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HERITAGE IMPACT ASSESSMENT SCOPING REPORT

TOWNSHIP ESTABLISHMENT ON PORTION 181 OF THE FARM TWEEFONTEIN

Prepared for:
Khosa Development Specialists
Suite 13; Marshall Chambers; 130 Marshall Street; Polokwane; 0699

Survey conducted and report prepared by:
Richard R Munyai for Vhufa Hashu Heritage Consultants
September 2006

Updated and Revised by:
by Frans Roodt
March 2022

CONTENTS

SECTION A – Original Report 2006

SECTION B – Updated Report 2022

BACKGROUND TO THE ARRANGEMENT OF THE REPORT

The updated and revised report consists of **Section A**; namely the original report from 2006, and **Section B**; additional information necessary to comply with the latest minimum requirements of SAHRA.

In 2008, an Environmental Authorisation as well as a Township Establishment was approved by LEDET and the Polokwane Municipality. The original heritage impact assessment scoping report (Section A) was part of this process. However, the development did not continue due to economic constraints. Futuremark Pty Ltd has subsequently purchased the land in order to reinvigorate the project and to provide further amenities that include a proposed hospital for the area.

The aim of the updated report is to verify the status quo of the original report and to describe any changes that may or may not have impacted on the terrain and finds. This entailed a new site survey and consulting the SAHRIS database for heritage surveys in the area after 2006.

SECTION A – Original Report 2006

1. INTRODUCTION

The application constitutes an activity, which may potentially be harmful to heritage resources that may occur in the demarcated area. The National Heritage Resources Act (NHRA - Act No. 25 of 1999) protects all structures and features older than 60 years (Section 34); archaeological sites and material (Section 35); and graves and burial sites (Section 36). In order to comply with the legislation, the Applicant requires information on the heritage resources, and their significance that may occur in the demarcated area. This will enable the Applicant to take pro-active measures to limit the adverse effects that the development could have on such heritage resources.

In terms of the National Heritage Resources Act (1999) the following are of relevance:

- **Historical remains**
  Section 34(1) No person may alter or demolish any structure* or part of a structure, which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

- **Archaeological remains**
  Section 35(4) No person may, without a permit issued by the responsible heritage resources authority -
  (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite

- **Burial grounds and graves**
  Section 36 (3)(a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority-
  (c) destroy, damage, alter, exhume, 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

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

- **Culture resource management**
  Section **38(1)** Subject to the provisions of subsection (7), (8) and (9), any person who intends to undertake a development[1] must at the very earliest stages of initiating such

[1] **'development'** means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in a change to the nature, appearance or physical nature of a place**, or influence its stability and future well-being, including-
(a) construction, alteration, demolition, removal or change of use of a place or a structure at a place;
(e) any change to the natural or existing condition or topography of land, and
(f) any removal or destruction of trees, or removal of vegetation or topsoil;

development notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Vhufa Hashu Heritage Consultants was contracted by Khosa Development Specialists to undertake a heritage scoping survey of a Township establishment in Portion 181 of the farm Tweefontein 915LS. The aim was to determine the presence or not of heritage resources such as archaeological and historical sites and features, graves and places of religious and cultural significance, and to submit appropriate recommendations with regard to the cultural resources management measures that may be required at affected sites / features.

The report thus provides an overview of the heritage resources that may occur in the demarcated area where development is intended. The significance of the heritage resources was assessed in terms of criteria defined in the methodology section. The impact of the proposed development on these resources is indicated and the report recommends mitigation measures that should be implemented to minimize the adverse impact of the proposed development on these heritage resources.

2. METHOD

2.1 Sources of information

The sources of information were the field reconnaissance, interviews with local residents and literary sources mentioned below.

A scoping survey of the demarcated development area was undertaken on foot. Standard archaeological practices for observation were followed. As most archaeological material occurs in single or multiple stratified layers beneath the soil surface, special attention was given to disturbances, both man-made such as roads and the Geo-tech test pits, as well as those made by natural agents such as burrowing animals and erosion. Locations of graves and historical remains were recorded by means of a GPS.

2.2 Limitations

The scoping survey was thorough and no limitations were encountered. However, the discovery of previously undetected heritage remains must be reported to the Heritage Resources Authority or the archaeologist and may require further mitigation measures.

2.3 Categories of significance

The significance of archaeological sites is ranked into the following categories.

