

HERITAGE IMPACT ASSESSMENT

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

FOR THE PROPOSED KUSILE TRUCK STOP ON PORTION 20 OF THE FARM EENZAAMHEID
534 JR, BALMORAL, MPUMALANGA

Type of development:

Truck Stop

Client:

Prism EMS

Client info:

Monica Niehof

E – mail: Monica@prismems.co.za

Applicant:

LSP Oil (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 218408

Report date:

May 2018

APPROVAL PAGE

Project Name	The proposed Kusile truck stop on Portion 20 of the farm Eenzaamheid 534 JR
Report Title	Heritage Impact Assessment for the proposed Kusile truck stop on Portion 20 of the farm Eenzaamheid 534 JR
Authority Reference Number	TBC
Report Status	Draft Report
Applicant Name	LSP Oil (Pty) Ltd.

	Name	Qualifications and Certifications	Date
Archaeologist	Jaco van der Walt	MA Archaeology PhD Candidate ASAPA #159 APHP # 114	April 2018
Archaeologist	Ruan van der Merwe	BA Hons Archaeology	April 2018
Archival Specialist	Liesl Bester	BHCS Honours	April 2018

DOCUMENT PROGRESS**Distribution List**

Date	Report Reference Number	Document Distribution	Number of Copies
7 May 2018	2180408	Prism EMS	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. Therefore, 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 982 EIA Regulations, 2014 [as amended] 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 GNR 982 EIA Regulations, 2014 [as amended]	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 9
(h) Map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	Section 8
(l) Description of any assumptions made and any uncertainties or gaps in knowledge	Section 3.7
(j) a description of the findings and potential implications of such findings on the impact of the proposed activity including identified alternatives on the environment or activities;	Section 9
(k) Mitigation measures for inclusion in the EMPr	Section 9 and 10
(l) Conditions for inclusion in the environmental authorisation	Section 9 and 10
(m) Monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 9 and 10
(n) Reasoned opinion - (i) as to whether the proposed activity, activities or portions thereof should be authorised; (iA) regarding the acceptability of the proposed activity or activities; and (ii) if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Section 10.3
(o) Description of any consultation process that was undertaken during the course of preparing the specialist report	Section 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


Prism EMS were appointed to conduct a Basic Assessment for the proposed Kusile Truck stop. The proposed project is located on 'Portion 83 (a portion of portion 20) of the Farm Eenzaamheid 534 JR' immediately south of the Lone Rock Road (R686 Road) going towards Kusile Powerstation. The study area is located close to Balmoral in the Emalahleni Local Municipality (Ward 9), Mpumalanga Province. HCAC was appointed to conduct a Heritage Impact Assessment of the proposed project 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 the development footprint.

A Previous study of the area (Fourie 2010) recorded no sites of significance within the study area. The lack of sites within the study area was confirmed during the current study and no archaeological sites or material was recorded during the survey. Based on the SAHRIS Paleontological Sensitivity Map, the area is of low paleontological sensitivity. Therefore, no further mitigation prior to construction is recommended in terms of Section 35 for the proposed development to proceed. In terms of the built environment, no standing structures older than 60 years occur in the study area. In terms of Section 36 of the Act no burial sites were recorded in the impact area. However, if any graves are identified 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 study area is surrounded by agricultural developments, road and mining infrastructure and the proposed truck stop development will not impact negatively on significant cultural landscapes or views. During the public participation process conducted for the project no heritage concerns were 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 impacts can be mitigated to an acceptable level. It is therefore recommended that the proposed project can commence on the condition that the following recommendations are implemented as part of the EMP and based on approval from SAHRA:

- Implementation of a chance find procedure and;
- Implementation of a palaeontological protocol for finds.

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	18/04/2018

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.....	5
GLOSSARY	5
1 INTRODUCTION AND TERMS OF REFERENCE:	6
1.1 TERMS OF REFERENCE.....	6
2 LEGISLATIVE REQUIREMENTS	11
3 METHODOLOGY	12
3.1 LITERATURE REVIEW.....	12
3.2 GENEALOGICAL SOCIETY AND GOOGLE EARTH MONUMENTS.....	12
3.3 PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT:.....	13
3.4 SITE INVESTIGATION.....	13
3.5 SITE SIGNIFICANCE AND FIELD RATING.....	15
3.6 IMPACT ASSESSMENT METHODOLOGY.....	16
3.7 LIMITATIONS AND CONSTRAINTS OF THE STUDY	17
4 DESCRIPTION OF SOCIO ECONOMIC ENVIRONMENT	17
5 DESCRIPTION OF THE PHYSICAL ENVIRONMENT:	17
6 RESULTS OF PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT:	17
7 LITERATURE / BACKGROUND STUDY:	18
7.1 LITERATURE REVIEW.....	18
7.2 GENERAL HISTORY OF THE AREA	19
7.3 CULTURAL LANDSCAPE.....	21
8 FINDINGS OF THE SURVEY.....	27
9 DESCRIPTION OF IDENTIFIED HERITAGE RESOURCES (NHRA SECTION 34 - 36):	28
9.1 BUILT ENVIRONMENT (SECTION 34 OF THE NHRA)	28
9.2 ARCHAEOLOGICAL AND PALEONTOLOGICAL RESOURCES (SECTION 35 OF THE NHRA)	28
9.3 BURIAL GROUNDS AND GRAVES (SECTION 36 OF THE NHRA).....	29
9.4 CULTURAL LANDSCAPES, INTANGIBLE AND LIVING HERITAGE.	30
9.5 BATTLEFIELDS AND CONCENTRATION CAMPS.....	30

9.6	POTENTIAL IMPACT	30
10	RECOMMENDATIONS AND CONCLUSION	33
10.1	CHANCE FIND PROCEDURES	34
10.2	PALAEONTOLOGICAL PROTOCOL FOR FINDS	34
10.3	REASONED OPINION	34
11	REFERENCES.....	35
12	APPENDICES:.....	37
	CURRICULUM VITAE OF SPECIALIST	37

LIST OF FIGURES

FIGURE 1. PROVINCIAL LOCALITY MAP (1: 250 000 TOPOGRAPHICAL MAP).....	8
FIGURE 2: REGIONAL LOCALITY MAP (1:50 000 TOPOGRAPHICAL MAP).....	9
FIGURE 3.SATELLITE IMAGE INDICATING THE STUDY AREA IN BLUE (GOOGLE EARTH 2018).....	10
FIGURE 4: TRACK LOGS OF THE SURVEY IN PURPLE.....	14
FIGURE 5. CONCENTRATION CAMPS REPRESENTED BY RED DOTS AND RAILWAY STATIONS WITH GREY SQUARES (BERGH 1999).....	21
FIGURE 6. 1941 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. THE SITE WAS LOCATED NEAR A FOREST, AND A WIND PUMP CAN BE SEEN TO THE EAST. A BUILDING IS VISIBLE JUST TO THE SOUTH EAST OF THE STUDY AREA. (TOPOGRAPHICAL MAP 1941)	22
FIGURE 7. 1970 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. NO DEVELOPMENTS ARE VISIBLE IN THE STUDY AREA. CULTIVATED LANDS CAN BE SEEN TO THE WEST AND SOUTH EAST OF THE SITE. (TOPOGRAPHICAL MAP 1970)	23
FIGURE 8. 1984 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. A NORTH WESTERN SECTION OF THE STUDY AREA WAS USED AS CULTIVATED LANDS. NO OTHER DEVELOPMENTS ARE VISIBLE. (TOPOGRAPHICAL MAP 1984)	24
FIGURE 9. 1995 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. THE SITE WAS USED AS CULTIVATED LANDS. (TOPOGRAPHICAL MAP 1995).....	25
FIGURE 10. 2003 TOPOGRAPHICAL MAP OF THE SITE UNDER INVESTIGATION. THE APPROXIMATE STUDY AREA IS INDICATED WITH A YELLOW BORDER. THE SITE WAS USED AS CULTIVATED LANDS. A TRACK / HIKING TRAIL CAN BE SEEN TO THE EAST OF THE STUDY AREA. (TOPOGRAPHICAL MAP 2003)	26
FIGURE 11. 2018 GOOGLE EARTH IMAGE SHOWING THE STUDY AREA IN RELATION TO THE R686, BALMORAL AND OTHER SITES. (GOOGLE EARTH 2018).....	27
FIGURE 12. GENERAL SITE CONDITIONS.....	27
FIGURE 13. GENERAL SITE CONDITIONS.....	27
FIGURE 14. GENERAL SITE CONDITIONS	28
FIGURE 15. GENERAL SITE CONDITIONS	28
FIGURE 16. GENERAL SITE CONDITIONS.....	28
FIGURE 17. GENERAL SITE CONDITIONS	28
FIGURE 18. SAHRA PALEONTOLOGICAL SENSITIVITY MAP INDICATING THE APPROXIMATE STUDY AREA (YELLOW POLYGON) AS OF LOW PALEONTOLOGICAL SENSITIVITY.	29
FIGURE 19. KNOWN GRAVES IN RELATION TO THE STUDY AREA.....	30

