HERITAGE IMPACT ASSESSMENT

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

FOR THE PROPOSED HAAKDOORNLAAGTE BROILERS, GAUTENG PROVINCE

Type of development:

Agricultural

Client:

Lokisa Environmental Consultants

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Project Reference:
2105
Report date:
February 2021

APPROVAL PAGE

Project Name	Haakdoornlaagte Broilers
Report Title	Heritage Impact Assessment for the proposed Haakdoornlaagte Broilers, Gauteng Province
Authority Reference Number	TBC
Report Status	Final Report
Applicant Name	Phaahle Mosadi Enterprise CC

	Name	Qualifications and Certifications	Date
Archaeologist	Jaco van der Walt	MA Archaeology ASAPA #159 APHP #114	February 2021
Archaeologist	Ruan van der Merwe	BA Hons Archaeology	February 2021

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Amendments on Document

Date	Report Reference Number	Description of Amendment

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REPORT OUTLINE

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

Table 1. Specialist Report Requirements.

Requirement from Appendix 6 of GN 326 EIA Regulation 2017	Chapter
(a) Details of - (i) the specialist who prepared the report; and (ii) the expertise of that specialist to compile a specialist report including a curriculum vitae	Section a Section 12
(b) Declaration that the specialist is independent in a form as may be specified by the competent authority	*Declaration of Independence*
(c) Indication of the scope of, and the purpose for which, the report was prepared	Section 1
(cA)an indication of the quality and age of base data used for the specialist report	Section 3.4 and 7.1.
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	9
(d) Duration, Date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 3.4
(e) Description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Section 3
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of site plan identifying site alternatives;	Section 8 and 9
(g) Identification of any areas to be avoided, including buffers	Section 8 and 9
(h) Map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers	Section 8
(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 10
(l) Conditions for inclusion in the environmental authorisation	Section 10
(m) Monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 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 10.2
(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 Environmental Assessment report
(q) Any other information requested by the competent authority	Section 11

Executive Summary

Lokisa Environmental Consulting CC was appointed by Phaahle Mosadi Enterprise CC to conduct an Environmental Authorisation (EA) application process for the proposed development of the Haakdoornlaagte Broilers located on Portion 11 of the Farm Haakdoornlaagte 277 JR within the jurisdiction of the City of Tshwane, Gauteng. HCAC was appointed to conduct a Heritage Impact Assessment (HIA) for the proposed project and the study area was assessed on desktop level and by a non-intrusive pedestrian field survey.

The project consists of the expansion of an existing chicken broiler facility (1800 chickens are currently housed in 3 existing structures for Phase 1). Phase 2 will consist of two broiler houses and associated infrastructure to accommodate 2500 chickens per broiler house and Phase 3 will consist of an additional two broiler houses and associated infrastructure to accommodate 2500 chickens per broiler house.

The survey did not identify any archaeological resources and based on the SAHRA paleontological sensitivity map the area is of insignificant planetological sensitivity and no further studies are required in this regard. The remains of three demolished structures were noted located **outside** of the proposed impact areas. The features' potential to contribute to aesthetic, historic, scientific and social aspects are non-existent, and it is therefore of low heritage significance.

The impact of the project on heritage resources is 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 for the project as outlined under Section 10.1 of this report.

Declaration of Independence

Specialist Name	Jaco van der Walt
Declaration of Independence	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: • 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	18/02/2021

a) Expertise of the specialist

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

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

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ABBREVIATIONS

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:

1 Introduction and Terms of Reference:

HCAC is contracted by Lokisa Environmental Consultants CC to conduct a HIA of the proposed Haakdoornlaagte Broiler development. The study area is located on Portion 11 of The Farm Haakdoornlaagte 277 JR within the jurisdiction of the City of Tshwane (Figure 1-1 to 1-3).

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 features of significance were recorded within the development footprint although the remains of demolished structures was recorded on the proporty. 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 survey to:

(a) locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest;

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

c) determine the levels of significance of the various types of heritage resources affected by the proposed development.

Reporting

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

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

1.2 Project Description

The project consists of the expansion of an existing chicken broiler facility (1800 chickens are currently housed in 3 existing structures for Phase 1). Phase 2 will consist of two broiler houses and associated infrastructure to accommodate 2500 chickens per broiler house and Phase 3 will consist of an additional two broiler houses and associated infrastructure to accommodate 2500 chickens per broiler house (Table 2 and 3).

Table 2: Project Description

Farm and portions	Portion 11 of The Farm Haakdoornlaagte 277 JR
Magisterial District	City of Tshwane
1: 50 000 map sheet number	2528 CB
Central co-ordinate of the development	25°35'50.24"S 28°16'30.31"E

Table 3: Infrastructure and project activities

Type of development	Agricultural
Project size	9,87 hectares (property size)
Project Components	Broiler Houses Phases 2 and 3 of the project will consist of four new broiler houses to be 234m² in size, with a capacity of 2500 chickens each, to be situated on the northern portion of the property. The broiler houses will entail a floor-raised, indoor barn system where chickens will be raised specifically for meat production.

1.3 Alternatives

Alternative 1 will differ from the proposal in that an alternative layout is proposed. Phase 2 of the proposed development will be the same as for the proposal, however Phase 3 will be situated on the western portion of the property.

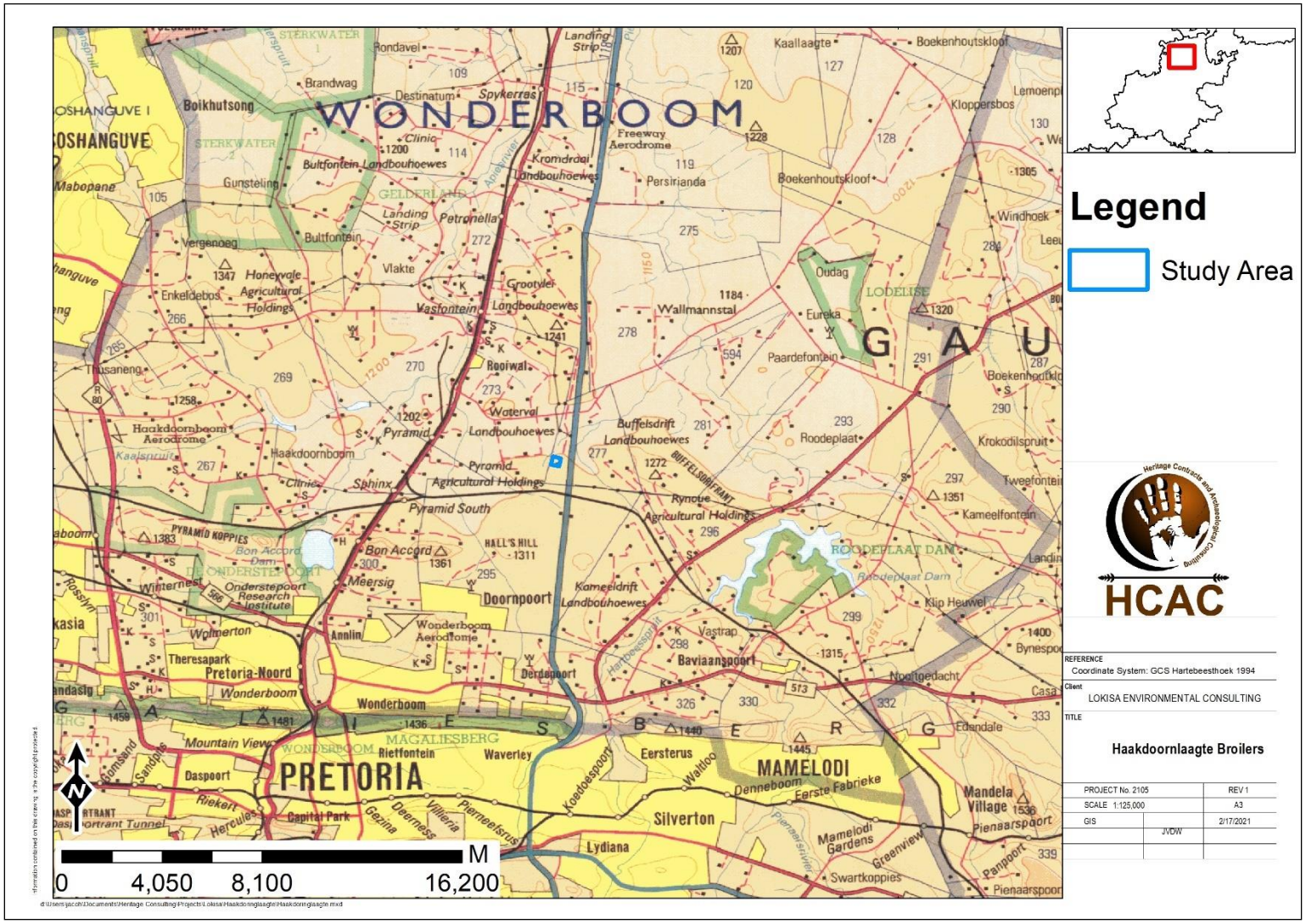

Figure 1-1. Regional setting of the project (1: 250 000 topographical map).