***structure** means any building, works, device or other facility made by people and which is fixed to the ground."

****place** means a site, area or region, a building or other structure ..."

• No significance: sites that do not require mitigation.
• Low significance: sites, which *may* require mitigation.
• Medium significance: sites, which require mitigation.
• High significance: sites, which must not be disturbed at all.

The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences.

A crucial aspect in determining the significance and protection status of a heritage resource is often whether or not the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. There are many aspects that must be taken into consideration when determining significance, such as rarity, national significance, scientific importance, cultural and religious significance, and not least, community preferences. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and mitigated in order to gain data / information which would otherwise be lost. Such sites must be adequately recorded and sampled before being destroyed. These are generally sites graded as of low or medium significance.

2.4 Terminology

- ***Early Stone Age (ESA).*** Predominantly the Acheulean hand axe industry complex dating to + 1Myr yrs – 250 000 yrs before present.

- ***Middle Stone Age (MSA).*** Various lithic industries in SA dating from ± 250 000 yrs - 30 000 yrs before present.

- ***Late Stone Age (LSA).*** The period from ± 30 000 yrs to contact period with either Iron Age farmers or European colonists.

- ***Early Iron Age (EIA).*** Most of the first millennium AD.

- ***Middle Iron Age (MIA).*** 10th to 13th centuries AD.

- ***Late Iron Age (LIA).*** 14th century to colonial period. *The entire Iron Age represents the spread of Bantu speaking peoples.*

- ***Historical.*** Mainly cultural remains of western influence and settlement from AD1652 onwards – mostly structures older than 60 years in terms of Section 34 of the NHRA.

- ***Phase 1 assessment.*** Scoping surveys to establish the presence of and to evaluate heritage resources in a given area

- ***Phase 2 assessment.*** In depth culture resources management studies, which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and

features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required.

- ***Sensitive.*** Often refers to graves and burial sites although not necessarily a heritage place, as well as ideologically significant sites such as ritual / religious places. *Sensitive* may also refer to an entire landscape / area known for its significant heritage remains.
- ***NHRA.*** National Heritage Resources Act (Act 25 of 1999)
- ***SAHRA.*** South African Heritage Resources Agency
- ***SAHRIS.*** South African Heritage Resources Information System

3. DESCRIPTION OF THE PROPOSED DEVELOPMENT AND TERRAIN

The proposed development site is situated at about 6.2km away from Polokwane and at the southern side of Polokwane-Mooketsi (R81) road. The proposed development area is currently used as grazing land. A small portion of it is residential and a car repair workshop also occurs on the property.

Figure 1. *View of the proposed development area currently used as grazing land.*

Figure 2. *View of some developments currently on site.*

4. HISTORICAL REMAINS

There are no listed monuments in the area affected by the proposed township establishment. However, we identified remains of contemporary stone house structures within the affected site (as seen in figure 3). Most of these contemporary stone house remains are located in the area earmarked for township development.

Figure 3. *Remains of a historic stone house.*

5. ARCHAEOLOGICAL AND CULTURAL SITES

Undecorated pottery remains were identified on the ground surface of the proposed development site at about hundred meters away to the south western side of the cellular mast (S23º 51’57.0” E29º 31’57.9”). However, judging from the developments and previous land use activities in the project area, it was anticipated that some archaeological resources might have been affected previously.

Figure 4. *View of undecorated pottery remains identified within the site.*

6. CEMETERIES AND BURIAL SITES

Nine graves and one possible grave were identified in the vicinity of the proposed site for township establishment. The graves are at three different sites. **Site 1** (S23º 51’47.0” E29º 31’ 45.7”) mark the unmarked isolated grave under the tree (Fig 5). **Site 2** (23º 51’48.5” E29º 31’56.6”) four graves marked with oval soil mounds (Fig 6). **Site 3** (S23º 51’ 53.1” E29º 31’58.9”) five graves; one of the graves is marked by a concrete slab and the remaining four graves are marked with stone cairns (as seen in Fig 7).

