37

LIST OF FIGURES

FIGURE 1. LOCALITY MAP OF THE LARGER AREA INDICATING THE STUDY AREA IN BLUE.	9
FIGURE 2. PROVINCIAL LOCALITY MAP (1: 250 000 TOPOGRAPHICAL MAP).....	10
FIGURE 3: REGIONAL LOCALITY MAP (1:50 000 TOPOGRAPHICAL MAP).....	11
FIGURE 4. SATELLITE IMAGE INDICATING THE DEVELOPMENT FOOTPRINT (GOOGLE EARTH 2016).	12
FIGURE 5: TRACK LOGS OF THE SURVEY IN BLACK.	16
FIGURE 6. GENERAL SITE CONDITIONS.	21
FIGURE 7. GENERAL SITE CONDITIONS.	21
FIGURE 8. GENERAL SITE CONDITIONS.	21
FIGURE 9. GENERAL SITE CONDITIONS	21
FIGURE 10. 1939 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. ONE CAN SEE THAT THERE WERE CULTIVATED LANDS IN THE NORTH EASTERN PART OF THE STUDY AREA. (TOPOGRAPHICAL MAP 1939).....	25
FIGURE 11. 1957 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. ONE CAN SEE THAT MOST OF THE SITE UNDER INVESTIGATION WAS USED AS CULTIVATED LANDS. NO BUILDINGS ARE VISIBLE IN THIS PORTION. A NUMBER OF TRADITIONAL HUTS / KRAALS CAN BE SEEN TO THE EAST AND SOUTH.(TOPOGRAPHICAL MAP 1957)	26
FIGURE 12. 1979 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. THE STUDY AREA FORMED PART OF THE KLIPVIEW AGRICULTURAL HOLDINGS. THIS PORTION WAS USED AS CULTIVATED LANDS. ONE BUILDING IS VISIBLE IN THE SOUTH EASTERN PART OF THE STUDY AREA. A RESERVOIR CAN BE SEEN JUST TO THE SOUTH EAST OF THE SITE. (TOPOGRAPHICAL MAP 1979)	27
FIGURE 13: 1995 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. THE STUDY AREA FORMED PART OF THE KLIPVIEW AGRICULTURAL HOLDINGS. THE PORTION UNDER INVESTIGATION WAS USED AS CULTIVATED LANDS AND THE 1979 BUILDING IS STILL VISIBLE NEAR THE EASTERN BORDER. FARM ROADS FORM THE NORTHERN AND EASTERN BOUNDARIES OF THE STUDY AREA. A RESERVOIR CAN BE SEEN JUST TO THE SOUTH EAST OF THE SITE. (TOPOGRAPHICAL MAP 1995)	28
FIGURE 14. 2002 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. THE PORTION UNDER INVESTIGATION STILL FORMED PART OF THE KLIPVIEW AGRICULTURAL HOLDINGS. THE SITE WAS HOWEVER NO LONGER USED AS CULTIVATED LANDS. FOUR BUILDINGS CAN BE SEEN IN THE SOUTH EASTERN PART OF THE STUDY AREA. (TOPOGRAPHICAL MAP 2002)	29
FIGURE 15. 2017 GOOGLE EARTH IMAGE SHOWING THE STUDY AREA IN RELATION TO MEYERTON, DE DEUR, EVATON, THE R59 PROVINCIAL ROAD AND OTHER SITES. (GOOGLE EARTH 2017).....	30

LIST OF TABLES

TABLE 1. SPECIALIST REPORT REQUIREMENTS..... 4
TABLE 2: PROJECT DESCRIPTION..... 8
TABLE 3: INFRASTRUCTURE AND PROJECT ACTIVITIES 8
TABLE 4: SITE INVESTIGATION DETAILS 15
TABLE 5. IMPACT ASSESSMENT TABLE..... 33

ABBREVIATIONS

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

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

GLOSSARY

Archaeological site (remains of human activity over 100 years old)

Early Stone Age (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

1 Introduction and Terms of Reference:

Heritage Contracts and Archaeological Consulting CC (**HCAC**) has been contracted by the CSIR to conduct a heritage impact assessment of the proposed Meyerton (Kedake) Fish Farm. The report forms part of the Basic Assessment Report (BAR) and Environmental Management Programme Report (EMPR) for the development.

The aim of the study is to survey the proposed development footprint to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner. It is also conducted to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act No 25 of 1999). The report outlines the approach and methodology utilized before and during the survey, which includes: Phase 1, review of relevant literature; Phase 2, the physical surveying of the area on foot and by vehicle; Phase 3, reporting the outcome of the study.

During the survey, no heritage sites were identified. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report. SAHRA as a commenting authority under section 38(8) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) require all environmental documents, compiled in support of an Environmental Authorisation application as defined by NEMA EIA Regulations section 40 (1) and (2), to be submitted to SAHRA. As such the Basic Assessment report and its appendices must be submitted to the case as well as the EMPr, once it's completed by the Environmental Assessment Practitioner (EAP).

1.1 Terms of Reference

Field study

Conduct a field study to: (a) locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points of sites/areas identified as significant areas; c) determine the levels of significance of the various types of heritage resources affected by the proposed development.

Reporting

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

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

Table 2: Project Description

Size of farm and portions	10 ha fish farming development on Plot 19 Klipview, Midvaal Local Municipality Meyerton-Gauteng Province
Magisterial District	Midvaal Municipality
1: 50 000 map sheet number	1:50 000 scale topographic 2628AC Alberton 1:250 000 scale geological map 2626 Wes Rand
Central co-ordinate of the development	26°28'22.87"S 28° 2'36.47"E

Table 3: Infrastructure and project activities

Type of development	Aquaponic Facility
Project size	Less than 10 hectares.
Project Components	Proposed Operations: <input type="checkbox"/> Installation of 30 waste water tanks <input type="checkbox"/> 30 x Fish Tanks (24 000 Litres per month) <input type="checkbox"/> Pump Room <input type="checkbox"/> Solar Panel as water backup <input type="checkbox"/> Office Space <input type="checkbox"/> Water requirements: 432 m3 Litres annually