LIST OF TABLES

TABLE 1. SPECIALIST REPORT REQUIREMENTS.....	4
TABLE 2: PROJECT DESCRIPTION	7
TABLE 3: INFRASTRUCTURE AND PROJECT ACTIVITIES	7
TABLE 4: SITE INVESTIGATION DETAILS	13
TABLE 5. IMPACT ASSESSMENT OF THE PROJECT ON HERITAGE RESOURCES	32

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 Prism to conduct a heritage impact assessment of the proposed infrastructure for a truck stop development with associated uses. The proposed 'Kusile truck stop' is located on 'Portion 83 (a portion of portion 20) of the Farm Eenzaamheid 534 JR' immediately south of the Lone Rock Road (R686 Road), Balmoral, Emalahleni Local Municipality (Ward 9), Mpumalanga Province. The report forms part of the Environmental Impact Report 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 sites of heritage significance 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 Environmental Impact Report and its appendices must be submitted to the case officer as well as the EMP, 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	1 Hectare on Portion 83 (a portion of portion 20) of the Farm Eenzaamheid 534 JR in Balmoral
Magisterial District	Emalahleni Local Municipality
1: 50 000 map sheet number	2528DD
Central co-ordinate of the development	Latitude: 25° 53' 14.94" S Longitude: 28° 57' 26.23" E

Table 3: Infrastructure and project activities

Type of development	Truck Stop Development
Project size	Approximately 1 ha
Project Components	The construction of a Diesel and Petroleum outlet facility with ancillary uses and the proposed installation of diesel and petroleum tanks. Other related infrastructure such as, a convenience store/shop, restrooms, restaurant, recreational area, truck stop, and offices will be constructed.

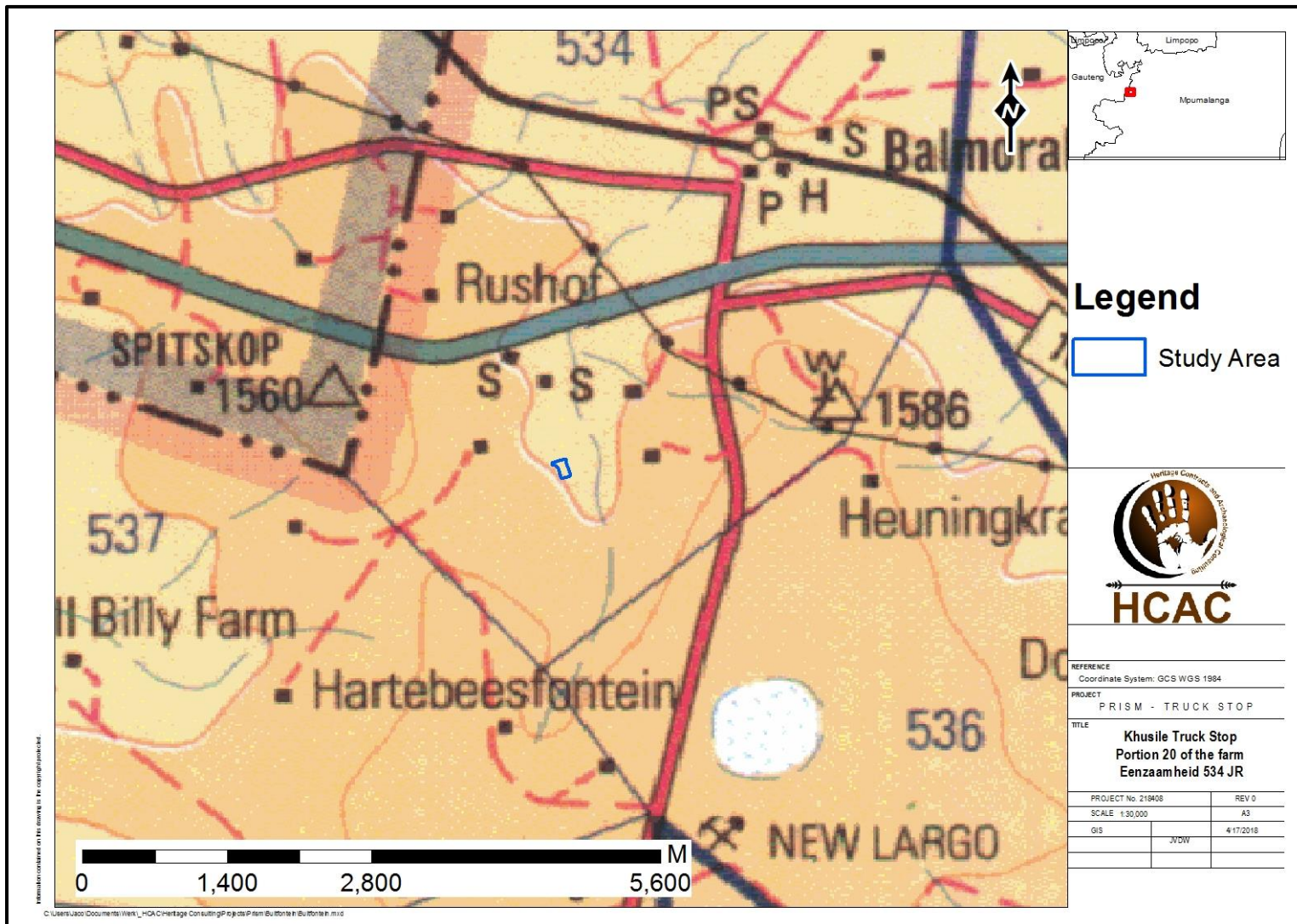


Figure 1. Provincial locality map (1: 250 000 topographical map)

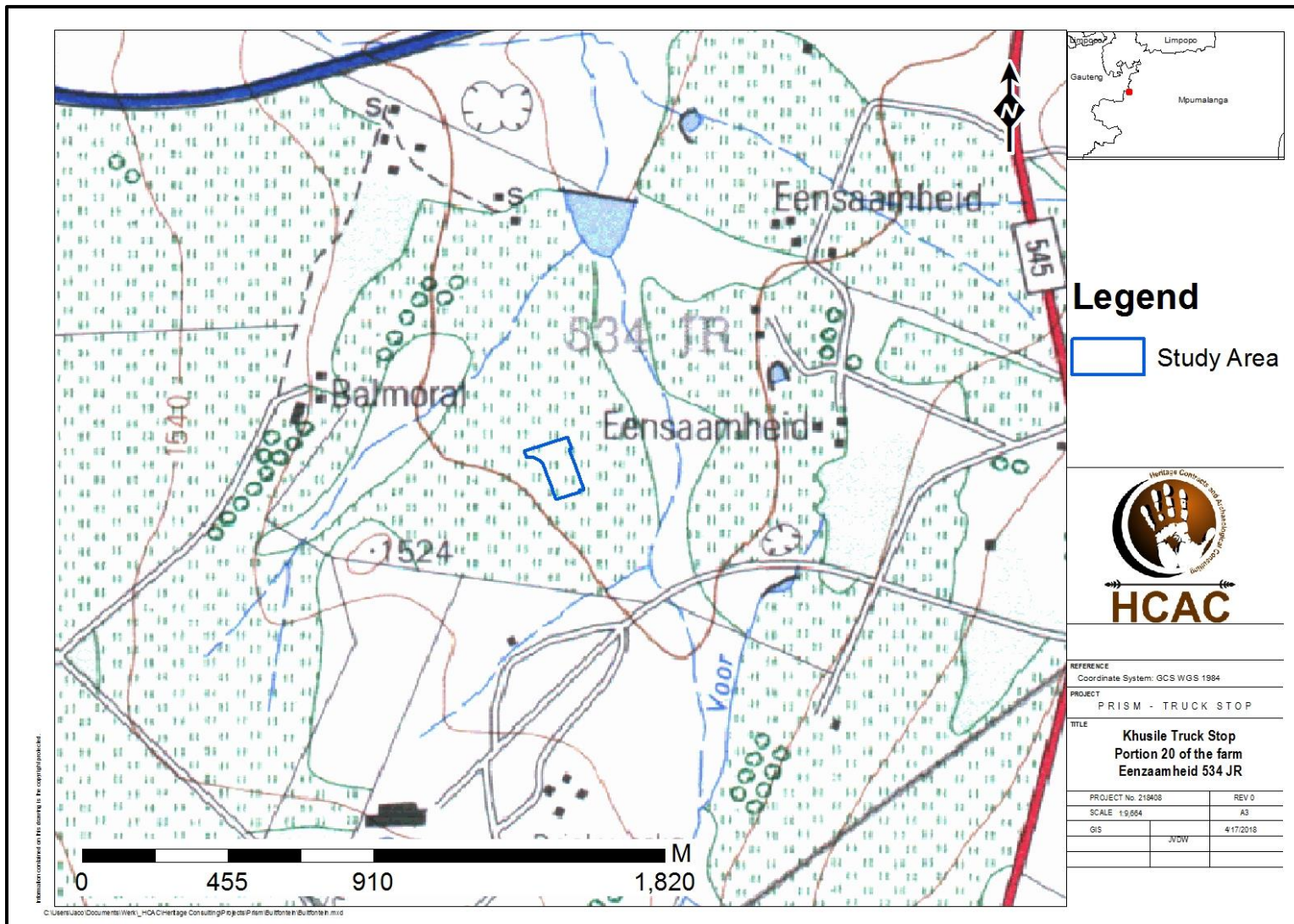


Figure 2: Regional locality map (1:50 000 topographical map).



