

Phase 1 Cultural Heritage Assessment:

THE DEVELOPMENT OF THE PROPOSED MOGALE EXTENSIONS 42, 43 AND 44 TOWNSHIPS ON THE FARM NOOITGEDACHT 534JQ, MULDRSDRIFT REGION, MOGALE CITY LOCAL MUNICIPALITY, GAUTENG PROVINCE

Prepared for:

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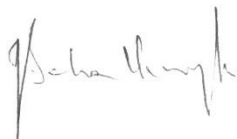


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Specialist competency:

Johan A van Schalkwyk, D Litt et Phil, heritage consultant, has been working in the field of heritage management for more than 40 years. Originally based at the National Museum of Cultural History, Pretoria, he has actively done research in the fields of anthropology, archaeology, museology, tourism and impact assessment. This work was done in Limpopo Province, Gauteng, Mpumalanga, North West Province, Eastern Cape Province, Northern Cape Province, Botswana, Zimbabwe, Malawi, Lesotho and Swaziland. Based on this work, he has curated various exhibitions at different museums and has published more than 70 papers, most in scientifically accredited journals. During this period, he has done more than 2000 impact assessments (archaeological, anthropological, historical and social) for various government departments and developers. Projects include environmental management frameworks, roads, pipeline-, and power line developments, dams, mining, water purification works, historical landscapes, refuse dumps and urban developments.



J A van Schalkwyk
Heritage Consultant
June 2019

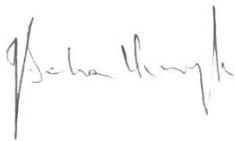


SPECIALIST DECLARATION

I, J A van Schalkwyk, as the appointed independent specialist, in terms of the 2014 EIA Regulations (as amended), hereby declare that I:

- I act as the independent specialist in this application;
- I 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;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 (as amended) and any specific environmental management Act;
- 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 have no vested interest in the proposed activity proceeding;
- 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;
- I have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
- I have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;
- all the particulars furnished by me in this specialist input/study 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 of the specialist



J A van Schalkwyk
September 2019

EXECUTIVE SUMMARY

**Phase 1 Cultural Heritage Assessment:
THE DEVELOPMENT OF THE PROPOSED MOGALE EXTENSIONS 42, 43 AND 44 TOWNSHIPS ON THE
FARM NOOITGEDACHT 534JQ, MULDRSDRIFT REGION, MOGALE CITY LOCAL MUNICIPALITY,
GAUTENG PROVINCE**

BathoEarth Environmental Consultants was appointed to undertake the EIA for the establishment of the proposed Mogale City Extensions 42, 43 and 44 Townships on various portions of the farm Nooitgedacht 534JQ in the Muldersdrift region of Gauteng Province. The various properties currently function as separate small holdings.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by *BathoEarth Environmental Consultants* to conduct a cultural heritage assessment to determine the cultural heritage significance of the buildings and other features currently existing on the various properties.

This report describes the methodology used, the limitations encountered, the heritage features that were identified and the recommendations and mitigation measures proposed relevant to this. The investigation consisted of a desktop study (archival sources, database survey, maps and aerial imagery) and a physical survey that also included the interviewing of relevant people. It should be noted that the implementation of the mitigation measures is subject to SAHRA/PHRA's approval.

A significant problem encountered during the survey was the fact that no building plans exist for any of the built structures on the various properties. The only information regarding the history of the built section of the was obtained during interviews with the owners of the various properties.

In summary, the following statements can be made about the various properties in general:

- As most of the properties changed ownership many times during the past few decades, there is very little coherent, long term memory or documentation regarding any of the different plots of land.
- Over time, most of the properties developed in an 'organic' manner, i.e. new buildings were added by original or consecutive owners. As this was, in old terms, a peri-urban region, building plans were not necessarily drawn up and submitted to local authorities.
- These new developments in most cases incorporated elements of older structures, most of which were comprehensively altered, or were even replaced *in toto*.

Three houses, on Plot 94, Plot 95 and Plot 130 have been identified to be of significance and the following statements can be made about them:

- Some houses contain architectural elements that are older than 60 years and therefore enjoy general protection under the National Heritage Resources Act, No. 25 of 1999;
- The older architectural elements represent a style of life that is transitional between the farm and urbanisation – large houses with much open spaces surrounding it;
- Some of the house shows some unique, if eccentric/rustic characteristics and should be documented as an example of a 'landed gentry' rural style of living;
- None of the houses can be related to any significant individual or event.

Based on the investigation, the structures identified to have significance have been evaluated to have the following significance rating:

- Generally protected 3B: Medium significance

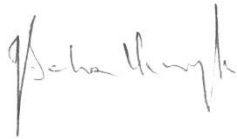
- The implication of this is that the structures should be recorded before its destruction/alteration. For this, a suitably qualified architectural historian should be appointed.

Three informal burial sites have been identified on Plot 28, Plot 59 and Plot 97 and have been evaluated to have the following significance rating:

- Generally protected 4A: High/medium significance
 - The implication of this is that these features should be mitigated, i.e. relocated before development takes place.

Legal requirements:

- The legal requirements related to heritage specifically are specified in Section 3 of this report.
 - For this proposed project, the assessment has determined that the identified buildings have a significance rating of: Generally Protected 3B: Medium significance, and therefore a valid permit should be obtained from the Provincial Heritage Resources Agency (PHRA) prior to any work being carried out.
 - For this proposed project, the assessment has determined that the identified burial sites have a significance rating of: Generally Protected 4A: Medium significance, and therefore valid permits should be obtained from SAHRA, the police and the Department of Health before they can be relocated.



J A van Schalkwyk
Heritage Consultant
September 2019

TECHNICAL SUMMARY

Project description	
Description	Mixed land use development
Project name	Mogale City Extensions 42, 43 and 44

Applicant
-

Environmental assessors
BathoEarth
Ms D Verster

Property details						
Province	Gauteng					
Magisterial district	Krugersdorp					
District municipality	Mogale City					
Topo-cadastral map	2627BB					
Farm name	Nooitgedacht 534JQ					
Closest town	Krugersdorp					
Coordinates	Centre point (approximate)					
	No	Latitude	Longitude	No	Latitude	Longitude
	1	S 26,01392	E 27,90966	2		

Development criteria in terms of Section 38(1) of the NHR Act	Yes/No
Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	No
Construction of bridge or similar structure exceeding 50m in length	No
Development exceeding 5000 sq m	Yes
Development involving three or more existing erven or subdivisions	No
Development involving three or more erven or divisions that have been consolidated within past five years	No
Rezoning of site exceeding 10 000 sq m	No
Any other development category, public open space, squares, parks, recreation grounds	No

Land use	
Previous land use	Farming
Current land use	Small holdings

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GLOSSARY OF TERMS AND ABBREVIATIONS

TERMS

Bioturbation: The burrowing by small mammals, insects and termites that disturb archaeological deposits.

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

Debitage: Stone chips discarded during the manufacture of stone tools.

Factory site: A specialised archaeological site where a specific set of technological activities has taken place – usually used to describe a place where stone tools were made.

Historic Period: Since the arrival of the white settlers - c. AD 1830 - in this part of the country.

Holocene: The most recent time period, which commenced c. 10 000 years ago.

Iron Age (also referred to as **Early Farming Communities**): Period covering the last 1800 years, when new people brought a new way of life to southern Africa. They established settled villages, cultivated domestic crops such as sorghum, millet and beans, and they herded cattle as well as sheep and goats. As they produced their own iron tools, archaeologists call this the Iron Age.

Early Iron Age	AD 200 - AD 900
Middle Iron Age	AD 900 - AD 1300
Later Iron Age	AD 1300 - AD 1830

Midden: The accumulated debris resulting from human occupation of a site.

Mitigation, means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.

National Estate: The collective heritage assets of the Nation.

Pleistocene: Geological time period of 3 000 000 to 20 000 years ago.

Stone Age: The first and longest part of human history is the Stone Age, which began with the appearance of early humans between 3-2 million years ago. Stone Age people were hunters, gatherers and scavengers who did not live in permanently settled communities. Their stone tools preserve well and are found in most places in South Africa and elsewhere.

Early Stone Age	2 500 000 - 150 000 Before Present
Middle Stone Age	150 000 - 30 000 BP
Later Stone Age	30 000 - until c. AD 200

Tradition: As used in archaeology, it is a seriated sequence of artefact assemblages, particularly ceramics.

ACRONYMS and ABBREVIATIONS

ASAPA	Association of Southern African Professional Archaeologists
BCE	Before the Common Era (the year 0)

BP	Before Present (calculated from 1950 when radio-carbon dating was established)
CE	Common Era (the year 0)
ESA	Early Stone Age
EIA	Early Iron Age
HIA	Heritage Impact Assessment
I & AP's	Interested and Affected Parties
LIA	Late Iron Age
LSA	Later Stone Age
MIA	Middle Iron Age
MSA	Middle Stone Age
NASA	National Archives of South Africa
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Agency
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System

COMPLIANCE WITH APPENDIX 6 OF THE 2014 EIA REGULATIONS (AS AMENDED)

Requirements of Appendix 6 – GN R982	Addressed in the Specialist Report
1. (1) A specialist report prepared in terms of these Regulations must contain-	
a) details of-	
i. the specialist who prepared the report; and	Front page
ii. the expertise of that specialist to compile a specialist report including a curriculum vitae;	Page i Addendum Section 6
b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Page ii
c) an 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 4
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 7.3
d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Section 4.2.2
e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 4
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;	Addendum Section 5; Figure 6 & 7
g) an identification of any areas to be avoided, including buffers;	Section 8
h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Figure 6 & 7 Addendum Section 5
i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 2
j) a description of the findings and potential implications of such findings on the impact of the proposed activity or activities;	Section 7
k) any mitigation measures for inclusion in the EMPr;	Section 9 & 10
l) any conditions for inclusion in the environmental authorisation;	Section 10
m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Section 9
n) a reasoned opinion-	
i. whether the proposed activity, activities or portions thereof should be authorised;	Section 10
(iiA) 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 8, 9, 10
o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	-
p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	-
q) any other information requested by the competent authority.	-
(2) Where a government notice by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	-

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GAUTENG PROVINCE**

1. INTRODUCTION

1.1 Background

BathoEarth Environmental Consultants was appointed to undertake the EIA for the establishment of the proposed Mogale City Extensions 42, 43 and 44 Townships on various portions of the farm Nooitgedacht 534JQ in the Muldersdrift region of Gauteng Province. The various properties currently function as separate small holdings.

