

Phase 1 Cultural Heritage Impact Assessment:

THE PROPOSED PROSPECTING RIGHT WITHOUT BULK SAMPLING FOR THE PROSPECTING OF LIMESTONE (LS) & MANGANESE ORE (MN) NEAR MAHIKENG ON VARIOUS PORTIONS OF THE FARM MOOIMEISJESFONTEIN 118, REGISTRATION DIVISION: JO, NORTH-WEST PROVINCE

Prepared for:

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Report No: 2023/JvS/017

- Status: Final
- Date: April 2023
- Revision No: -
- Date: -

Submission of the report:

It remains the responsibility of the client to submit the report to the South African Heritage Resources Agency (SAHRA) or relevant Provincial Heritage Resources Agency (PHRA) by means of the online SAHRIS System.



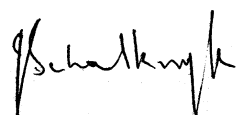
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Specialist competency:

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
April 2023



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
April 2023

EXECUTIVE SUMMARY

**Phase 1 Cultural Heritage Impact Assessment:
THE PROPOSED PROSPECTING RIGHT WITHOUT BULK SAMPLING FOR THE PROSPECTING
OF LIMESTONE (LS) & MANGANESE ORE (MN) NEAR MAHIKENG ON VARIOUS PORTIONS
OF THE FARM MOOIMEISJESFONTEIN 118, REGISTRATION DIVISION: JO,
NORTH-WEST PROVINCE**

Milnex 189 CC Environmental Consultants was contracted by *TSB 74 (Pty) Ltd* as the independent environmental consultant to undertake the Basic Assessment Report (BAR) process for the proposed prospecting right without bulk sampling for the prospecting of limestone (Ls) and manganese ore (Mn) near Mahikeng on various portions of the farm Mooimeisjesfontein 118, registration division: JO, North West Province.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by *Milnex CC Environmental Consultants* to conduct a cultural heritage assessment to determine if the proposed prospecting activities would have an impact on any sites, features or objects of cultural heritage significance.

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.

The cultural landscape qualities of the region essentially consist of a rural area in which the human occupation is made up of a limited Stone Age occupation. This was followed much later by Tswana-speaking agro-pastoralist that settled to the north on the study region. They were soon followed by a colonial (farmer) component, which gave rise to the development of small villages and towns that dot the larger landscape. The final transformation was brought about by the development of infrastructure in the region, such as roads and railway lines.

Identified sites

During the survey the following sites, features or objects of cultural significance were identified.

- 7.3.1: An informal burial site with two or three graves marked only with stone cairns. The site is much overgrown with grass and trees.
- 7.3.2: A formal burial site with five graves with headstones, as well as a number that are only marked with stone cairns. The marked graves are all members of the Holder Family, and it is taken that they were former landowners.
- 7.3.3 – 7.3.9: Various structures, all either former houses or farming related features. Most of the structures have been stripped of all recyclable material and it is only the walls that remains. Based on the materials used for building of the structures it can be determined that they are not very old. This is confirmed by a study of old maps and aerial photographs which indicates that those structures that can be seen are not very old, dating to the last 30 to 40 years.
- 7.3.10: Remains of an old lime mining operation. A few ruined structures occur adjacent to a large and deep excavation. A number of smaller lime excavation sites occur all over the area. These are signified by shallow excavations and rock dumps.

Limitations encountered

- The dense vegetation cover encountered over much of the project area obscured ground visibility; and
- Some areas were not accessible due to the fact that the owners could not be traced/contacted; sections in possession of the Dept of Agriculture, Land Reform and Rural Development, could not be accessed due to no contact details; and some gates were locked with owners not responding to telephone calls.

Impact assessment and proposed mitigation measures

Impact analysis of cultural heritage resources under threat of the proposed development, is based on the present understanding of the development:

| Site No. | Site type | NHRA category | Field rating | Impact rating: Before/After mitigation |
|---|---------------------------------------|---------------|---|--|
| 7.3.1 - 7.3.2 | Graves, Cemeteries and Burial Grounds | Section 36 | Generally protected 4A: High/medium significance. | Medium (40) |
| | | | | Low (14) |
| Mitigation: (1) Avoidance/Preserve: A minimum buffer of 100m must be established around the burial sites for the duration of the prospecting operations. | | | | |

| Site No. | Site type | NHRA category | Field rating | Impact rating: Before/After mitigation |
|---|--------------------------------|---------------|---|--|
| 7.3.3 – 7.3.9 | Structures older than 60 years | Section 34 | Generally protected 4B: Medium significance | Low (14) |
| | | | | Low (14) |
| Mitigation: 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 No. | Site type | NHRA category | Field rating | Impact rating: Before/After mitigation |
|---|--------------------------------|---------------|---|--|
| 7.3.10 | Structures older than 60 years | Section 34 | Generally protected 4B: Medium significance | Medium (40) |
| | | | | Low (14) |
| Mitigation: (2) Archaeological investigation: This option should be implemented when it is impossible to avoid impacting on an identified site or feature. | | | | |

Legal requirements

The legal requirements related to heritage specifically are specified in Section 3 of this report.

- The legal requirements related to heritage specifically are specified in Section 3 of this report. For this proposed project, the assessment has determined that sites, features or objects of cultural heritage significance occur in the project area, and therefore relevant permits would be required from SAHRA or the PHRA if there are any impacts on them.
- If heritage features are identified during construction, as stated in the management recommendation, these finds would have to be assessed by a specialist, after which a decision will be made regarding the application for relevant permits.

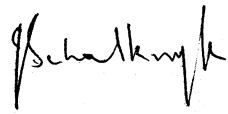
Reasoned opinion as to whether the proposed activity should be authorised:

- From a heritage point of view, it is recommended that the Proposed Project be allowed to continue on acceptance of the proposed mitigation measures and the conditions presented below.

Conditions for inclusion in the environmental authorisation:

- The Palaeontological Sensitivity Map (<http://www.sahra.org.za/sahris/map/palaeo>) indicate that most of the project area (Fig. 6) has a high sensitivity of fossil remains to be found, and therefore a field assessment and protocol for finds is required.
- Should archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.

The appropriate steps to take are indicated in Section 9 of the report, as well as in the **Management Plan: Burial Grounds and Graves, with reference to general heritage sites**, in the Addendum, Section 12.5.




J A van Schalkwyk
Heritage Consultant
April 2023

TECHNICAL SUMMARY

| Project description | |
|---------------------|---|
| Description | Prospecting Right for Limestone and Manganese |
| Project name | BAR 275: Prospecting Right Application |

| Applicant |
|------------------|
| TSB 74 (Pty) Ltd |

| Environmental assessment practitioner |
|---------------------------------------|
| Ms L Esterhuizen |
| Milnex cc Environmental Consultants |

| Property details | | | | | | |
|-----------------------|----------------------------|------------|---|----|----------|-----------|
| Province | North West | | | | | |
| Magisterial district | Mafikeng | | | | | |
| District Municipality | Ngaka Modiri Molema | | | | | |
| Topo-cadastral map | 2725AC | | | | | |
| Farm name | Mooimeisjesfontein 118JO | | | | | |
| Closest town | Mahikeng | | | | | |
| Coordinates | Centre point (approximate) | | | | | |
| | No | Latitude | Longitude | No | Latitude | Longitude |
| | 1 | S 25,98705 | E 25,84128 | | | |
| | .kml files ¹ | |  | | | |

| 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 | Farming |

¹ Left click on the coloured icon to open the file in Google Earth, if installed on the computer. Alternatively, right click on the icon. In dialog box, select "Save Embedded File to Disk" and save to folder of choice.

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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: 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 herded cattle, 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 - 250 000 Before Present |
| Middle Stone Age | 250 000 - 40-25 000 BP |
| Later Stone Age | 40-25 000 - until c. AD 200 |

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

ACRONYMS and ABBREVIATIONS

| | |
|-------|---|
| AD | Anno Domini (the year 0) |
| ASAPA | Association of Southern African Professional Archaeologists |

| | |
|----------|--|
| BA | Basic Assessment |
| BC | Before the Birth of Christ (the year 0) |
| 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) |
| CRM | Cultural Resources Management |
| CS-G | Chief Surveyor-General |
| DMRE | Department of Mineral Resources and Energy |
| EAP | Environmental Assessment Practitioner |
| ECO | Environmental Control Officer |
| EIA | Early Iron Age |
| EIA | Environmental Impact Assessment |
| EMPr | Environmental Management Programme |
| ESA | Early Stone Age |
| HIA | Heritage Impact Assessment |
| I & AP's | Interested and Affected Parties |
| ICOMOS | International Council on Monuments and Sites |
| LIA | Late Iron Age |
| LSA | Later Stone Age |
| MIA | Middle Iron Age |
| MSA | Middle Stone Age |
| NASA | National Archives of South Africa |
| NEMA | National Environmental Management Act 107 of 1998 |
| NHRA | National Heritage Resources Act |
| PHRA | Provincial Heritage Resources Agency |
| SAHRA | South African Heritage Resources Agency |
| SAHRIS | South African Heritage Resources Information System |
| WUL | Water Use Licence |

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 7 |
| 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 8 |
| d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment; | Section 4 |
| 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; | Section 7; Figure 17 |
| 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 17; Section 7 & 8 |
| 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 8 & 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. | - |

**Phase 1 Cultural Heritage Impact Assessment:
THE PROPOSED PROSPECTING RIGHT WITHOUT BULK SAMPLING FOR THE PROSPECTING
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OF THE FARM MOOIMEISJESFONTEIN 118, REGISTRATION DIVISION: JO,
NORTH-WEST PROVINCE**

1. INTRODUCTION

1.1 Background

Milnex 189 CC Environmental Consultants was contracted by *TSB 74 (Pty) Ltd* as the independent environmental consultant to undertake the Basic Assessment Report (BAR) process for the proposed prospecting right without bulk sampling for the prospecting of limestone (Ls) and manganese ore (Mn) near Mahikeng on various portions of the farm Mooimeisjesfontein 118, registration division: JO, North West Province.

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 *Milnex CC Environmental Consultants* to conduct a cultural heritage assessment to determine if the proposed prospecting activities would have an impact on any sites, features or objects of cultural heritage significance.

This report forms part of the Basic Assessment Report (BAR) process 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

The aim of a full heritage impact assessment (HIA) investigation is to provide an informed heritage-related opinion about the proposed development by an appropriate heritage specialist. The objectives are to identify heritage resources (involving site inspections, existing heritage data and additional heritage specialists if necessary); assess their significances; assess alternatives in order to promote heritage conservation issues; and to assess the acceptability of the proposed development from a heritage perspective.

The result of this investigation is a HIA report indicating the presence / absence of heritage resources and how to manage them in the context of the proposed development.

Depending on SAHRA's acceptance of this report, the developer may receive permission to proceed with the proposed development, on condition of successful implementation of proposed mitigation measures.

1.2.1 Scope of work

The aim of this study is to determine the cultural heritage significance of the area where the prospecting activities will take place. This included:

- Conducting a desk-top investigation of the project area; and
- A visit to the proposed project area.

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; and
- Provide guideline measures to manage any impacts that might occur during the proposed project's construction and implementation phases.

1.2.2 Assumptions and Limitations

The investigation has been influenced by the following:

- It is assumed that the description of the proposed project, provided by the client, is accurate;
- It is assumed that the public consultation process undertaken as part of the Environmental Impact Assessment is sufficient and that it does not have to be repeated as part of the HIA;
- It is assumed that the information contained in existing databases, reports and publications is correct;
- 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;
- The vegetation cover encountered during a site visit can have serious limitations on ground visibility, obscuring features (artefacts, structures) that might be an indication of human settlement.