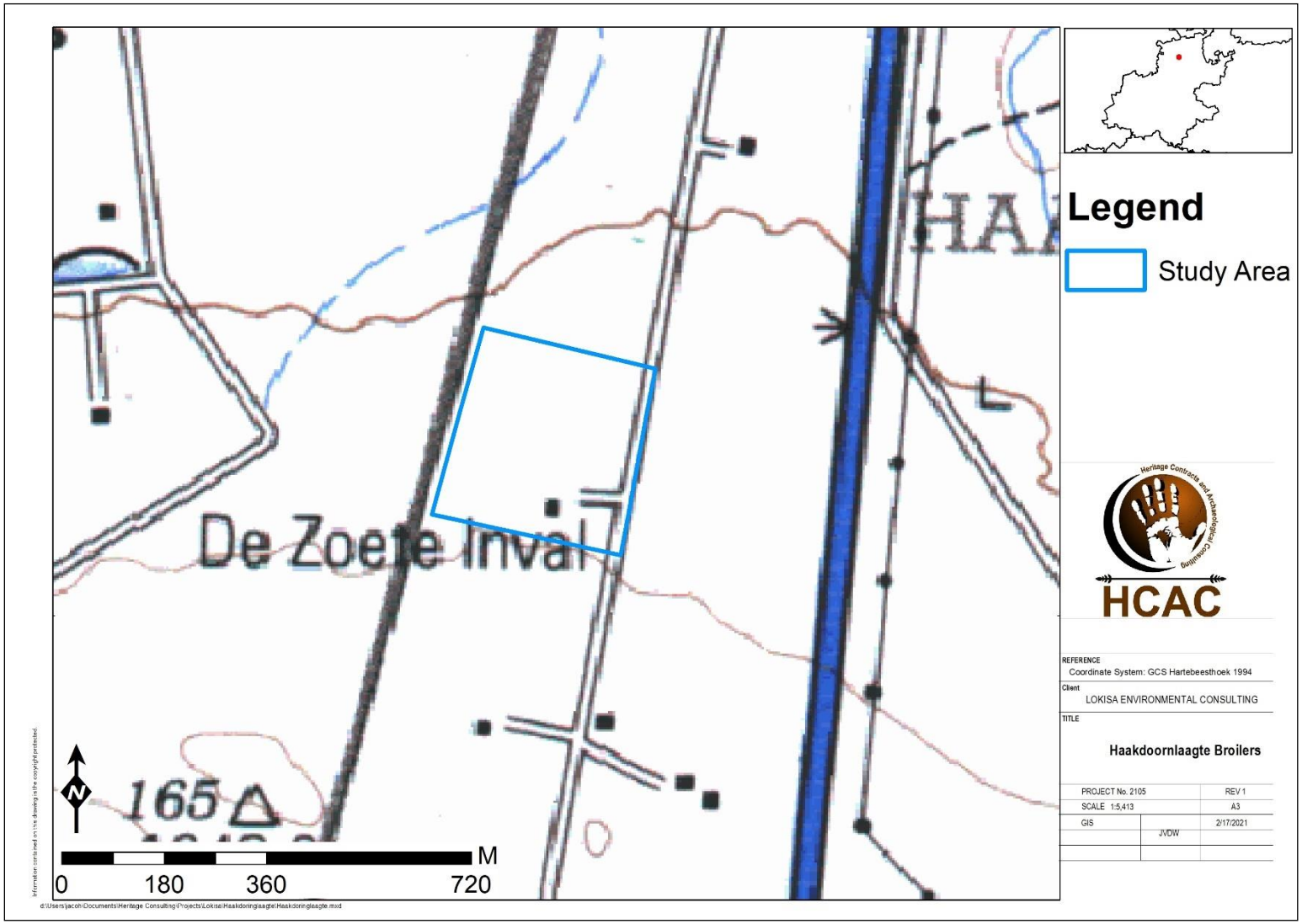

Figure 1-2: Local setting of the project (1:50 000 topographical map).

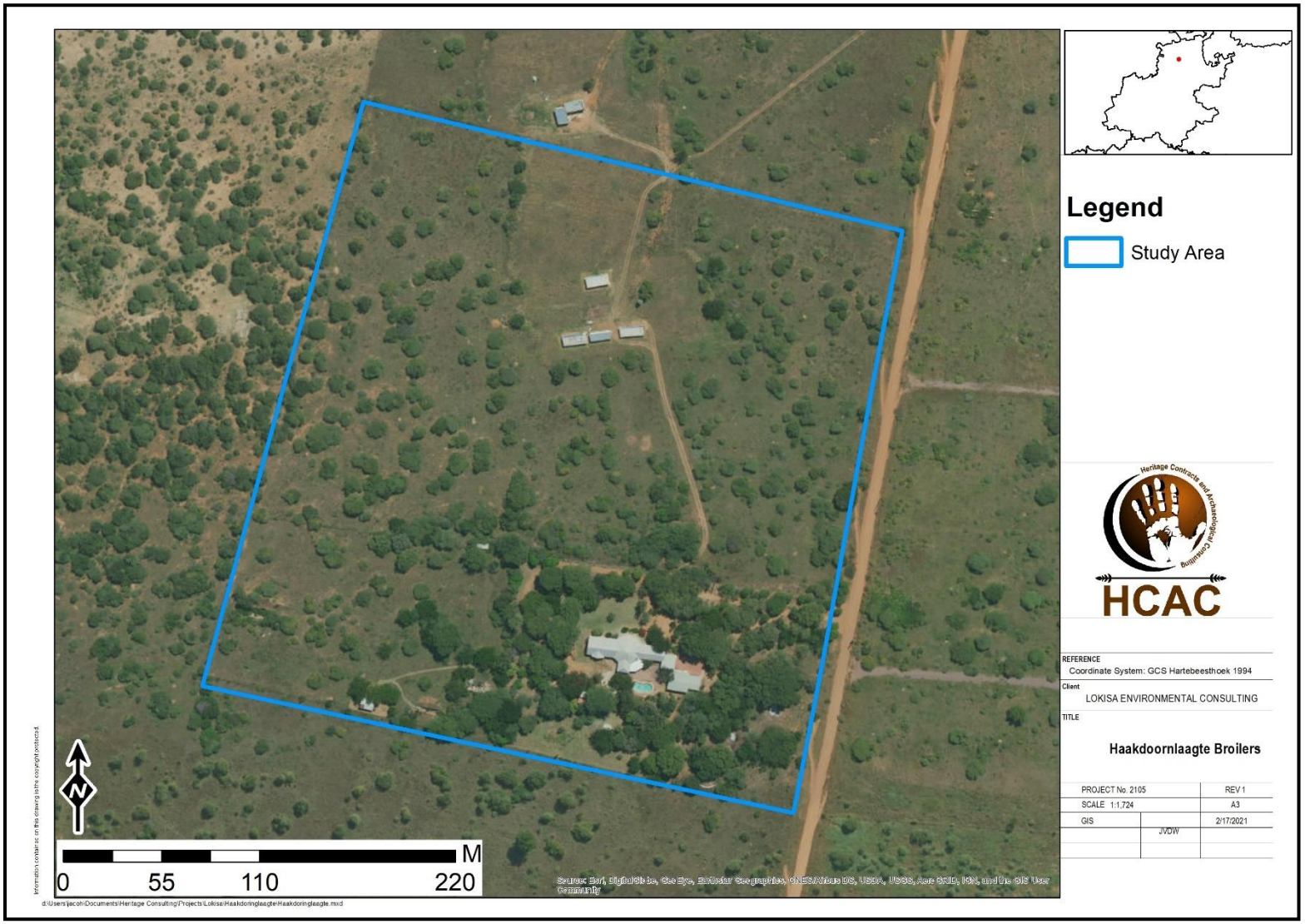

Figure 1-3. Aerial image of the study area.

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 fieldwork phase. The database of the Genealogical Society was consulted to collect data on any known graves in the area.

3.3 Public Consultation and Stakeholder Engagement:

Stakeholder engagement is a key component of any 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 Report.

Please refer to section 6 for more detail.

3.4 Site Investigation

The aim of the site survey was to:
a) 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	15 January 2021
Season	Summer- Apart from the area surrounding the main residential dwelling and the existing broilers archaeological visibility on the property is low, due to the thick vegetation cover across the site. The impact areas was however sufficiently covered (Figure 3-1) to understand the heritage character of the study area.