South Africa's heritage resources, also described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. However, according to Section 27(18) of the National Heritage Resources Act (NHRA), No. 25 of 1999, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by *BathoEarth Environmental Consultants* to conduct a cultural heritage assessment to determine the cultural heritage significance of the buildings and other features currently existing on the various properties.

This report forms part of the Environmental Impact Assessment (EIA) as required by the EIA Regulations in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended and is intended for submission to the South African Heritage Resources Agency (SAHRA).

1.2 Terms and references

1.2.1 Scope of work

The aim of this study is to determine the cultural heritage significance of the buildings where the township development is to take place. This included:

- Conducting a desk-top investigation of the area;
- A visit to the proposed development site.

The objectives were to:

- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources;
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

1.2.2 Assumptions and Limitations

The investigation has been influenced by the following factors:

- No buildings plans exist for the buildings on the various sites;

- It is assumed that the description of the proposed project, provided by the client, is accurate.
- The unpredictability of buried archaeological remains.
- No subsurface investigation (i.e. excavations or sampling) were undertaken, since a permit from SAHRA is required for such activities.
- It is assumed that the public consultation process undertaken as part of the Environmental Impact Assessment (EIA) is sufficient and that it does not have to be repeated as part of the heritage impact assessment.

2. LEGISLATIVE FRAMEWORK

2.1 Background

Heritage Impact Assessments are governed by national legislation and standards and International Best Practise. These include:

- South African Legislation
 - National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA);
 - Mineral and Petroleum Resources Development Act, 2002 (Act No. 22 of 2002) (MPRDA);
 - National Environmental Management Act 1998 (Act No. 107 of 1998) (NEMA); and
 - National Water Act, 1998 (Act No. 36 of 1998) (NWA).
- Standards and Regulations
 - South African Heritage Resources Agency (SAHRA) Minimum Standards;
 - Association of Southern African Professional Archaeologists (ASAPA) Constitution and Code of Ethics;
 - Anthropological Association of Southern Africa Constitution and Code of Ethics.
- International Best Practise and Guidelines
 - ICOMOS Standards (Guidance on Heritage Impact Assessments for Cultural World Heritage Properties); and
 - The UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage (1972).

2.2 Heritage Impact Assessment Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, Section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority.

The National Heritage Resources Act (Act No. 25 of 1999, Section 38) provides guidelines for Cultural Resources Management and prospective developments:

"38 (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as:

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*
- (b) the construction of a bridge or similar structure exceeding 50m in length;*
- (c) any development or other activity which will change the character of a site:*
 - (i) exceeding 5 000 m² in extent; or*
 - (ii) involving three or more existing erven or subdivisions thereof; or*
 - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or*
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;*

*(d) the re-zoning of a site exceeding 10 000 m² in extent; or
 (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.”*

And:

“38 (3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

- (a) The identification and mapping of all heritage resources in the area affected;*
- (b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;*
- (c) an assessment of the impact of the development on such heritage resources;*
- (d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;*
- (e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;*
- (f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and*
- (g) plans for mitigation of any adverse effects during and after the completion of the proposed development.”*

3. HERITAGE RESOURCES

3.1 The National Estate

The National Heritage Resources Act (No. 25 of 1999) defines the heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations that must be considered part of the national estate to include:

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds, including-
 - ancestral graves;
 - royal graves and graves of traditional leaders;
 - graves of victims of conflict;
 - graves of individuals designated by the Minister by notice in the Gazette;
 - historical graves and cemeteries; and
 - other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- sites of significance relating to the history of slavery in South Africa;
- movable objects, including-
 - objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - objects to which oral traditions are attached or which are associated with living heritage;
 - ethnographic art and objects;
 - military objects;
 - objects of decorative or fine art;

- objects of scientific or technological interest; and
- books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

3.2 Cultural significance

In the NHRA, Section 2 (vi), it is stated that “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. This is determined in relation to a site or feature’s uniqueness, condition of preservation and research potential.

According to Section 3(3) of the NHRA, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of

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

A matrix (see **Section 2 of Addendum**) was developed whereby the above criteria were applied for the determination of the significance of each identified site. This allowed some form of control over the application of similar values for similar identified sites.

4. STUDY APPROACH AND METHODOLOGY

4.1 Extent of the Study

This survey and impact assessment cover the identified properties, referred to as the Nooitgedacht Land Assembly, as is presented in Section 5 below and illustrated in Figures 3 & 4.

4.2 Methodology

4.2.1.1 Survey of the literature

A survey of the relevant literature was conducted with the aim of reviewing the previous research done and determining the potential of the area. In this regard, various anthropological, archaeological and historical sources were consulted – see list of references in Section 10.

- Information on events, sites and features in the larger region were obtained from these sources.

4.2.1.2 Survey of heritage impact assessments (HIAs)

A survey of HIAs done for projects in the region by various heritage consultants was conducted with the aim of determining the heritage potential of the area – see list of references in Section 10.

- Information on sites and features in the larger region were obtained from these sources.

4.2.1.3 Data bases

The *Heritage Atlas Database*, various SAHRA databases, the *Environmental Potential Atlas*, the *Chief Surveyor General* and the *National Archives of South Africa* were consulted.

- Database surveys produced a number of sites located in the larger region of the proposed development.

4.2.1.4 Other sources

Aerial photographs and topocadastral and other maps were also studied - see the list of references below.

- Information of a very general nature were obtained from these sources

4.2.1.5 Interviews

The individual owners of the various properties were interviewed either prior to or at the time of the site visit – see the discussion for each of the properties below.

4.2.2 Field survey

The field survey was done according to generally accepted archaeological practices, and was aimed at locating all possible sites, objects and structures. The areas that had to be investigated was identified by the *Batho Earth* by means of maps and .kml files indicating the various properties. This was loaded onto an ASUS digital device and used in Google Earth during the field survey to access the areas.

5. PROJECT DESCRIPTION

5.1 Site location

The study area is located south of the R114, east of Muldersdrift. It straddles Marina Street that branches off from the R114 in a southern direction where it eventually meets up with Beyers Naude Drive (M5) (Fig. 1 and 2). For more information, see the Technical Summary on p. V above.

5.2 Development proposal

The development will comprises a mix of uses including high density residential purposes as well as urban support facilities (school and church) and light industrial/commercial purposes.