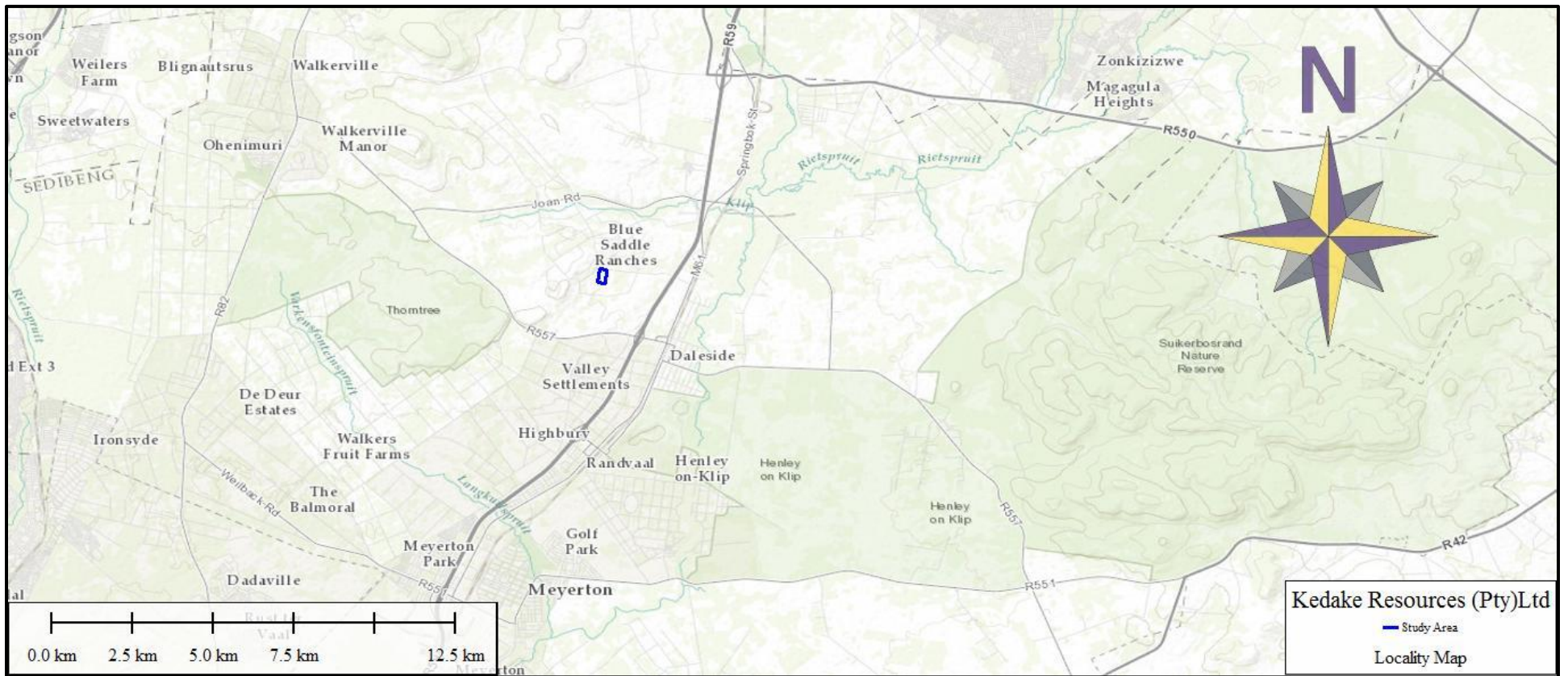


Figure 1. Locality map of the larger area indicating the study area in blue.

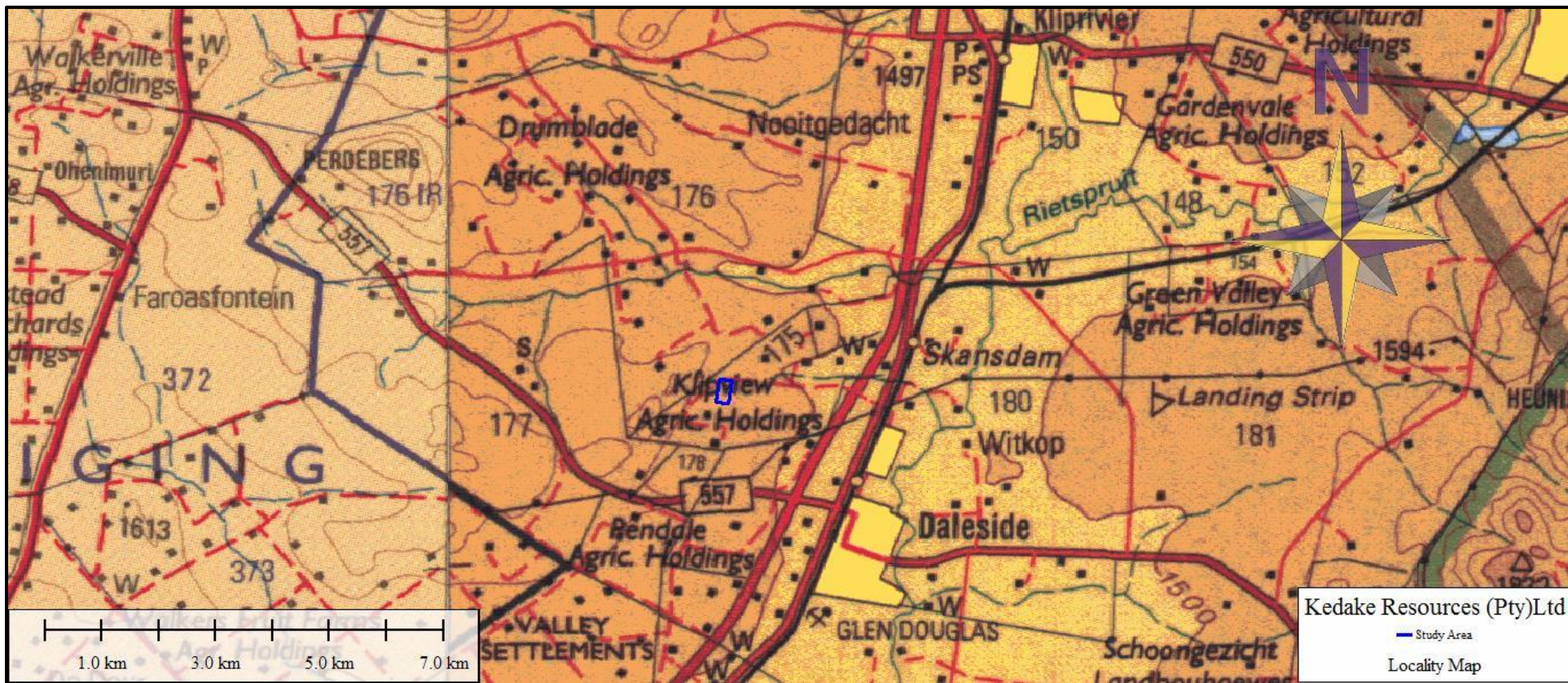


Figure 2. Provincial locality map (1: 250 000 topographical map)

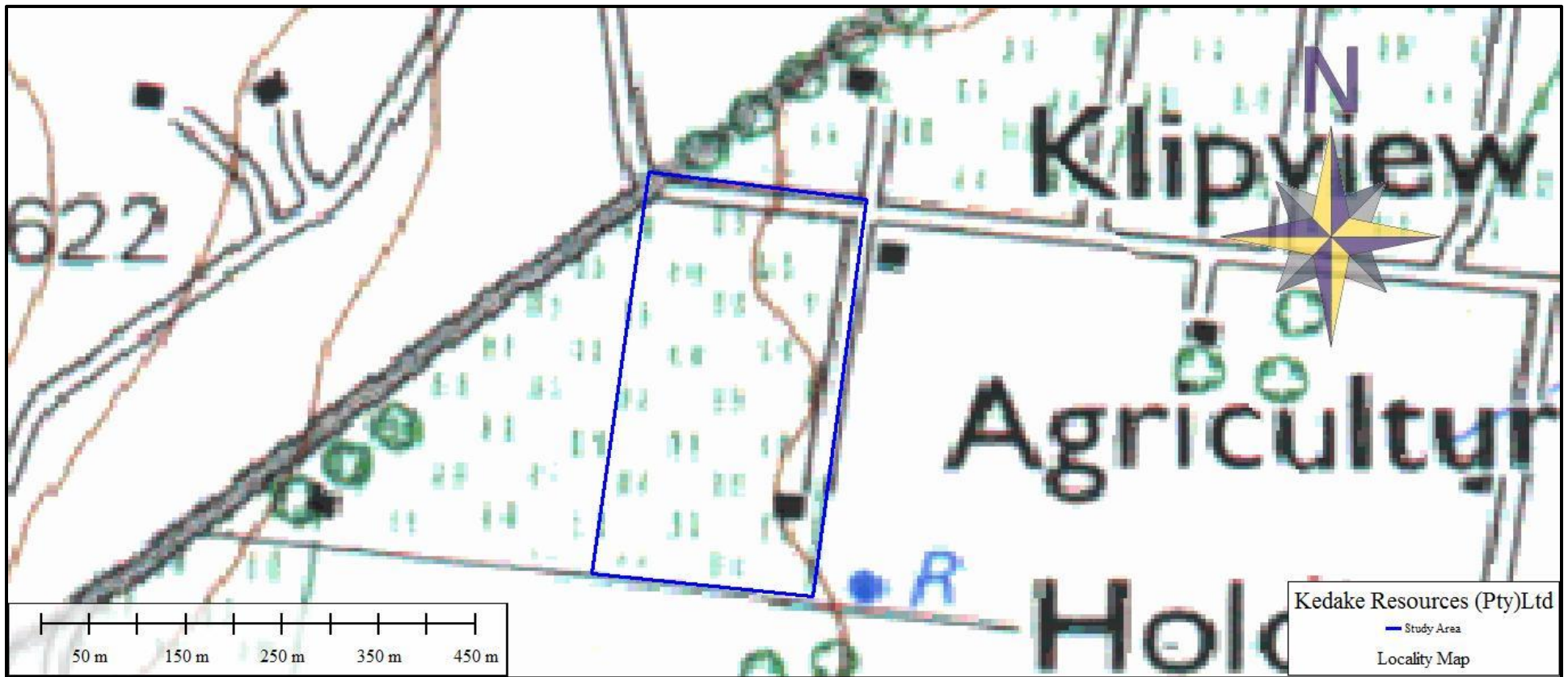


Figure 3: Regional locality map (1:50 000 topographical map).