2. LEGISLATIVE FRAMEWORK ---

2.1 Background

HIAs 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 NHRA (Section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority, subject to the provisions of Section 38(8) of the NHRA.

The NHRA, Section 38, contains requirements 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 NHRA 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. PROJECT DESCRIPTION

4.1 Site location

This project area is located approximately 20km southeast of the Mahikeng CBD in the Ngaka Modiri Molema District Municipality of North West Province (Fig. 1). For more information, please see the Technical Summary on page V above.

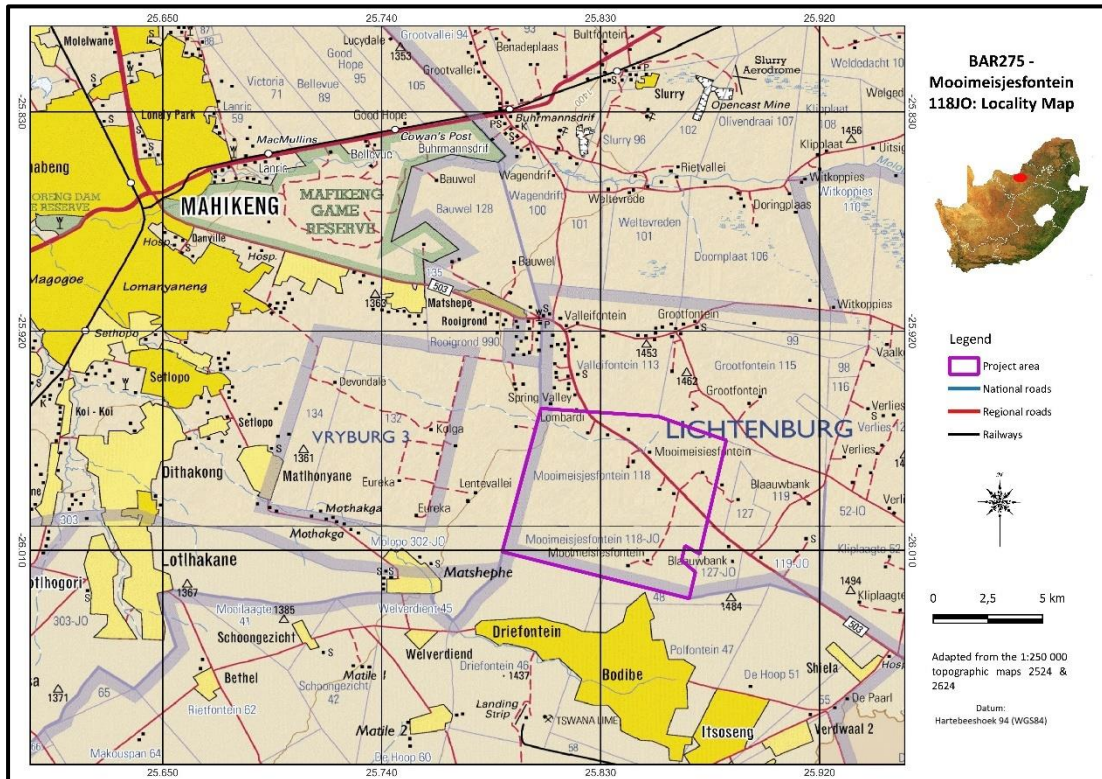


Figure 1. Location of the project area in regional context

4.2 Project description

Description of the activities that will be undertaken (from Esterhuizen 2022):

TSB 74 (Pty) Ltd has embarked on a process for applying for a Prospecting Right without bulk sampling application to prospect for Limestone (Ls) & Manganese Ore (Mn) near Mahikeng on various portions of the farm Mooimeisjesfontein 118, Registration Division: JO, North-West Province. The property is located approximately 23 km from Mahikeng. These portions are preferred due to the site's possible mineral resources.

TSB 74 (Pty) Ltd requires a prospecting right without bulk sampling in terms of NEMA and the Mineral and Petroleum Resources Development Act to prospect for minerals mentioned above within the Ditsobotla Local Municipality, North West Pprovince.

Access road

Access will be obtained from existing gravel roads off the R503 tar road. Where no roads are roads may be created.

Water Supply

This is a prospecting right application without bulk sampling. It is envisaged that small amounts of water will be utilized to be used as dust suppression & for the cooling of equipment

If water uses under section 21 a-k of the NWA are triggered, a Water Use Licence Application (WULA) must be lodged with the department of Water & Sanitation (DWS).

Ablution

Chemical toilets shall be used, no French drains and pits shall be permitted.

Storage of dangerous goods

During the prospecting activities, limited quantities of diesel and fuel, oil and lubricants if any will be stored on site. These goods should be placed in a bunded area one and a half times the volume of the total amount of goods to be stored. Less than 30 cubic metres of dangerous good will be stored on site.

Description of planned non-invasive activities:

Phase 1 - Site Visit

The applicant will appoint a geologist to conduct the site visit. It is foreseen that more than one site visit will be conducted. The purpose of the site visit shall be to familiarize the parties of the area including the topography and the general geology before invasive prospecting activities shall be commenced with.

During the site visit, the applicant shall assess the roads, the infrastructure that may be used and if it will be necessary to construct any infrastructure needed for the prospecting activities. From a site visit much more details shall be obtained about the process to be followed to properly conduct the prospecting activities than from near desktop studies.

Site visit shall assist the applicant to make a better assessment of the prospecting work to be done during the respective phases where the prospecting work shall be commenced with and what additional equipment may be required to properly conduct the prospecting activities.

The site visit shall also assist the applicant to assess prospecting information of earlier prospecting activities. During this process the applicant shall also review all documentation that has received in relation to the geology of the area.

A site visit will be done within 90 days after the prospecting right was executed.

Phase 2 - Desktop Studies

Desktops studies would be undertaken after the site visit was done to determine the target areas including the identification of any infrastructure to be built and any potential problems that may need to be addressed during the prospecting activities.

Both these two phases will be Non-Invasive and restricted to a desktop study which will include literature survey, Interpretation of aerial photographs, satellite images and ground validation of targets.

During the desktop studies the applicant with the appointed geologist shall study all available geological information and historical data about the previous prospecting and mining activities.

It is hope that for the desktop studies, a preliminary analysis of the operating environment shall be obtained. The desktop studies may improve in project efficiency and reduced the cost by providing a clearer understanding of the challenges the prospecting activities may entail.

The desktop studies shall be finalized by the compilation and the analysis of pre-existing relevant data. The preliminary operating areas shall be identified for these studies. A working document shall be drafted by the geologist after the finalization of the desktop studies.

Description of planned invasive activities:Phase 3 - Pitting

Phase 3 of the invasive prospecting will initially consist of surface limestone and manganese sampling on a regular grid over areas that have been defined as limestone bearing outcrop at the surface. The samples will have to be taken from the surface and in some instances pitting to penetrate the wind-blown sand that is common in this area. This may involve digging a small shallow hole (<2m deep) to sample the limestone and manganese bedrock. The hole will be rehabilitated immediately after the sample has been taken. The sample lines will be traversed by foot so no new tracks will be formed by the field vehicles. The samples will be analysed for their calcium carbonate content. The data will be interpreted, and an anomaly map developed of the most prospective areas.

These pits will be positioned as determined by the geologist and after the geologist has assessed information obtained from the earlier prospecting activities.

A trial pit / test pit or inspection pit investigation is a highly effective way of obtaining data on the sub surface soil and rock conditions which underlie a prospecting sight. It allows for the various soils and rock types to be locked, the soil to be sampled and a preliminary assessment to be made.

To dig the pits, the applicant shall make use of the systems of the appointed geologist.

The applicant shall at the end of the pitting process have locked the pits with the following information:

- A description of the soil and rock types from ground level to the base of the pits;
- Record of rock head depth and refusal depth, a list of where the samples will be taken, a record of where ground water seepage will be recorded;
- A general note of the geologist and conditions in the vicinity of the test pit.

Description of pre-feasibility studies phase 4: pre-feasibility studies

The prospecting activities will be conducted to determine the limestone and manganese resource. The non-invasive prospecting activities will consist of a preliminary Economic Assessment (PEA) of the limestone and manganese deposit. In this study the mine plan for a 10-year life-of-mine will be developed including the crushing and transport of the product to end users in the area. If this assessment is positive the Company will apply for a Mining right.

The project geologist, Dr. D.T Vermaak, shall monitor the program and consolidate and process the data and amend the program depending on the results received after each phase of prospecting. The DMR shall be updated of any amendments made. This shall be a continuous process throughout the prospecting work program.

Each physical phase of prospecting shall be followed by desktop studies involving interpretation and modeling of all data gathered. These studies will determine the manner in which the work programme is to be proceeded with in terms of the activity, quantity, resources, expenditure and duration.

A GIS data base will be constructed capturing all the exploration data.

All data shall be consolidated and processed to determine the limestone and manganese resource on the property

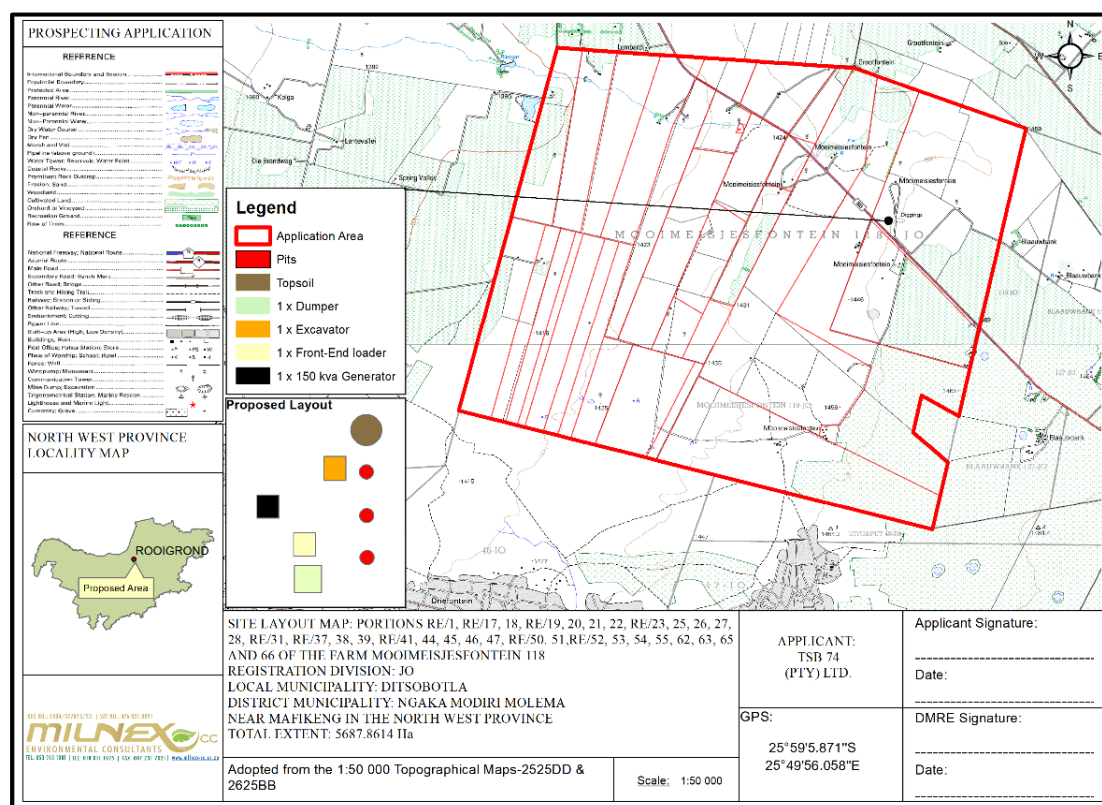


Figure 2. Layout of the proposed project
(Map supplied by Milnex)

5. STUDY APPROACH AND METHODOLOGY

5.1 Extent of the Study

This survey and impact assessment cover all facets of cultural heritage located in the project area, including the power line corridors, as presented in Section 4 above and illustrated in Figures 1 & 2.