Figure 3. Satellite image indicating the study area in blue (Google Earth 2018).

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 reports upon which review comments will be issued. 'Best practice' requires Phase 1 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 EIA process, it involves stakeholders interested in, or affected by the proposed development. Stakeholders are provided with an opportunity to raise issues of concern (for the purposes of this report only heritage related issues will be included). The aim of the public consultation process 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 Scoping report and Environmental Impact Report and opportunity for I&APs to comment on the draft reports.
- The compilation of a Comments and Response Report (CRR).

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	19 March 2018
Season	Autumn- vegetation in the study area is low and archaeological visibility is high. The impact area was sufficiently covered (Figure 4) to adequately record the presence of heritage resources.

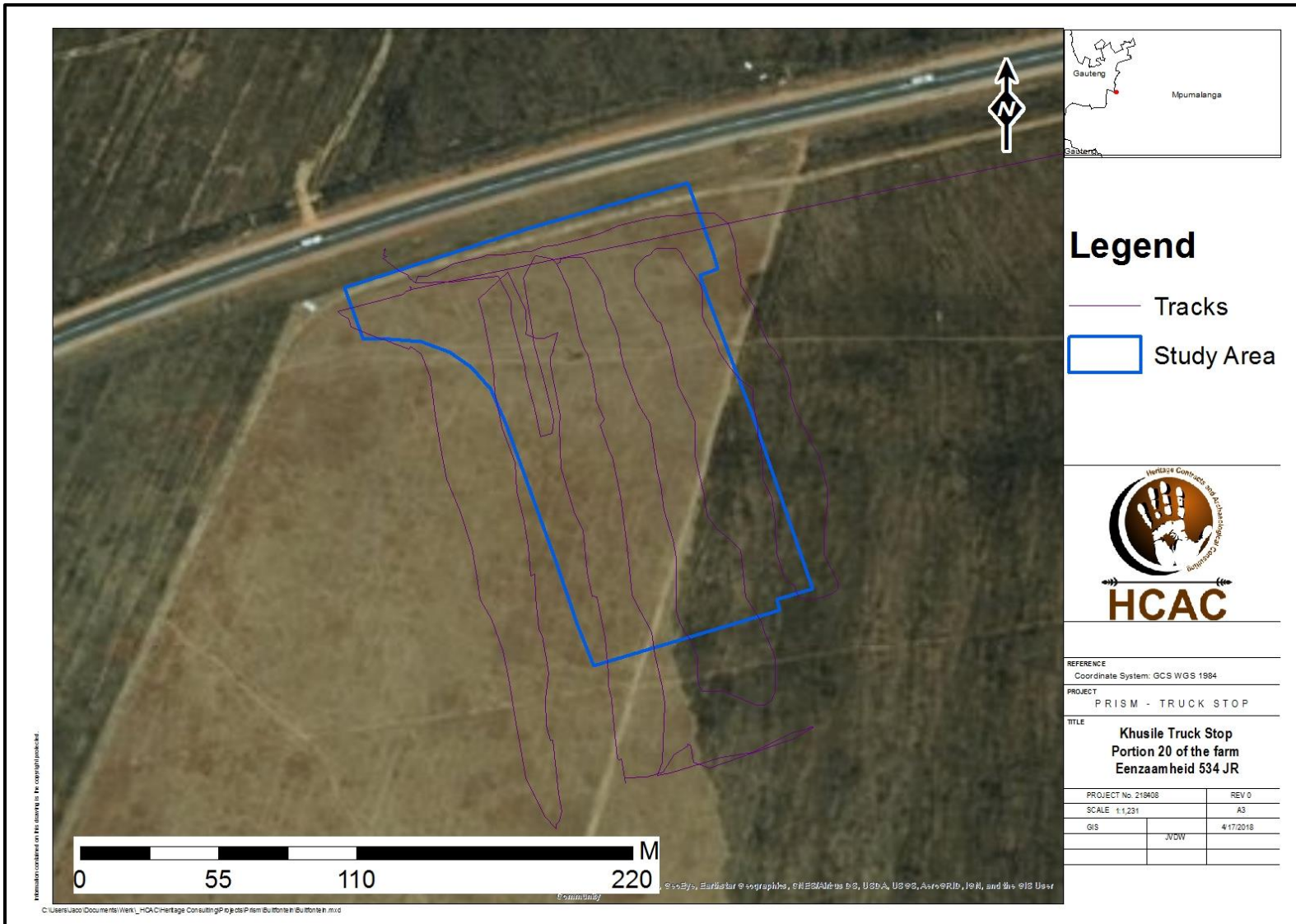


Figure 4: Track logs of the survey in purple.

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 Environment

StatsSA provides the following information: According to Census 2011, Emalahleni Local Municipality has a total population of 395 466, of whom 81,3% are black African, 15,7% are white, with the other population groups making up the remaining 3,0%. Of those aged 20 years and older, 4,0% have completed primary school, 35,7% have some secondary education, 31,5% have completed matric, 14,0% have some form of higher education, while 5, 8% have no form of schooling.

190 662 people are economically active (employed or unemployed but looking for work), and of these 27,3% are unemployed. Of the 101 062 economically active youth (15 – 34 years) in the area, 36,0% are unemployed.

5 Description of the Physical Environment:

The survey area is situated 1.2 km south of the N4 highway, 1.5km from the R545, on the side of the R686/ Lone Rock road. The R686 forms the northern border of the survey area. The study area is situated on a previously ploughed field which is evident from aerial photos through old plough lines running across the site. The survey area's top soil has been stripped away. The stripped area outlines the borders of the study area.

6 Results of Public Consultation and Stakeholder Engagement:

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.

7 Literature / Background Study:

7.1 Literature Review

The following CRM reports were consulted:

Author	Year	Project	Findings
Van Schalkwyk, J.	2006	HIA for the proposed new power station, Witbank Area.	Numerous structures and graves.
Murimbika, E.	2008	Phase 1 Archaeological and Heritage Impact Assessment Specialist Study Report for the Proposed Construction of a New 132kv Deviation Power Line to Link Wilge Substation to A New Bravo Substation In Emalaheni Municipality, Nkangala District, Mpumalanga Province	No sites were recorded.
Fourie, W.	2010	Heritage Assessment Portion 20 of the farm Eenzaamheid 534 JR, Balmoral, Mpumalanga Province	No Sites were identified
Van der Walt. J.	2015	AIA Doornrug Mining, Balmoral.	LIA site

7.1.1 Genealogical Society and Google Earth Monuments

No known grave sites are on record close to 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 *The Stone Age*

The Stone Age is divided in Early; Middle and Late Stone Age and refers to the earliest people of South Africa who mainly relied on stone for their tools.

Very few Early Stone Age sites are on record for Mpumalanga and no sites dating to this period are expected for the study area. An example in Mpumalanga is Maleoskop on the farm Rietkloof where ESA tools have been found. This is one of only a handful of such sites in Mpumalanga.

The MSA has not been extensively studied in Mpumalanga but evidence of this period has been excavated at Bushman Rock Shelter, a well-known site on the farm Klipfonteinhoek in the Ohrigstad district. This cave was excavated twice in the 1960s by Louw and later by Eloff. The MSA layers show that the cave was repeatedly visited over a long period. Lower layers have been dated to over 40 000 BP (Before Present) while the top layers date to approximately 27 000 BP (Esterhuizen & Smith in Delius, 2007; Bergh, 1998). Some isolated finds were recorded by Van Vollenhoven (1992) close to the study area.

The Later phases of the Stone Age began at around 20 000 years BP. This period was marked by numerous technological innovations and social transformations within these early hunter-gatherer societies. These people may be regarded as the first modern inhabitants of Mpumalanga, known as the San or Bushmen. They were a nomadic people who lived together in small family groups and relied on hunting and gathering of food for survival. Evidence of their existence is to be found in numerous rock shelters throughout the Eastern Mpumalanga where some of their rock paintings are still visible. A number of these shelters have been documented throughout the Province (Bornman, 1995; Schoonraad in Barnard, 1975; Delius, 2007).

7.2.1.2 *Iron Age*

These include areas such as Witbank, Ermelo, Barberton, Nelspruit, White River, Lydenburg and Ohrigstad. 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. No Sites dating to the Early or Middle Iron Age have been recorded or is expected for the study area. The same goes for the Later Iron Age period where the study area is situated outside the western periphery of distribution of Late Iron Age settlements in Mpumalanga. This phase of the Iron Age (AD 1600-1800's) is represented by various tribes including Ndebele, Swazi, BaKoni, Pedi marked by extensive stonewalled settlements found throughout the Mpumalanga escarpment

7.2.1.3 Battles close to the study area

The discovery of diamonds and gold in the Northern provinces had very important consequences for South Africa. After the discovery of these resources, the British, who at the time had colonized the Cape and Natal, had intentions of expanding their territory into the northern Boer republics. This eventually led to the Anglo-Boer War, which took place between 1899 and 1902 in South Africa, and which was one of the most turbulent times in South Africa's history. Even before the outbreak of war in October 1899 British politicians, including Sir Alfred Milner and Mr. Chamberlain, had declared that should Britain's differences with the Z.A.R. result in violence, it would mean the end of republican independence. This decision was not immediately publicized, and republican leaders based their assessment of British intentions on the more moderate public utterances of British leaders. Consequently, in March 1900, they asked Lord Salisbury to agree to peace on the basis of the status quo ante bellum. Salisbury's reply was; however, a clear statement of British war aims. (Du Preez 1977). During the British march into the Transvaal between February and September 1900, several troops passed by the area where Witbank is situated today. The battalions of Lieutenant Generals J. French, R. Pole-Carew and F. Roberts all travelled close by the Witbank area and through Middelburg. A railway line ran along this route at the time. (Bergh 1999: 51).