Figure 4. Satellite image indicating the development footprint (Google Earth 2016).

2 Legislative Requirements

The HIA, as a specialist sub-section of the EIA, is required under the following legislation:

- National Heritage Resources Act (NHRA), Act No. 25 of 1999)
- National Environmental Management Act (NEMA), Act No. 107 of 1998 - Section 23(2)(b)
- Mineral and Petroleum Resources Development Act (MPRDA), Act No. 28 of 2002 - Section 39(3)(b)(iii)

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

- Identify any heritage resources, which may be affected;
- Assess the nature and degree of significance of such resources;
- Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- Assess the negative and positive impact of the development on these resources; and
- Make recommendations for the appropriate heritage management of these impacts.

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

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

Phase 1 AIA's are primarily concerned with the location and identification of heritage sites situated within a proposed development area. Identified sites should be assessed according to their significance. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by SAHRA, are to be used as guidelines in the developer's decision-making process.

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

In the event of a site conservation option being preferred by the developer, a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement.

After mitigation of a site, a destruction permit must be applied for with SAHRA by the applicant before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5]) of Act 25 of 1999 is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation. If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance No. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare. Authorisation for exhumation and reinternment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. To handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

3 METHODOLOGY

3.1 Literature Review

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

3.2 Genealogical Society and Google Earth Monuments

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

3.3 Public Consultation and Stakeholder Engagement:

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

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

Please refer to section 6 for more detail.

3.4 Site Investigation

Conduct a field study to: a) systematically survey the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points of sites/areas identified as significant areas; c) determine the levels of significance of the various types of heritage resources recorded in the project area.

Table 4: Site Investigation Details

	Site Investigation
Date	3 November 2017
Season	Summer. The development footprint was adequately surveyed to record the presence of heritage sites (Figure 5).

3.5 Site Significance and Field Rating

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

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

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

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

In addition to this criteria field ratings prescribed by SAHRA (2006), and acknowledged by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 10 of this report.

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

3.6 Impact Assessment Methodology

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

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

The **significance** is calculated by combining the criteria in the following formula:

$$S=(E+D+M)P$$

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

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

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

3.7 Limitations and Constraints of the study

The authors acknowledge that the brief literature review is not exhaustive on the literature of the area. Due to the subsurface nature of archaeological artefacts, the possibility exists that some features or artefacts may not have been discovered/recorded during the survey and the possible occurrence of unmarked graves and other cultural material cannot be excluded. Similarly, the depth of the deposit of heritage sites cannot be accurately determined due its subsurface nature. This report only deals with the footprint area of the proposed development and consisted of non-intrusive surface surveys. This study did not assess the impact on medicinal plants and intangible heritage as it is assumed that these components would have been highlighted through the public consultation process if relevant. It is possible that new information could come to light in future, which might change the results of this Impact Assessment.

4 Description of Socio Economic Environmental

The total population of the Sedibeng District is 916 484. Lesedi has a population of 99 520, Midvaal 95 301 and Emfuleni 721 663 (Stats SA 2011). It is clear from the stats that 8 out of every 10 people in Sedibeng live in Emfuleni and the vast majority (more than 700 000 people) live in township areas (especially Sebokeng and Evaton) (IDP Sedibeng 2015 – 2016). The Sedibeng District has continually struggled with poverty and while the district municipality has numerous projects in place to ensure that housing and community needs such as health care and social needs are met, there is certainly a need for employment and for additional housing infrastructure in the area.

5 Description of the Physical Environment:

The farm Klipview and surrounding properties were at first commercial farms with their main focus on the production of crops and the raising of live-stock. Most of these farms were later sub-divided into smaller units or small holdings which support a wide range of businesses and agricultural activities. The previous farming activities are still evident as most of the property is still devoid of trees as it was cleared for fields to be ploughed and planted. These old fields are now covered with a lush presence of various grass types.

The study area measures approximately 10ha in size and is situated approximately 1.5km west of the R59 highway. It is situated amongst and is bordered with properties with the same rural and agricultural intent on the northern, eastern and southern sides.

A number of structures occupy the south-eastern parts of the proposed site. These structures include the main farmstead, some storerooms and sheds. Labour accommodation also forms part of the existing structures on the property. The identified structures all appeared to be from a recent origin and do not have any heritage value or significance.

The property is fenced off and used to be divided into camps for the animals occupying them. The proposed area is largely devoid of trees except for around the farmstead and the other buildings. A small cluster of trees is also situated within the north-western corner of the property. The property is currently being used for the holding of a small number of live-stock.

The prevailing vegetation type and landscape features of the area form part of the Soweto Highveld Grassland. It is described as a gently to moderately undulating landscape on the Highveld plateau supporting short to medium-high, dense, tufted grassland dominated almost entirely by *Themeda triandra* (red grass) and accompanied by a variety of other grasses. In places not disturbed, only scattered small wetlands, narrow stream alluvia, pans and occasional ridges interrupt the continuous grassland cover (Mucina & Rutherford, 2006).



Figure 6. General Site conditions



Figure 7. General site conditions.



Figure 8. General site conditions.



Figure 9. General site conditions

6 Results of Public Consultation and Stakeholder Engagement:

6.1.1 Stakeholder Identification

Adjacent landowners and the public at large were informed of the proposed activity as part of the BA process. Site notices and advertisements notifying interested and affected parties were placed at strategic points and in local newspapers as part of the process. Site notices were placed on site on 3 July 2017

The land owner, Mr Imraan Nana and some of his workers were interviewed during the site visit. They indicated that they did not know about any heritage sites of value or significance within the investigated area.

7 Literature / Background Study:

7.1 Literature Review

The following reports were conducted in the general vicinity of the study area and were consulted for this report:

Author	Year	Project	Findings
Kusel, U.	2007	Cultural Heritage Resources Impact Assessment For Proposed New Development On Holding 111 Valley Settlements No 3 Agricultural Holdings I.R., Midvaal Local Municipality, Gauteng Province	No heritage sites
Fourie, W	2008	Proposed rezoning on Holding 13 of Pendale A.H. Johannesburg, Gauteng Province	No sites were identified
Higgit, N & Khan, S.	2013	Heritage Statement For A Proposed Acetylene Gas Production Facility, Located Near Witkopdorp, Daleside, South Of Johannesburg	No sites were identified
Kruger, N.	2014	Glen Douglas Dolomite (Pty) Ltd: Proposed Glen Douglas Dolomite Burning Plant On Portions Of The Farms Witkoppies 373 IR, Farm Slangfontein 372 IR And Erf 303 Of Highbury Township, Meyerton, Gauteng Province Archaeological Impact Assessment	Structures

7.1.1 Genealogical Society and Google Earth Monuments

No known grave sites are indicated in the study area.

7.2 General History of the area

7.2.1 Archaeology of the area

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

7.2.1.1 Stone Age

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

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

Stone Age sites are usually associated with stone artefacts found scattered on the surface or as part of deposits in caves and rock shelters.

The Vaal Gravels are known to contain Early and Middle Stone Age Artefacts and some Rock Engraving sites are on record around the greater study area. At least one rock engraving site exists near Vereeniging, at Redan

7.2.1.2 The Iron Age

The Iron Age as a whole represents the spread of Bantu speaking people and includes both the pre-Historic and Historic periods. It can be divided into three distinct periods:

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

The Iron Age is characterised by the ability of these early people to manipulate and work Iron ore into implements that assisted them in creating a favourable environment to make a better living. The Late Iron Age period in the region is largely associated with *Uitkomst* pottery and Klipriviersberg stonewalled sites that date from the 17th to the 19th Centuries. *Uitkomst* pottery is a merger of earlier *Ntsuanatsatsi* and *Olifantspoort* styles, and the walling is a variant of the Type N walling. These sites are associated with the Fokeng. In Gauteng, Klipriviersberg walling would have ended at about AD 1823, when Mzilikazi (Rasmussen 1978) entered the area. Fokeng settlements spread north across the Vaal into the Balfour, Suikerbosrand, Klipriviersberg and Vredefort areas (Huffman 2007).

7.3 Historical Information

Meyerton was established in 1891 and was named after Johannes Petrus Meyer, a field cornet and member of the Transvaal Volksraad.