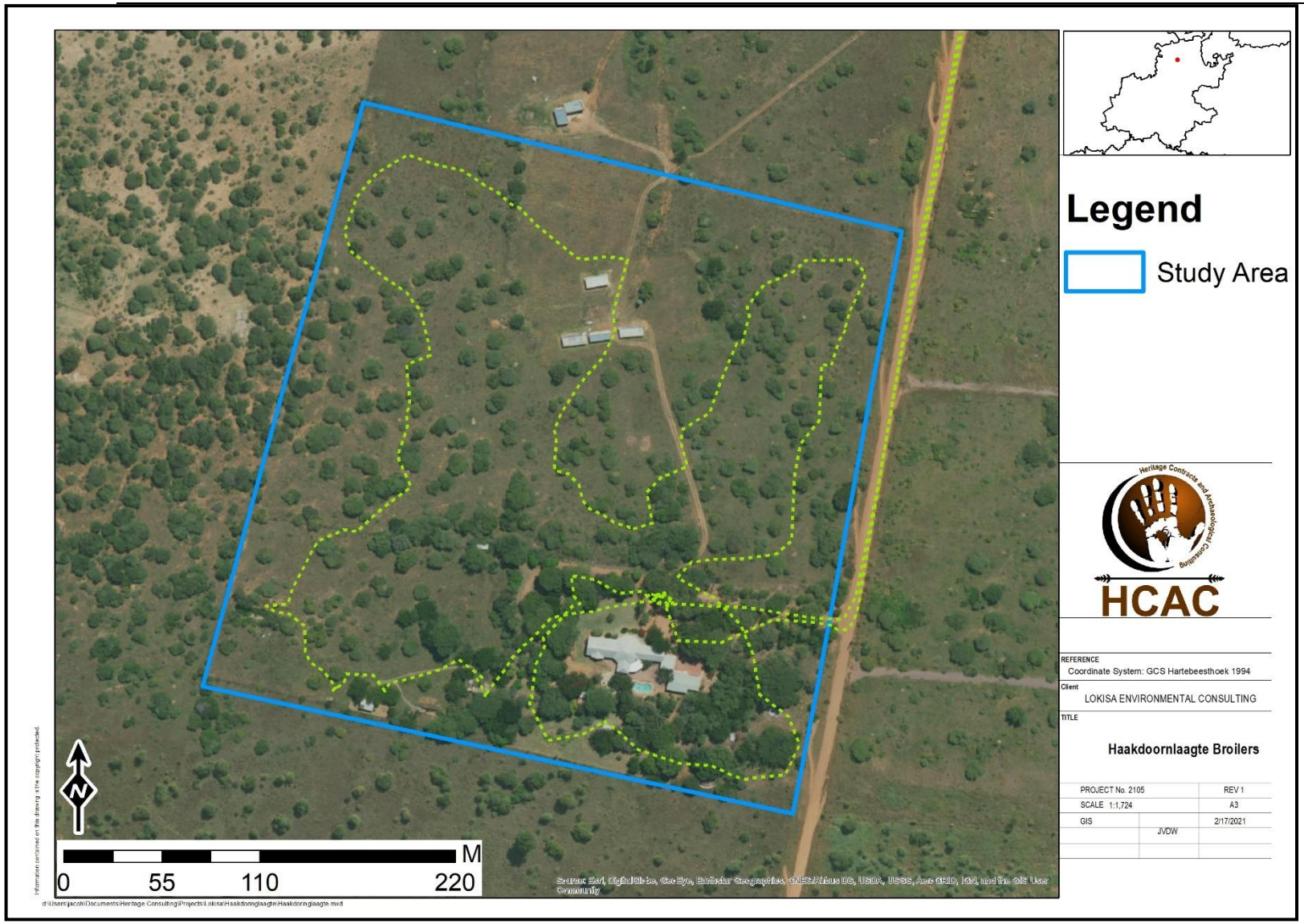

Figure 3-1: Tracklog of the survey in green.

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 nature of heritage resources and pedestrian surveys, the possibility exists that some features or artefacts may not have been discovered/recorded during the survey and the possible occurrence of 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 Tshwane IDP (2006 – 2011) indicated that: "*From a socio-economic demographic perspective Tshwane has seen some improvements, despite the fact that it continues to face serious challenges. The City's population has grown slower than the national average, and in 2004 was estimated to be around 2,2 million people, of which 40,6% of the population fell within the 15-34-year age bracket. Compared to the national average, the City's residents are better skilled, reflect high levels of literacy, the City provides employment for a larger percentage of its residents, its human development ranking is high and it has a per capita income above the national average. These figures have resulted in employment, and wage per capita value-added improvements, although, poverty and unemployment remain problematic. In 2003 Tshwane's Economically Active Population (EAP) amounted to 48% of the total population which was higher than the national but lower than the provincial average. While this is positive, employment opportunities were lagging behind, which led to a high level of unemployment. Many people were absorbed into the informal market, but the latter is believed to have levelled off since 2001. Statistics have further shown that 15,3% of households had no income in 2001 (a doubling from 1996), the number of people living in poverty has increased and the group hardest hit in respect of unemployment are the youth (20-24 years).*" Priorities of the IDP included economic development and job creation

5 Description of the Physical Environment:

The study area is a small holding situated in the “Stil Gelee” area close to Pyramid, Pretoria. The study area is less than 500m from the N1 highway, accessible by a small gravel road called “Olifants” street. The property is characterised by a main residential dwelling that is being well maintained with manicured gardens (Figure 5-1), existing broilers and Greenfields areas where high grass cover limited visibility (Figure 5-2). The vegetation is described as Central Sandy Bushveld in the Savanna Biome (Mucina & Rutherford 2006).

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Figure 5-1. General site conditions at the main dwelling.

Figure 5-2.General site conditions on the property.

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.

7 Literature / Background Study:

7.1 Literature Review (SAHRIS)

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

Author	Year	Project	Findings
Van der Walt, J.	2019	HIA – Hammanskraal Ext 12	No heritage sites
Van Vollenhoven, A. J.	2018	A report on a cultural heritage impact assessment for the proposed provision of bulk services (water and sewage) to the Hammanskraal west area, City of Tshwane, Gauteng province	No sites were identified.
Van der Walt, J.	2017	HIA for the Proposed Waterval Filling Station Hammanskraal. Gauteng Province.	No sites were identified.
Cedar Tower Services	2016	Basic Assessment for the proposed Pacific Ora Projects (Pty) Ltd Pig and Vegetable Production facility on farm Bultfontein 107JR, Rooiwal, Gauteng.	No sites were identified.
Kusel, U.	2014	Cultural heritage resources impact assessment for portion R/17 of the farm Hamanskraal 112 JR in Hammanskraal Gauteng Province	No heritage sites although historic structures occur on site.
Kusel, U.	2014	Cultural Heritage Resources Impact Assessment Of The Farm Sterkwater 106 JR, Bultfontein Area Tshwane Gauteng	No heritage sites were identified, although it was recommended that a unique structure not older than 60 years should be preserved.
Kusel, U.	2013	Cultural heritage resources impact assessment for the construction of a proposed pedestrian pathway and cycle path at Hammanskraal Gauteng Province	No sites were identified.
Kruger, N.	2013	Archaeological Impact Assessment On Portion 4 Of The Farm Wallmannsthal 278 JR For The Wallmannsthal Fluorspar Mine, Gauteng Province	4 Cemeteries and numerous structures were identified.

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

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

7.2.1 Stone Age

South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, the Middle Stone Age and the Earlier Stone Age. Each of these phases 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. No previously recorded Stone Age sites are on record for the study area. No significant Stone Age sites are expected for the study area. The nearest heritage site is Tswaing Meteorite Crater to the west of Hammanskraal. The Salt Lake in the crater has been visited by Middle and Later Stone Age people.

7.2.2 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. There is also an early Tswana stonewalled site near the rim of the Tswaing crater. Salt was collected over hundreds of years in the Crater Lake by filtering, boiling and evaporating lake water during AD 1200 – 1830. The largest concentration of Iron Age sites occurs just north of Pretoria on the Swartkoppies granite hills. Thousands of Late Iron Age Tswana sites are found all along this mountain range (Mason 1962).

These settlements are complex in that aggregated settlements are common, the outer wall sometimes includes scallops to mark back courtyards, there are more small stock kraals, and straight walls separate households in the residential zone. These sites dates to the 18th and 19th centuries and was built by people in the Fokeng cluster. In this area, the Klipriviersberg walling would have ended at about AD 1823, when Mzilikazi entered the area (Rasmussen 1978). This settlement type may have lasted longer in other areas because of the positive interaction between Fokeng and Mzilikazi.