5.2 Methodology

5.2.1 Pre-feasibility assessment

The objectives of this review were to:

- Gain an understanding of the cultural landscape within which the project is located;
- Inform the field survey.

5.2.1.1 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 11.

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

5.2.1.2 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 11.

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

5.2.1.3 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.
 - According to the SAHRIS Database (<https://sahris.sahra.org.za>) there are no sites of National significance (Grade I) located in larger region of the project area.
 - SAHRA (<https://sahris.sahra.org.za>) identify only tree sites of Provincial significance (Grade II), within 20km from the project area:
 - Historic Cattle Dip at Elandsputte, near Bakerville;
 - Kanonkopje in Mafikeng;
 - Fort Eloff, Old Imperial Reserve, Mafikeng.

5.2.1.4 Other sources

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

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

5.2.1.5 Results

The results of the above investigation are presented in Table 1 and Figure 3 below – see list of references in Section 11 – and can be summarised as follows:

- Stone Age tools, dating to the MSA occur as low-density scatters on the banks of natural pans and streams in the larger region;
- Rock engravings dating to the Later Stone Age are known to occur to the west, north and east of the project area;
- Stone walled sites dating to the Late Iron Age are known to occur far to the north and northwest of the project area;
- Historic structures, inclusive of buildings, monuments and bridges, occur mostly in an urban environment, although they also occur sporadically on farms;
- Formal burial sites, occur in an urban setting, with a number of informal ones occurring sporadically throughout the countryside.
-

Based on the above assessment, the probability of cultural heritage sites, features and objects occurring in the study area is considered to be possible but low.

Table 1: Pre-Feasibility Assessment

| Category | Period | Probability | Reference |
|------------------|------------------------------|-------------|-----------------------------------|
| Landscapes | | | |
| Natural/Cultural | | None | Aerial photographs; Historic maps |
| Early hominin | Pliocene – Lower Pleistocene | | |
| | Early hominin | None | - |
| Stone Age | Lower Pleistocene – Holocene | | |

| | | | |
|-----------------|-------------------------------|------|--|
| | Early Stone Age | Low | |
| | Middle Stone Age | Low | Heritage Atlas Database |
| | Later Stone Age | Low | Heritage Atlas Database |
| | Rock Art | Low | Heritage Atlas Database |
| Iron age | Holocene | | |
| | Early Iron Age | None | - |
| | Middle Iron Age | None | - |
| | Late Iron Age | Low | Boeyens (2000); Heritage Atlas Database; Huffman (2007) |
| Colonial period | Holocene | | |
| | Contact period/Early historic | None | Breutz (1955); Lye (1975); Lye & Murray (1980) |
| | Recent history | Low | Pelser (2014); Van Schalkwyk (2019, 2022); Van Vollenhoven & Pelser (2008) |
| | Industrial heritage | Low | Heritage Atlas Database |

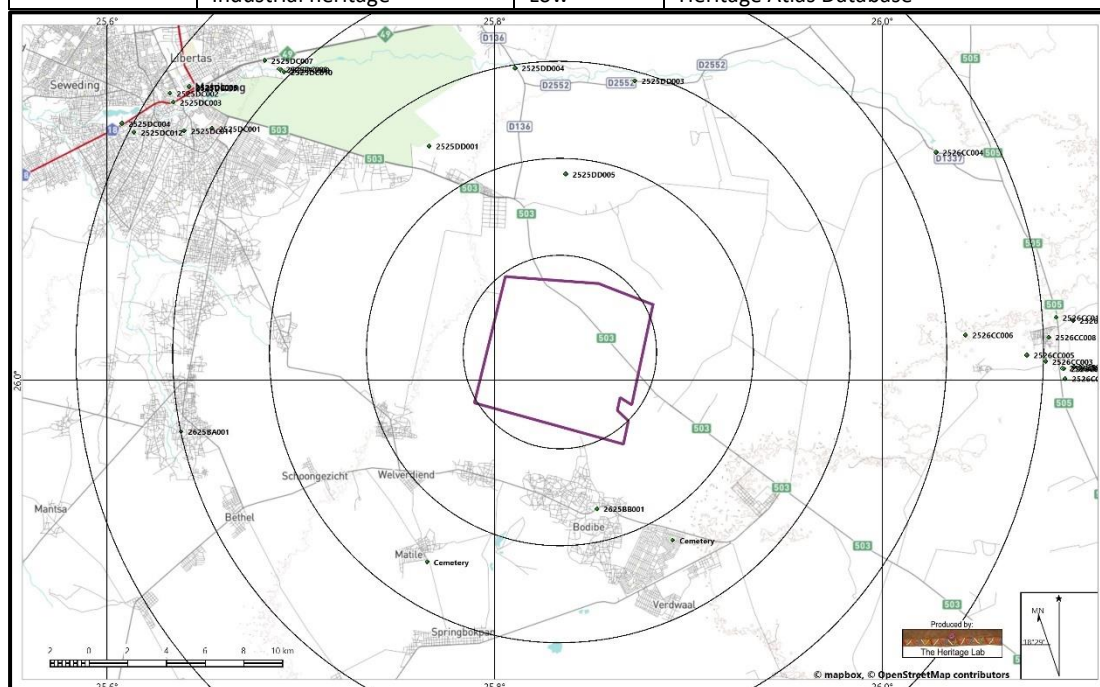


Figure 3. Location of known heritage sites and features in relation to the project area (Circles spaced at 3km: heritage sites = coded green dots)

5.2.2 Field survey

The site was visited on 17 and 20 April 2023.

Two factors played a role in conducting the survey:

- The dense vegetation cover encountered over much of the project area obscured ground visibility (Fig. 4); and
- Some areas were not accessible due to the fact that the owners could not be traced/contacted; sections in possession of the Dept of Agriculture, Land Reform and Rural Development, could not be accessed due to no contact details; and some gates were locked with owners not responding to telephone calls.



Figure 4. The high and dense vegetation cover encountered across much of the project area

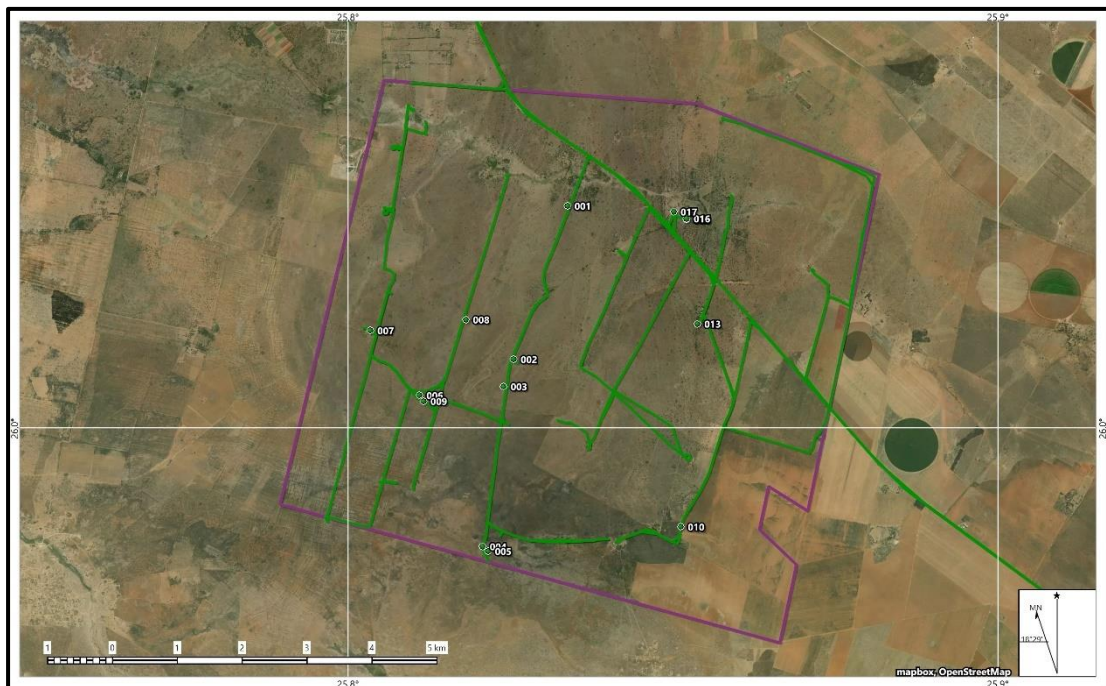


Figure 5. Map indicating the track log of the field survey
(Site = purple polygon; track log = green line)

5.2.3 Documentation

All sites, objects and structures that were identified are documented according to the general minimum standards accepted by the archaeological profession. Coordinates of individual localities are determined by means of the *Global Positioning System* (GPS) and plotted on a map. This information is added to the description to facilitate the identification of each locality. Map datum used: Hartebeeshoek 94 (WGS84).

The track log and identified sites were recorded by means of a Garmin Oregon 550 handheld GPS device. Photographic recording was done by means of a Canon EOS 550D digital camera. Geo-rectifying of the aerial photographs and historic maps was done by means of a professional software package: ExpertGPS.

6. DESCRIPTION OF THE AFFECTED ENVIRONMENT

6.1 Natural Environment

The original vegetation in the larger project area is classified as Carletonville Dolomite Grassland, a grassland biome falling in the Dry Highveld Grassland Bioregion (Fig. 6). However, over much of the project area, this has been impacted on by agricultural activities.