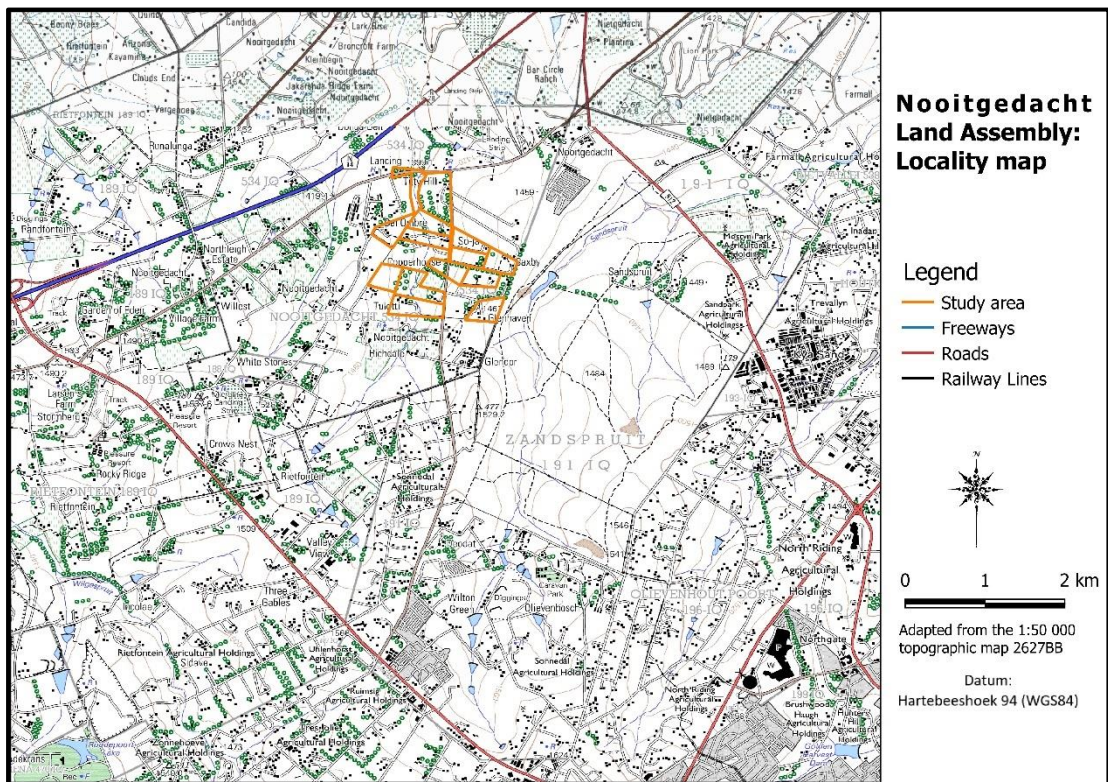


Figure 1. Location of the study area in regional context

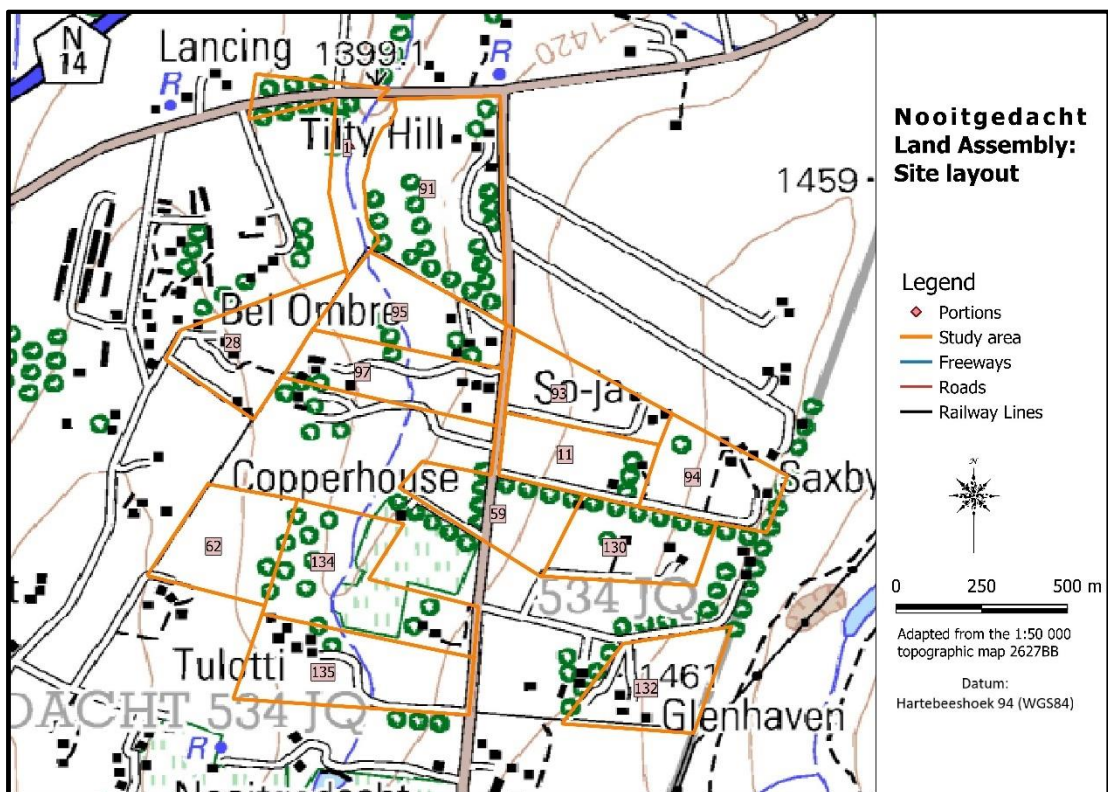


Figure 2. Layout of the study area, showing the various properties under consideration

6. DESCRIPTION OF THE AFFECTED ENVIRONMENT

6.1 Historic overview of the region

The aim of this section is to present an overview of the history of the larger region in order to eventually determine the significance of heritage sites identified in the study area, within the context of their historic, aesthetic, scientific and social value, rarity and representivity.

The cultural landscape qualities of the region essentially consist of two components. The first is a rural area in which the human occupation is made up of a limited pre-colonial element (Stone Age and Iron Age) as well as a much later colonial (farmer and industrial) component. The second component, although much younger, is a semi-urban one, in which large farms were divided up into smallholdings, which, in turn, are now rapidly overtaken by urban densification.

6.1.1 Stone Age

The larger Mogale City area has been inhabited by different hominids since early Pliocene times, but it was only from about 2.5 million years ago that they started to produce stone tools, effectively beginning the Early Stone Age (ESA) (Pollarolo *et al* 2010). During Middle Stone Age (MSA) times (c. 150 000 - 30 000 BP), people became more mobile, occupying areas formerly avoided.

Late Stone Age (LSA) people had even more advanced technology than the MSA people and therefore succeeded in occupying even more diverse habitats. Also, for the first time we now get evidence of people's activities derived from material other than stone tools. Ostrich eggshell beads, ground bone arrowheads, small bored stones and wood fragments with incised markings are traditionally linked with the LSA. A number of sites dating to this period have been studied by Wadley (1988) in the Magaliesberg area. In the case of the LSA people, they have also left us with a rich legacy of rock art, which is an expression of their complex social and spiritual beliefs (James 2000).

6.1.2 Iron Age

Iron Age people started to settle in southern Africa c. AD 300, with one of the oldest known sites at Broederstroom, dating to AD 470, located south of Hartebeespoort Dam just outside of the WHS area (Mason 1974; Huffman 1990). Having only had cereals (sorghum, millet) that need summer rainfall, Early Iron Age (EIA) people did not move outside this rainfall zone, and neither did they occupy the central interior highveld area.

The occupation of the region by Iron Age communities did not start much before the 1500s. Due to climatic fluctuations, bringing about colder and drier conditions, people were forced to avoid this area. Following a dry spell that ended just before the turn of the millennium the climate became better again until about AD 1300. This coincided with the arrival of the ancestors of the present-day Sotho-, Tswana- and Nguni-speakers in southern Africa, forcing them to avoid large sections of the interior (Dreyer 1995; Mason 1986).

6.1.3 Historic period

Originally the trekkers who settled in the region occupied themselves with farming. After the discovery of gold on the Witwatersrand, exploration also started in this area, e.g. the well-known Harry and Fred Struben were exploring in the Sterkfontein area during 1884. One of the oldest gold mines was established in 1874 at Blaauwbank and another in 1891 on the farm Kromdraai. By this time the fossil-

bearing caves were already known, and lime quarrying started about 1895. However, it was more than forty years later, in 1936, that Robert Broom first identified the remains of a number of fossil hominids.

6.2 Diachronic overview

- As some properties changed ownership many times during the past few decades, there is very little coherent, long term memory regarding the different plots of land. However, by reviewing the history of the region as well as using available aerial photographs and maps, it is possible to determine to a certain extent what changes/developments took place over time.

The study area indicated on the 1938 version of the aerial photograph (Fig. 3) shows a largely rural area with agricultural activities (fields) as the most dominant development to be seen. Although a number of smaller features can be seen on some of the properties, their nature and function are difficult to determine. It is only on Plot 97 and Plot 134 that substantial built developments can be seen. This is also confirmed by the 1943 version of the topographic map (Fig. 4).

However, about ten years later a number of new developments can be seen on Plot no. 97, 93, 11, 130 and 132 (Fig. 5). The rest are still empty of built features.

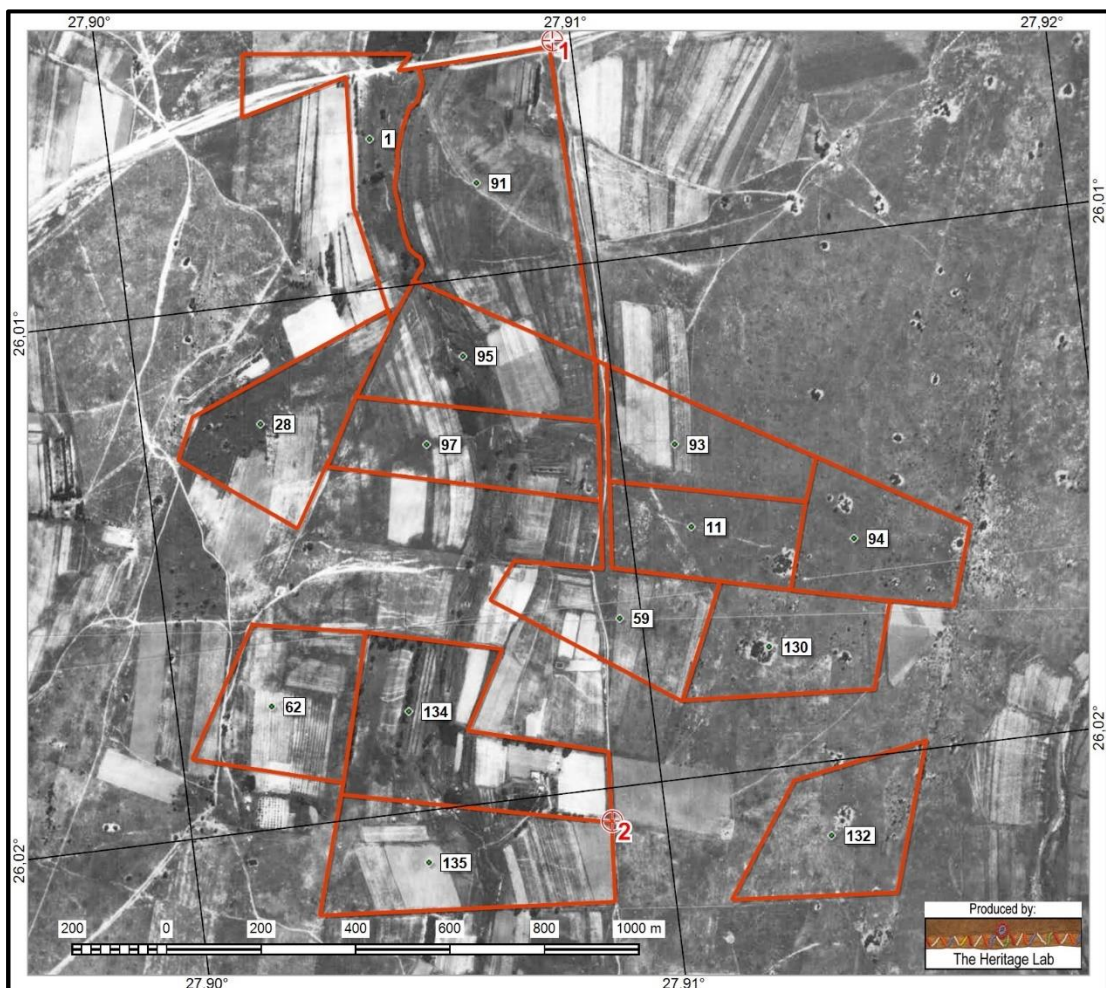


Figure 3. The study area indicated on the 1938 aerial photograph (Photograph: 129_003_73708)