7.2.3 Historical Information

J. S. Bergh's historical atlas of the four northern provinces of South Africa is a very useful source for the writing of local and regional histories. Interestingly, it seems that the study area is located in the vicinity of an Early Stone Age Terrain, known as the Wonderboompoort. (Bergh 1999: 4) This area was also important to Iron Age communities; the study area was located within an area where many Late Iron Age terrains were found (Bergh 1999: 7)

The Difaqane (Sotho), or Mfekane ("the crushing" in Nguni) was a time of bloody upheavals in Natal and on the Highveld, which occurred around the early 1820's until the late 1830's. (Bergh 1999: 109-115) It came about in response to heightened competition for land and trade, and caused population groups like gun-carrying Griquas and Shaka's Zulus to attack other tribes. (Bergh 1999: 14; 116-119) At the beginning of the nineteenth century, the predominant black tribe in the area north of Pretoria was the Manala-Ndebele. The Kgatla were also present to the north of where Pretoria is located today. It seems that, in 1832, Shaka's Zulu tribe passed by the south of Pretoria from the southeast in a westerly direction. This was in order to attack Mzilikazi's Ndebele. This group also went on raids in various other areas in order to expand their area of influence. (Bergh 1999: 11)

During the time of the Difaqane, a northwards migration of white settlers from the Cape was also taking place. Some travellers, missionaries and adventurers had gone on expeditions to the northern areas in South Africa, some already as early as the 1720's. The Scottish travellers Robert Scoon and William McLuckie passed through, or close by the area where the study area was located in 1829. In the same year, Robert Moffat and James Archbell also travelled through this area. (Bergh 1999: 12) In the mid 1830's, several travellers made their way from the Pretoria area into the inland. These included the travellers Robert Scoon, Dr. Andrew Smith and Captain William Cornwallis Harris. (Bergh 1999: 13)

It was however only by the late 1820's that a mass-movement of Dutch speaking people in the Cape Colony started advancing into the northern areas. This was due to feelings of mounting dissatisfaction caused by economical and other circumstances in the Cape. This movement later became known as the Great Trek.

Pretoria was founded in 1855 and became the capital of South Africa, then known as the Zuid-Afrikaanse Republiek (ZAR), in 1860. By 1900, Pretoria was a thriving Transvaal town, with shaded streets, well-kept gardens and a lively economy. In mid-1899, the Pretoria district had a white population of 21 000 men and 19 000 women, while the black, coloured and Indian population totalled 38 618. (Theron 1984: 1-3). Between 1939 and 1940, farm boundaries were drawn up in an area that includes the present-day Pretoria. (Bergh 1999: 15)

7.2.4 Anglo-Boer War

The Anglo-Boer War was the greatest conflict that had taken place in South Africa up to date, and also affected the Pretoria district. The white concentration camp located closest to this farm, was situated a small distance to the northeast of Pretoria. Another white and a black concentration camp are located to the southwest of Pretoria, in the Irene area. One battle took place at Silkaatsnek, to the northwest of Pretoria, some distance from the farm. Here, General De la Rey's Boer troops defeated the British army on 11 July 1900. (Bergh 1999: 54, 250) The Boer side however generally lost ground against the British as the war continued, and in June 1900 the Boer military leaders decided that Pretoria would have to be surrendered to the British forces. This decision was inevitable if the war was to be continued. The town was very susceptible to a siege, and its defence would have gravely endangered the lives of its inhabitants. More importantly, the defence of the town would involve such a great number of Boers that the capture of these men would have surely meant the end of the war. Pretoria was therefore occupied by British forces on Tuesday 5 June 1900. (Theron 1984: 273-279)

7.3 Cultural Landscape

The study area and surrounds has been sparsely developed from 1943 onwards (Fig 7-1 to 7-4) and is characterised by a rural landscape. The area includes some road development, and residential structures with a cemetery to the south of the study area.

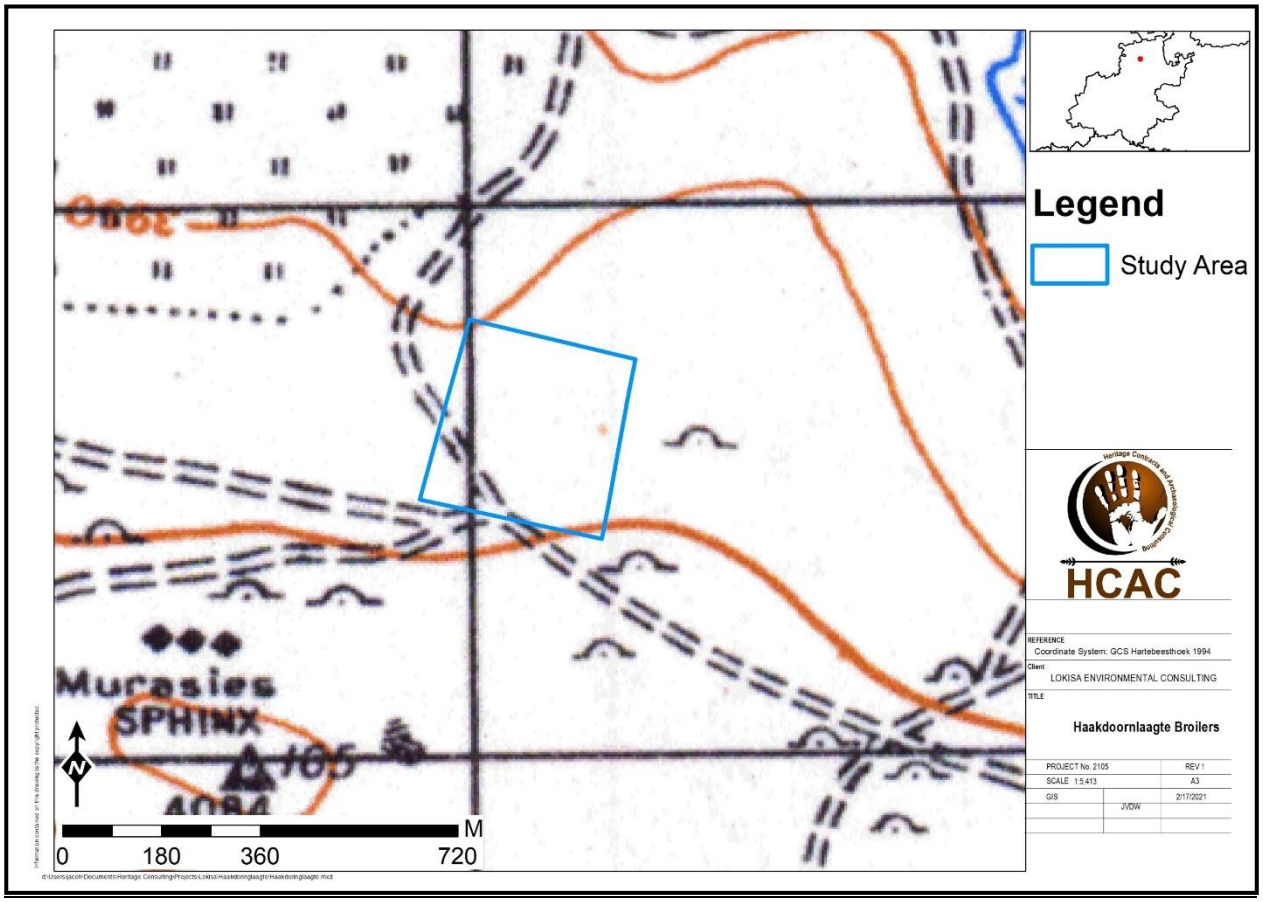

Figure 7-1. 1943 Topographical map of the site under investigation. The approximate study area is indicated with a blue border. Besides a road traversing the south western corner of the study area there are no visible developments in the study area. Huts are indicated around the southern border of the study area (Topographical Map 1943)