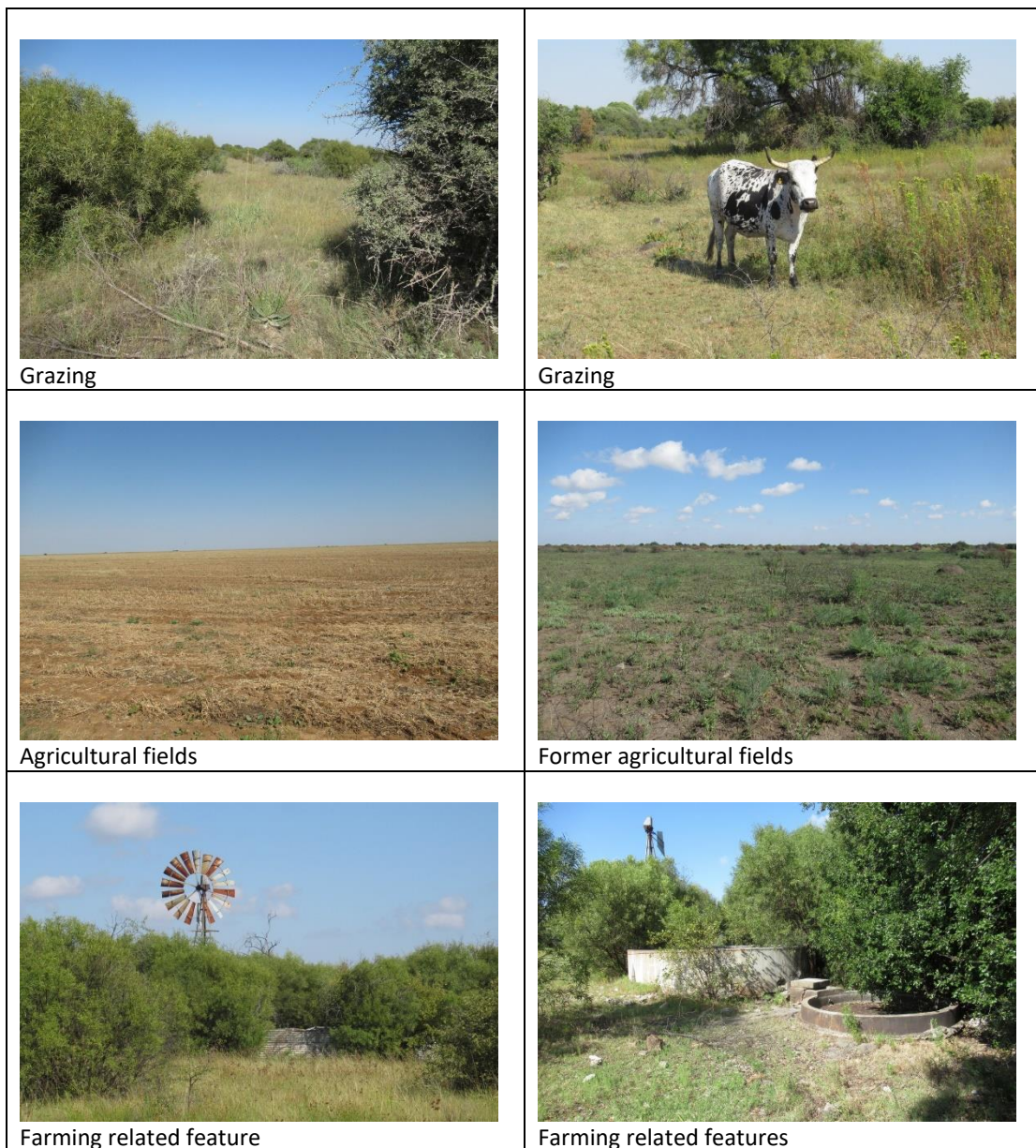


Figure 6. Views over the project area illustrating the different type of past and present activities

The geology of the area is made up of dolomite, subordinate chert, minor carbonaceous shale, limestone and quartzite of the Malmani Subgroup of the Chunispoort Group of the Transvaal Supergroup.

The Palaeontological Sensitivity Map (<http://www.sahra.org.za/sahris/map/palaeo>) indicate that most of the project area (Fig. 7) has a high sensitivity of fossil remains to be found, and therefore a field assessment and protocol for finds is required.

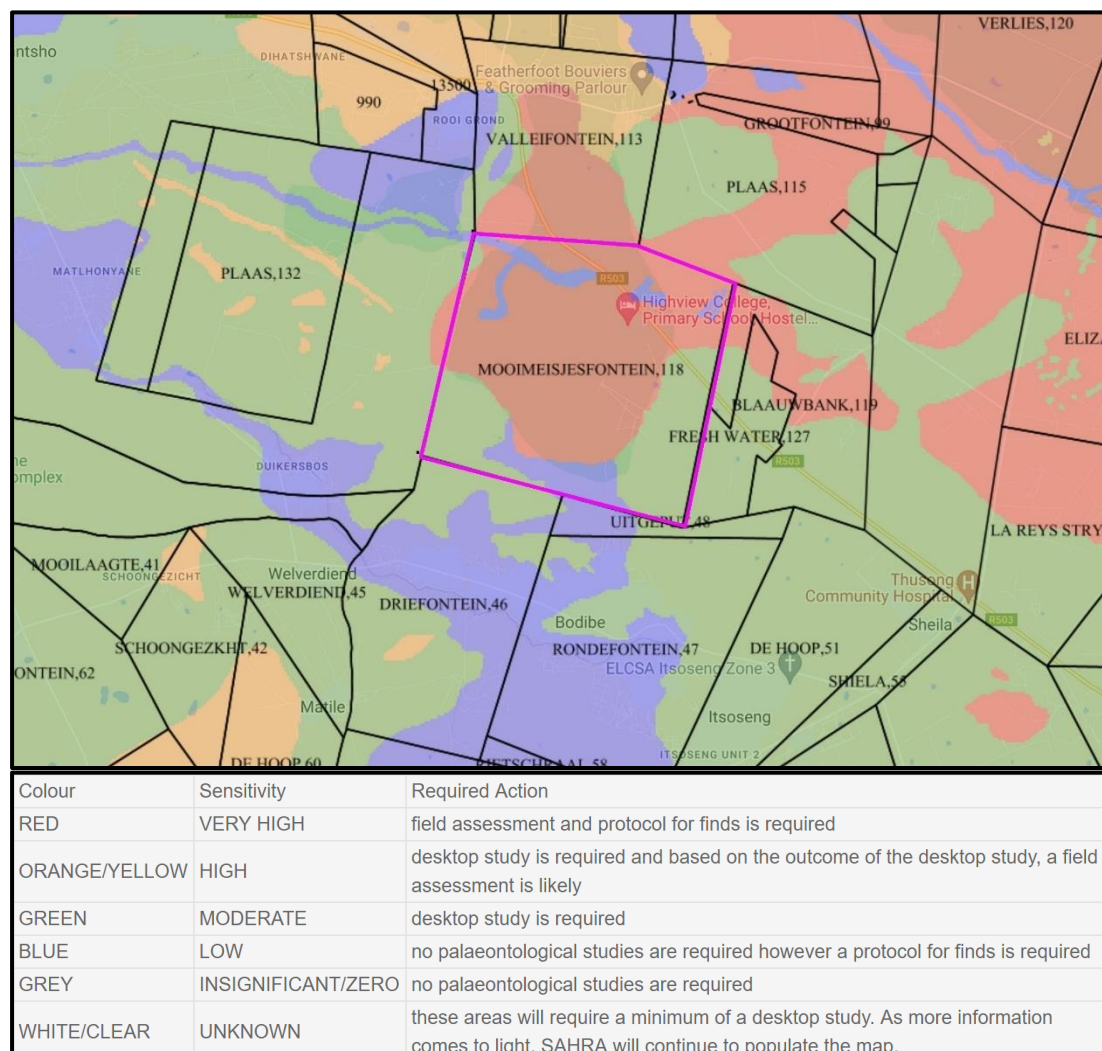


Figure 7. The Palaeontological sensitivity of the project area

6.2 Cultural Landscape

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 project area, within the context of their historic, aesthetic, scientific and social value, rarity and representivity.

The cultural landscape qualities of the larger region essentially consist of two components. The first is a rural area in which the human occupation is made up of a very limited pre-colonial element (Stone Age and Iron Age). The second component is an urban landscape dating to the colonial period.

6.2.1 Stone Age

Very little is known about the Stone Age settlement in the region. Stone tools are known to occur in a low density on the banks of some of the rivers as well as at the foot of outcrops and small hills. These mostly date to the Earlier Stone Age as well as to the Middle Stone Age and include typical points, blades and rectangular flakes.

Late Stone Age (LSA) people had even more advanced technology than the MSA people and therefore succeeded in occupying even more diverse habitats. Some sites are known to occur in the region. These are mostly open sites located near river and pans. For the first time we also 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. Some sites containing rock engravings occur in the larger geographic region.

6.2.2 Iron Age

Iron Age people started to settle in southern Africa c. AD 300, with one of the oldest known sites at Broederstroom south of Hartebeespoort Dam dating to AD 470. 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 larger geographical area (including the study area) did not start much before the 1500s. By the 16th century things changed, with the climate becoming warmer and wetter, creating condition that allowed Late Iron Age (LIA) farmers to occupy areas previously unsuitable, for example the Witwatersrand in the region of Klipriviersberg.

Kaditshwene is a mega sized stone walled Tswana village located in the Marico District of the North-West. This site was occupied from the 18th century onwards by the Bahuruthse Boomokgatla tribe. The site was visited by the missionary John Cambell in 1815 who left a wealth of historical information about the site.

During the early decades of the 19th century, the Tswana- and Ndebele-speakers were dislodged by the Matabele of Mzilikazi. Internal strife caused Mzilikazi, a general of King Shaka, and his followers to move away from the area between the Thukela and Mfolozi River (KwaZulu-Natal). Eventually, after a sojourn in the Sekhukhuneland area, followed by a short stay in the middle reaches of the Vaal River, they settled north of the Magaliesberg. From there he moved on, settling south of what was to become the town of Zeerust, from where he and his people were driven off in 1838 by the white settlers that started to enter the larger region.

As a result of this troubled period, Tswana people concentrated into large towns for defensive purposes, e.g. Selonskraal and Shylock, both to the west of Rustenburg. Because of the lack of trees they built their settlements in stone.

The earliest Iron Age settlers who moved into the North West Province region were Tswana-speakers such as the Tlhaping, Hurutshe, Fokeng, Kgatla and Rolong. In the region of the study area, it was mostly the booRapulana and booRatlou sections of the Rolong (Breutz 1959).

6.2.3 Historic period

Many early travellers, hunters and missionaries (Burchell 1824, Campbell 1822, Smith 1834-1836 (Lye 1975), Moffat 1842 and Harris 1852) either passed through the area or close to it. Their writings leave us a tantalising description of what life was in these communities before large-scale interaction with white settlers took place.

The Mafikeng District was established in 1885 as a part of the Crown Colony of British Bechuanaland and came about in the following way. In 1882 the two settler republics of Goshen and Stelland were established in the larger region. A short while later Pres. Kruger incorporated Goshen into the South African Republic (ZAR). This alarmed the British government in the Cape colony, as they feared it would cut off the route to the north (Rhodesia) and Sir Charles Warren, with a force of 4000 men were sent to restore British control over the region. Although Warren's stay in the region was short, his actions resulted in the establishment of a number of sites and features, e.g. Kanonkoppie Fort, Warren's well, the Imperial Reserve Beacon, an ammunition store and such. By the end of 1895 the territory was annexed to the Cape Colony.

The town achieved municipal status in 1896. It is well-known for the famous 'Siege of Mafikeng', that took place during the Second South African War (1899-1902) that lasted from October 1899 to May 1900. A number of trenches and fortifications were constructed by the British to defend the town and had to withstand a number of attacks by the Republican forces. The siege was finally lifted on 17 May 1900 when a large column of British soldiers arrived from Kimberley (Kruger 1977).

The railway line between Bulawayo (Zimbabwe) and Botswana in the north, and the Cape to the south runs through Mafikeng. During the Second South African War, this line played an important role in the operation of armoured trains in the area, transporting goods, ammunition and soldiers. It therefore had to be well guarded to ensure an open line. One measure was the erection of corrugated iron blockhouses and defence works along the line. Both Kraaipan and Maritsani, as small stations, formed part of the blockhouse line between Mafikeng and Poffontein.

Soon afterwards a large concentration camp was established in which hundreds of women, children and old men were incarcerated. Many of them died here and a large cemetery dating to this infamous period is located to the southwest of the town.

Prior to 1994, the area has been part of the former Bophuthatswana Republic, where large numbers of so-called "surplus" people were resettled after being removed from "white" areas. A separate town, called Mmabatho, was developed adjacent to Mafikeng and became the capital of the so-called independent republic. It is probably this development that gave rise to the urbanization that took place in the region of the study area.

6.3 Site specific review

Although landscapes with cultural significance are not explicitly described in the NHRA, they are protected under the broad definition of the National Estate (Section 3): Section 3(2)(c) and (d) list "historical settlements and townscapes" and "landscapes and natural features of cultural significance" as part of the National Estate.

The examination of historical maps and aerial photographs help us to reconstruct how the cultural landscape has changed over time as it shows how humans have used the land.

Based on a study of old maps and aerial photographs, it is clear that the whole of the project area of the farm was originally used for agricultural purposes. Developments that took place was the establishment of the farmstead as well as some regional roads that crosses the farm. This changes with the establishment of some limestone mining in various sections of the farm.