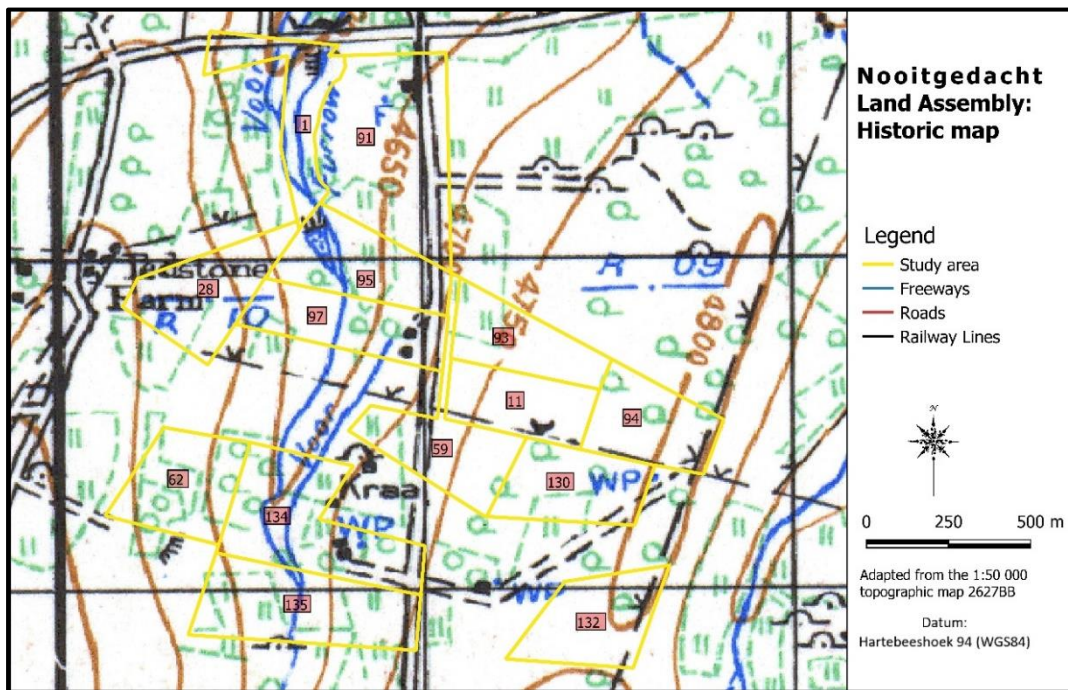


Figure 4. The study area indicated on the 1943 version of the 1:50 000 topographic map

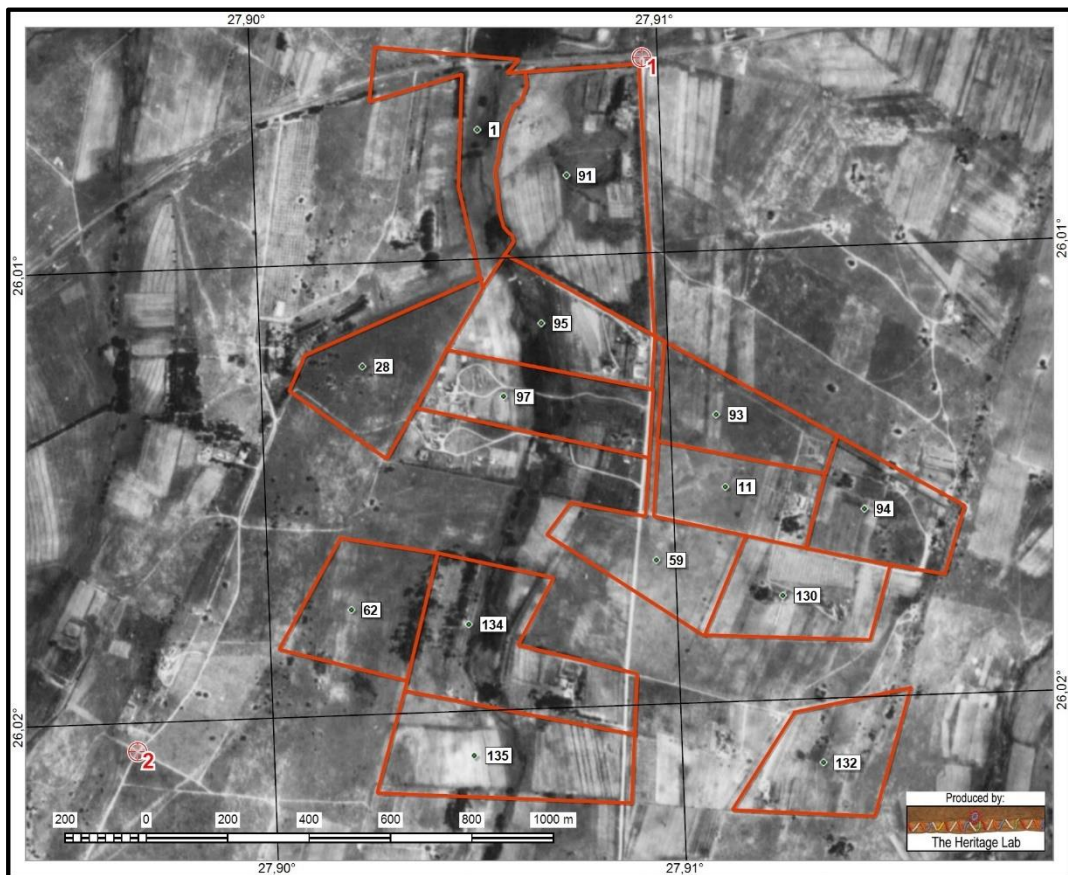


Figure 5. The study area indicated on the 1954 aerial photograph (Photograph: 314_001_42165) (Please note that after georectification of the photograph some deviation exists on the longitudinal axis)

6.3 Built Environment Evaluation

According to Section 7(1) of the NHRA, SAHRA, in consultation with the Minister and the MEC of every province, must by regulation establish a system of grading of places and objects which form part of the national estate, and which distinguishes between at least the categories:

- (a) Grade I: Heritage resources with qualities so exceptional that they are of special national significance;
- (b) Grade II: Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; and
- (c) Grade III: Other heritage resources worthy of conservation.

Unfortunately, no clear guidelines are given for the evaluation and resultant grading of built features. In contrast, Heritage Western Cape in their *Short Guide to and Policy Statement on Grading* present greater guidelines in this regard and is therefore applied in this evaluation:

Grade III Built Environment Heritage Resources

This grading is applied to buildings and sites that have sufficient intrinsic significance to be regarded as local heritage resources; and are significant enough to warrant that any alteration is regulated. Such buildings and sites may be representative, being excellent examples of their kind, or may be rare. In either case, they should receive protection at local level. It has become practice to separate the Grade III category of heritage resources into three sub-categories (3A, 3B and 3C) to enable effective management.

Table 1: Guide to Grading of Built Environment Resources

3A	Such a resource must be an excellent example of its kind or must be sufficiently rare. These are heritage resources which are significant in the context of an area.	This grading is applied to buildings and sites that have sufficient intrinsic significance to be regarded as local heritage resources; and are significant enough to warrant that any alteration, both internal and external, is regulated. Such buildings and sites may be representative, being excellent examples of their kind, or may be rare. In either case, they should receive maximum protection at local level.	High Significance
3B	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree. These are heritage resources which are significant in the context of a townscape, neighbourhood, settlement or community.	Like Grade IIIA buildings and sites, such buildings and sites may be representative, being excellent examples of their kind, or may be rare, but less so than Grade IIIA examples. They would receive less stringent protection than Grade IIIA buildings and sites at local level.	Medium Significance
3C	Such a resource is of contributing significance to the environs. These are heritage resources which are significant in the context of a	This grading is applied to buildings and/or sites whose significance is contextual, i.e. in large part due to its contribution to the character or significance of the environs. These	Low Significance

	streetscape or direct neighbourhood.	buildings and sites should, as a consequence, only be regulated if the significance of the environs is sufficient to warrant protective measures, regardless of whether the site falls within a Conservation or Heritage Area. Internal alterations should not necessarily be regulated.	
NCW*	A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate.	No further actions under the NHRA are required. This must be motivated by the applicant and approved by the authority. Section 34 can even be lifted by HWC for structures in this category if they are older than 60 years.	No research potential or other cultural significance

*NCW = not conservation worthy

7. RESULTS: STATEMENT OF SIGNIFICANCE AND IMPACT RATINGS

7.1 Property descriptions

The description of the properties is done in a southward direction, starting from the junction of Marina Road with the R114.

Lack of information:

- As most of the properties changed ownership many times during the past few decades, there is very little coherent, long term memory or documentation regarding any of the different plots of land.
- Over time, most of the properties developed in an 'organic' manner, i.e. new buildings were added by original or consecutive owners. As this was, in old terms, a peri-urban region, building plans were not necessarily drawn up and submitted to local authorities.
- These new developments in most cases incorporated elements of older structures, most of which were comprehensively altered, or were even replaced *in toto*.

For each property the following information is presented:

- Technical, i.e. location, ownership, date of construction, availability of plans, etc.
- A description of the property that incorporate the oral information supplied by the owner, as well as what was noted during the field survey.
- A photographic overview of the site.
- An evaluation based on the available information and observations.
- An evaluation in terms of the Heritage Legislation.
- Proposed mitigation measures, if applicable.
- Because of their high significance, the various burial sites are discussed separately.