During the Anglo-Boer War, two railway stations were located in the vicinity of the Witbank area, and close to each a black concentration camp had been established. At Middelburg, about 20 kilometres to the east of Witbank, one white and one black concentration camp was also set up. No skirmishes took place in the direct vicinity of the farm area. (Bergh 1999: 54).

A large Concentration camp was located at Balmoral. The camp was established in June 2001 and was to accommodate inmates from Middelburg as well as other areas including Bronkhorstpruit. Conditions in the camp was terrible and the camp had a higher than average death rate for camps in the Transvaal. The camp at times had around 10 000 inmates and the large numbers increased the spread of disease. Interestingly it is noted that the camp was not fenced and that the tents had dung floors, increasing the possibility of archaeological finds. The camp was also moved to higher ground over a period of time also increasing possible remnants or artefacts (Boers.co.za). Today, there is still a concentration camp graveyard in Balmoral.

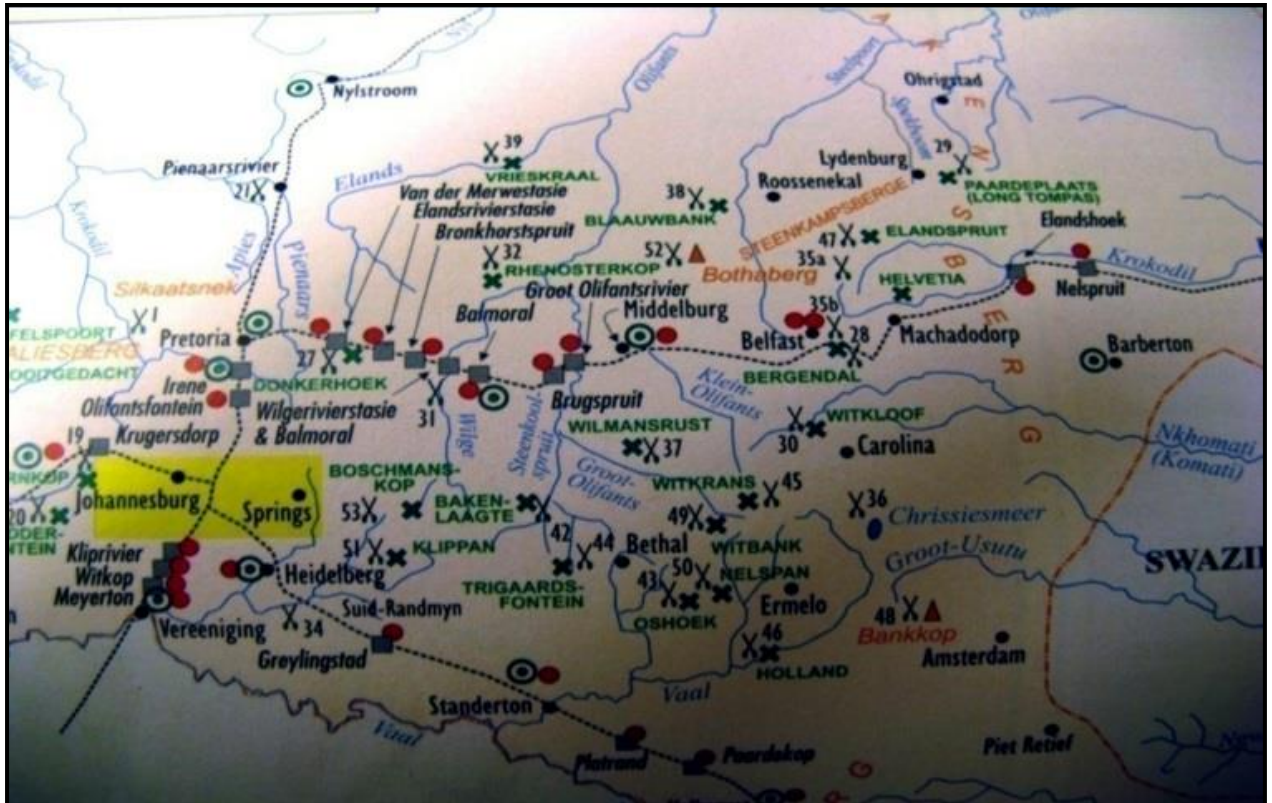


Figure 5. Concentration camps represented by red dots and railway stations with grey squares (Bergh 1999).

7.3 Cultural Landscape

The site under investigation is located about 2.5 km south west of Balmoral in Mpumalanga Province.

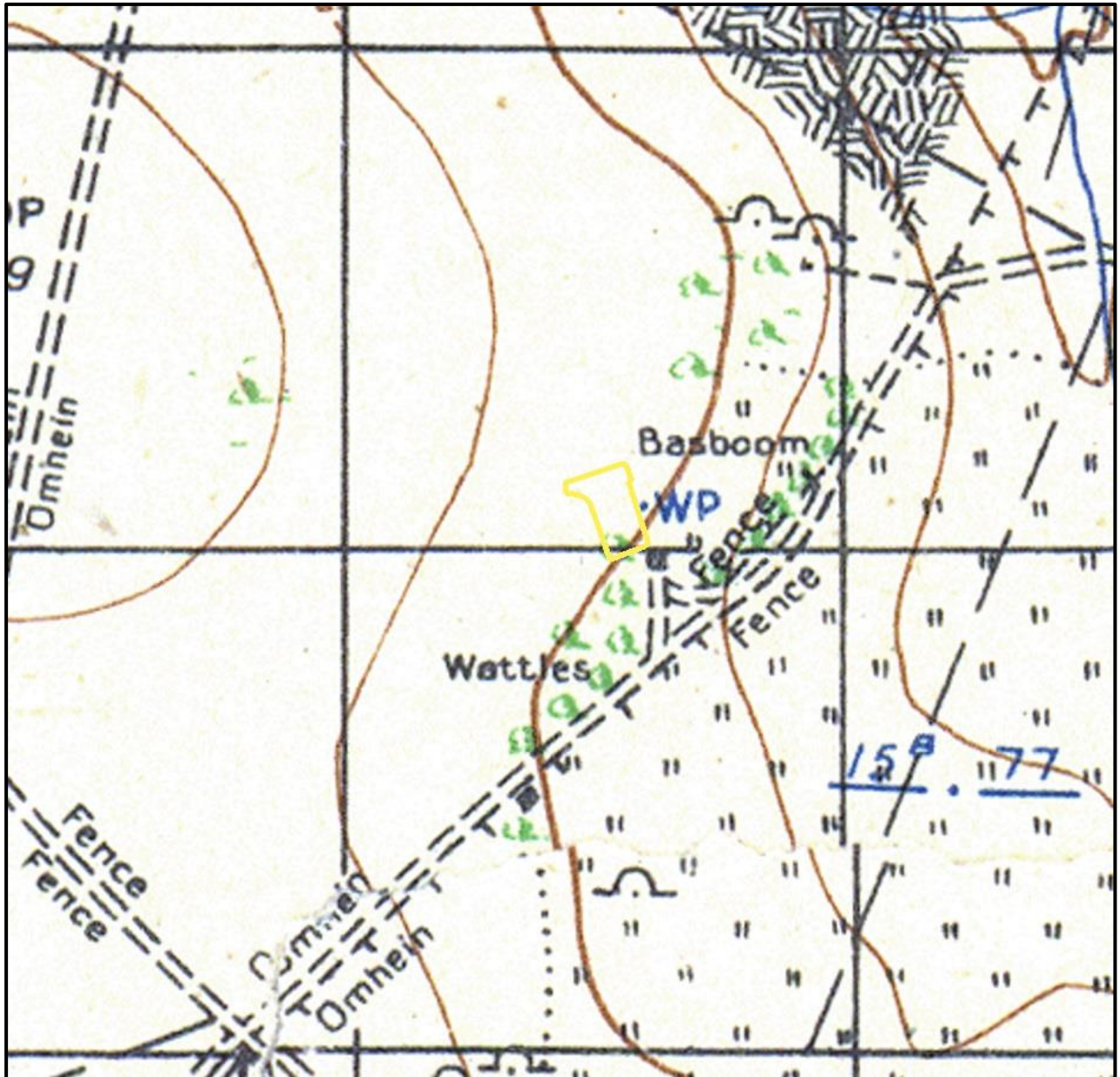


Figure 6. 1941 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. The site was located near a forest, and a wind pump can be seen to the east. A building is visible just to the south east of the study area. (Topographical Map 1941)