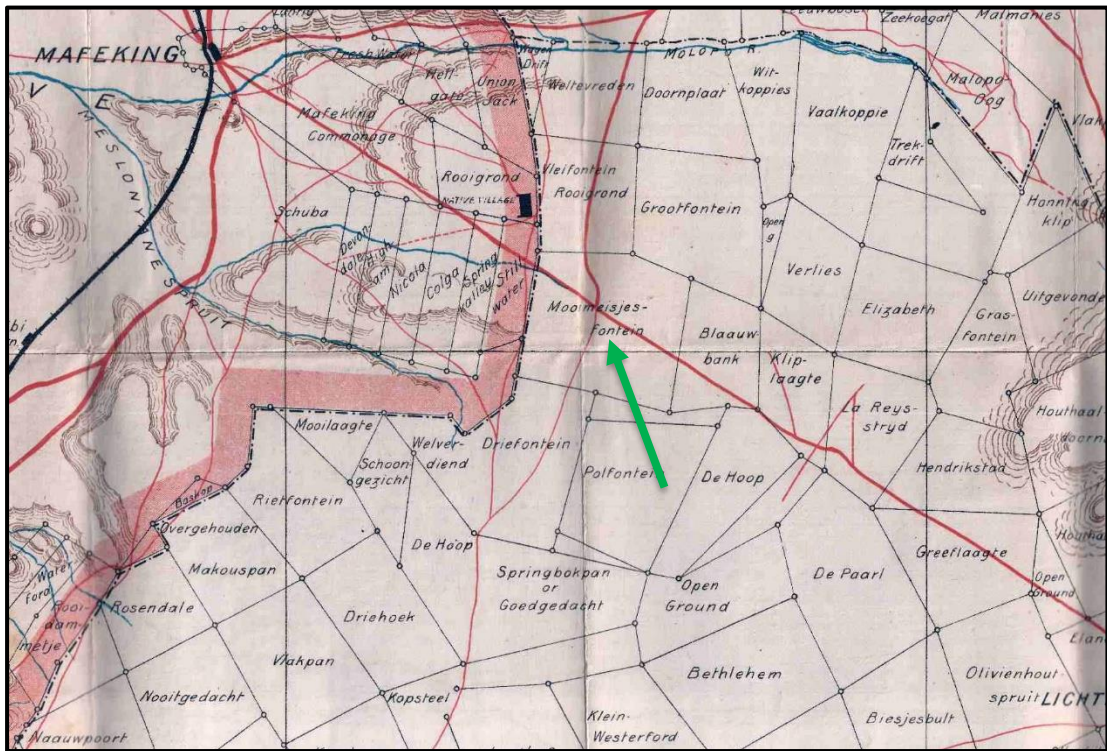


Figure 8. The project area on the 1900 military map (Map: Mafeking, 1900)
 (From: Imperial Map of South Africa – Compiled for Field Intelligence Department, Cape Town)

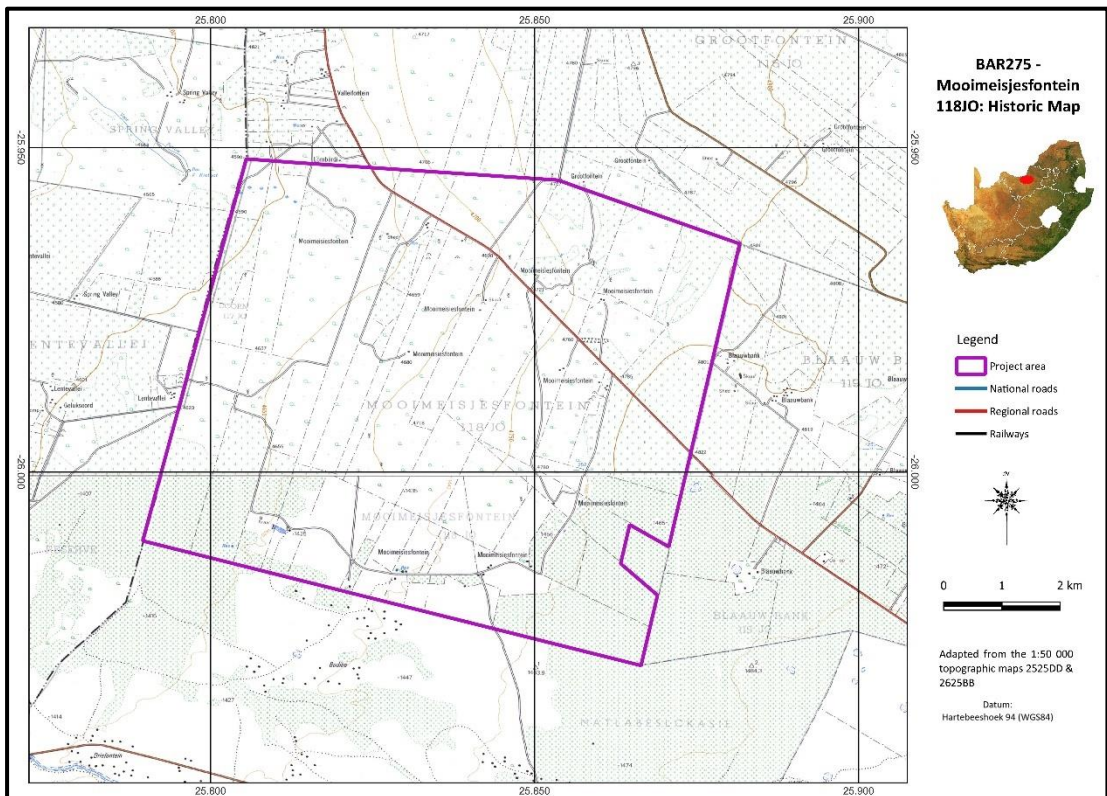


Figure 9. The project area on the 1968 version of the 1:50 000 topographic map

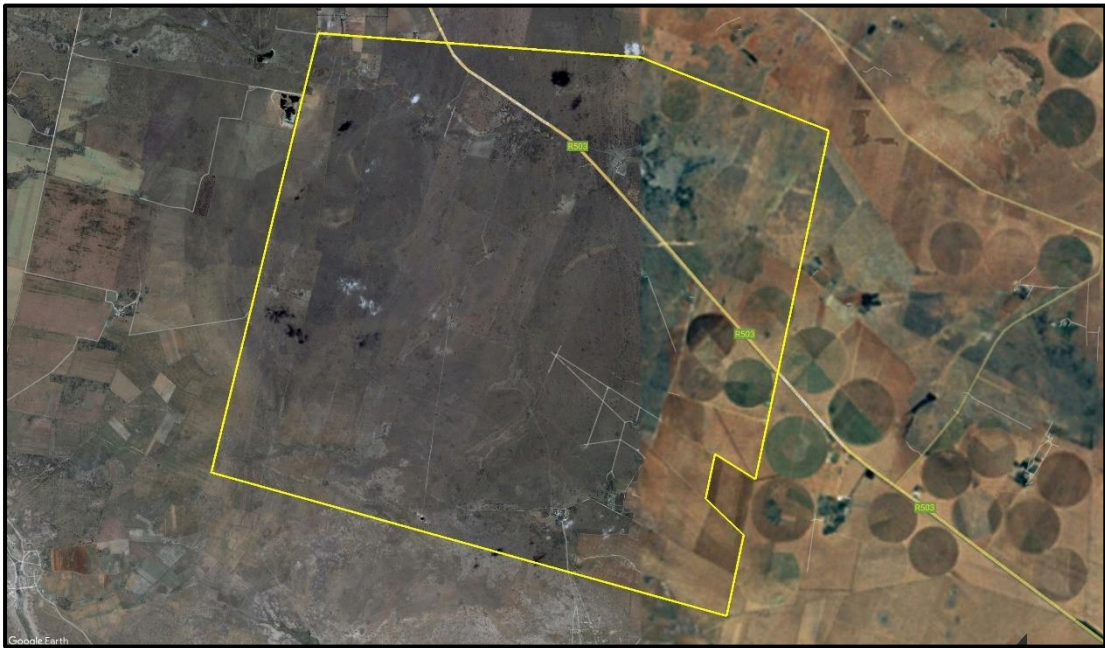


Figure 10. Aerial view of the project area dating to 2001
(Image: Google Earth)

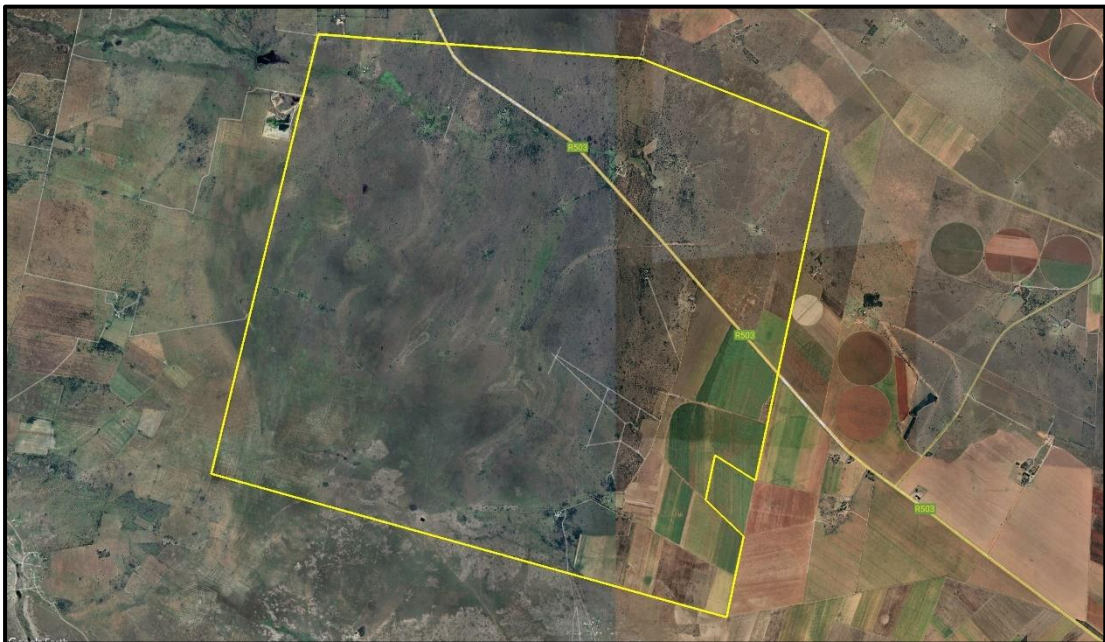
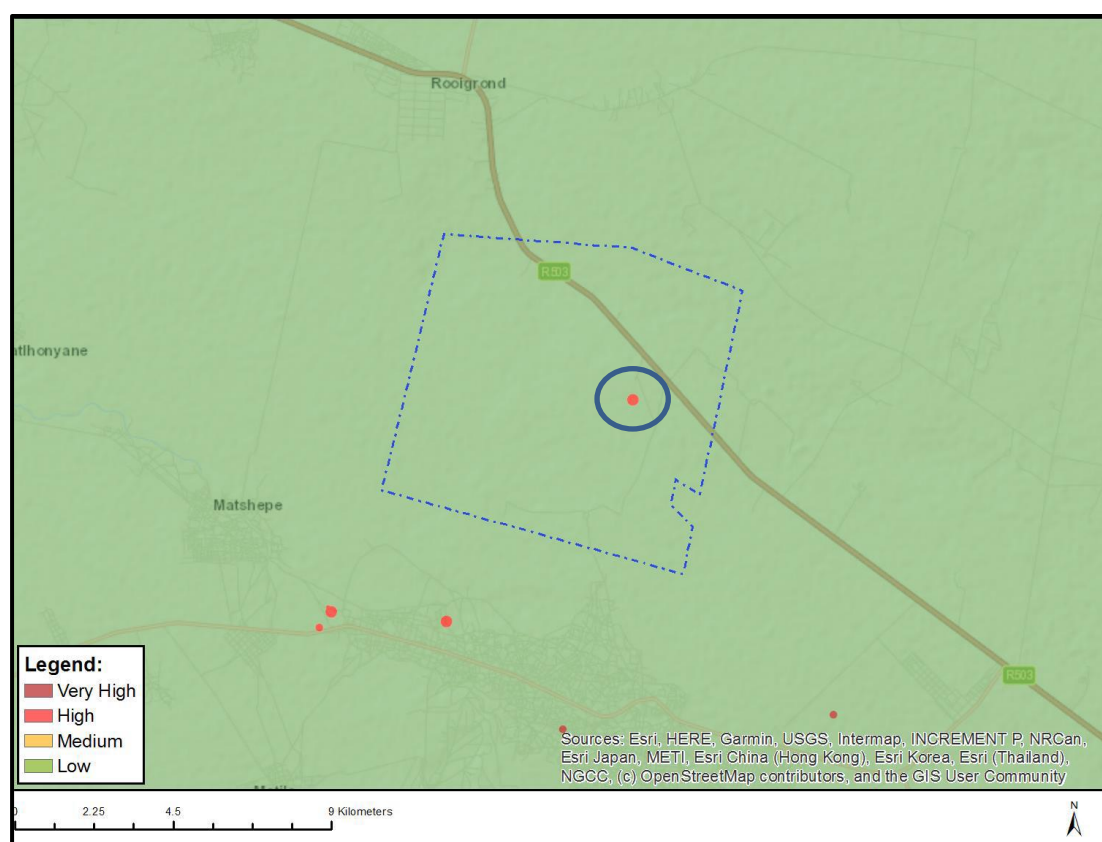