7.3.1 Anglo-Boer War

The Anglo-Boer War was the greatest conflict that had taken place in South Africa up to date. In an attempt to fortify their strongholds, the British built around 441 blockhouses and trenches at strategic points across the landscape. Today numerous blockhouses can still be seen including as the remains of the British 'Witkop Blockhouse' next to the railroad link between Kliprivier and Daleside (Huffman, 2008)

During the time of the Anglo-Boer War, an important event occurred at Vereeniging, which is located some distance from the study area. Peace talks between the Boers and the British had started around April 1902, and culminated in the Peace of Vereeniging treaty on 31 May 1902. This event signaled the end of the Anglo-Boer War, as well as the end of the Boer Republics' independence. (Bergh 1999: 251).

7.3.1. Cultural Landscape

The property under investigation is located about 12 km to the north of Meyerton in Gauteng Province.

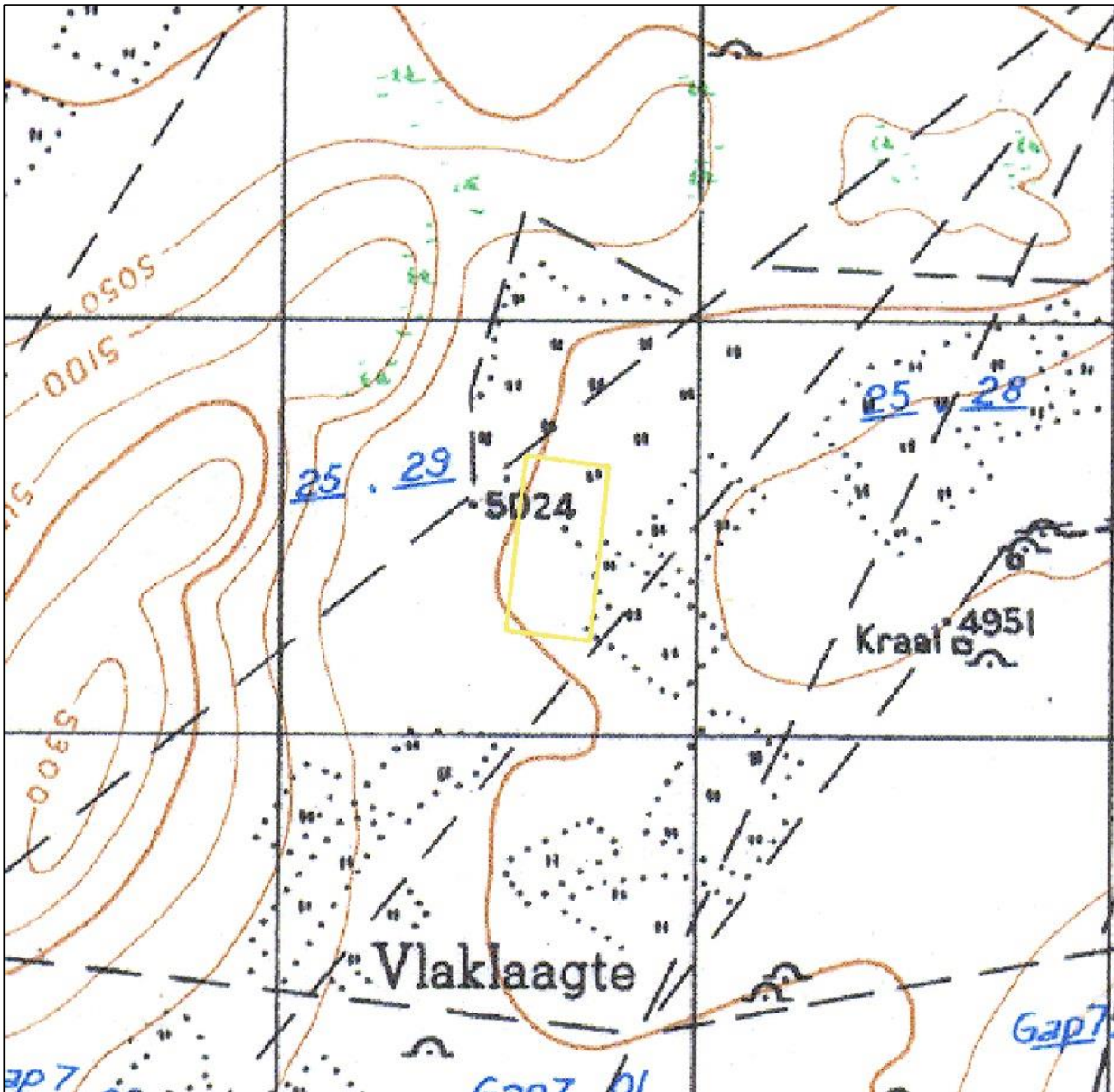


Figure 10. 1939 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. One can see that there were cultivated lands in the north eastern part of the study area. (Topographical Map 1939)

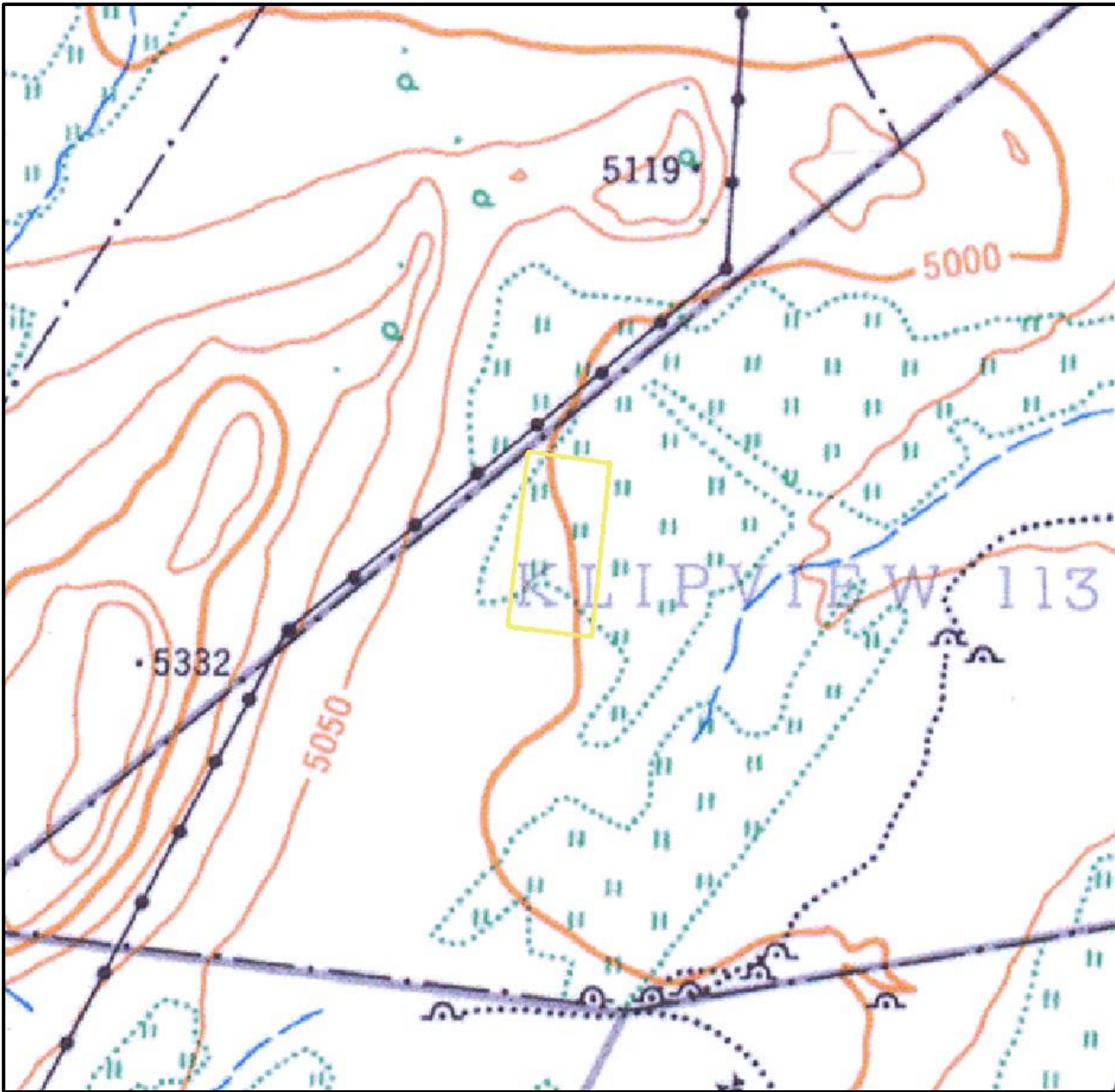


Figure 11. 1957 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. One can see that most of the site under investigation was used as cultivated lands. No buildings are visible in this portion. A number of traditional huts / kraals can be seen to the east and south. (Topographical Map 1957)