Figure 5. *View of tree which marks the grave.*

Figure 6. *Identified 4 graves marked with soil mounds.*

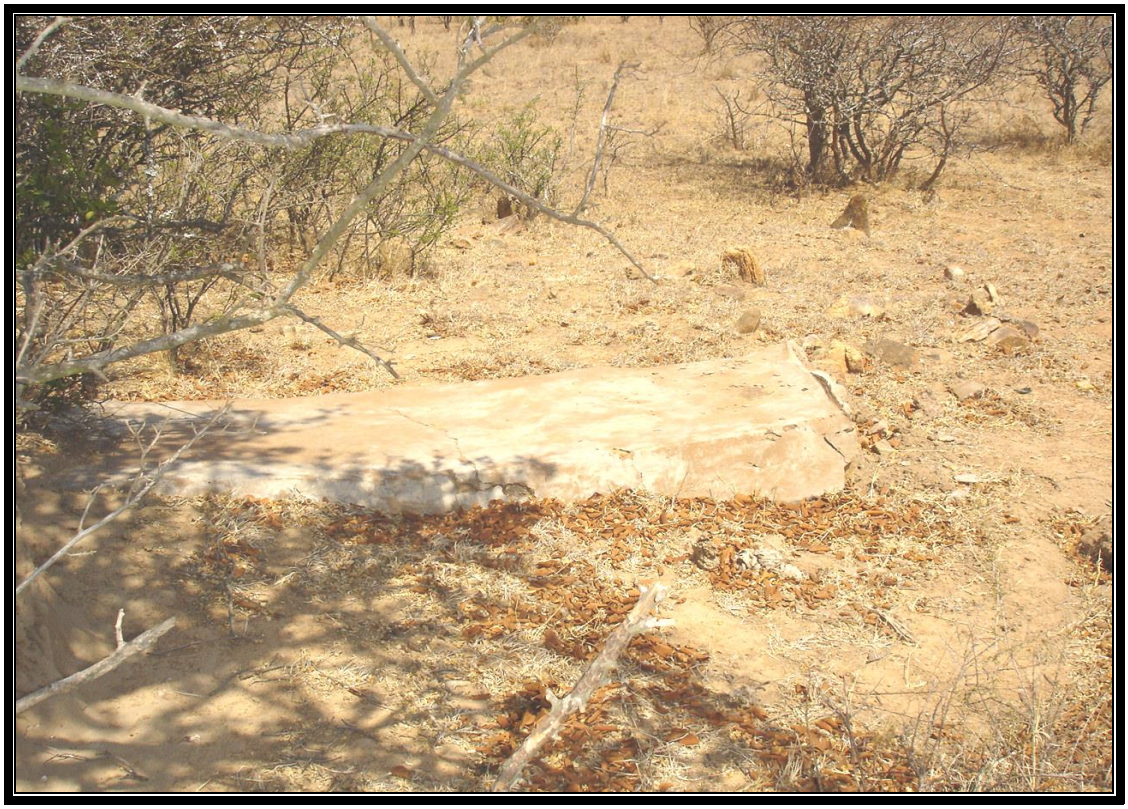

Figure 8. *View of the grave well marked with concrete slab and other 4 graves marked by stones.*

Figure 9. *View of the disturbance caused by the burrowing animals which might cause damage to the graves.*

The identified graves are located directly in the area of the proposed development site and is sensitive are classified as of high social and historical significance. These identified graves may not be disturbed or destroyed. According to Mr. Reckon Mhlongo, a worker in plot 181, the site belongs to the Machete people. He said, he became aware of such ownership when Machete people came to perform some rituals in 2004.

7. RECOMMENDATIONS

Should the graves which are located within the proposed site for township establishment be affected, they must be relocated to safe and suitable sites such as formal community graveyards or other areas in line with applicable legislations and ordinances. To fulfill the legal requirements with regards to mitigation of burial grounds and graves, we recommend that the following steps be implemented before the graves are relocated or human remains are removed:

- Consultation with individuals or communities related to the deceased,
- Consent agreement with affected families,
- Notification of the impending removals;
- Calling on relatives to claim the remains,
- Notices at the grave site and other local media,
- Satisfactory arrangements for the exhumation and re-interment,

Furthermore, the South African Heritage Resources Agency should be notified if human remains falling under the National Heritage Resources Act (Act No 25 of 1999) are accidentally uncovered during the developmental project. An archaeologist must supervise exhumations conducted under this Act. The removal must be conducted with due respect for the customs and beliefs of the affected relatives, and where requested, in the presence of relatives or community representatives.