Figure 11. Aerial view of the project area dating to 2023
(Image: Google Earth)

6.4 Site Sensitivity Verification

According to the *DFFE National Screening Tool*, the project area has a low sensitivity for archaeological and cultural heritage themes, as indicated on the map in Fig. 12 below. The results of the investigation have indicated that this is the case:

- Section 5.2.1: Prefeasibility Assessment (also see Table 1 & Fig. 3);
 - Section 5.2.2 Field Survey;
 - Section 6.2: Cultural Landscape;
 - Section 6.3: Site Specific Review (also see Fig. 7 – 11).
- **It should be noted that the site circled in blue on the Screening map below is wrong as it forms part of a cluster of sites located in Mpumalanga Province (SAHRA Heritage Sites for SA: <https://sahris.sahra.org.za/allsitesfinder>). It's location here is probably the result of a typographical error when the coordinates were entered.**
 - **Consequently, based on the above explanation, the sensitivity as per the DFFE Screening Tool is adapted to be of Low Sensitivity.**



| Very high sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|-----------------------|------------------|--------------------|-----------------|
| | ✘ | | X |

Sensitivity features:

| Sensitivity | Features (s) |
|-------------|---|
| High | Within 150m of a Grade IIIa heritage site |
| Low | Low sensitivity |

Figure 12. Archaeological and cultural heritage sensitivity as per the DFFE National Screening Tool (<https://screening.environment.gov.za/screeningtool>)

7. SURVEY RESULTS

During the survey, the following sites, features and objects of cultural significance were identified in the project area (Fig. 17).

7.1 Stone Age

- No sites, features or objects of cultural significance dating to the Iron Age were identified in the project area.

7.2 Iron Age

- No sites, features or objects of cultural significance dating to the Iron Age were identified in the project area.

7.3 Historic period



| NHRA Category | | Graves, Cemeteries and Burial Grounds - Section 36 |
|--|---|--|
| 7.3.1. Type: Burial site. Farm: Mooimeisjesfontein 118JO Coordinates: S 25,98558; E 25,85374 | | |
| Description: A small informal burial site with two or three graves marked only with stone cairns. The site is very overgrown with grass and weeds, which makes it difficult to determine the full extent of the site. | | |
| Significance of site/feature | Generally protected 4A: High/medium significance. | |
| Reasoned opinion: Burial sites are viewed as having high emotional and sentimental value. However, mitigation is possible if proper procedures have been followed. | | |
| References: - | | |
|  | |  |

Figure 13. Overview of the burial site and one of the graves

| NHRA Category | | Graves, Cemeteries and Burial Grounds - Section 36 |
|--|---|--|
| 7.3.2. Type: Burial site. Farm: Mooimeisjesfontein 118JO. Coordinates: S 25,97102; E 25,85209 | | |
| Description: A formal burial site with five graves with headstones, as well as a number that are only marked with stone cairns. The marked graves are all members of the Holder Family, and it is taken that they were former landowners. | | |
| Significance of site/feature | Generally protected 4A: High/medium significance. | |
| Reasoned opinion: Burial sites are viewed as having high emotional and sentimental value. However, mitigation is possible if proper procedures have been followed. | | |
| References: - | | |



Figure 14. Views over the burial site

| NHRA Category | Structures older than 60 years - Section 34 |
|---|--|
| 7.3.3. Type: Farm: Mooimeisjesfontein 118JO. Coordinates: S 25,99051; E 25,82548 | |
| 7.3.4. Type: Farm: Mooimeisjesfontein 118JO. Coordinates: S 25,99425; E 25,82394 | |
| 7.3.5. Type: Farm: Mooimeisjesfontein 118JO. Coordinates: S 25,99586; E 25,81191 | |
| 7.3.6. Type: Farm: Mooimeisjesfontein 118JO. Coordinates: S 25,98652; E 25,80434 | |
| 7.3.7. Type: Farm: Mooimeisjesfontein 118JO. Coordinates: S 25,98499; E 25,81813 | |
| 7.3.8. Type: Farm: Mooimeisjesfontein 118JO. Coordinates: S 26,01382; E 25,84931 | |
| 7.3.9. Type: Farm: Mooimeisjesfontein 118JO. Coordinates: S 25,97003; E 25,85009 | |
| Description: Various structures, all either former houses or farming related features. Most of the structures have been stripped of all recyclable material and it is only the walls that remains. Based on the materials used for building of the structures it can be determined that they are not very old. This is confirmed by a study of old maps and aerial photographs which indicates that those structures that can be seen are not very old, dating to the last 30 to 40 years. | |
| Significance of site/feature | Generally protected 4B: Medium significance - Should be recorded before destruction. |
| Reasoned opinion: It represents the remains of a way of life that is becoming rare as farming areas are increasingly being abandoned and people moving to settle in adjacent towns. | |
| References: - | |

| | |
|---|--|
|  | |
| 7.3.3 | |



7.3.4



7.3.4



7.3.5



7.3.5



7.3.6



7.3.6



7.3.7



7.3.7



Figure 15. Views over the old structures

| NHRA Category | Structures older than 60 years - Section 34 |
|---|--|
| 7.3.10. Type: Limestone mine Farm: Mooimeisjesfontein 118JO. Coordinates: S 26,01715; E 25,82145 | |
| Description: Remains of an old lime mining operation. A few ruined structures occur adjacent to a large and deep excavation. A number of smaller lime excavation sites occur all over the area. These are signified by shallow excavations and rock dumps. | |
| Significance of site/feature | Generally protected 4B: Medium significance - Should be recorded before destruction. |
| Reasoned opinion: It represents the remains of a way of life that is becoming rare as farming areas are increasingly being abandoned and people moving to settle in adjacent towns. | |
| References: - | |





Figure 16. Views over the old lime quarry and some of the smaller activities

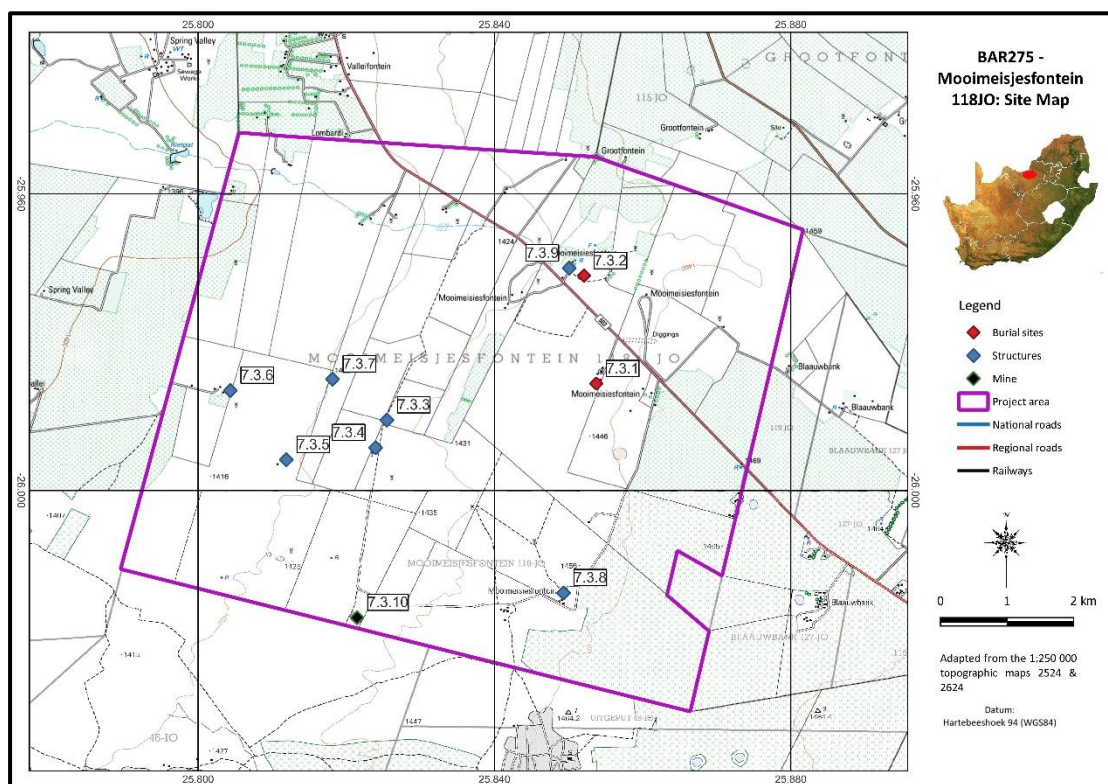


Figure 17. Location of heritage sites in the project area

8. IMPACT ASSESSMENT RATINGS AND MITIGATION MEASURES

8.1 Impact assessment

Heritage impacts are categorised as:

- Direct or physical impacts, implying alteration or destruction of heritage features within the project boundaries;
- Indirect impacts, e.g. restriction of access or visual intrusion concerning the broader environment;
- Cumulative impacts that are combinations of the above.

Heritage impacts are categorised as:

- Direct or physical impacts, implying alteration or destruction of heritage features within the project boundaries;
- Indirect impacts, e.g. restriction of access or visual intrusion concerning the broader environment;
- Cumulative impacts that are combinations of the above.