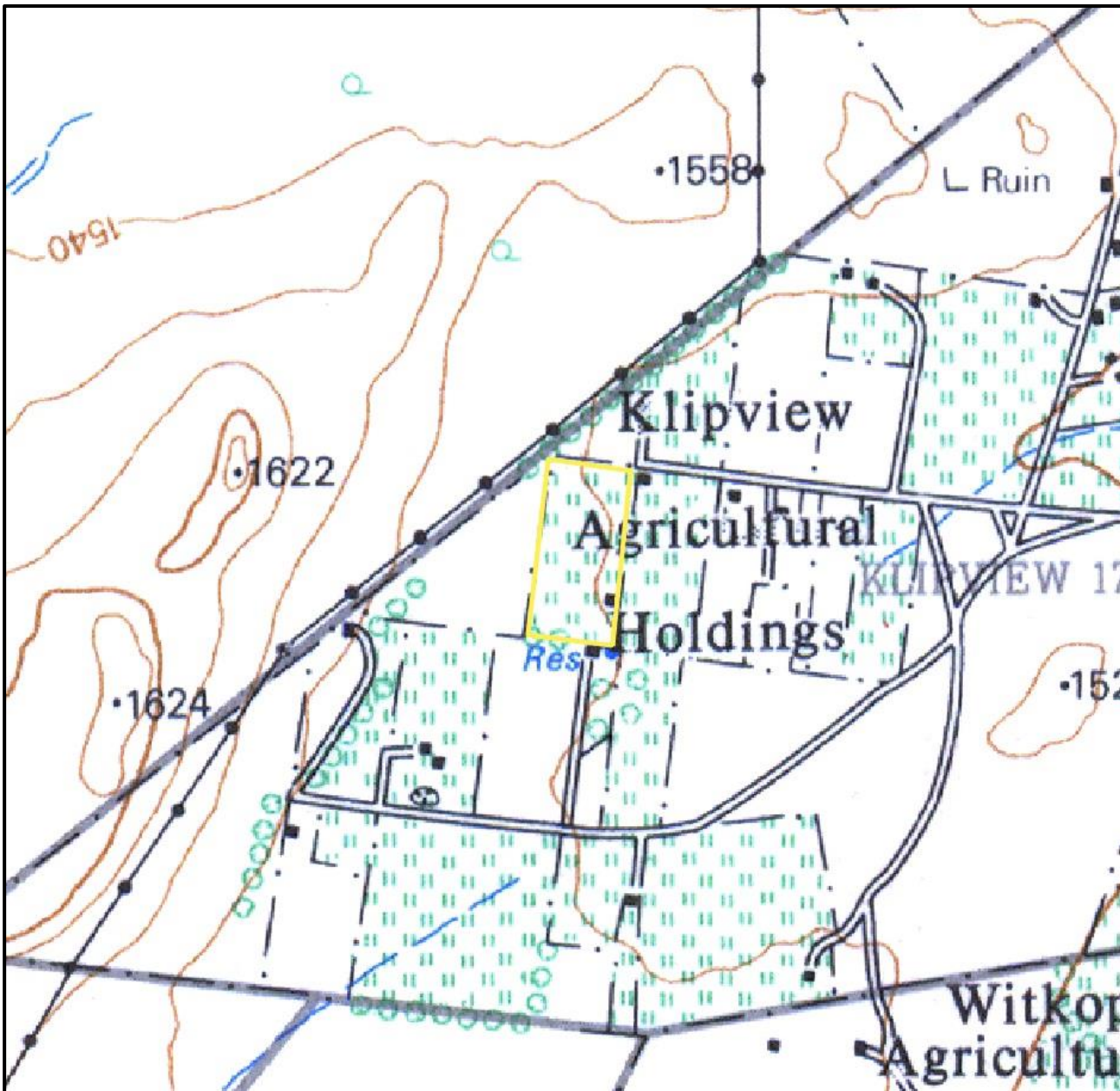


Figure 12. 1979 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. The study area formed part of the Klipview Agricultural Holdings. This portion was used as cultivated lands. One building is visible in the south eastern part of the study area. A reservoir can be seen just to the south east of the site. (Topographical Map 1979)

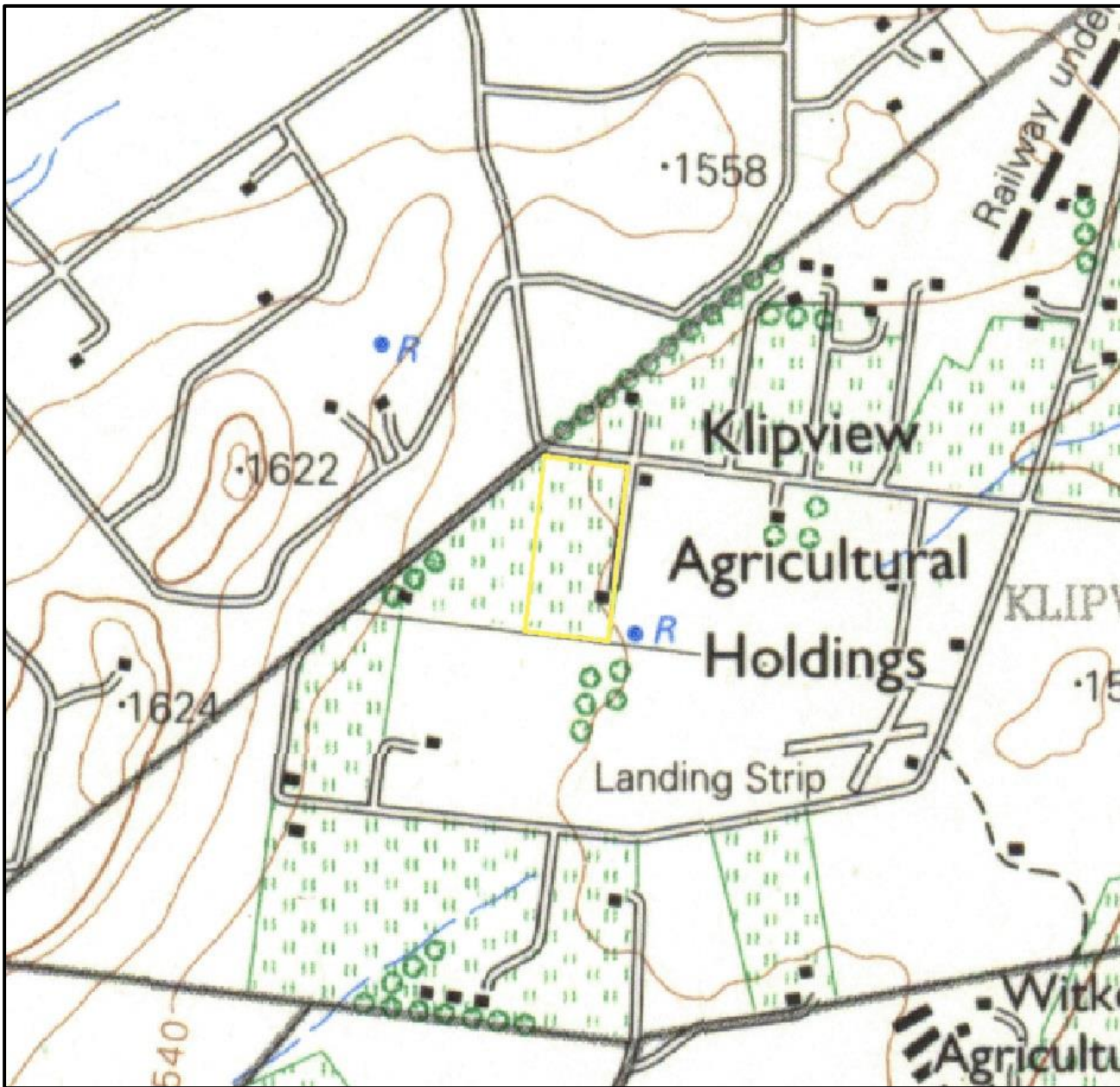


Figure 13: 1995 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. The study area formed part of the Klipview Agricultural Holdings. The portion under investigation was used as cultivated lands and the 1979 building is still visible near the eastern border. Farm roads form the northern and eastern boundaries of the study area. A reservoir can be seen just to the south east of the site. (Topographical Map 1995)