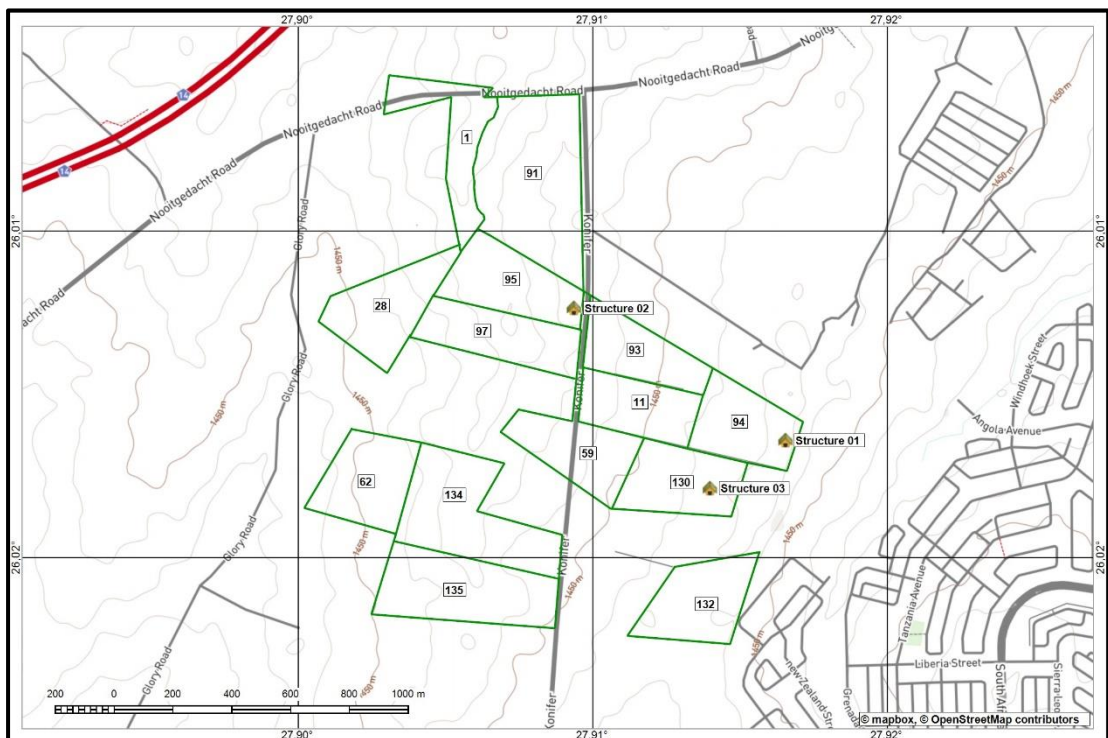
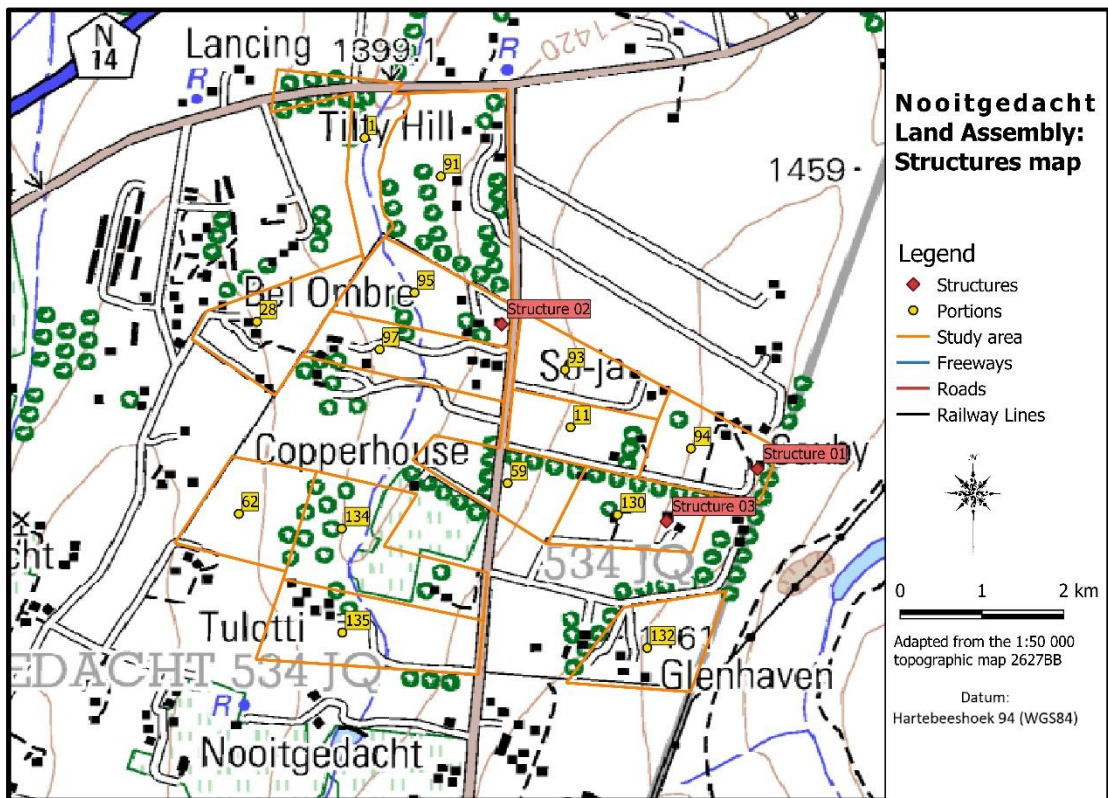



Figure 6. Maps showing the location of the identified significant house structures

Property identification	Plot 1	Coordinates	S 26,00841; E 27,90781
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Current owner	Weihe Inv Trust (Friedel Weihe)
Year of construction	None
Architect	None
Original plans	None
Current zoning	Small holding

Property overview
An empty section of land that is basically a wetland area formed by an unnamed stream that runs through the site.

Identifying images






Statement of significance
No research potential or other cultural significance

Proposed SAHRA grading	NCW – low significance
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Proposed mitigation
None

Property identification	Plot 91	Coordinates	S 26,00794; E 27,90517
Current owner	Weihe Inv Trust (Friedel Weihe)		
Year of construction	Unknown		
Architect	None		
Original plans	None		
Current zoning	Small holding		

Property overview
<p>Mr Weihe obtained this property ten years ago and currently use the site for the manufacture of cement bricks and paving blocks.</p> <p>Two built features are located on the site. The first is a small cottage built with face-bricks and with a tile roof. It is currently used as storage facility. The second, much degraded structure is a flat roofed brick-built house. It has been abandoned some time ago and is overgrown with small trees and weeds. Both these structures</p> <p>The rest of the site is vacant and overgrown with blue-gum trees.</p>

Identifying images	
 <p>Cottage</p>	 <p>Ruined house</p>
 <p>Open space</p>	 <p>Swimming pool</p>

Statement of significance
No research potential or other cultural significance

Proposed SAHRA grading	NCW – low significance
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Proposed mitigation
None

Property identification	Plot 95	Coordinates	S 26,01192; E 27,90877
Current owner	Ms M Adelson		
Year of construction	Pre 1950		
Architect	None		
Original plans	None		
Current zoning	Small holding		

Property overview

The owner of the property is currently residing in Australia. A son, Mr Leigh Privett supplied the following information.

The main house date prior to 1950; his sister’s house dates back about 30 years ago; as is the case with a third house. Some of the outbuildings, e.g. garages, etc. were turned into accommodation – these structures date back to the period of development about 30 years ago.

All the structures are brick-built with corrugated iron roofs. All, except the house of the sister, has been painted on the outside.

Identifying images



Main house



Second house



Third house



Garages turned into accommodation



Swimming pool	Open area looking south
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Statement of significance

This main house is older than 60 years and therefore enjoy general protection under the NHR Act

Proposed SAHRA grading

3B – medium significance

Proposed mitigation

Documentation of main house, i.e. drawing of plans and photographic record

Property identification	Plot 28	Coordinates	S 26,01243; E 27,90295
Current owner	Mr K Lange (Mrs R Stidworthy)		
Year of construction	None		
Architect	None		
Original plans	None		
Current zoning	Small holding		

Property overview

According to Mrs Stidworthy, manager of the site, the property has been in the possession of the Lange family for three generations. Apparently, some of the houses are about fifty years old, but no further information could be obtained. All the houses are currently rented out.

The main house is a large, double storied structure, built with bricks and has a tile roof. Some years ago, newer sections were added on the eastern side.

The remainder of the houses are an eclectic mix of styles and building materials, ranging from square structures with sloped corrugated iron roofs, to square structures with sloped tiled roofs.

The rest of the property is vacant.

Identifying images



Main house



Cottage



House





Servant quarters

Statement of significance

No research potential or other cultural significance

Proposed SAHRA grading

NCW – low significance

Proposed mitigation

None

Property identification	Plot 97	Coordinates	S 26,001311; E 27,90686
Current owner	Mr K Lange (Mrs R Stidworthy)		
Year of construction	c. 30 years ago		
Architect	None		
Original plans	None		
Current zoning	Small holding		

Property overview

According to Mrs Stidworthy, manager of the site, the property has been in the possession of the Lange family for three generations. The buildings on this section has been built approximately 30 years ago, as she has been living here for the last 24 years. She is also the caretaker of this property and Plot 28.

A number of cottages on the property is rented out. These cottages are rectangular, faced brick-built structures with tiled gable roofs.

The buildings that could be identified from the old aerial photographs does not exists anymore and no sign of their existence could be found as this section of the property has been totally redeveloped and landscaped.

Identifying images



Statement of significance

No research potential or other cultural significance

Proposed SAHRA grading

NCW – low significance

Proposed mitigation

None

Property identification	Plot 93	Coordinates	S 26,01364; E 27,91146
Current owner	Mr D Webb		
Year of construction	Unknown		
Architect	None		
Original plans	None		
Current zoning	Small holding		

Property overview

Mr Webb bought the property in 1969 from the previous owner, a Mr Moske. Since then he has upgraded and expanded the house extensively. A number of outbuilding, including garages that were originally stables, and workshops, are located around the house and the business premises. The latter is a nursely that covers a small area of the total property.
 The rest of the property is open space that were probably used as agricultural fields in the past.

Identifying images



Main house



Stables turned into garages



Nursery area



Open area looking northwest

Statement of significance

No research potential or other cultural significance

Proposed SAHRA grading

NCW – low significance

Proposed mitigation

None

Property identification	Plot 11	Coordinates	S 26,015401; E 27,91202
Current owner	Mr J Heyns		
Year of construction	No information		
Architect	No information		
Original plans	None		
Current zoning	Small holding		

Property overview

The main house is a brick built flat roofed structure in a u-shape, indicating the it has been extended over time as more rooms were required.

The area surrounding the main house is currently used as an informal vehicle repair shop, established by local people who rent the house. The rest of the property is vacant.