Impact analysis of cultural heritage resources under threat of the proposed development, is based on the present understanding of the development and is summarised in Table 2 below:

Table 2: Calculation of the impact on the identified heritage features

| 7.3.1 -7.3.2. Type: Burial site | | |
|---|---------------------|-----------------|
| Impact assessment | | |
| These sites are located inside the project area. Due to their location, it might be impacted on by the proposed prospecting activities. | | |
| | Without mitigation | With mitigation |
| Extent | Site (1) | Site (1) |
| Duration | Permanent (5) | Permanent (5) |
| Intensity (Magnitude) | Low (4) | Low (1) |
| Probability | Highly probable (4) | Improbable (2) |
| Significance | Medium (40) | Low (14) |
| Status (positive or negative) | Negative | Neutral |
| Reversibility | Non-reversible | Non-reversible |
| Irreplaceable loss of resources? | Yes | No |
| Can impacts be mitigated | Yes | |
| Cumulative impact: Loss of a limited number of similar features in the larger landscape. | | |

| 7.3.3 – 7.3.9. Type: Built features | | |
|--|--------------------|-----------------|
| Impact assessment | | |
| These feature are located inside the project area. Due to their location, it might be impacted on by the proposed prospecting activities. However, as all of the sites have been vandalised with all usable material having been removed; as well as the fact that most are not older than 60 years, their significance in viewed to be low. | | |
| | Without mitigation | With mitigation |
| Extent | Site (1) | Site (1) |
| Duration | Permanent (5) | Permanent (5) |
| Intensity (Magnitude) | Low (1) | Low (1) |
| Probability | Probable (2) | Improbable (2) |
| Significance | Medium (14) | Low (14) |
| Status (positive or negative) | Neutral | Neutral |
| Reversibility | Non-reversible | Non-reversible |
| Irreplaceable loss of resources? | Yes | No |
| Can impacts be mitigated | Yes | |
| Cumulative impact: Loss of a singular feature in the larger landscape. | | |

| 7.3.10. Type: Old lime mine | | |
|---|--------------------|-----------------|
| Impact assessment | | |
| This feature is located close to the border of the project area. Due to its location, it might be impacted on by the proposed prospecting activities. Industrial heritage is usually not given much attention during impact assessments and in this manner information contributing the the developments in the larger region is ignored. | | |
| | Without mitigation | With mitigation |

| | | |
|--|---------------------|----------------|
| Extent | Site (1) | Site (1) |
| Duration | Permanent (5) | Permanent (5) |
| Intensity (Magnitude) | Low (4) | Low (1) |
| Probability | Highly probable (4) | Improbable (2) |
| Significance | Medium (40) | Low (14) |
| Status (positive or negative) | Neutral | Neutral |
| Reversibility | Non-reversible | Non-reversible |
| Irreplaceable loss of resources? | Yes | No |
| Can impacts be mitigated | Yes | |
| Cumulative impact: Loss of a singular feature in the larger landscape. | | |

8.2 Mitigation measures

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

7.3.1- 7.3.3 Type: Burial sites

Mitigation

(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.

- If it is decided to retain the burial sites, it should be fenced off permanently by means of a wire fence or brick wall, with a buffer zone of at least 100m.

Requirements: In the event of an impact occurring on the identified burial sites, a permit for mitigation and/or destruction must be obtained from SAHRA/PHRA prior to any work being carried out.

- The appropriate steps to take are indicated in Section 9 of the report, as well as in the **Management Plan: Burial Grounds and Graves, with reference to general heritage sites**, in the Addendum, Section 12.5.

7.3.3. – 7.3.9. Type: Old structures

Mitigation

(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 to ensure that no undetected heritage/remains are destroyed.

Requirements: None

7.3.10. Type: Old limestone mine

Mitigation

(2) Archaeological investigation: 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 document the site (map and photograph) and analyse the recovered material to acceptable standards.

- This option should be implemented when it is impossible to avoid impacting on an identified site or feature.

Requirements: In the event of an impact occurring on the identified site or feature, a permit for mitigation and/or destruction must be obtained from SAHRA/PHRA prior to any work being carried out.

9. MANAGEMENT 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 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.

9.1 Objectives

- Protection of archaeological, historical and any other site or land considered being of cultural value within the Project Area 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, so 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 (ECO) 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 ECO 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 NHRA, Section 51(1).

9.2 Control

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

- A person or entity, e.g. the ECO, should be tasked to take responsibility for the maintenance heritage sites.
- 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 3A: 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 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 & the Contractor | During construction only |
| Monitoring | See discussion in Section 9.2 above | | |

Table 3B: 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. Additional construction / development 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 | | |

9.3 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 sites, features or objects of cultural heritage significance occur in the project area, and therefore relevant permits would be required from SAHRA or the PHRA if there are any impacts on them.

- If heritage features are identified during construction, as stated in the management recommendations, these finds would have to be assessed by a specialist, after which a decision will be made regarding the application for relevant permits.

10. CONCLUSIONS AND RECOMMENDATIONS

Milnex 189 CC Environmental Consultants was contracted by *TSB 74 (Pty) Ltd* as the independent environmental consultant to undertake the Basic Assessment Report (BAR) process for the proposed prospecting right without bulk sampling for the prospecting of limestone (Ls) and manganese ore (Mn) near Mahikeng on various portions of the farm Mooimeisjesfontein 118, registration division: JO, North West Province.

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.

The cultural landscape qualities of the region essentially consist of a rural area in which the human occupation is made up of a limited Stone Age occupation. This was followed much later by Tswana-speaking agro-pastoralist that settled to the north on the study region. They were soon followed by a

colonial (farmer) component, which gave rise to the development of small villages and towns that dot the larger landscape. The final transformation was brought about by the development of infrastructure in the region, such as roads and railway lines.

Identified sites

During the survey the following sites, features or objects of cultural significance were identified.

- 7.3.1: An informal burial site with two or three graves marked only with stone cairns. The site is much overgrown with grass and trees.
- 7.3.2: A formal burial site with five graves with headstones, as well as a number that are only marked with stone cairns. The marked graves are all members of the Holder Family, and it is taken that they were former landowners.
- 7.3.3 – 7.3.9: Various structures, all either former houses or farming related features. Most of the structures have been stripped of all recyclable material and it is only the walls that remains. Based on the materials used for building of the structures it can be determined that they are not very old. This is confirmed by a study of old maps and aerial photographs which indicates that those structures that can be seen are not very old, dating to the last 30 to 40 years.
- 7.3.10: Remains of an old lime mining operation. A few ruined structures occur adjacent to a large and deep excavation. A number of smaller lime excavation sites occur all over the area. These are signified by shallow excavations and rock dumps.

Limitations encountered

- The dense vegetation cover encountered over much of the project area obscured ground visibility; and
- Some areas were not accessible due to the fact that the owners could not be traced/contacted; sections in possession of the Dept of Agriculture, Land Reform and Rural Development, could not be accessed due to no contact details; and some gates were locked with owners not responding to telephone calls.

Impact assessment and proposed mitigation measures

Impact analysis of cultural heritage resources under threat of the proposed development, is based on the present understanding of the development:

| Site No. | Site type | NHRA category | Field rating | Impact rating: Before/After mitigation |
|---|---------------------------------------|---------------|---|--|
| 7.3.1 - 7.3.2 | Graves, Cemeteries and Burial Grounds | Section 36 | Generally protected 4A: High/medium significance. | Medium (40) Low (14) |
| Mitigation: (1) Avoidance/Preserve: A minimum buffer of 100m must be established around the burial sites for the duration of the prospecting operations. | | | | |

| Site No. | Site type | NHRA category | Field rating | Impact rating: Before/After mitigation |
|---|--------------------------------|---------------|---|--|
| 7.3.3 – 7.3.9 | Structures older than 60 years | Section 34 | Generally protected 4B: Medium significance | Low (14) Low (14) |
| Mitigation: 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 No. | Site type | NHRA category | Field rating | Impact rating: Before/After mitigation |
|---|--------------------------------|---------------|---|--|
| 7.3.10 | Structures older than 60 years | Section 34 | Generally protected 4B: Medium significance | Medium (40) Low (14) |
| Mitigation: (2) Archaeological investigation: This option should be implemented when it is impossible to avoid impacting on an identified site or feature. | | | | |

Legal requirements

The legal requirements related to heritage specifically are specified in Section 3 of this report.

- The legal requirements related to heritage specifically are specified in Section 3 of this report. For this proposed project, the assessment has determined that sites, features or objects of cultural heritage significance occur in the project area, and therefore relevant permits would be required from SAHRA or the PHRA if there are any impacts on them.
- If heritage features are identified during construction, as stated in the management recommendation, these finds would have to be assessed by a specialist, after which a decision will be made regarding the application for relevant permits.

Reasoned opinion as to whether the proposed activity should be authorised:

- From a heritage point of view, it is recommended that the Proposed Project be allowed to continue on acceptance of the proposed mitigation measures and the conditions presented below.

Conditions for inclusion in the environmental authorisation:

- The Palaeontological Sensitivity Map (<http://www.sahra.org.za/sahris/map/palaeo>) indicate that most of the project area (Fig. 6) has a high sensitivity of fossil remains to be found, and therefore afield assessment and protocol for finds is required.
- Should archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made. The appropriate steps to take are indicated in Section 9 of the report, as well as in the **Management Plan: Burial Grounds and Graves, with reference to general heritage sites**, in the Addendum, Section 12.5.

11. REFERENCES

11.1 Data bases

Chief Surveyor General
Environmental Potential Atlas, Department of Environmental Affairs and Tourism.
Heritage Atlas Database, Pretoria
National Archives of South Africa
SAHRA Archaeology and Palaeontology Report Mapping Project (2009)
SAHRIS Database

11.2 Literature

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Van Vollenhoven, A.C. & Pelsler, A.J. 2008. *A report on a cultural heritage impact assessment for the proposed development of Marang Estates located in Mafikeng, Northwest Province*. Pretoria: Unpublished report.

Van Schalkwyk, J.A. 2010. *Heritage impact report for the proposed 88kV power line from Watershed Substation, Lichtenburg, to the Mmabatho Substation, North West Province*. Pretoria: Unpublished report 2010/JvS/055.

Van Schalkwyk, J.A. 2019. *Phase 1 Cultural Heritage Impact Assessment: the proposed development of a filling station on Erf 7526 in Mmabatho Unit 15 within the Mahikeng Local Municipality, North West Province*. Pretoria: Unpublished report 2019/JvS/066.

Van Schalkwyk, J.A. 2022. *Phase 1 Cultural Heritage Impact Assessment: The Dihatshwane Substation and loop in loop out (LiLo) 88 kV power line, Mafikeng Local municipality, North West Province*. Pretoria: Unpublished report 2022/JvS/058.

11.3 Archival sources, maps and aerial photographs

1: 50 000 Topographic maps

Google Earth

Aerial Photographs: Chief Surveyor-General

<http://artefacts.co.za>

<http://vmus.adu.org.za>

<http://www.sahra.org.za/sahris/map/palaeo>

12. 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

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 4A: High/medium significance - Should be mitigated before destruction | |
| 6. | Generally protected 4B: Medium significance - Should be recorded before destruction | |
| 7. | Generally protected 4C: 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.

| Nature: | | |
|----------------------------------|--------------------|-----------------|
| | Without mitigation | With mitigation |
| Construction Phase | | |
| Probability | | |
| Duration | | |
| Extent | | |
| Magnitude | | |
| Significance | | |
| Status (positive or negative) | | |
| Operation Phase | | |
| Probability | | |
| Duration | | |
| Extent | | |
| Magnitude | | |
| Significance | | |
| Status (positive or negative) | | |
| Reversibility | | |
| Irreplaceable loss of resources? | | |
| Can impacts 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 to ensure that no undetected heritage/remains are destroyed.

4. Management Plan: Burial Grounds and Graves, with reference to general heritage sites

1. Background

Burial grounds and graves are viewed as having high emotional and sentimental value and accordingly always carry a high cultural heritage significance rating. Best practice principles dictate that they should preferably be preserved *in situ*. It is only when it is unavoidable and the site cannot be retained, that the graves should be exhumed and relocated after all due processes had been successfully implemented.

For retaining the burial sites and graves, the SAHRA Burial Grounds and Graves (BGG) unit requires a detailed Heritage Management Plan (HMP) clearly outlining a grave management plan that provides details of grave management and access protocols. In addition, the HMP should also provide detailed change finds protocol or procedures in the case of the identification human remains.