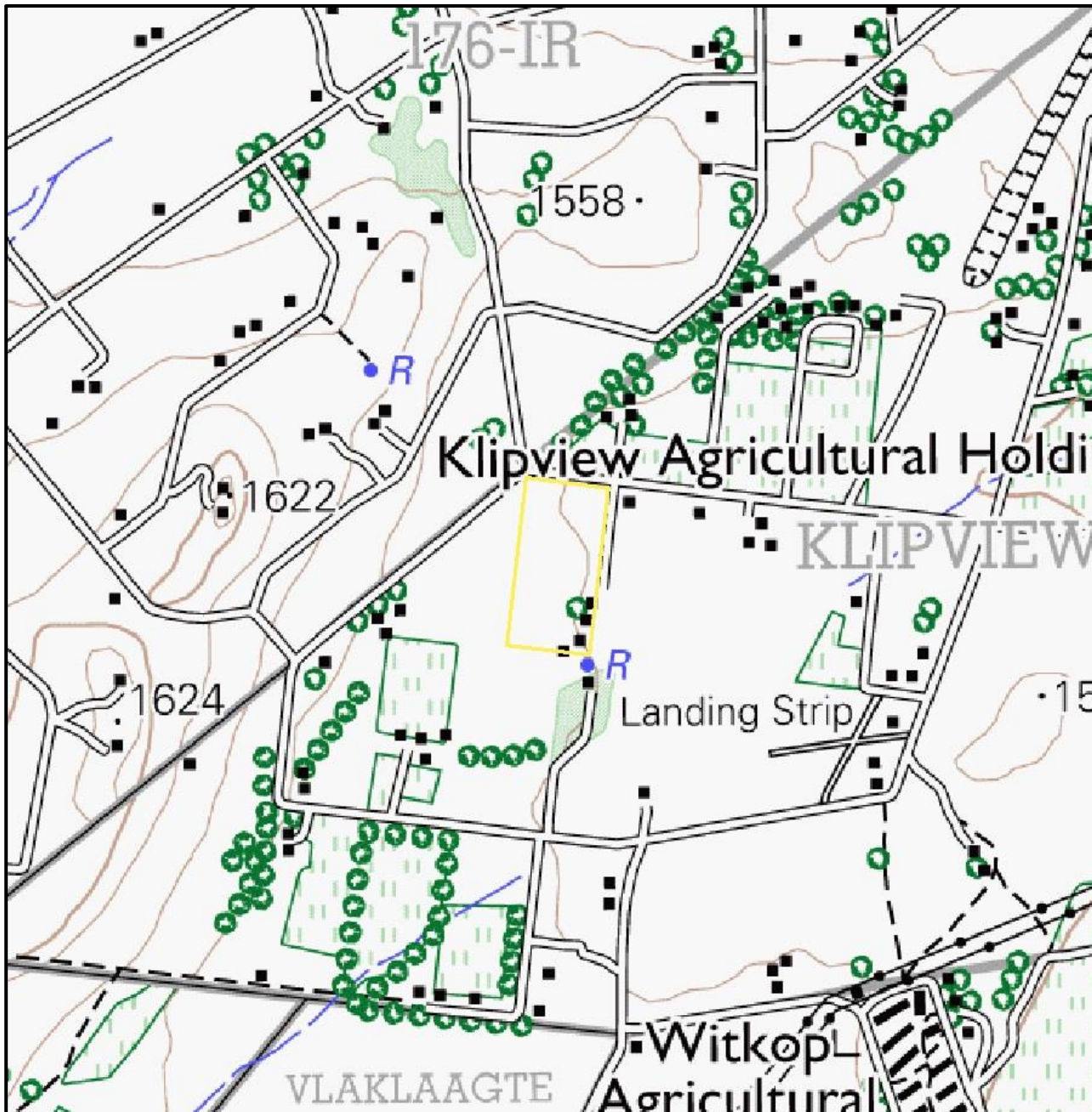


Figure 14. 2002 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. The portion under investigation still formed part of the Klipview Agricultural Holdings. The site was however no longer used as cultivated lands. Four buildings can be seen in the south eastern part of the study area. (Topographical Map 2002)

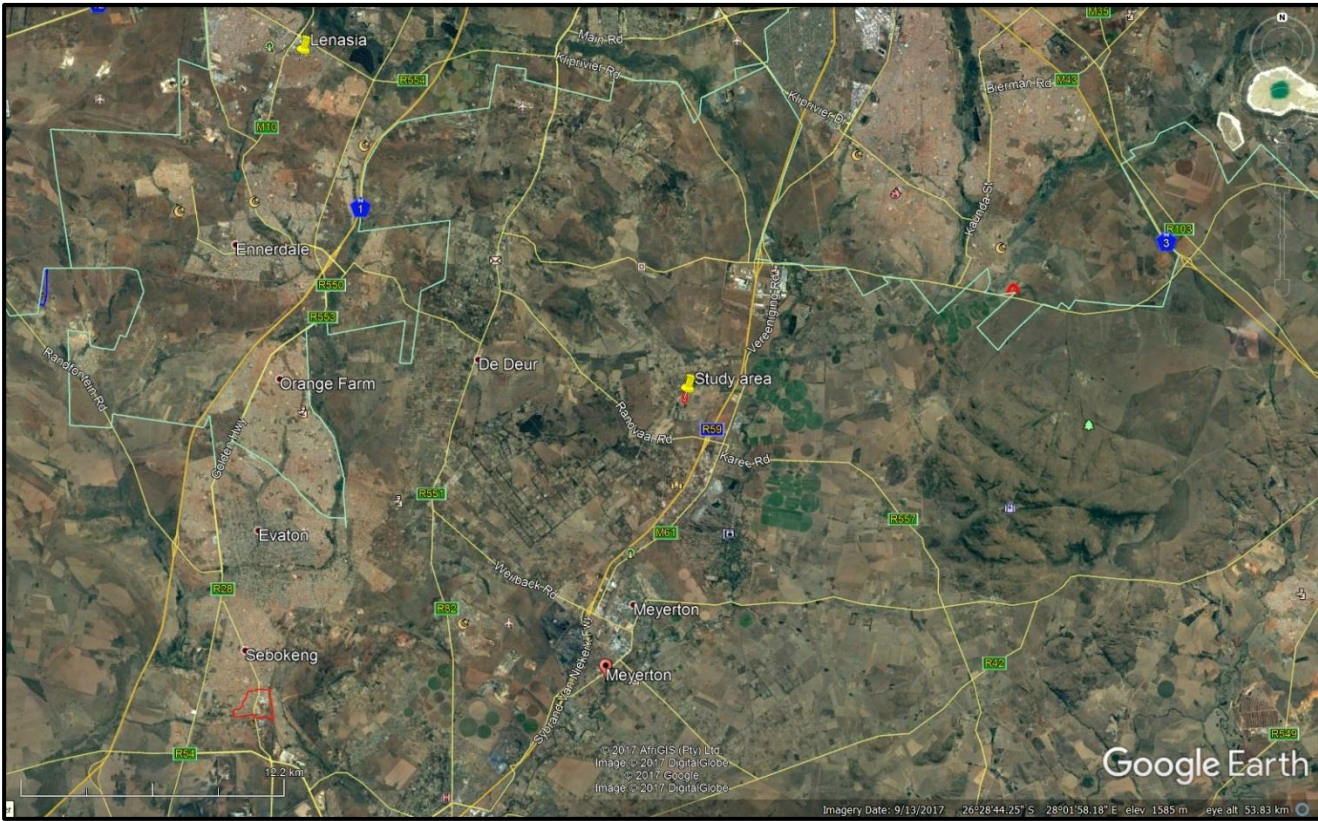


Figure 15. 2017 Google Earth image showing the study area in relation to Meyerton, De Deur, Evaton, the R59 Provincial Road and other sites. (Google Earth 2017)

8. Findings of the Survey

It is important to note that only the development footprint of the project was surveyed. The study area was surveyed over a period of 1 day.