Identifying images



Existing house



Informal vehicle repair yard



Open area looking north

Statement of significance

No research potential or other cultural significance

Proposed SAHRA grading

NCW – low significance

Proposed mitigation

None

Property identification	Plot 94	Coordinates	S 26,01593; E 27,91481
Current owner	C Robertson/J de Fouw		
Year of construction	Unknown		
Architect	Unknown		
Original plans	None		
Current zoning	Small holding		

Property overview

According to Mrs. Robertson, the current owner of the property, the house was originally built by a person involved in the financial (banking) sector about fifty years ago – she is the third owner and only got very limited information from the previous owner.

The main house is built with stone and has a tile roof. Some sections of the house are double storied. In essence, it shows some unique, if eccentric/rustic characteristics.

A number of outbuildings are located on the site and is used as accommodation for stable hands and their families. These and the stables on the site apparently were built by the previous owner. The rest of the property contain a number of horse riding arenas or have been left vacant and serve as paddocks for the horses.

Identifying images



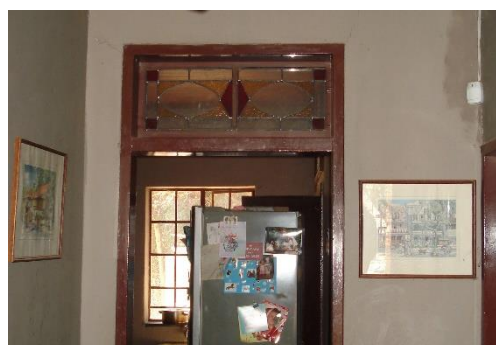
Main house



Fire place



Parquet floor



Wooden doorframe with sky light

 <p>Servants quarters</p>	 <p>Stables</p>
 <p>Dressage area</p>	

<p>Statement of significance</p>	
<p>The main house shows some unique, if eccentric/rustic characteristics and should be documented as an example of a 'landed gentry' rural style of living.</p>	
<p>Proposed SAHRA grading</p>	<p>3B - Medium Significance</p>
<p>Proposed mitigation</p>	
<p>Documentation of main house, i.e. drawing of plans and photographic record</p>	

Property identification	Plot 59	Coordinates	S 26,01658; E 27,90904
Current owner	Basfour 3337 (Pty) Ltd – Mr J Snijders		
Year of construction	No built features		
Architect	None		
Original plans	None		
Current zoning	Small holding		

Property overview

Mr Snijders obtained the property in 2006 and developed a nursery on the section north of Marina Street. An old dam was converted into offices. The site is now abandoned with only the ruins of structures that were used when it served as nursery. This was an old farm dam that was converted into an office cum storeroom. It has since been vandalised and the roof, fittings and even some of the brickwork has been stolen.

Two graves are located on the northern portion of the property – see Section 7.2 below.

Identifying images

Old nursery facility



Area where nursery used to be



Southern section



Southern section

Statement of significance

No research potential or other cultural significance

Proposed SAHRA grading

NCW – low significance

Proposed mitigation

None

Property identification	Plot 130	Coordinates	S 26,01753; E 27,91293
Current owner	P & J Davidson		
Year of construction	Unknown		
Architect	Unknown		
Original plans	Unknown		
Current zoning	Small holding		

Property overview

The current occupant has been renting to property for some years. The owner was not interested in sharing any information regarding the property, indicating that he bought it a few years ago for investment purposes and do not have any information available.

Rustic main house with white-washed walls and thatched roof. Some water features (abandoned) occur all around the house. Off to one site there is an enclosed swimming pool.

Servants quarters, now rented out, are located in two groups to the south of the main house. The open spaces were probably cultivated in the past.

Identifying images



Main house



Indoor pool



Outdoor water feature



Servants quarters



Open area	
Statement of significance	
The main house shows some unique, if eccentric/rustic characteristics and should be documented as an example of a 'landed gentry' rural style of living.	
Proposed SAHRA grading	3B - Medium Significance
Proposed mitigation	
Documentation, i.e. drawing of plans and photographic record	

Property identification	Plot 62	Coordinates	S 26,01769; E 27,90252
Current owner	Mr E C Pienaar		
Year of construction	Post 2002		
Architect	Unknown		
Original plans	Unknown		
Current zoning	Small holding		

Property overview

A single double story house is located on the south-eastern corner of the property. It is brick built and has a tile roof. The rest of the property is open space.

Identifying images

Modern house



Looking north



Looking east

Statement of significance

No research potential or other cultural significance

Proposed SAHRA grading

NCW – low significance

Proposed mitigation

None

Property identification	Plot 134	Coordinates	S 26,01941; E 27,90686
Current owner	Mr J Muller		
Year of construction	Unknown		
Architect	Unknown		
Original plans	Available		
Current zoning	Small holding		

Property overview

Mr Muller obtained the property in 2000. Since then he has extensively altered and added to the original structure to such an extent that it is hardly distinguishable from the rest of the house. A swimming pool is located on the southwestern side of the house.

There are some old stables and farming related features such as a dam and water tank adjacent to the house.

The rest of the property is open space and probably served as agricultural fields.

Identifying images



Main house



Dam and water tower



Stables



Open area looking south

Statement of significance

No research potential or other cultural significance

Proposed SAHRA grading

NCW – low significance

Proposed mitigation

None

Property identification	Plot 135	Coordinates	S 26,02101; E 27,90625
Current owner	Crystal Ball Prop 120 (Pty) Ltd (Mr E Visser)		
Year of construction	Varied over the last 20 years		
Architect	None		
Original plans	None		
Current zoning	Small holding		

Property overview

According to Mr Visser he obtained the property some years ago and started to build a number of houses and cottages, the latter which are now rented out.

The main house is of recent origin and is built with face bricks and have a tile roof. The various cottages and staff quarters all share the same style – rectangular block-like sections that is reminiscent of a Moorish look. It has small windows and the roofs are flat.

The rest of the property is vacant.

Identifying images



Main house



Additional house



Additional house



Servants quarters



Looking east	Looking south
Statement of significance	
No research potential or other cultural significance	
Proposed SAHRA grading	NCW – low significance
Proposed mitigation	
None	

Property identification	Plot 132	Coordinates	S 26,02131; E 27,91394
Current owner	Mr G Rettermayer		
Year of construction	House = pre 1971; rest after 1971		
Architect	None		
Original plans	None		
Current zoning	Small holding		

Property overview

Property was bought in 1971 by Mr Rettermayer. The original house existed at that time but was expanded and upgraded at a later stage. It is basically a square structure built with bricks and has a gable corrugate iron roof. The additional cottage is a simple rectangular building with a thatched roof. A swimming pool and number of workshops were added by Mr Rettermayer over the years.

Identifying images

Main house



Cottage



Workshops



Open space

Statement of significance

No research potential or other cultural significance

Proposed SAHRA grading

NCW – low significance

Proposed mitigation

None

7.2 Burial sites

- A total of three informal burial sites were identified. Due to their high significance rating there are presented here separately.

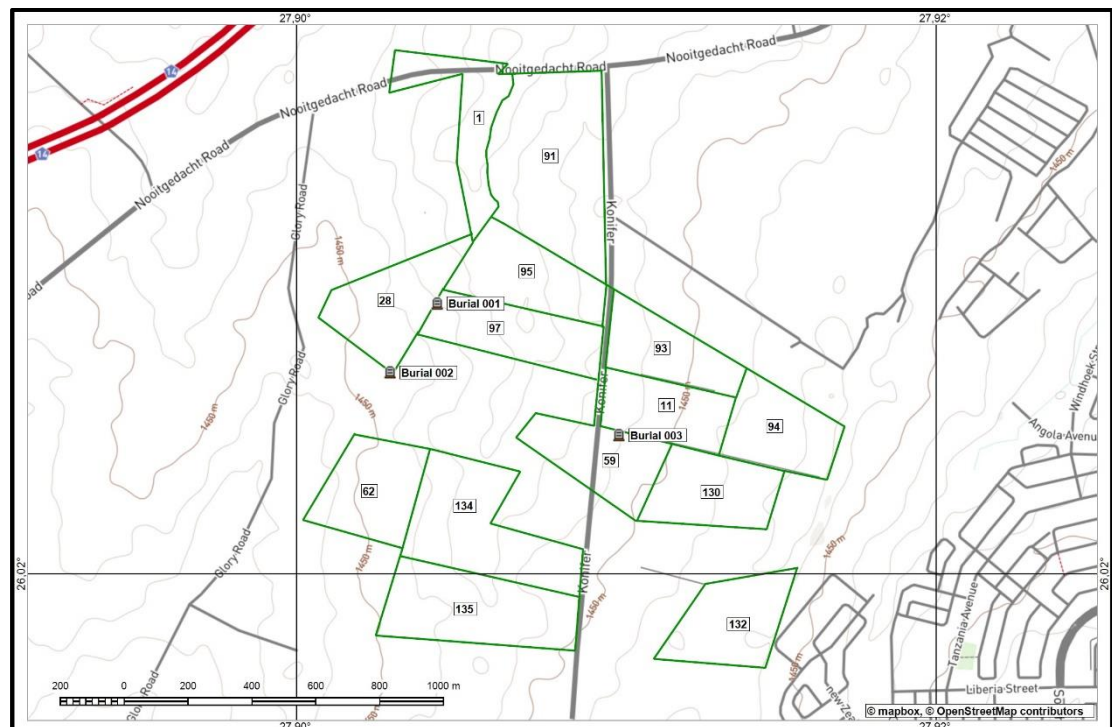
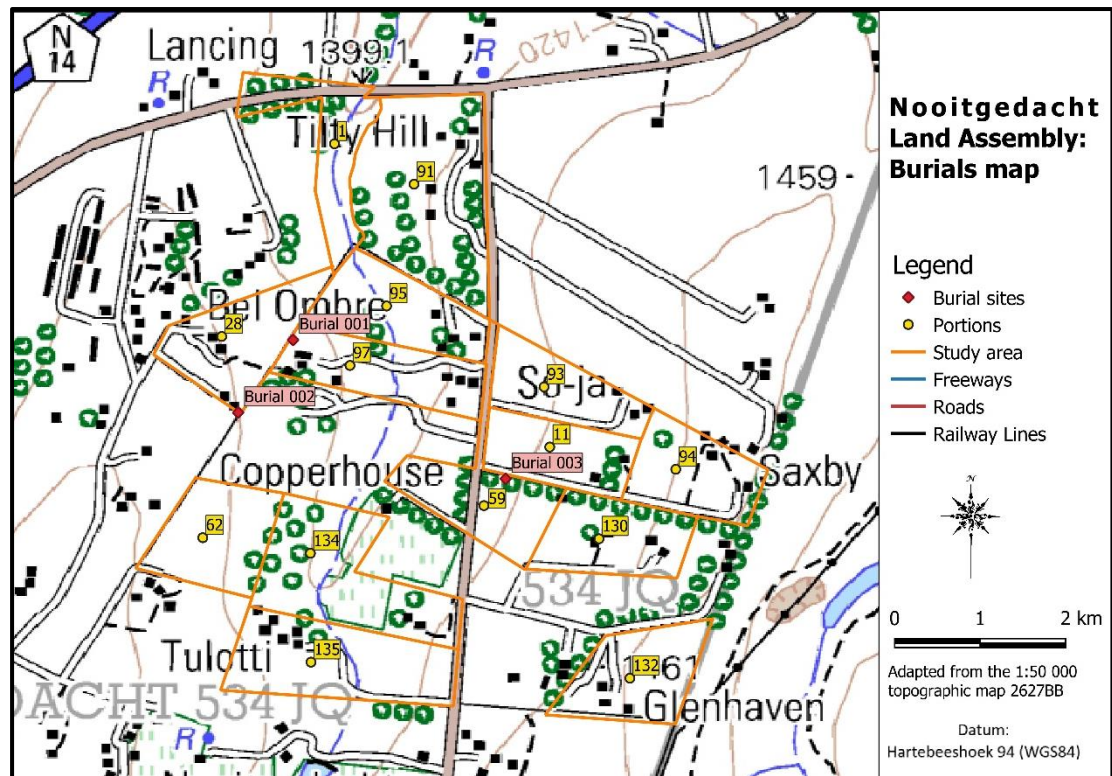