Although, it is unlikely that any archaeological and/ or physical cultural heritage resources of significance associated with the proposed Tweefontein township establishment project will be discovered during the proposed development, nonetheless, in principle there is a probability of uncovering chance archaeological materials whenever there are earth-moving activities. A heritage monitoring program should be put in place prior to commencing construction work. Be that as it may, we further recommend that the construction team be alerted of the possibility of encountering chance archaeological or any other cultural heritage materials during the construction process.

8. CONCLUDING REMARKS

The development may thus potentially have an impact on undetected archaeological or cultural heritage resources. Therefore, a monitoring program should be developed and implemented during the construction phases.

In conclusion, we have no objection with regard to the development and recommend to the South African Heritage Resources Agency (SAHRA) to approve the project on

condition that a heritage monitoring program corresponding to the period of construction be implemented.

UNDERTAKINGS

RICHARD R MUNYAI

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Principal Investigator for Vhufa Hashu Heritage Consultants

SECTION B: UPDATED SECTION OF THE REPORT

1. INTRODUCTION

The proponent, Futuremark (Pty) Ltd, has appointed Adekite Consortium of Environmental Specialists (ACES) as the Environmental Assessment Practitioner (EAP) to assist with applying to the Competent Authority (LEDET) for Environmental Authorisation by undertaking the necessary authorisation processes. ACES in turn have appointed the author to update/revise the original heritage assessment report (Section A) to meet current SAHRA requirements. This includes consulting the SAHRIS, which was not available at the time of the original report and the use of Google Earth.

2. PROJECT DESCRIPTION

Futuremark proposes the following land uses in the total area of 19.9 ha available for development:

- Residential 1: 80 erven
- Residential 2: 138 Townhouses
- Hospital
- Community facilities (crèche)
- Roads, sidewalks and common areas
- Public open space

All roads, sidewalks, bulk services and access will be installed in phases as the development progresses.

3. BASELINE INFORMATION

Except for the general historical research by Changuion (1986) and Loubser (1994) who researched the Ndebele archaeology of the area, no other significant research was conducted in the project area. The baseline information is therefore generic.

3.1 The Stone Age

The Stone Age covers most of southern Africa and the earliest period consists of the Oldowan and Acheul artefact assemblages. Oldowan tools are regularly referred to as "choppers", and are associated with *Homo habilis*, the first true humans. In South Africa definite occurrences have been found at the sites of Sterkfontein and Swartkrans. Here they are dated to between 1.7 and 2 million years old. Bearing in mind the proximity of the Makapan's Valley palaeontological site, about 50km south-east of the project area, it is possible that they may occur in this area. This period was followed by the Acheulian technology from about 1.4 million years ago, which introduced a new level of complexity. The large tools that dominate the Acheulian artefact assemblages ranges in length from 100 - 200 mm or more. Collectively these are called bifaces because they are normally shaped by flaking on both faces. In plan view, they tend to be pear-shape and are broad relative to their thickness. Most bifaces are pointed and are classified as hand axes, but

others have a wide cutting end and are termed cleavers. The Acheulian design persisted for more than a million years and only disappeared about 250 000 years ago. Here, too the Makapan's Valley Site is referenced; especially the Cave of Hearths.

The change from Acheulian with their characteristic bifaces, hand axes and cleavers to Middle Stone Age (MSA), which are characterized by flake industries, occurred about 250 000 years ago and ended about 30 000 – 22 000 years ago. For the most part the MSA is associated with modern humans, namely *Homo sapiens*. MSA remains are found in open spaces where they are regularly exposed by erosion as well as in caves. Characteristics of the MSA are flake blanks ranging in size between 40 – 100 mm, struck from prepared cores. The striking platforms of the flakes reveal one or more facets, indicating the preparation of the platform before flake removal (the prepared core technique). Flakes showing dorsal preparation – one or more ridges which arise down the length of the flake as a result of previous removals from the core; flakes with convergent sides (laterals) and a pointed shape; and flakes with parallel laterals and a rectangular or quadrilateral shape - these can respectively be termed pointed and flake blades. Other flakes in MSA assemblages are irregular in form. The Cave of Hearths in the Makapan's Valley Site is referenced.