The proposed site was disturbed by the previous agricultural activities which destroyed a part of the natural vegetation, but the grasslands still remained throughout most of the region and the property. Exotic trees were introduced around the homestead and other parts of the property, but for the most the property was not much disturbed.

The land owner, Mr Imraan Nana and some of his workers were interviewed during the site visit. They indicated that they did not know about any heritage sites of value or significance within the investigated area.

No finds or features of heritage value or significance were identified within the investigated area.

8.3. Built Environment (Section 34 of the NHRA)

No standing structures older than 60 years occur in the study area. Based on historical maps it is evident that in 1957 no structures occurred in the study area.

8.4. Archaeological and palaeontological resources (Section 35 of the NHRA)

No archaeological sites or material was recorded during the survey. Therefore, no further mitigation prior to construction is recommended in terms of the archaeological component of Section 35 of the NHRA for the proposed development to proceed.

Rossouw (2017) conducted an independent paleontological study and found: “ *The study area lies within an outcrop area of the early Proterozoic Pretoria Subgroup, represented by the Timeball Hill Formation, considered to be of potentially high palaeontological sensitivity as stromatolitic fossil assemblages may be present in most of the outcrop areas of the unit. However, the site is mantled by palaeontologically insignificant and geologically recent residual soils, plus given the nature and relatively small scale of the development, potential impact on palaeontological heritage resources within the proposed 8ha footprint is considered low. It is recommended that the development may proceed without a phase 1 impact study, provided that any activity that will require > 1m deep x 1m² excavations into unweathered sedimentary bedrock within the proposed footprint will require once off monitoring by a professional palaeontologist during the construction phase of the development in case of chance exposure of stromatolite fossil remains, while such excavations are still open.*”

8.5. Burial Grounds and Graves (Section 36 of the NHRA)

In terms of Section 36 of the Act no burial sites were recorded.

8.6. Cultural Landscapes, Intangible and Living Heritage.

Long term impact on the cultural landscape is considered to be low as the surrounding area is rural in character with some road developments. Visual impacts to scenic routes and sense of place are also considered to be low due to rural character of the surrounding area, the proposed project is in line with the current land use and will not impact negatively on significant cultural landscapes or viewscales.

8.7. Battlefields and Concentration Camps

There are no battlefields or concentration camp sites in the study area.

8.8. Potential Impact

The chances of impacting unknown archaeological sites in the study area is considered to be negligible. Any direct impacts that did occur would be during the construction phase only and would be of very low significance. Cumulative impacts occur from the combination of effects of various impacts on heritage resources. The importance of identifying and assessing cumulative impacts is that the whole is greater than the sum of its parts. In the case of the development, it will, with the recommended mitigation measures and management actions, not impact any heritage resources directly. However, this and other projects in the area could have an indirect impact on the larger heritage landscape. The lack of any heritage resources in the immediate area and the extensive existing development surrounding the study area minimises additional impact on the landscape.

8.8.1. Pre-Construction phase:

It is assumed that the pre-construction phase involves the removal of topsoil and vegetation as well as the establishment of infrastructure needed for the construction phase. These activities can have a negative and

irreversible impact on heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

8.8.2. Construction Phase

During this phase, the impacts and effects are similar in nature but more extensive than the pre-construction phase. These activities can have a negative and irreversible impact on heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

8.8.3. Operation Phase:

No impact is envisaged during this phase.

Table 5. Impact Assessment table.

Nature: During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological material or objects.		
	Without mitigation	With mitigation (Preservation/ excavation of site)
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Low (2)	Low (2)
Probability	Not probable (2)	Not probable (2)
Significance	16 (Low)	16 (Low)
Status (positive or negative)	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	No resources were recorded	No resources were recorded.
Can impacts be mitigated?	Yes, a chance find procedure should be implemented.	Yes
Mitigation: Due to the lack of apparent significant archaeological resources no further mitigation is required prior to construction.		
Residual Impacts: If sites are destroyed this results in the depletion of archaeological record of the area. However, if sites are recorded and preserved or mitigated this adds to the record of the area.		

9. Conclusion and recommendations

HCAC was appointed to conduct a Heritage Impact Assessment to determine the presence of cultural heritage sites and the impact of the proposed development on these non-renewable resources. The study area was assessed both on desktop level and by a field survey. The field survey was conducted as a non-intrusive pedestrian survey to cover the extent of Plot 19 as development plans are not available at this stage, however no existing infrastructure (houses etc.) will be demolished or impacted on by the proposed fish farm.

No archaeological sites or material of significance was recorded during the survey. A paleontological desktop study was conducted by Rossouw (2017) that concluded: “

It is recommended that the development may proceed without a phase 1 impact study, provided that any activity that will require > 1m deep x 1m² excavations into unweathered sedimentary bedrock within the proposed footprint will require once off monitoring by a professional palaeontologist during the construction phase of the development in case of chance exposure of stromatolite fossil remains, while such excavations are still open. “ No further mitigation prior to construction is recommended in terms of the archaeological and paleontological components of Section 35 for the proposed development to proceed.

In terms of the built environment of the area (Section 34), no standing structures older than 60 years occur within the study areas. In terms of Section 36 of the Act no burial sites were recorded. If any graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation. No public monuments are located within or close to the study area. The area is rural in character and the proposed project is in line with the current land use and will not impact negatively on significant cultural landscapes or viewsapes.. During the public participation process conducted for the project no heritage concerns was raised.

Due to the lack of significant heritage resources in the study area the impact of the proposed project on heritage resources is considered low and it is recommended that the proposed project can commence on the condition that the following recommendations are implemented as part of the EMPr and based on approval from SAHRA:

- Implementation of a chance find procedure.

9.1. Chance Find Procedures

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

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

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

9.2 Reasoned Opinion

The impact of the proposed project on heritage resources is considered low and no further pre-construction mitigation in terms of archaeological resources is required based on approval from SAHRA. Furthermore, the socio-economic benefits also outweigh the possible impacts of the development if the correct mitigation measures (i.e. chance find procedure) are implemented for the project.

10. References

Archaeological database, University of the Witwatersrand.

Bergh, J.S. (red.). 1999. Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies. Pretoria: J.L. van Schaik.

Fourie, W. 2008. Proposed rezoning on Holding 13 of Pendale A.H. Johannesburg, Gauteng Province
Higgit, N & Khan, S.2013. Heritage Statement For A Proposed Acetylene Gas Production Facility, Located Near Witkopdorp, Daleside, South Of Johannesburg

Huffman, T.N. 2007. Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa. Scottsville: University of KwaZulu-Natal Press.

Huffman, T. N., 2008. *Mountain View heritage assessment, Gauteng*, Johannesburg: Archaeological Resources Management

Kusel, U. 2007. Cultural Heritage Resources Impact Assessment For Proposed New Development On Holding 111 Valley Settlements No 3 Agricultural Holdings I.R., Midvaal Local Municipality, Gauteng Province

Kruger, N.2014. Glen Douglas Dolomite (Pty) Ltd: Proposed Glen Douglas Dolomite Burning Plant On Portions Of The Farms Witkoppies 373 IR, Farm Slangfontein 372 IR And Erf 303 Of Highbury Township, Meyerton, Gauteng Province Archaeological Impact Assessment

Lombard, M., L. Wadley, J. Deacon, S. Wurz, I. Parsons, M. Mohapi, J. Swart & P. Mitchell. 2012. South African and Lesotho Stone Age Sequence Updated (I). South African Archaeological Bulletin 67 (195): 120–144, 2012.

National Heritage Resources Act (No 25 of 1999). Pretoria: the Government Printer. Republic of South Africa. 1998.

National Environmental Management Act (no 107 of 25 1998). Pretoria: The Government Printer.