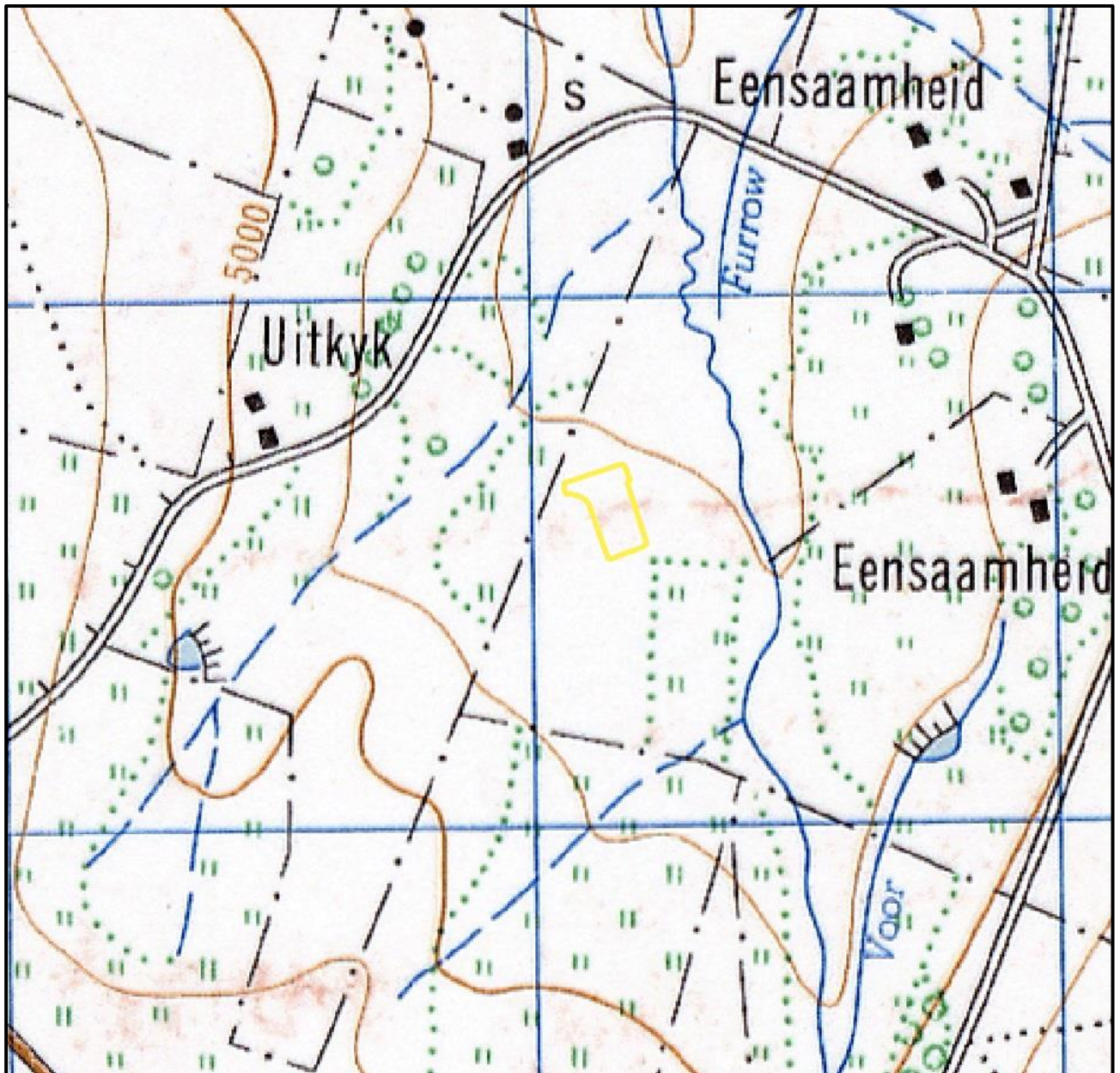


Figure 7. 1970 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. No developments are visible in the study area. Cultivated lands can be seen to the west and south east of the site. (Topographical Map 1970)

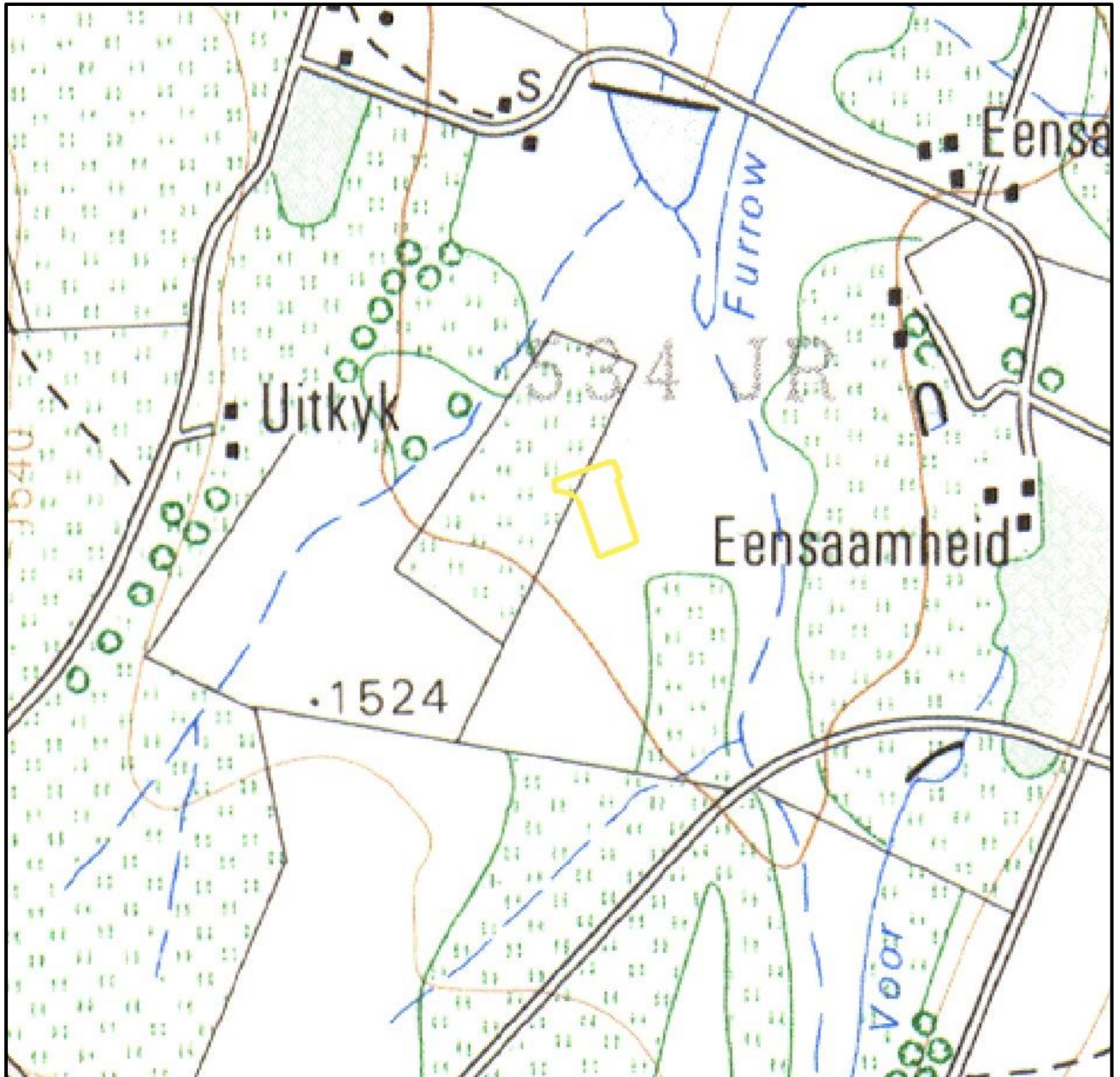


Figure 8. 1984 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. A north western section of the study area was used as cultivated lands. No other developments are visible. (Topographical Map 1984)