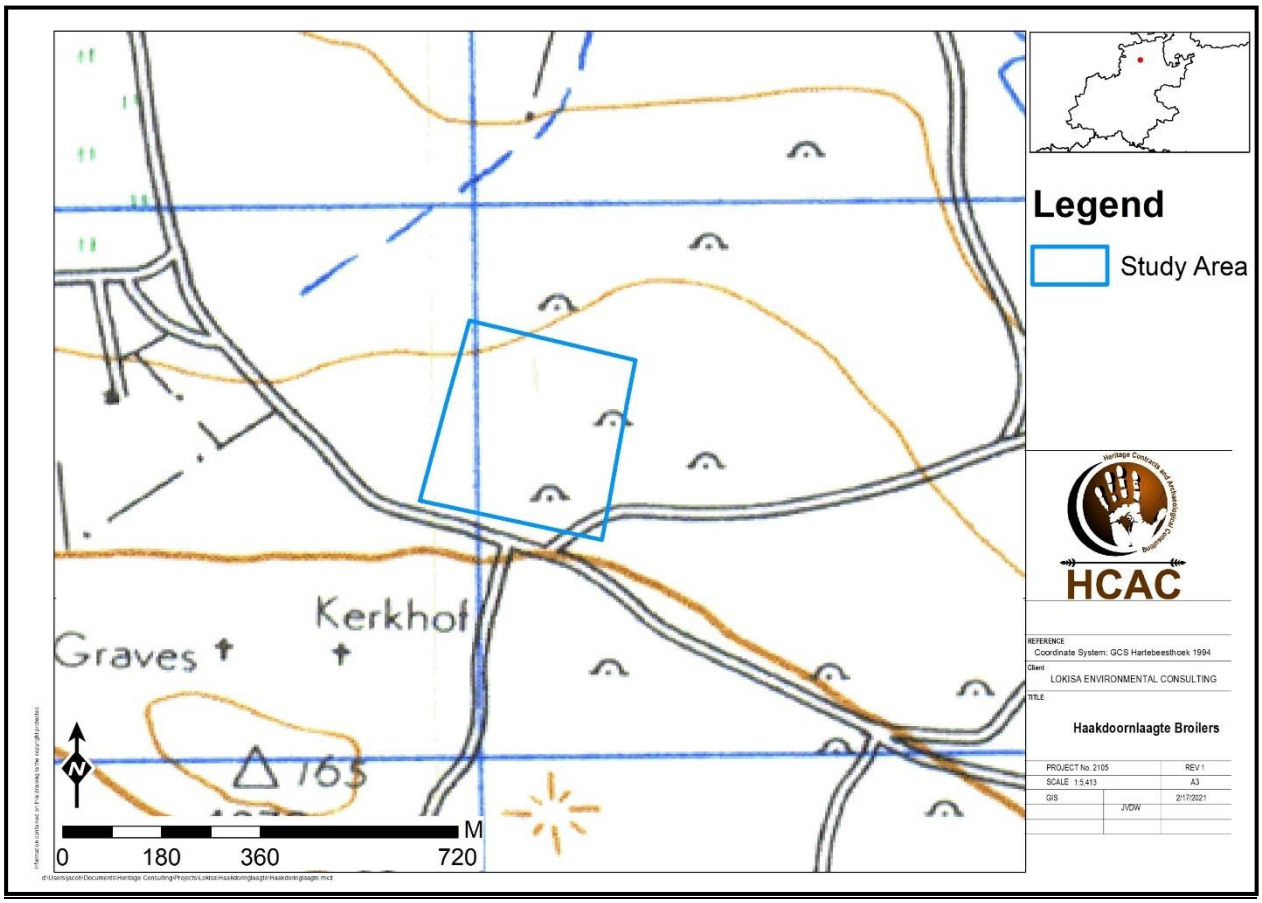

Figure 7-2. 1965 Topographical map of the site under investigation. The approximate study area is indicated with a blue border. A main road is visible to the south of the site. Two huts are indicated within the study area and a graveyard is indicated to the south west of the study area. (Topographical Map 1965).

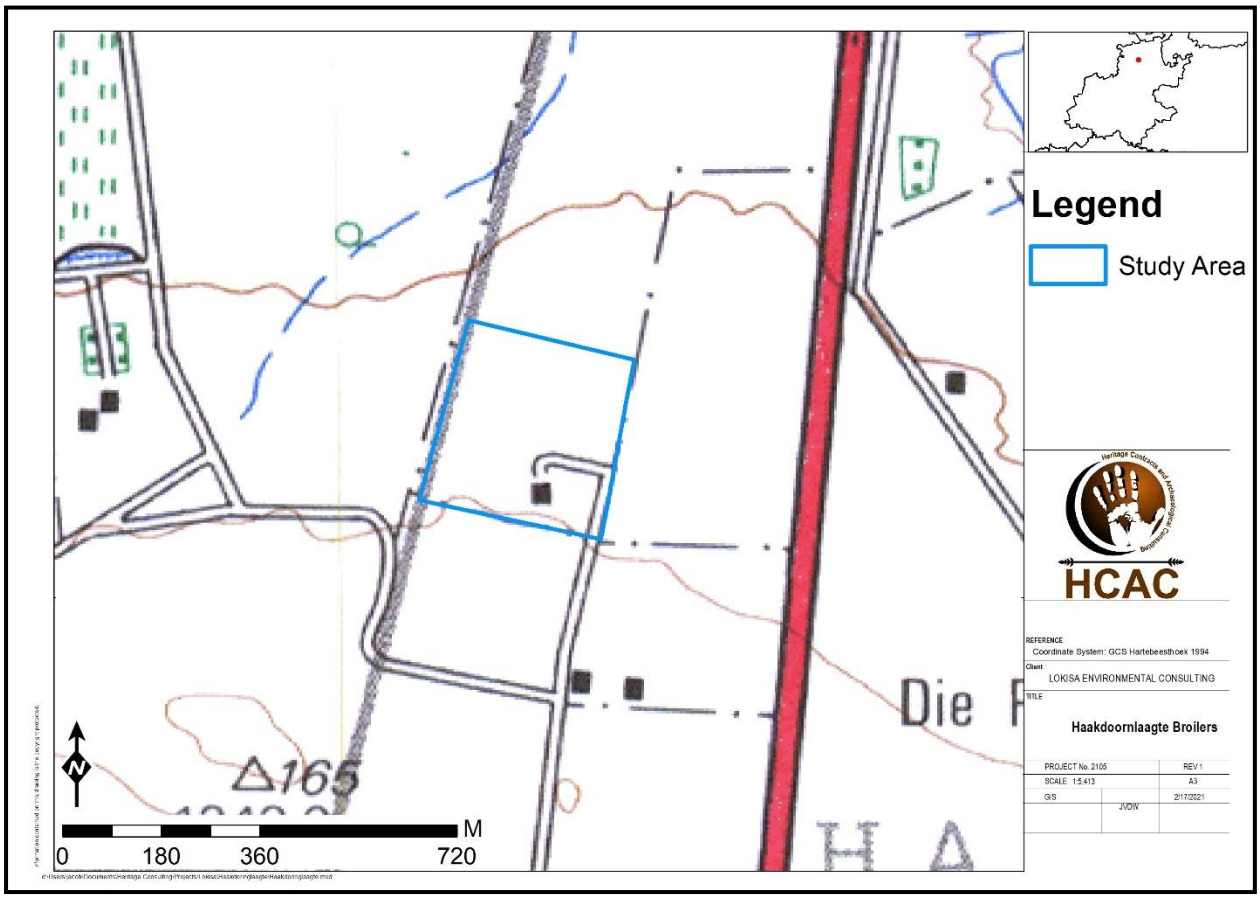

Figure 7-3. 1975 Topographical map of the study area indicating an access road in the study area leading to a structure.