Figure 7. Maps showing the location of the identified burial sites

Location:						
No.	001	Plot no.	97	Coordinates	S 26,01238	E 27,90442

Description
Formalised burial site with presented as a memorial garden. It contains the graves of the original Lange family parent who owned the property. It has a sturdy fence and is well maintained.

Photographs:	
 <p>General view</p>	 <p>Graves</p>

NHRA Category	Section 36: Graves, cemeteries and burial grounds
Significance	Generally protected 4A: High/medium significance - Should be mitigated before destruction

Development Impact:					
<i>Type</i>	Destruction	<i>Certainty</i>	Possible	<i>Significance</i>	High, negative

Mitigation
<i>(2) Relocation of graves:</i> This option can be implemented with additional design and construction inputs. This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated. Mitigation is to excavate the site by archaeological techniques, document the site (map and photograph) and analyse the recovered material to acceptable standards.

Permits
SAHRA Permit; Dept. of Health; police

References
-

Location:						
No.	002	Plot no.	28	Coordinates	S 26,01432	E 27,90295

Description
A single grave of a former labourer on the small holding that was buried here in 1992. Apparently, the headstone was added only recently.

Photographs:	
 <p>General overview</p>	

NHRA Category	Section 36: Graves, cemeteries and burial grounds
Significance	Generally protected 4A: High/medium significance - Should be mitigated before destruction

Development Impact: As					
Type	Destruction	Certainty	Possible	Significance	High, negative



Mitigation
<i>(2) Relocation of graves:</i> This option can be implemented with additional design and construction inputs. This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated. Mitigation is to excavate the site by archaeological techniques, document the site (map and photograph) and analyse the recovered material to acceptable standards.

Permits
SAHRA Permit; Dept. of Health; police

References
-

Location:						
No.	003	Plot no.	59	Coordinates	S 26,01609	E 27,91011

Description
Two unnamed graves. According to the landowner, the first is very old and no information is available. The second grave apparently date to approximately 2006 and is that of a worker of Malawian origin who died in an accident nearby.

Photograph:	
	
Grave 1	Grave 2

NHRA Category	Section 36: Graves, cemeteries and burial grounds
Significance	Generally protected 4A: High/medium significance - Should be mitigated before destruction

Development Impact:					
<i>Type</i>	Destruction	<i>Certainty</i>	Possible	<i>Significance</i>	High, negative

Mitigation
<i>(2) Relocation of graves:</i> This option can be implemented with additional design and construction inputs. This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated. Mitigation is to excavate the site by archaeological techniques, document the site (map and photograph) and analyse the recovered material to acceptable standards.

Permits
SAHRA Permit; Dept. of Health; police

References
-

8. MANAGEMENT AND MITIGATION MEASURES

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.

Sources of risk were considered with regards to development activities defined in Section 2(viii) of the NHRA that may be triggered and are summarised in Table 3A and 3B below. These issues formed the basis of the impact assessment described. The potential risks are discussed according to the various phases of the project below.

8.1 Objectives

- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.
- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities.

The following shall apply:

- Known sites should be clearly marked in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).

8.2 Control

In order to achieve this, the following should be in place:

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.
- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

Table 2A: Construction Phase: Environmental Management Programme for the project

Action required	Protection of heritage sites, features and objects		
Potential Impact	The identified risk is damage or changes to resources that are generally protected in terms of Sections 27, 28, 31, 32, 34, 35, 36 and 37 of the NHRA that may occur in the proposed project area.		
Risk if impact is not mitigated	Loss or damage to sites, features or objects of cultural heritage significance		
Activity / issue	Mitigation: Action/control	Responsibility	Timeframe
1. Removal of Vegetation 2. Construction of required infrastructure, e.g. access roads, water pipelines	See discussion in Section 9.1 above	Environmental Control Officer	During construction only
Monitoring	See discussion in Section 9.2 above		

Table 2B: Operation Phase: Environmental Management Programme for the project

Action required	Protection of heritage sites, features and objects		
Potential Impact	It is unlikely that the negative impacts identified for pre-mitigation will occur if the recommendations are followed.		
Risk if impact is not mitigated	Loss or damage to sites, features or objects of cultural heritage significance		
Activity / issue	Mitigation: Action/control	Responsibility	Timeframe
1. Removal of Vegetation 2. Construction of required infrastructure, e.g. access roads, water pipelines	See discussion in Section 9.1 above	Environmental Control Officer	During construction only
Monitoring	See discussion in Section 9.2 above		

9. CONCLUSIONS AND RECOMMENDATIONS

BathoEarth Environmental Consultants was appointed to undertake the EIA for the establishment of the proposed Mogale City Extensions 42, 43 and 44 Townships on various portions of the farm Nooitgedacht 534JQ in the Muldersdrift region of Gauteng Province. The various properties currently function as separate small holdings.

This report describes the methodology used, the limitations encountered, the heritage features that were identified and the recommendations and mitigation measures proposed relevant to this. The investigation consisted of a desktop study (archival sources, database survey, maps and aerial imagery) and a physical survey that also included the interviewing of relevant people. It should be noted that the implementation of the mitigation measures is subject to SAHRA/PHRA's approval.

A significant problem encountered during the survey was the fact that no building plans exist for any of the built structures on the various properties. The only information regarding the history of the built section of the was obtained during interviews with the owners of the various properties.

In summary, the following statements can be made about the various properties in general:

- As most of the properties changed ownership many times during the past few decades, there is very little coherent, long term memory or documentation regarding any of the different plots of land.
- Over time, most of the properties developed in an 'organic' manner, i.e. new buildings were added by original or consecutive owners. As this was, in old terms, a peri-urban region, building plans were not necessarily drawn up and submitted to local authorities.
- These new developments in most cases incorporated elements of older structures, most of which were comprehensively altered, or were even replaced *in toto*.

Three houses, on Plot 94, Plot 95 and Plot 130 have been identified to be of significance and the following statements can be made about them:

- Some houses contain architectural elements that are older than 60 years and therefore enjoy general protection under the National Heritage Resources Act, No. 25 of 1999;
- The older architectural elements represent a style of life that is transitional between the farm and urbanisation – large houses with much open spaces surrounding it;
- Some of the house shows some unique, if eccentric/rustic characteristics and should be documented as an example of a 'landed gentry' rural style of living;
- None of the houses can be related to any significant individual or event.

Based on the investigation, the structures identified to have significance have been evaluated to have the following significance rating:

- Generally protected 3B: Medium significance
 - The implication of this is that the structures should be recorded before its destruction/alteration. For this, a suitably qualified architectural historian should be appointed.

Three informal burial sites have been identified on Plot 28, Plot 59 and Plot 97 and have been evaluated to have the following significance rating:

- Generally protected 4A: High/medium significance
 - The implication of this is that these features should be mitigated, i.e. relocated before development takes place.

Legal requirements:

- The legal requirements related to heritage specifically are specified in Section 3 of this report.
 - For this proposed project, the assessment has determined that the identified buildings have a significance rating of: Generally Protected 3B: Medium significance, and therefore a valid permit should be obtained from the Provincial Heritage Resources Agency (PHRA) prior to any work being carried out.
 - For this proposed project, the assessment has determined that the identified burial sites have a significance rating of: Generally Protected 4A: Medium significance, and therefore valid permits should be obtained from SAHRA, the police and the Department of Health before they can be relocated.

10. REFERENCES

10.1 Data bases

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Heritage Atlas Database, Pretoria
National Archives of South Africa
SAHRA Archaeology and Palaeontology Report Mapping Project (2009)
SAHRIS Database

10.2 Literature

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Van Schalkwyk, J.A. 2011b. *Heritage impact assessment for the proposed development on Portion 151 of the farm Rietfontein 189IQ, Krugersdorp magisterial district, Gauteng Province*. Unpublished report 2011/JvS/042.

10.3 Maps, aerial photographs and websites

1: 50 000 Topocadastral maps

Google Earth

Aerial photographs: Chief Surveyor-General

11. ADDENDUM

1. Indemnity and terms of use of this report

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

Although all possible care is taken to identify all sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. The author of this report will not be held liable for such oversights or for costs incurred as a result of such oversights.