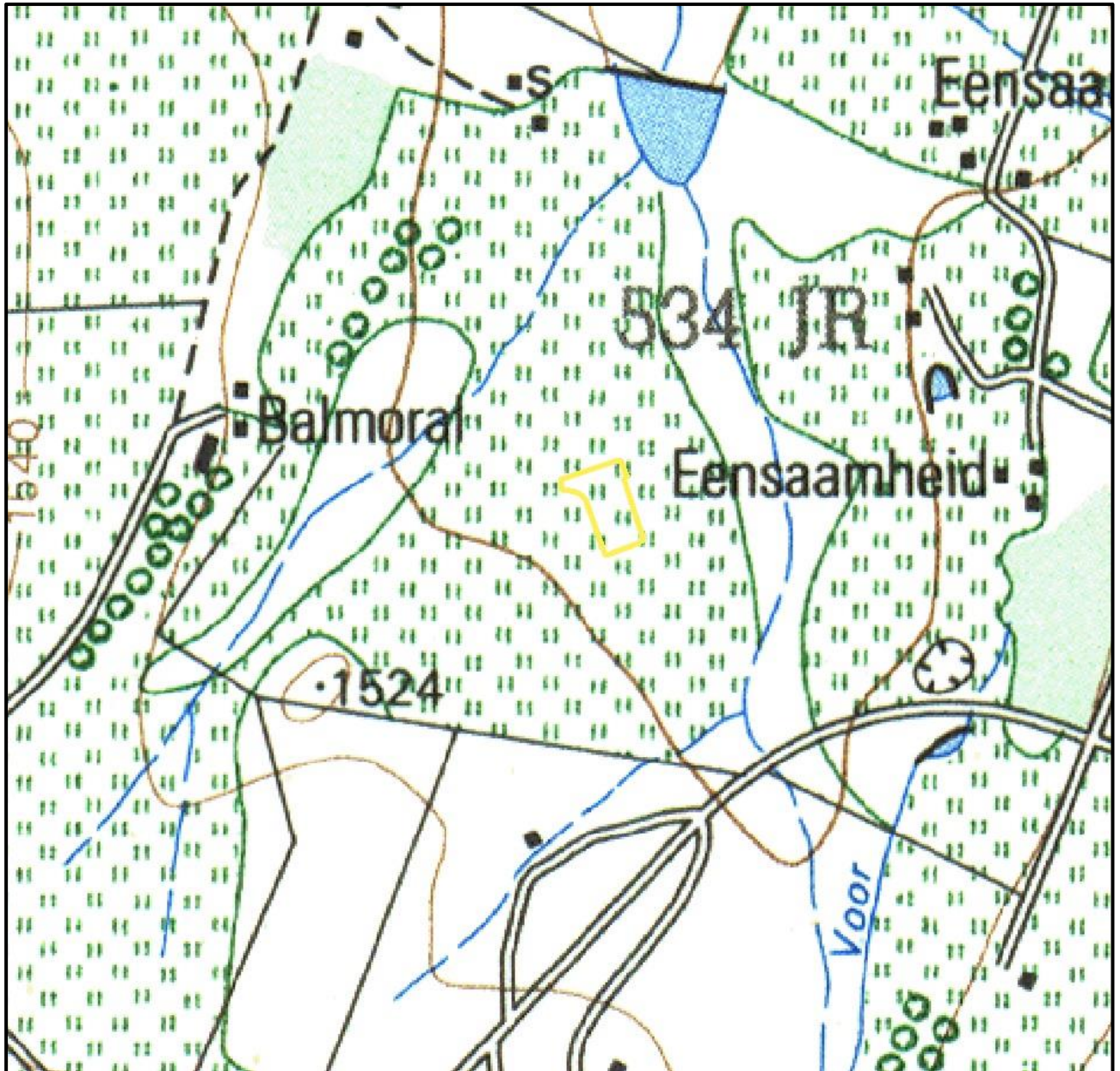


Figure 9. 1995 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. The site was used as cultivated lands. (Topographical Map 1995)

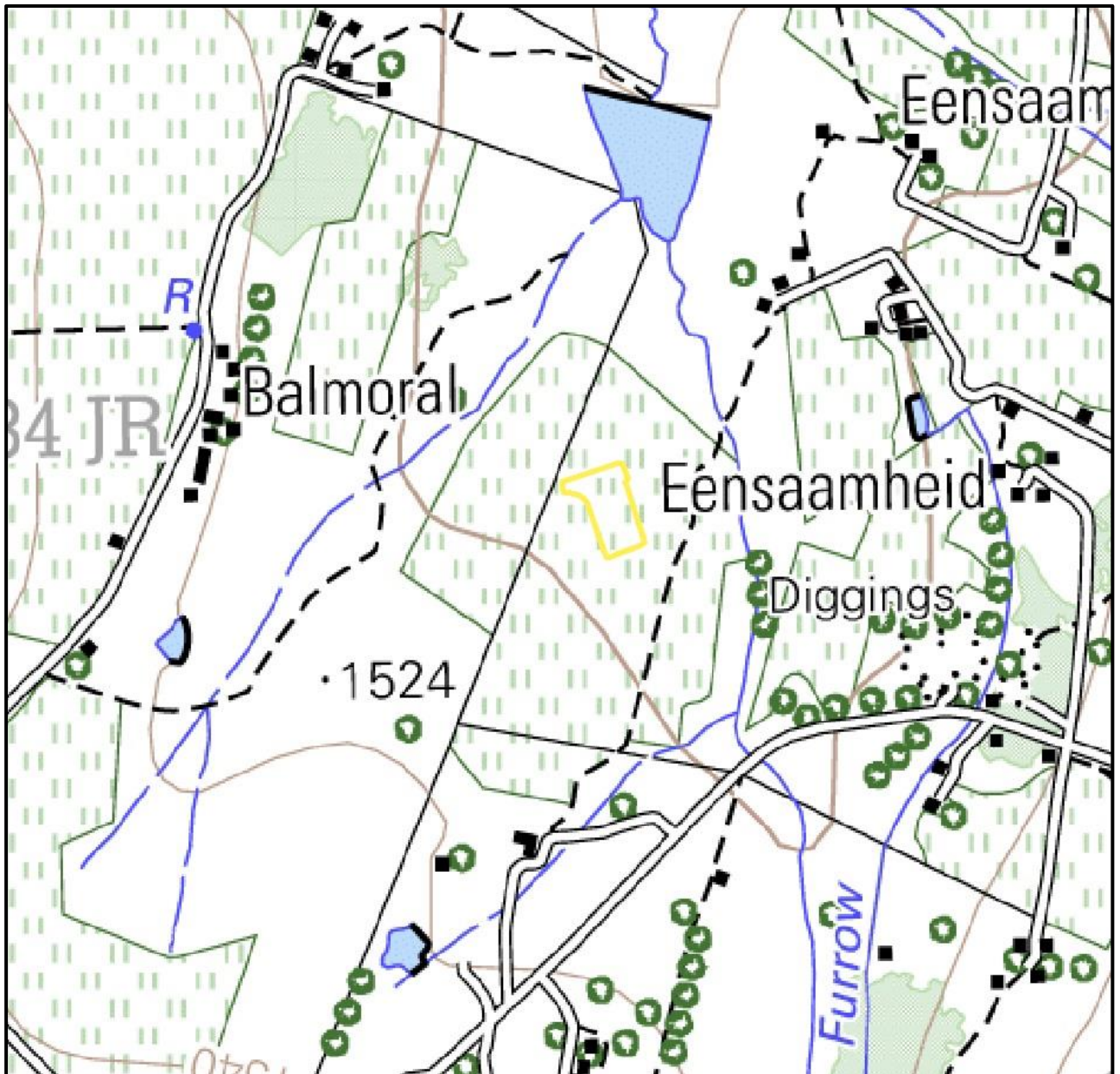


Figure 10. 2003 Topographical map of the site under investigation. The approximate study area is indicated with a yellow border. The site was used as cultivated lands. A track / hiking trail can be seen to the east of the study area. (Topographical Map 2003)