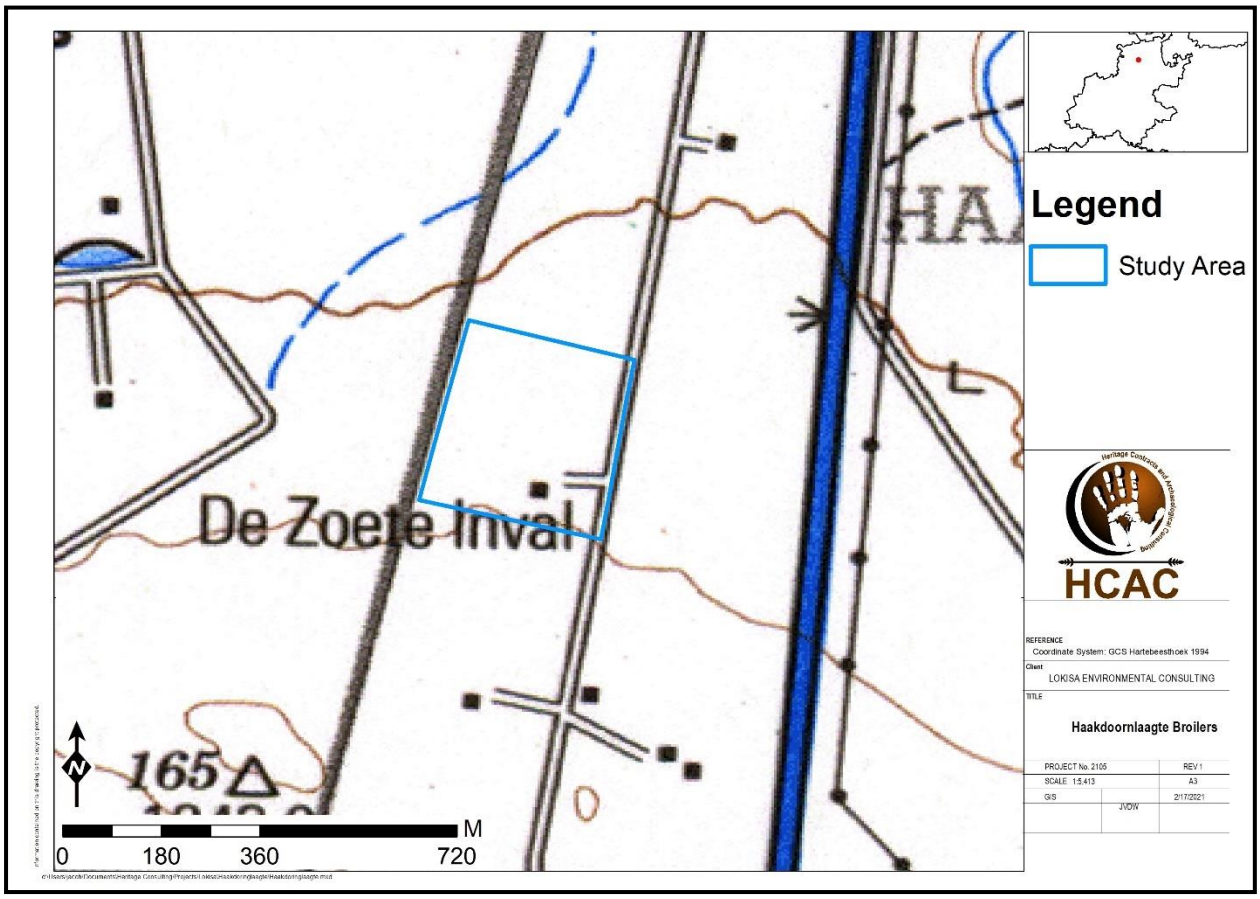

Figure 7-4. 1995 Topographic map of the study area. The access road and structure are still visible.

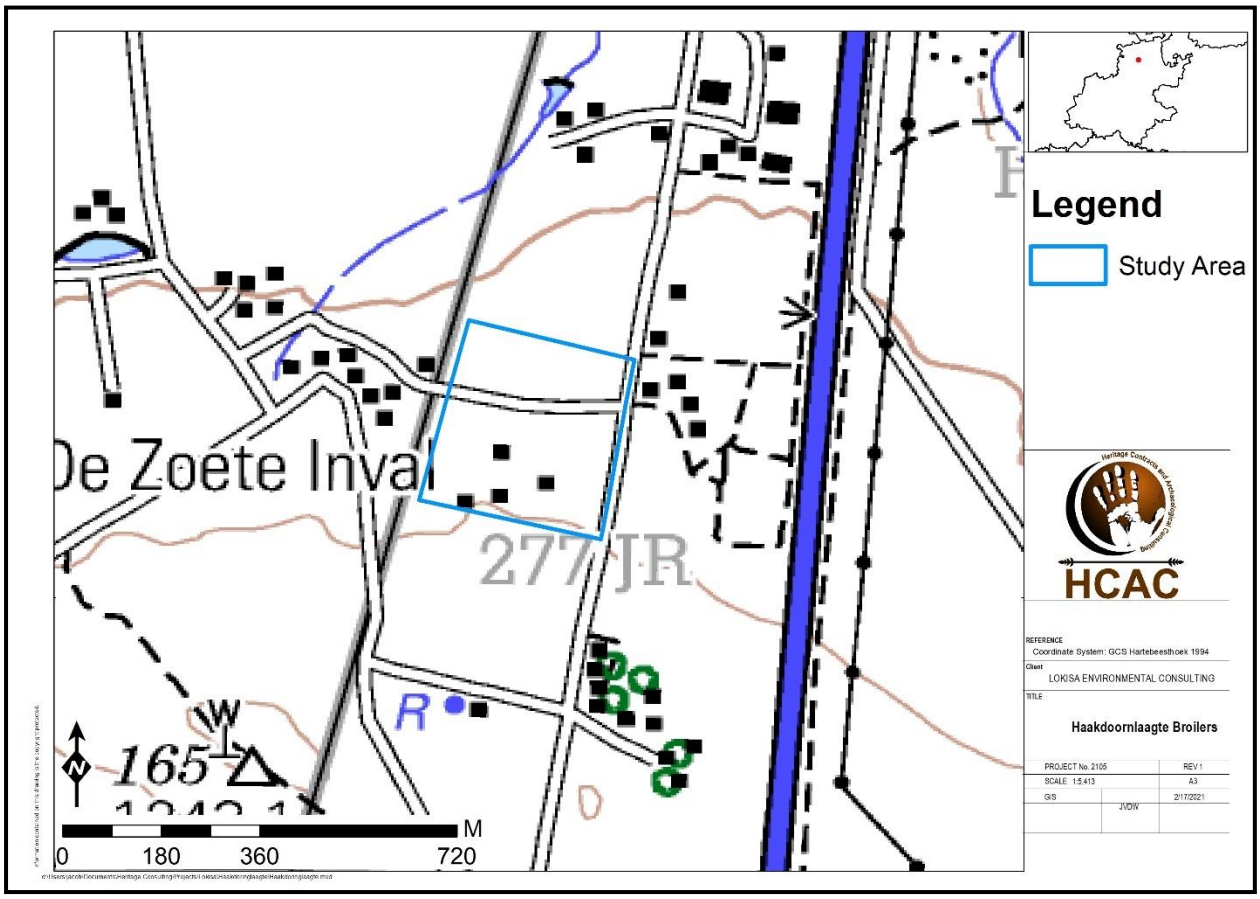

Figure 7-5. 2001 Topographic map indicating 4 structures within the study area and a road that traverses the property.

8 Findings of the Survey

The property consists of a fenced area around the existing main house (Figure 8-2 and 8-3) that is being well maintained and an open field that surround the fenced yard. This area is extremely overgrown with tall grass and shrubs limiting archaeological visibility. In the south eastern quarter of the property visibility is much better. The main structures within the fenced area are modern and based on Topographic maps (Figure 7-3 to Figure 7-5) were constructed from 1975 onwards. Three existing broilers (Figure 8-10 and 8-11) are located towards the north of the residential dwelling and the new broilers will be located in close proximity to the existing broilers (Figure 8-12 and 9-1). No heritage significant features were identified within the development footprint.

Within the larger property three observation points were recorded (Figure 8-1) and briefly described below.

Point 1 (28° 16' 32.2249" E; 25° 35' 52.7425" S) - Marks the remnants of a small structure that seems to have been built using packed stone walling. The only remains of this structure are the ephemeral foundation, from one corner of the structure. This small section of walling is mostly buried and is in the path being used as a driveway. (Figure 8-4 and 8-5). Based on Topographic evidence (Figure 7-1 and 7-2) Point 1, could relate to huts indicated on the 1965 map of the area and it should be noted that features like these could contain the graves of still born babies.

Heritage Significance, without evidence of graves: Low

Point 2 (28° 16' 31.2708" E; 25° 35' 54.8915" S) - Marks a cement foundation located on the southern side of the main house. This foundation also seems recent. (Figure 8-6)

Heritage significance – None

Point 3 (28° 16' 29.0351" E; 25° 35' 54.2687" S)- Marks a broken-down structure situated just outside the fence line of the yard around the main house in an area between the labourer house and the main yard. The broken-down features seem to have been demolished recently with most of the rubble still present. The feature is recent and of no heritage significance. (Figure 8-7 and 8-8).