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

2. Assessing the significance of heritage resources and potential impacts

A system for site grading was established by the NHRA and further developed by the South African Heritage Resources Agency (SAHRA 2007) and has been approved by ASAPA for use in southern Africa and was utilised during this assessment.

2.1 Significance of the identified heritage resources

According to the NHRA, Section 2(vi) the **significance** of a heritage sites and artefacts is determined by it aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Matrix used for assessing the significance of each identified site/feature

1. SITE EVALUATION				
1.1 Historic value				
Is it important in the community, or pattern of history				
Does it have strong or special association with the life or work of a person, group or organisation of importance in history				
Does it have significance relating to the history of slavery				
1.2 Aesthetic value				
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group				
1.3 Scientific value				
Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage				
Is it important in demonstrating a high degree of creative or technical achievement at a particular period				
1.4 Social value				
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons				
1.5 Rarity				
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage				
1.6 Representivity				
Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects				
Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class				
Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality.				
2. Sphere of Significance		High	Medium	Low
International				
National				
Provincial				
Regional				
Local				
Specific community				
3. Field Register Rating				
1.	National/Grade 1: High significance - No alteration whatsoever without permit from SAHRA			
2.	Provincial/Grade 2: High significance - No alteration whatsoever without permit from provincial heritage authority.			
3.	Local/Grade 3A: High significance - Mitigation as part of development process not advised.			

4.	Local/Grade 3B: High significance - Could be mitigated and (part) retained as heritage register site	
5.	Generally protected A: High/medium significance - Should be mitigated before destruction	
6.	Generally protected B: Medium significance - Should be recorded before destruction	
7.	Generally protected C: Low significance - Requires no further recording before destruction	

2.2 Significance of the anticipated impact on heritage resources

All impacts identified during the HIA stage of the study will be classified in terms of their significance. Issues would be assessed in terms of the following criteria:

Nature of the impact

A description of what causes the effect, what will be affected and how it will be affected.

Extent

The physical **extent**, wherein it is indicated whether:

- 1 - The impact will be limited to the site;
- 2 - The impact will be limited to the local area;
- 3 - The impact will be limited to the region;
- 4 - The impact will be national; or
- 5 - The impact will be international.

Duration

Here it should be indicated whether the lifespan of the impact will be:

- 1 - Of a very short duration (0–1 years);
- 2 - Of a short duration (2-5 years);
- 3 - Medium-term (5–15 years);
- 4 - Long term (where the impact will persist possibly beyond the operational life of the activity); or
- 5 - Permanent (where the impact will persist indefinitely).

Magnitude (Intensity)

The magnitude of impact, quantified on a scale from 0-10, where a score is assigned:

- 0 - Small and will have no effect;
- 2 - Minor and will not result in an impact;
- 4 - Low and will cause a slight impact;
- 6 - Moderate and will result in processes continuing but in a modified way;
- 8 - High, (processes are altered to the extent that they temporarily cease); or
- 10 - Very high and results in complete destruction of patterns and permanent cessation of processes.

Probability

This describes the likelihood of the impact actually occurring and is estimated on a scale where:

- 1 - Very improbable (probably will not happen);
- 2 - Improbable (some possibility, but low likelihood);
- 3 - Probable (distinct possibility);
- 4 - Highly probable (most likely); or
- 5 - Definite (impact will occur regardless of any prevention measures).

Significance

The significance is determined through a synthesis of the characteristics described above (refer to the formula below) and can be assessed as low, medium or high:

$S = (E+D+M) \times P$; where

S = Significance weighting

E = Extent
 D = Duration
 M = Magnitude
 P = Probability

Significance of impact		
Points	Significant Weighting	Discussion
< 30 points	Low	Where this impact would not have a direct influence on the decision to develop in the area.
31-60 points	Medium	Where the impact could influence the decision to develop in the area unless it is effectively mitigated.
> 60 points	High	Where the impact must have an influence on the decision process to develop in the area.

Confidence

This should relate to the level of confidence that the specialist has in establishing the nature and degree of impacts. It relates to the level and reliability of information, the nature and degree of consultation with I&AP's and the dynamic of the broader socio-political context.

- High, where the information is comprehensive and accurate, where there has been a high degree of consultation and the socio-political context is relatively stable.
- Medium, where the information is sufficient but is based mainly on secondary sources, where there has been a limited targeted consultation and socio-political context is fluid.
- Low, where the information is poor, a high degree of contestation is evident and there is a state of socio-political flux.

Status

- The status, which is described as either positive, negative or neutral.

Reversibility

- The degree to which the impact can be reversed.

Mitigation

- The degree to which the impact can be mitigated.

3. Mitigation measures

- *Mitigation: means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.*

Impacts can be managed through one or a combination of the following mitigation measures:

- Avoidance
- Investigation (archaeological)
- Rehabilitation
- Interpretation
- Memorialisation
- Enhancement (positive impacts)

For the current study, the following mitigation measures are proposed, to be implemented only if any of the identified sites or features are to be impacted on by the proposed development activities:

- (1) Avoidance/Preserve: This is viewed to be the primary form of mitigation and applies where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources. The site should be retained *in situ* and a buffer zone should be created around it, either temporary (by means of danger tape) or permanently (wire fence or built wall). Depending on the type of site, the buffer zone can vary from
 - 10 metres for a single grave, or a built structure, to
 - 50 metres where the boundaries are less obvious, e.g. a Late Iron Age site.
- (2) Archaeological investigation/Relocation of graves: This option can be implemented with additional design and construction inputs. This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated. Mitigation is to excavate the site by archaeological techniques, document the site (map and photograph) and analyse the recovered material to acceptable standards. This can only be done by a suitably qualified archaeologist.
 - This option should be implemented when it is impossible to avoid impacting on an identified site or feature.
 - This also applies for graves older than 60 years that are to be relocated. For graves younger than 60 years a permit from SAHRA is not required. However, all other legal requirements must be adhered to.
 - Impacts can be beneficial – e.g. mitigation contribute to knowledge
- (3) Rehabilitation: When features, e.g. buildings or other structures are to be re-used. Rehabilitation is considered in heritage management terms as an intervention typically involving the adding of a new heritage layer to enable a new sustainable use.
 - The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation.
 - Where rehabilitation implies appropriate conservation interventions, i.e. adaptive reuse, repair and maintenance, consolidation and minimal loss of historical fabric.
 - Conservation measures would be to record the buildings/structures as they are (at a particular point in time). The records and recordings would then become the ‘artefacts’ to be preserved and managed as heritage features or (movable) objects.
 - This approach automatically also leads to the enhancement of the sites or features that are re-used.

- (4) Mitigation is also possible with additional design and construction inputs. Although linked to the previous measure (rehabilitation) a secondary though 'indirect' conservation measure would be to use the existing architectural 'vocabulary' of the structure as guideline for any new designs.
 - The following principle should be considered: **heritage informs design**.
 - This approach automatically also leads to the enhancement of the sites or features that are re-used.
- (5) No further action required: This is applicable only where sites or features have been rated to be of such low significance that it does not warrant further documentation, as it is viewed to be fully documented after inclusion in this report.
 - Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation in order to ensure that no undetected heritage/remains are destroyed.

5. Curriculum vitae

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Personal particulars

Date of birth: 14 April 1952
Identity number: 520414 5099 08 4
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Nationality: South African

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Mobile: 076 790 6777; E-mail: jvschalkwyk@mweb.co.za

Qualifications

1995 DLitt et Phil (Anthropology), University of South Africa
1985 MA (Anthropology), University of Pretoria
1981 BA (Hons), Anthropology, University of Pretoria
1979 Post Graduate Diploma in Museology, University of Pretoria
1978 BA (Hons), Archaeology, University of Pretoria
1976 BA, University of Pretoria

Non-academic qualifications

12th HSRC-School in Research Methodology - July 1990
Dept. of Education and Training Management Course - June 1992
Social Assessment Professional Development Course - 1994
Integrated Environmental Management Course, UCT - 1994

Professional experience

Private Practice
2017 - current: Professional Heritage Consultant

National Museum of Cultural History

1992 - 2017: Senior researcher: Head of Department of Research. Manage an average of seven researchers in this department and supervise them in their research projects. Did various projects relating to Anthropology and Archaeology in Limpopo Province, Mpumalanga, North West Province and Gauteng. Headed the Museum's Section for Heritage Impact Assessments.
1978 - 1991: Curator of the Anthropological Department of the Museum. Carried out extensive fieldwork in both anthropology and archaeology

Department of Archaeology, University of Pretoria

1976 - 1977: Assistant researcher responsible for excavations at various sites in Limpopo Province and Mpumalanga.

Awards and grants

1. Hanisch Book Prize for the best final year Archaeology student, University of Pretoria - 1976.
2. Special merit award, National Cultural History Museum - 1986.
3. Special merit award, National Cultural History Museum - 1991.
4. Grant by the Department of Arts, Culture, Science and Technology, to visit the various African countries to study museums, sites and cultural programmes - 1993.
5. Grant by the USA National Parks Service, to visit the United States of America to study museums, sites, tourism development, cultural programmes and impact assessment programmes - 1998.
6. Grant by the USA embassy, Pretoria, under the Bi-national Commission Exchange Support Fund, to visit cultural institutions in the USA and to attend a conference in Charleston - 2000.
7. Grant by the National Research Foundation to develop a model for community-based tourism - 2001.

8. Grant by the National Research Foundation to develop a model for community-based tourism - 2013. In association with RARI, Wits University.

Publications

Published more than 70 papers, mostly in scientifically accredited journals, but also as chapters in books.

Conference Contributions

Regularly presented papers at conferences, locally as well as internationally, on various research topics, ranging in scope from archaeology, anthropological, historical, cultural historical and tourism development.

Heritage Impact Assessments

Since 1992, I have done more than 2000 Phase 1 and Phase 2 impact assessments (archaeological, anthropological, historical and social) for various government departments and developers. Projects include environmental management frameworks, roads, pipeline-, and power line developments, dams, mining, water purification works, historical landscapes, refuse dumps and urban developments.