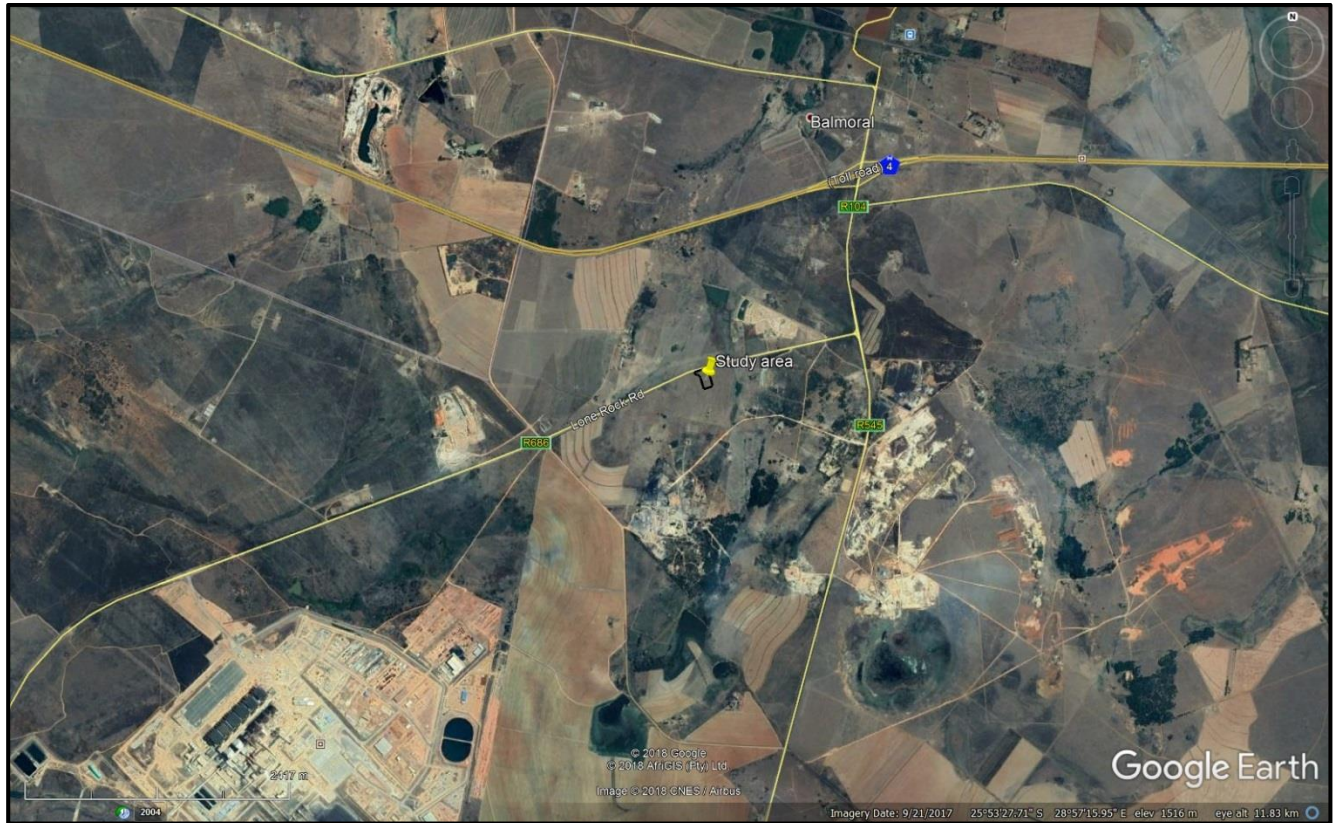


Figure 11. 2018 Google Earth image showing the study area in relation to the R686, Balmoral and other sites. (Google Earth 2018)

8 Findings of the Survey

The study area has been extensively transformed by agricultural activities and this resulted that the entire site was disturbed and damaged from a heritage point of view.



Figure 12. General Site conditions.



Figure 13. General site conditions.



Figure 14. General site conditions



Figure 15. General Site Conditions



Figure 16. General site conditions.



Figure 17. General site conditions

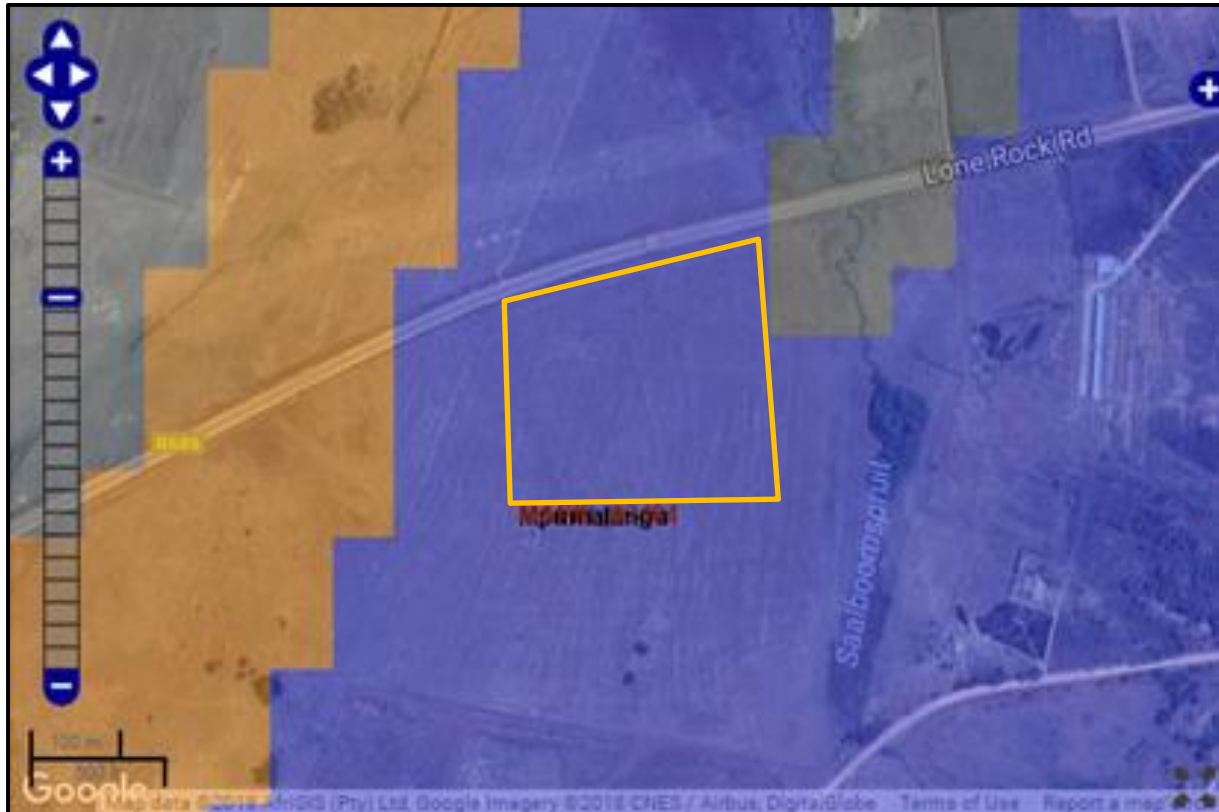
9 Description of Identified Heritage Resources (NHRA Section 34 - 36):

9.1 Built Environment (Section 34 of the NHRA)

No standing structures older than 60 years occur in the study area.

9.2 Archaeological and paleontological resources (Section 35 of the NHRA)

No archaeological sites or material was recorded during the survey and based on the SAHRIS Paleontological Sensitivity Map (Figure 36) the area is of insignificant paleontological significance. Therefore, no further mitigation prior to construction is recommended in terms of Section 35 for the proposed development to proceed.



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

Figure 18. SAHRA Paleontological Sensitivity map indicating the approximate study area (yellow polygon) as of Low paleontological sensitivity.

9.3 Burial Grounds and Graves (Section 36 of the NHRA)

In terms of Section 36 of the Act no burial sites were recorded in the study area. A known cemetery is located approximately 190 meters to the south west of the study area (Figure 13) but will not be impacted on.

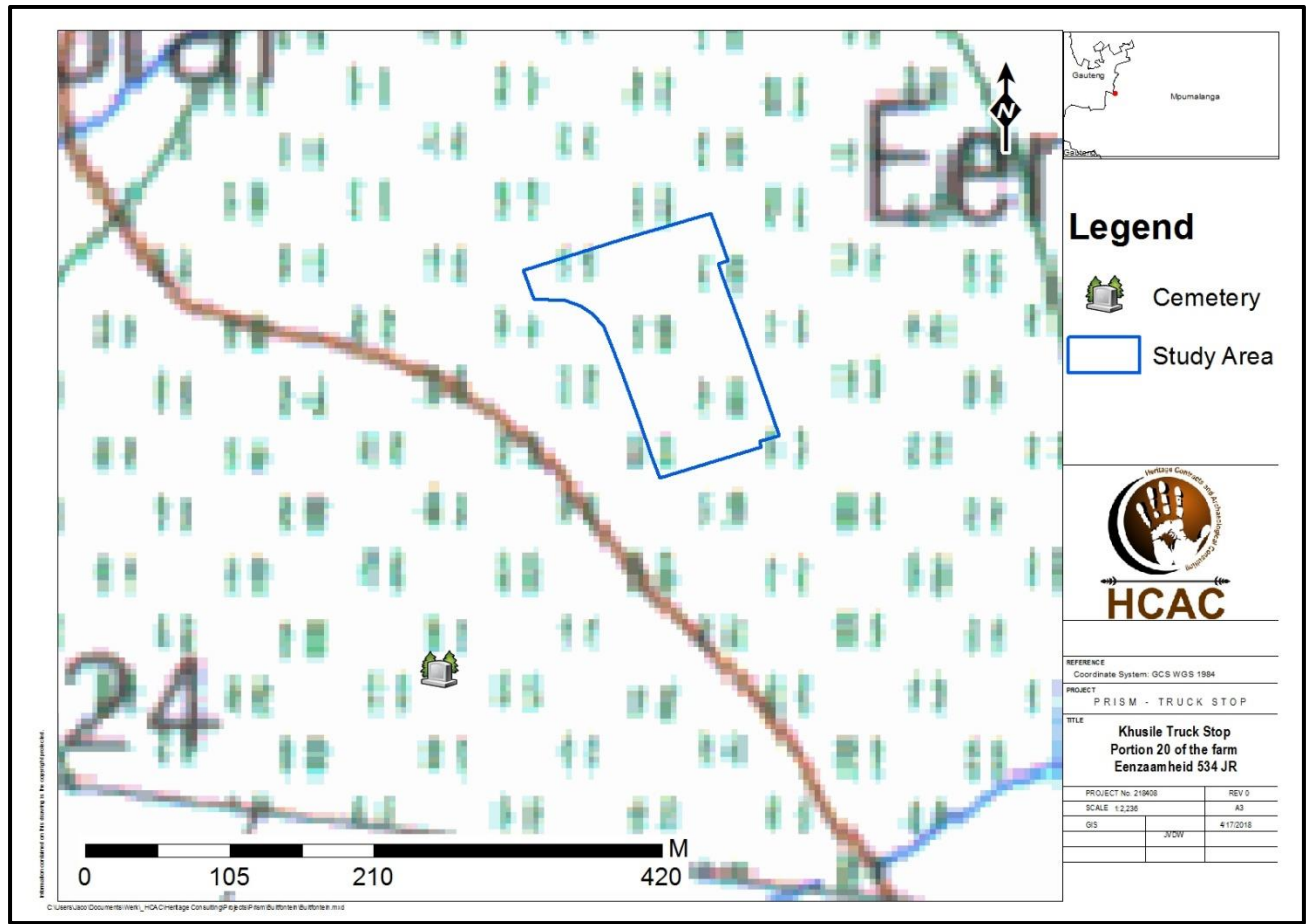


Figure 19. Known graves in relation to the study area.