Heritage significance – None

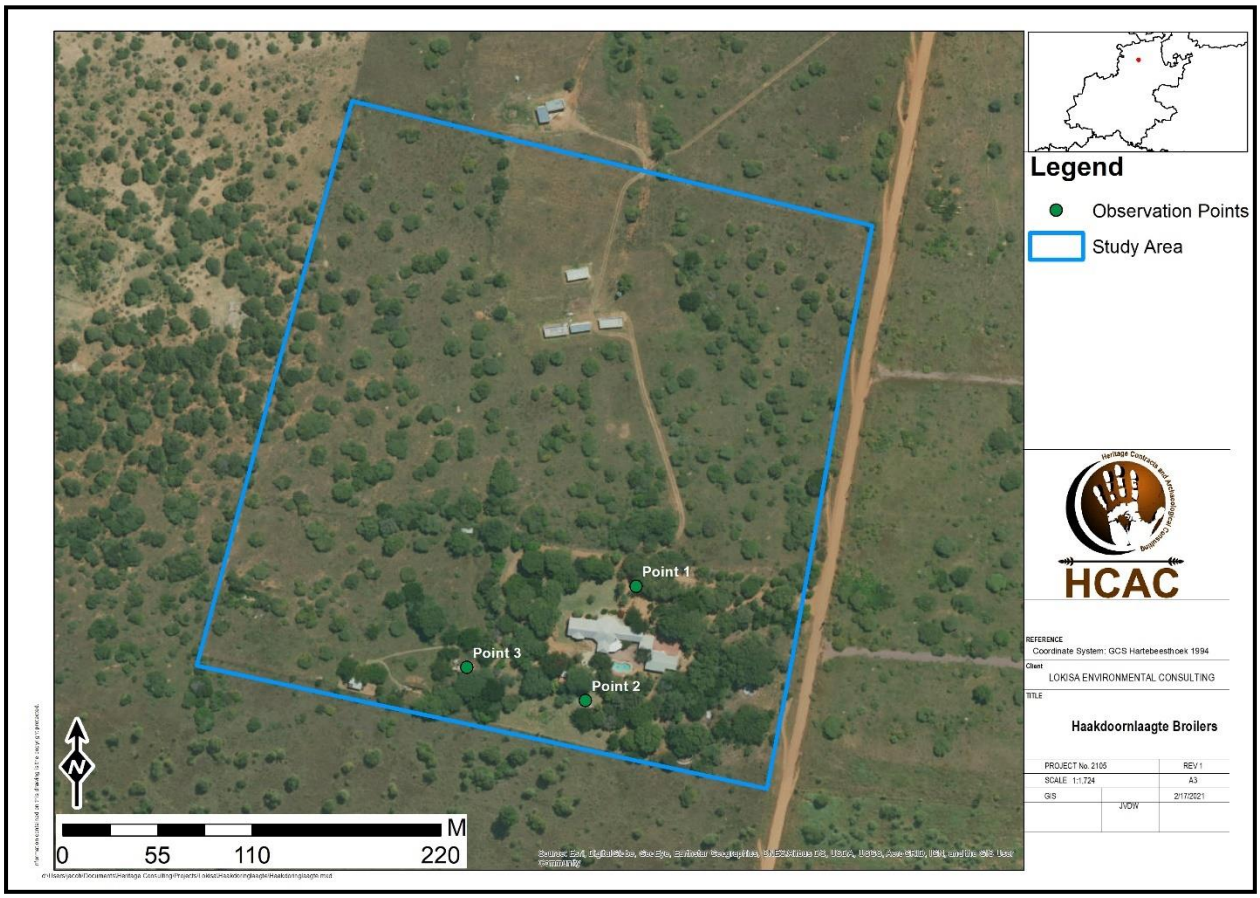

Figure 8-1. Observations points made during field work.

Figure 8-2. Area around the main house.

Figure 8-3. Main house and landscaped garden.

Figure 8-4. Foundations of a small structure at Point 1.

Figure 8-5. Remnants of a small structure at Point 1.

Figure 8-6. Cement foundations of a structure (Point 2).

Figure 8-7. Broken down structure (Point 3)

Figure 8-8. Remains of structure at Point 3.

Figure 8-9. Vegetation cover in the study area.

Figure 8-10. Existing broilers in study area.

Figure 8-11. Existing broilers in study area.

Figure 8-12. Area identified for the proposed broilers.

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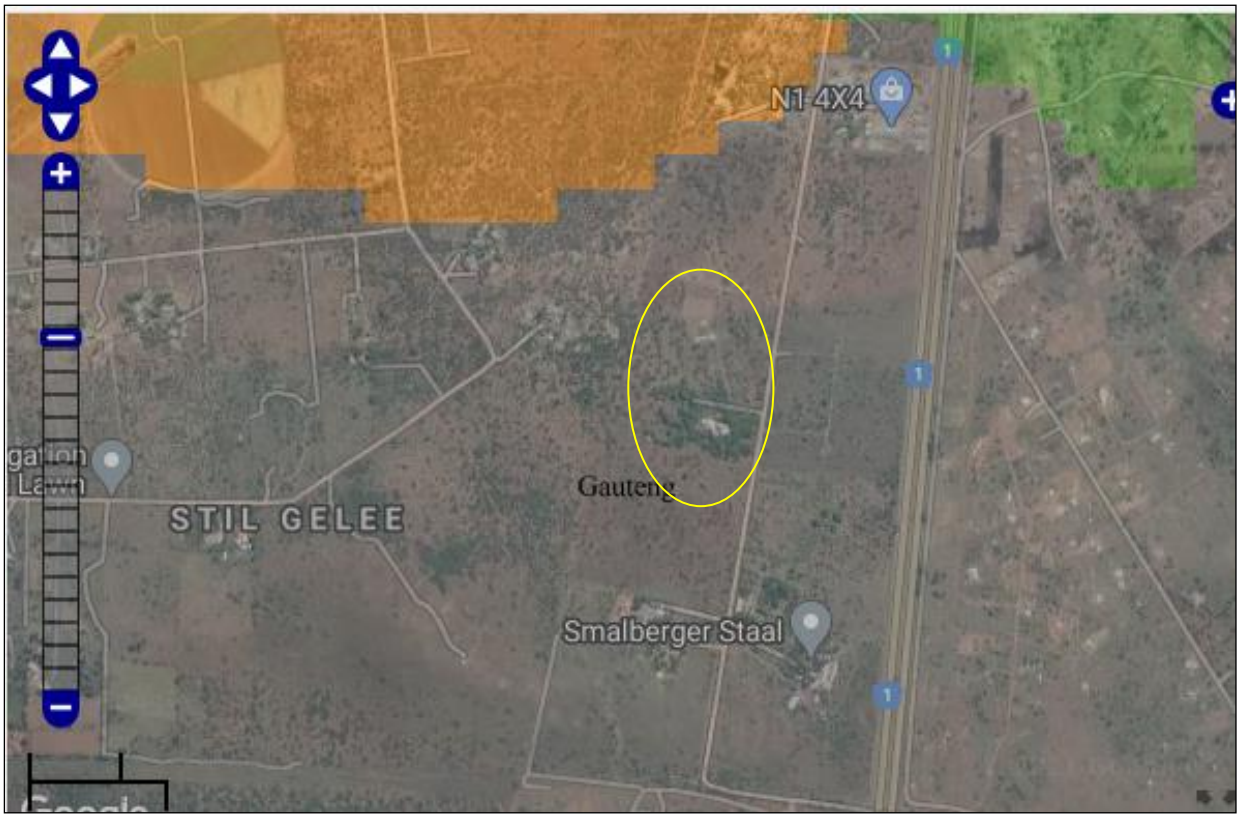
8.1 Palaeontology

Based on the SAHRA Paleontological Sensitivity map the area is of insignificant paleo sensitivity and no further studies are required in this regard (Figure 8-14)



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

Figure 8-13. Paleontological sensitivity of the study area (yellow polygon) indicated as insignificant on the SAHRA Palaeontological sensitivity map.

8.2 Cultural Landscape

The long-term impact on the cultural landscape is low as the proposed project is in line with the surrounding land use. Visual impacts to scenic routes and sense of place are also considered to be low as the proposed project is in line with the current land use and not visible from major tourist routes.

9 Potential Impact

No impact is expected on the identified features by the proposed new broilers and no heritage resources of significance were identified within the footprint of the proposed broilers (Figure 9-1 and Table 5). Cumulative impacts considered as an effect caused by the proposed action that results from the incremental impact of an action when added to other past, present, or reasonably foreseeable future actions. (Cornell Law School Information Institute, 2020). Cumulative impacts occur from the combination of effects of various impacts on heritage resources. The importance of identifying and assessing cumulative impacts is that the whole is greater than the sum of its parts. In the case of this project, impacts are low as no known heritage resources will be directly impacted on.