The primary aim of the Burial Grounds and Graves Management Plan therefore is to assist in the implementation of mitigation measures to reduce potential negative impacts through the modification of the proposed project development design.

2. Legal Implications

South Africa's unique and non-renewable archaeological and palaeontological heritage sites, inclusive of burial grounds and graves, are 'generally' protected in terms various laws and by-laws:

- Nationally: National Heritage Resources Act, No. 25 of 1999;

In addition, the following also refer specifically to burial grounds and graves:

- Human Tissue Act, No. 65 of 1983;
- Section 46 of the National Health Act, No. 61 of 2003;
- Removal of Graves and Dead Bodies Ordinance (Ordinance No. 7 of 1925)
- By-laws:
 - R363 of 2013: Regulations Relating to the Management of Human Remains
 - Local Authorities Notice 34 of 2017, Cemeteries, Crematoria and Funeral Undertakers By-Laws as per Provincial Gazette of 7 April 2017 No. 2800.

In terms of the National Heritage Resources Act, No. 25 of 1999, graves and burial grounds are divided into the following categories:

- 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);

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

- Destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- Destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

- Bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Marked graves younger than 60 years do not fall under the protection of the NHRA (Act No. 25 of 1999) with the result that exhumation, relocation and reburial can be conducted by a register undertaker. This will include logistical aspects such as social consultation, purchasing of plots in cemeteries, procurement of coffins, etc.

Marked graves older than 60 years are protected by the NHRA (Act No. 25 of 1999) as a result an archaeologist must be in attendance to assist with the exhumation and documentation of the graves. Unmarked graves are by default regarded as older than 60 years and therefore also falls under the NHRA (Act No. 25 of 1999, Section 36).

3. Management Plan

3.1 Definitions

Heritage Site Management: Heritage site management is the control of the elements that make up physical and social environment of a site, its physical condition, land use, human visitors, interpretation, etc. Management may be aimed at preservation or, if necessary, at minimizing damage or destruction or at presentation of the site to the public. A site management plan is designed to retain the significance of the place. It ensures that the preservation, enhancement, presentation and maintenance of the place/site is deliberately and thoughtfully designed to protect the heritage values of the place (from: *SAHRA Site management plans: guidelines for the development of plans for the management of heritage sites or places*).

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

3.2 Heritage management plan (HMP)

3.2.1 Phase 1: Site identification and verification

This part of the process usually take place during the Phase 1 heritage impact assessment and is discussed in Section 7 of the main body of the HIA.

Locality and identification:

- The location of the identified site (e.g. farm name, GPS coordinates) is given;
- Determination of the number of graves and the date range of the burials.

The physical condition of the site is also described in terms of:

- The condition of the burial grounds and graves, e.g. has the headstones been pushed over;
- The approximate number of graves and the date range of the graves;
- Is the site fenced off;
- Is there access to the site, in the case it is fenced off;
- Has the site recently been visited by next of kin or other individuals;
- The status of the vegetation cover on the site.

3.2.2 Phase 2: Determination of the potential impact on the identified sites

Identified impacts on the graves and burial sites are calculated and discussed in Section 8.1 of the main body of the HIA.

The second phase consists of information that should be collected in order to develop the conservation management plan. This includes:

- The needs of the client;
- External needs, i.e. the next of kin;
- Requirements for the maintenance of the cultural significance.

From the above an evaluation is made of the impact of the proposed development project on the status of each of the identified burial grounds and graves.

3.2.3 Phase 3: Mitigation measures

Proposed mitigation measures for each identified burial ground or graves are developed and is discussed in the main body of the HIA (Section 8.2).

The main aim of the mitigation measures, as far as is feasible, is to remove any physical, direct impacts on the burial grounds and graves.

- A minimum buffer of 20m must be established around known burial grounds and graves for the duration of the mining/construction phase. This is relevant where the burial site has been static for a considerable period of time and has already been fenced off;
- In cases the burial site is still in use and might expand in the future and is not fenced off, a minimum buffer of 100m should be implemented;
- In the case where blasting takes place during mining activities, the buffers should increase correspondingly to 200m;
- The buffers must be clearly demarcated, and signage placed during the construction/mining period;
- Access to the graves should be allowed to the descendants. However, they should adhere to the managing authorities' conditions regarding permissions, appointments, health, environment and safety.
- The areas with graves should be kept clean and the grass short so that visitors may enter it without any concerns.
 - However, this might create problems as in many cases not all graves are well-marked, carrying the possibility that they might inadvertently be damaged and therefore contractors/land-owners might not be will to accept this responsibility. The descendants should therefore be held responsible for the maintenance of the site.
- Sites that are located close to access/haul roads might need additional mitigation. All personnel and especially drivers of heavy haul vehicles should be informed where these sites are, and they should keep to the speed limits (usually 30km/h on mining sites);
- Any change in the development layout, future development plans, condition of the grave sites and individual graves should immediately be reported to the heritage inspector/SAHRA for guidance;
- Relevant strategies should be put in place for the managing of the burial grounds and graves after the closure of the mine or the completion of the project. It needs to be stated that the land-owner or developer always will be responsible for the preservation of the site. Therefore, measures should be put in place to ensure that the site is handled appropriately after closure, which, in essence would entail the continuation measures already put in place;

3.3 Management strategy

A general approach to this is set out in Section 9 of the main body of the HIA report and is equally applicable to general heritage sites and feature as well as to burial grounds and graves.

A strategy for the implementation of the conservation plan is developed:

- A heritage practitioner should be appointed to develop a heritage induction program and conduct training for the ECO, as well as team leaders, in the identification of heritage resources and artefacts;
- Known sites must be demarcated and fenced off and signage placed during the construction/mining period;
- This management strategy should be applicable to the construction, operation as well as the post operation phases of the development/mining activities.
- Relevant strategies should be put in place for the managing of the burial grounds and graves after the closure of the mine or the completion of the project. It needs to be stated that the land-owner or developer always will be responsible for the preservation of the site. Therefore, measures should be put in place to ensure that the site is handled appropriately after closure, which, in essence would entail the continuation measures already put in place;
- The managing authority should be able to regularly inspect the sites in order to ensure that construction and other such activities do not damage the graves;
 - SAHRA and the relevant PHRA are the competent authorities responsible for the regulation of the HMP in terms of the national legislative framework. The NHRA states:

36(1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make the necessary arrangement for their conservation as they see fit.

4. Relocation of graves

Once it has been decided to relocate particular graves, the following steps should be taken:

- Notices of the intention to relocate the graves need to be put up at the burial site for a period of 60 days. This should contain information where communities and family members can contact the developer/archaeologist/public-relations officer/undertaker. All information pertaining to the identification of the graves needs to be documented for the application of a SAHRA permit. The notices need to be in at least 3 languages, English, and two other languages. This is a requirement by law.
- Notices of the intention needs to be placed in at least two local newspapers and have the same information as the above point. This is a requirement by law.
- Local radio stations can also be used to try contact family members. This is not required by law, but is helpful in trying to contact family members.
- During this time (60 days) a suitable cemetery need to be identified close to the development area or otherwise one specified by the family of the deceased.
- An open day for family members should be arranged after the period of 60 days so that they can gather to discuss the way forward, and to sort out any problems. The developer needs to take the families requirements into account. This is a requirement by law.
- Once the 60 days has passed and all the information from the family members have been received, a permit can be requested from SAHRA. This is a requirement by law.
- Once the permit has been received, the graves may be exhumed and relocated.
- All headstones must be relocated with the graves as well as any items found in the grave.

Information needed for the SAHRA permit application:

- The permit application needs to be done by an archaeologist.
- A map of the area where the graves have been located.
- A survey report of the area prepared by an archaeologist.
- All the information on the families that have identified graves.

- If graves have not been identified and there are no headstones to indicate the grave, these are then unknown graves and should be handled as if they are older than 60 years. This information also needs to be given to SAHRA.
- A letter from the landowner giving permission to the developer to exhume and relocate the graves.
- A letter from the new cemetery confirming that the graves will be reburied there.
- Details of the farm name and number, magisterial district and GPS coordinates of the gravesite.

5. Defining next of kin

An extensive Burial Grounds and Graves Consultation process must be implemented in accordance with NHRA Regulations to identify bona fide next of kin and reach agreement regarding relocation of graves.

Anthropologically speaking three type of kin are distinguished: patrilineal (called *agnates*), maternal (*uterine* kin) and kin by marriage (*affines*). All three categories have their important part to play in social life.

In terminologies used in the west the close-knit group of family members is clearly marked off from other kin - family terms, such as 'father', 'mother', 'brother' and 'sister' are never used for aunts, uncles and cousins.

In many non-western societies this is not the case and the family is merged with the wider group of kin and the family terms are applied much more widely. Next of kin for the Southern Bantu-language speakers is based on a classificatory system where a man uses a term to refer to three significant relatives – his father, his father's brother and his mother's brother.

For example, a man (A) may call his father's brother (i.e. uncle) also a father. All of that latter person's children will then also be called his (A) brothers and sisters, prohibiting him from marrying any of them (however, *vide* preferred marriages). In Anthropology this system is referred to as the Iroquois system (with reference to the North American Indian tribe where it was first described). When a man calls his father's brother 'father' a suffix is usually added to indicate whether he is an elder or junior brother (e.g. *(ra)mogolo* = elder brother; *(ra)ngwane* = junior brother; also *(ra)kgadi* = younger sister; *(ma)lome* = mother's brother)(SePedi terminology is used).

Consultants having to relocate graves might find it confusing if they do not have insight into this complex system of kinship, where, for example a single individual can have more than one father or mother.

5. Chance find procedures

A general approach to this is set out in Section 9 of the main body of the HIA report and is equally applicable to general heritage sites and features as to burial grounds and graves.

- A heritage practitioner should be appointed to develop a heritage induction program and conduct training for the ECO, as well as team leaders, in the identification of heritage resources and artefacts;
- An appropriately qualified heritage consultant should be identified to be called upon if any possible heritage resources or artefacts are identified;
- Should an archaeological site or cultural material be discovered during construction (or operation), the area should be demarcated, and construction activities be halted;
- The qualified archaeologist will then need to come out to the site and evaluate the extent and importance of the heritage resources and make the necessary recommendations for mitigating the find and impact on the heritage resource;
- The contractor therefore should have some sort of contingency plan so that operations could move elsewhere temporarily while the material and data are recovered;
- Should the heritage consultant conclude that the find is a heritage resource protected in terms of the NHRA (1999) Sections 34, 35, 37 and NHRA (1999) Regulations (Regulation 38, 39, 40), he or she should notify SAHRA and/or the relevant PHRA;
- Based on the comments received from SAHRA and/or the PHRA, the heritage consultant would present the relevant terms of reference to the client for implementation;
- Construction/Operational activities can commence as soon as the site has been cleared and signed off by the archaeologist.

6. Curriculum vitae

Johan Abraham van Schalkwyk

Personal particulars

Date of birth: 14 April 1952
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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.

Latest publications

Van Schalkwyk, J.A. 2020. A cognitive approach to ordering of the world: some case studies from the Sotho- and Tswana-speaking people of South Africa. In Whitley, D.S., Loubser, J.H.N. & Whitelaw, G. (eds.) *Cognitive Archaeology. Mind, Ethnography, and the Past in South African and Beyond*. London: Routledge. Pp. 184-200.

Namono, C. & Van Schalkwyk, J.A. 2020. Appropriating colonial dress in the rock art of the Makgabeng plateau, South Africa. In Wingfield, C., Giblin, J. & King, R. (eds) *The pasts and presence of art in South Africa: Technologies, Ontologies and Agents*. University of Cambridge: McDonald Institute for Archaeological Research. Pp. 51-62.