If any additional graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation.

9.4 Cultural Landscapes, Intangible and Living Heritage.

Long term impact on the cultural landscape is considered to be negligible as the immediate area has been disturbed by agricultural activities and the larger area by extensive mining activities. Visual impacts to scenic routes and sense of place are considered to be low due to the extensive developments in the greater area.

9.5 Battlefields and Concentration Camps

There are no battlefields or related concentration camp sites located in the study area, the greater area has been home to a large concentration camp and the developer should be mindful of this fact should artefacts be uncovered during construction. Fourie (2010) determined that it is more probable that the camp was positioned close to the train station that is located in the northern section of the farm to the north of the N4 highway

9.6 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 heritage landscape. The lack of any heritage resources in the immediate area minimises additional impact on the landscape.

9.6.1 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.

9.6.2 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.

9.6.3 Operation Phase

No impact is envisaged for the recorded heritage resources during this phase.

Table 5. Impact Assessment of the project on heritage resources

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 (3)	Local (3)
Duration	Permanent (5)	Permanent (5)
Magnitude	Low (2)	Low (2)
Probability	Probable (3)	Not probable (2)
Significance	30 (Medium)	20 (Low)
Status (positive or negative)	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes, a chance find procedure should be implemented.	Yes
Mitigation: No further mitigation is recommended prior to development; however a chance find procedure should be implemented during construction.		
Cumulative impacts: Since the surrounding area is disturbed by agricultural activities and due to the lack of significant heritage resources in the study area cumulative impacts are considered to be low.		
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.		

10 Recommendations and conclusion

The study area of approximately 1 ha 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 the development footprint. The study area has been extensively transformed by agricultural activities from 1984 onwards (Figure 8) and this resulted that the entire site was disturbed and damaged from a heritage point of view.

A Previous study of the area (Fourie 2010) recorded no sites of significance within the study area. The lack of sites within the study area was confirmed during the current study and no archaeological sites or material was recorded during the survey. Based on the SAHRIS Paleontological Sensitivity Map, the area is of low paleontological sensitivity. Therefore, no further mitigation prior to construction is recommended in terms of Section 35 for the proposed development to proceed. In terms of the built environment, no standing structures older than 60 years occur in the study area. In terms of Section 36 of the Act no burial sites were recorded in the study area although a grave site is located approximately 190 meters to the south west of the study area and will not be impacted on by the current development. However, if any graves are identified in the study area 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 study area is surrounded agricultural developments, road and mining infrastructure and the proposed truck stop development will not impact negatively on significant cultural landscapes or views. During the public participation process conducted for the project no heritage concerns were 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 impacts can be mitigated to an acceptable level. It is therefore 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 as outlined under section 10.1 and;
- In terms of the paleontological aspect a protocol for finds should be implemented as outlined under section 10.2.

10.1 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.

10.2 Palaeontological protocol for finds.

In the unlikely event of fossil discovery, a professional palaeontologist must be called in to confirm and record the finds. Ex situ remains must be wrapped in paper towels or heavy-duty tin foil and stored in a safe place. The material should not be washed or cleaned in any way. In situ material must be kept in place and protected from further damage by covering it with light but rigid object like a box, bucket or metal sheet until further confirmation by the palaeontologist.

10.3 Reasoned Opinion

From a heritage perspective, the proposed project is acceptable. If the above recommendations are adhered to and based on approval from SAHRA, HCAC is of the opinion that the development can continue as the development will not impact negatively on the heritage record of the area.

11 References

- Archaeological database, University of the Witwatersrand. Referenced 2009.
- Barnard, C. 1975. Die Transvaalse Laeveld. Komee van 'n Kontrei.
- Bergh, J.S. (ed.) 1998. Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies. (J.L. van Schaik, Pretoria).
- Birkholtz P.2007. Archival study The Farms Zondagsvlei, Schoongezicht, Leeuwfontein, Klippoortje, Springboklaagte, Cologne, Bombardie And Smithfield, Nkangala District, Mpumalanga Province Version. Unpublished report by Archaeology Africa.
- Bonner, P. 1978. Factions and Fissions: Transvaal/ Swazi politics in the mid-nineteenth century. *Journal of African History* 19 (2), p. 226.
- Bornman, H. (red.) 1979. Nelspruit: 75 in '80. Stadsraad van Nelspruit.
- Delius, P. 2007. Mpumalanga History and Heritage. University of KwaZulu-Natal Press.
- Du Preez, S. J. 1977. Peace attempts during the Anglo Boer War until March 1901. Magister Artium thesis in History. Pretoria: University of Pretoria.
- Fourie, W. 2010. Heritage Assessment Portion 20 of the farm Eenzaamheid 534 JR, Balmoral, Mpumalanga Province
- Huffman, T. N. (2007). Handbook to the Iron Age: The Archaeology of the Pre-Colonial Farming Societies in Southern Africa. Cape Town: University of KwaZulu-Natal Press.
- Karodia, S.2013. Environmental Impact Assessment (Eia) For An Integrated Waste Management Licence At The Landau Colliery done by Digby Wells.
- Maggs, T. M. (1976). Iron Age Communities of the Southern Highveld. Occasional Publication 2. Pietermaritzburg: Natal Museum
- Massie, R. H. 1905. *The Native tribes of Transvaal. Prepared for the General Staff War Office.* London: His Majesty's Stationery Office.
- Mucina, L. & Rutherford, M.C. 2006. The vegetation map of South Africa, Lesotho and Swaziland. SANBI, Pretoria.
- Murimbika, M. 2008. *Phase 1 Archaeological and Heritage Impact Assessment specialist study report. Proposed construction of a new 132 KV deviation power line to link Wilge Substation to a new Bravo Substation in Emalahleni local Municipality, Nkangala District, Mpumalanga.* An unpublished report by Nzumbululo Heritage Solutions on file at SAHRA as: 2008-SAHRA-0609.
- National Heritage Resources Act NHRA of 1999 (Act 25 of 1999)
- Pelser, A.J. 2010. A report on the archaeological investigation of graves on the farm Nooitgedacht 300 JS, impacted on by the Landau colliery mining operations, near Witbank (Emalahleni), Mpumalanga Province. Unpublished Report Archaeos AE1079. For Anglo-Coal (Landau Colliery).
- Pistorius, J.C.C. 2006. A Base Line Heritage Impact Assessment Study For X Strata Coal's Tweefontein Division On The Eastern Highveld In The Mpumalanga Province Of South Africa. Unpublished report done for X Strata Coal.
- Readers Digest. 1992. Illustrated history of South Africa. The Real Story. Expanded second edition: completely updated. Cape Town: Readers Digest Association.
- Ross, R. 2002. *A concise history of South Africa.* Cambridge: Cambridge University Press.
- South African Heritage Resources Agency, Report Mapping Project. Version 1.0, 2009
- Taylor, M.O.V. 1979b. Wildebeestfontein: a Late Iron Age site in the southeast Transvaal. In N.J. Van der Merwe & T.N. Huffman (eds), *Iron Age Studies in Southern Africa.* (South African Archaeological Society Goodwin Series 3), pp. 120-129.
- Van der Walt, J. 2015. AIA for the proposed Doornrug Mine. Unpublished report.
- Van Schalkwyk, J.A. 2006. *Heritage Impact Assessment for the Proposed New Power Station, Witbank Area.* An unpublished report by the National Cultural History Museum on file at SAHRA as: 2006-SAHRA-0358.

MAPS

Topographical Map. 1941. *South Africa. 1:50 000 Sheet. 2528DD Balmoral. First Edition. Pretoria: Government Printer.*

Topographical Map. 1970. *South Africa. 1:50 000 Sheet. 2528DD Balmoral. Second Edition. Pretoria: Government Printer.*

Topographical Map. 1984. *South Africa. 1:50 000 Sheet. 2528DD Balmoral. Third Edition. Pretoria: Government Printer.*

Topographical Map. 1995. *South Africa. 1:50 000 Sheet. 2528DD Balmoral. Fourth Edition. Pretoria: Government Printer.*

Topographical Map. 2003. *South Africa. 1:50 000 Sheet. 2528DD Balmoral. Fifth Edition. Pretoria: Government Printer.*

Electronic Sources:

Google Earth. 2017. 25°53'17.33" S 28°57'26.48" E elev 1502 m. [Online]. [Cited 11 April 2018].

Google Earth. 2018. 25°53'27.71" S 28°57'15.95" E elev 1516 m. [Online]. [Cited 11 April 2018].

12 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