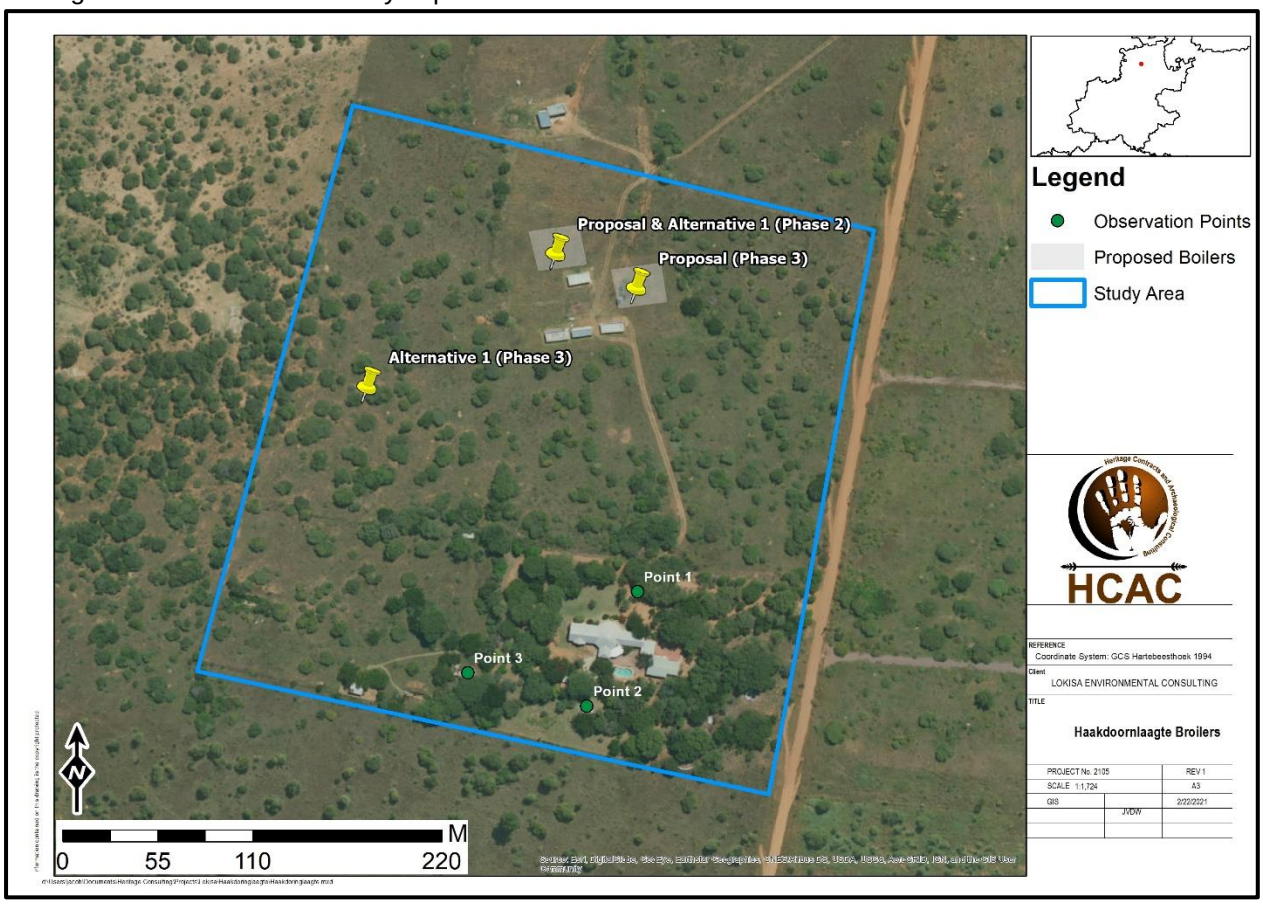


Figure 9-1. Project lay out and Alternative 1 in relation to identified features.

Table 5. Impact assessment of the project

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 and paleontological material or objects.		
	Without mitigation	**With mitigation (Preservation/ excavation of site)**
Extent	Local (2)	Local (2)
Duration	Permanent (5)	Permanent (5)
Magnitude	Minor (2)	Minor (2)
Probability	Improbable (2)	Improbable (2)
Significance	**18 (Low)**	**18 (Low)**
Status (positive or negative)	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	NA	NA
Mitigation: • Implementation of a chance find procedure for the project.		
Cumulative impacts: The proposed project will have a low cumulative impact as the developments are in line with surrounding land use and no known heritage resources will be adversely affected.		
Residual Impacts: Although surface sites can be avoided or mitigated, there is a chance that completely buried sites would still be impacted on, but this cannot be quantified.		

10 Conclusion and recommendations

It is important to note that the survey was concentrated on the project components outlined under Table 3 and illustrated in Figure 1-3 and not the entire farm. In terms of the national estate as defined by the NHRA the following key findings apply:

- In terms of the built environment of the area (Section 34 of the NHRA Act 25 of 1999), no standing structures older than 60 years occur within the impact area, although the remains of three demolished structures of unknown age were noted during the survey outside of the development footprint. These features are of low heritage significance;
- Regarding the archaeological & paleontological component of Section 35 no archaeological resources of significance were identified and based on the SAHRA paleontological sensitivity map the area is of low paleontological significance and no paleontological studies are required for the area;
- In terms of Section 36 of the Act no formal burial sites were recorded;
- During the public participation process conducted for the project no heritage concerns were raised.

The impact of the new proposed broilers on heritage resources 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 for the project as outlined under Section 10.1.

10.1 Chance Find Procedures - Heritage Resources

The possibility of the occurrence of subsurface finds cannot be excluded. Therefore, if during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find and 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 or the ECO.
- It is the responsibility of the applicant to make an initial assessment of the extent of the find and confirm the extent of the work stoppage in that area.
- The applicant 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 Reasoned Opinion

The impact of the proposed project on heritage resources is low and any impact to accidental finds can be mitigated to an acceptable level and no further pre-construction mitigation 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.

10.3 Potential risk

Potential risks to the proposed project are the occurrence of subterranean archaeological deposit and unrecorded or unmarked graves. These risks can be mitigated to an acceptable level with the implementation of a chance find procedure as outlined in Section 10.1.

10.4 Management Measures for inclusion in the EMPr

Table 6 - Heritage Management Plan for EMPr implementation

Area and site no.	Mitigation measures	Phase	Timeframe	Responsible party for implementation	Monitoring Party (frequency)	Target	Performance indicators (monitoring tool)
General project area	Implement chance find procedure in case where possible heritage finds are uncovered	Ground clearance, excavations as well Construction	Throughout the project	Applicant EAP	ECO (when required)	Ensure compliance with relevant legislation and recommendations from SAHRA under Section 35, 36 and 38 of NHRA	ECO Checklist/Report

10.5 Monitoring requirements

Monitoring of sensitive areas can be conducted by the Environmental Officers (ECO). The ECO or other responsible persons should be trained along the following lines:

- *Induction training:* Responsible staff identified by the developer should attend a short course on heritage management and identification of heritage resources.
- *Site monitoring and watching brief*: As most heritage resources occur below surface, all earth-moving activities need to be routinely monitored in case of accidental discoveries. The greatest potential impacts are the initial soil removal and subsequent earthworks during construction. The EO should monitor all such activities regularly. If any heritage resources are found, the chance finds procedure must be followed as outlined above.

Monitoring requirements for the project are outlined in Table 7.

Table 7. Monitoring requirements for the project.

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

11 References

Archaeological database, University of the Witwatersrand.
Cedar Tower Services. 2016. Basic Assessment for the proposed Pacific Ora Projects (Pty) Ltd Pig and Vegetable Production facility on farm Bultfontein 107JR, Rooiwal, Gauteng.
Geskiedenisatlas van Suid-Afrika.Die vier noordelike provinsies. Edited by J. S. Bergh. 1999. Pretoria: J. L. van SchaikUitgewers.
Kruger, N. 2013. Archaeological Impact Assessment On Portion 4 Of The Farm Wallmannsthal 278 JR For The Wallmannsthal Fluorspar Mine, Gauteng Province
Kusel, U. 2014. Cultural heritage resources impact assessment for portion R/17 of the farm Hamanskraal 112 JR in Hammanskraal Gauteng Province
Kusel, U. 2014. Cultural Heritage Resources Impact Assessment Of The Farm Sterkwater 106 JR, Bultfontein Area Tshwane Gauteng
Kusel, U. 2013. Cultural heritage resources impact assessment for the construction of a proposed pedestrian pathway and cycle path at Hammanskraal Gauteng Province
Mason, R. J., 1962. Prehistory of the Transvaal. Johannesburg: Witwatersrand University Press.
Ross, R. 2002. A concise history of South Africa. Cambridge: Cambridge University Press.
SAHRA Report Mapping Project Version 1.0, 2009
The City Council of Pretoria. 1955. Pretoria (1855-1955). History of the city of Pretoria published in the centenary year 1955. Pretoria: Wallachs' P. & P. Co. Ltd.
Theron, B. M. 1984. The social history of Pretoria during the first phase of the Anglo-Boer War: October 1899 - June 1900. MA Thesis, Pretoria: University of South Africa.
National Heritage Resources Act NHRA of 1999 (Act 25 of 1999)
SAHRA Report Mapping Project Version 1.0, 2009
Shillington, K. 1985. The Colonisation of the Southern Tswana, 1870-1900. Braamfontein: Ravan Press.
Van der Walt, J. HIA for the proposed Waterval Filling Station, Gauteng Province. Unpublished report.
Van Vollenhoven, A. J. 2018. A report on a cultural heritage impact assessment for the proposed provision of bulk services (water and sewage) to the Hammanskraal west area, City of Tshwane, Gauteng province

12 Appendices:

Curriculum Vitae of Specialist

Jaco van der Walt
Archaeologist

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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 Booysendal 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
-]'jnanalysis 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:

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