Pelser, A. J. 2016. Archaeological Impact Assessment (AIA) Report For A Proposed 75mw Photovoltaic Solar Facility On The Remainder Of Kameeldoorn 271JP, Portion 15 Of Kameeldoorn 271JP & Portion 14 Rossouw, L. 2017.. Palaeontological Desktop Assessment of a proposed new Fish Farming Development on Plot 19 Klipview, Midvaal Local Municipality near Meyerton, Gauteng Province

MAPS

Topographical Map. 1939. *South Africa. 1:50 000 Sheet. 2628AC Alberton. Second Edition. Pretoria: Government Printer.*

Topographical Map. 1957. *South Africa. 1:50 000 Sheet. 2628AC Alberton. Third Edition. Pretoria: Government Printer.*

Topographical Map. 1979. *South Africa. 1:50 000 Sheet. 2628AC Alberton. Fourth Edition. Pretoria: Government Printer.*

Topographical Map. 1995. *South Africa. 1:50 000 Sheet. 2628AC Alberton. Fifth Edition. Pretoria: Government Printer.*

Topographical Map. 2002. *South Africa. 1:50 000 Sheet. 2628AC Alberton. Sixth Edition. Pretoria: Government Printer.*

Electronic Sources:

Google Earth. 2017. 26°28'25.38" S 28°02'32.75" E elev 1531 m. [Online]. [Cited 14 November 2017].

Google Earth. 2017. 26°28'44.25" S 28°01'58.18" E elev 1585 m. [Online]. [Cited 14 November 2017].

11. Appendices:**Curriculum Vitae of Specialist**

Jaco van der Walt
Archaeologist

jaco.heritage@gmail.com
+27 82 373 8491
+27 86 691 6461

Education:

Particulars of degrees/diplomas and/or other qualifications:

Name of University or Institution: University of Pretoria
Degree obtained : BA Heritage Tourism & Archaeology
Year of graduation : 2001

Name of University or Institution: University of the Witwatersrand
Degree obtained : BA Hons Archaeology
Year of graduation : 2002

Name of University or Institution : University of the Witwatersrand
Degree Obtained : MA (Archaeology)
Year of Graduation : 2012

Name of University or Institution : University of Johannesburg
Degree : PhD
Year : Currently Enrolled

EMPLOYMENT HISTORY:

2011 – Present: **Owner – HCAC (Heritage Contracts and Archaeological Consulting CC).**
2007 – 2010 : **CRM Archaeologist**, Managed the Heritage Contracts Unit at the University of the Witwatersrand.
2005 - 2007: **CRM Archaeologist**, Director of Matakoma Heritage Consultants
2004: **Technical Assistant**, Department of Anatomy University of Pretoria
2003: **Archaeologist**, Mapungubwe World Heritage Site
2001 - 2002: **CRM Archaeologists**, For R & R Cultural Resource Consultants, Polokwane
2000: **Museum Assistant**, Fort Klapperkop.

Countries of work experience include:

Republic of South Africa, Botswana, Zimbabwe, Mozambique, Tanzania, The Democratic Republic of the Congo, Lesotho and Zambia.

SELECTED PROJECTS INCLUDE:

Archaeological Impact Assessments (Phase 1)

Heritage Impact Assessment Proposed Discharge Of Treated Mine Water Via The Wonderfontein Spruit Receiving Water Body Specialist as part of team conducting an Archaeological Assessment for the Mmamabula mining project and power supply, Botswana

Archaeological Impact Assessment Mmamethlake Landfill

Archaeological Impact Assessment Libangeni Landfill

Linear Developments

Archaeological Impact Assessment Link Northern Waterline Project At The Suikerbosrand Nature Reserve

Archaeological Impact Assessment Medupi – Spitskop Power Line,

Archaeological Impact Assessment Nelspruit Road Development

Renewable Energy developments

Archaeological Impact Assessment Karoshoek Solar Project

Grave Relocation Projects

Relocation of graves and site monitoring at Chloorkop as well as permit application and liaison with local authorities and social processes with local stakeholders, Gauteng Province.

Relocation of the grave of Rifle Man Maritz as well as permit application and liaison with local authorities and social processes with local stakeholders, Ndumo, Kwa Zulu Natal.

Relocation of the Magolwane graves for the office of the premier, Kwa Zulu Natal

Relocation of the OSuthu Royal Graves office of the premier, Kwa Zulu Natal

Phase 2 Mitigation Projects

Field Director for the Archaeological Mitigation For Booyensdal Platinum Mine, Steelpoort, Limpopo Province. Principle investigator Prof. T. Huffman

Monitoring of heritage sites affected by the ARUP Transnet Multipurpose Pipeline under directorship of Gavin Anderson.

Field Director for the Phase 2 mapping of a late Iron Age site located on the farm Kameelbult, Zeerust, North West Province. Under directorship of Prof T. Huffman.

Field Director for the Phase 2 surface sampling of Stone Age sites effected by the Medupi – Spitskop Power Line, Limpopo Province

Heritage management projects

Platreef Mitigation project – mitigation of heritage sites and compilation of conservation management plan.

MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS:

- Association of Southern African Professional Archaeologists. Member number 159
Accreditation:
 - Field Director Iron Age Archaeology
 - Field Supervisor Colonial Period Archaeology, Stone Age
 Archaeology and Grave Relocation
- Accredited CRM Archaeologist with SAHRA
- Accredited CRM Archaeologist with AMAFA
- Co-opted council member for the CRM Section of the Association of Southern African Association Professional Archaeologists (2011 – 2012)

PUBLICATIONS AND PRESENTATIONS

- A Culture Historical Interpretation, Aimed at Site Visitors, of the Exposed Eastern Profile of K8 on the Southern terrace at Mapungubwe.
 - J van der Walt, A Meyer, WC Nienaber
 - Poster presented at Faculty day, Faculty of Medicine University of Pretoria 2003
- 'n Reddingsondersoek na Anglo-Boereoorlog-ammunisie, gevind by Ifafi, Noordwes-Provinsie. South-African Journal for Cultural History 16(1) June 2002, with A. van Vollenhoven as co-writer.
- Fieldwork Report: Mapungubwe Stabilization Project.
 - WC Nienaber, M Hutten, S Gaigher, J van der Walt
 - Paper read at the Southern African Association of Archaeologists Biennial Conference 2004
- A War Uncovered: Human Remains from Thabantšho Hill (South Africa), 10 May 1864.
 - M. Steyn, WS Boshoff, WC Nienaber, J van der Walt
 - Paper read at the 12th Congress of the Pan-African Archaeological Association for Prehistory and Related Studies 2005
- Field Report on the mitigation measures conducted on the farm Bokfontein, Brits, North West Province .
 - J van der Walt, P Birkholtz, W. Fourie
 - Paper read at the Southern African Association of Archaeologists Biennial Conference 2007
- Field report on the mitigation measures employed at Early Farmer sites threatened by development in the Greater Sekhukhune area, Limpopo Province. J van der Walt
 - Paper read at the Southern African Association of Archaeologists Biennial Conference 2008
- Ceramic analysis of an Early Iron Age Site with vitrified dung, Limpopo Province South Africa.
 - J van der Walt. Poster presented at SAFA, Frankfurt Germany 2008

- Bantu Speaker Rock Engravings in the Schoemanskloof Valley, Lydenburg District, Mpumalanga (*In Prep*)
 - J van der Walt and J.P Celliers
- Sterkspruit: Micro-layout of late Iron Age stone walling, Lydenburg, Mpumalanga. W. Fourie and J van der Walt. A Poster presented at the Southern African Association of Archaeologists Biennial Conference 2011
- Detailed mapping of LIA stone-walled settlements' in Lydenburg, Mpumalanga. J van der Walt and J.P Celliers
 - Paper read at the Southern African Association of Archaeologists Biennial Conference 2011
- Bantu-Speaker Rock engravings in the Schoemanskloof Valley, Lydenburg District, Mpumalanga. J.P Celliers and J van der Walt
 - Paper read at the Southern African Association of Archaeologists Biennial Conference 2011
- Pleistocene hominin land use on the western trans-Vaal Highveld ecoregion, South Africa, Jaco van der Walt.
 - J van der Walt. Poster presented at SAFA, Toulouse, France. Biennial Conference 2016

REFERENCES:

1. Prof Marlize Lombard Senior Lecturer, University of Johannesburg, South Africa
E-mail: mlombard@uj.ac.za
2. Prof TN Huffman Department of Archaeology Tel: (011) 717 6040
University of the Witwatersrand
3. Alex Schoeman University of the Witwatersrand
E-mail: Alex.Schoeman@wits.ac.za