The change from Middle Stone Age to Later Stone Age (LSA) took place in most parts of southern Africa little more than about 20 000 years ago. It is marked by a series of technological innovations or new tools that, initially at least, were used to perform much the same tasks as had been done before, but in a different way. Their introduction was associated with changes in the nature of hunter-gatherer material culture. The innovations associated with the Later Stone Age "package" of tools include rock art – paintings and engravings, smaller stone tools (so small that the formal tools less than 25mm long are called microliths) sometimes found in the final MSA, and bows and arrows. Rock art is an important feature of the LSA and is abundant in the Waterberg and the Makgabeng. Rock art has been recorded at the nearby Bakone Malapa Museum and at Moletji, about 25 km to the north-west of the project area.

3.2 The Iron Age (Early Farming Communities)

According to the archaeological cultural distribution sequences by Huffman (2007), this area falls within the distribution area of various cultural groupings originating out of both the Urewe Tradition (eastern stream of migration) and the Kalundu Tradition (western stream of migration). The facies that may be present are:

Urewe Tradition	Kwale branch	Mzonjani facies AD 450 – 750 (EIA)
	Moloko branch	Icon facies AD 1300 - 1500 (LIA)
Kalundu Tradition	Happy Rest sub-branch	• Doornkop facies AD 750 - 1000 (EIA) • Eiland facies AD 1000 – 1300 (MIA) • Klingbeil facies AD 1000 - 1200 (MIA) • Letaba facies AD 1600 - 1840 (LIA)

The Letaba facies is associated with the Ndebele people of the Polokwane area (Loubser 1994).

Stone walled sites are common in the Polokwane area. Three different types of sites associated with stone walling are found in the area, which Loubser (1994:76) numbered as Group I, II and III sites. Stonewalled sites were normally situated on or close to rocky outcrops, due to the need for stone (Huffman 2007:33). No stonewalling is associated with the Early Iron Age (EIA) and all the stonewalled sites on the Polokwane plateau date to the Late Iron Age (LIA), from the 17th century onwards.

Group I

These sites are situated on prominent hilltops and consist of an array of sporadic walls, forming terraces, surrounding an area of relatively large enclosures in the centre. Walls were constructed of equal-sized granite blocks, or overturned builders forming a single line. Walls were inventively incorporated into the natural topography and they often appear discontinuous from above. Some terraces were formed by middens heaped up against the rocks, while others were purposefully quarried (Loubser 1994:76). This type of site appears to have been inhabited by Melora Nguni, as similar walling on the saddle of Bambo Hill, at the Bakoni Malapa Museum, is regarded as characteristic of Melora walling (Huffman pers. comm., 2007).

Group II

This group of sites is located at the base of hills or on gradual rises between valleys, generally facing north. Each site consists of orderly concentric units, with a perimeter wall around a corridor leading to a central enclosure, with smaller ones around it. Walls are mostly of quartzite, but granite and milky quartz was also used. Walls comprise two outer faces with stone and rubble infill. Large ashy deposits and dense patches of vegetation are diagnostic of this type of site (Loubser 1994:76).

Similar sites are associated with Kone along the Eastern Plateau. These sites were most likely situated there due to the fact that the area falls in the mist belt and would offer some additional moisture. These sites are named Badfontein sites by Huffman (2007:444) in reference to work conducted by Collett and there are a number of these sites depicted in rock engravings in the Lydenburg area (Maggs 1995:138).

The earliest of the Group II sites, situated along the base of hills, were built in the seventeenth century and were inhabited by Ndebele and Kone people. The first of these sites were built on rises between the valleys, dating to AD 1838, when chief Mungali and others started to settle in these areas. Most of the Group II sites in the area lasted till 1855 when they were abandoned after the Voortrekkers moved into the area (Loubser 1994:141). These sites, which occur on the gradual rises, are bigger and contain more units than the sites along the hills. It would seem that the population of the area increased, as reflected in the size of the larger settlements. There is also evidence that the sites along the hills were still occupied after the construction of the other sites by incoming groups. As elsewhere in Iron Age Africa, settlement size is linked to the power of the chief; the larger the settlement and the more units, the more powerful the chief or headman (Loubser 1994:142).

Group III
These sites are an imploded and random version of Group II sites, with the perimeter wall being scalloped and linked to a series of central enclosures by straight walls. They are found at the base of hills and on rises such as Group II sites, however, some have also been located on the top of hills. Walls are similarly constructed to Group II walls, with sparse cultural deposits such as middens (Loubser 1994:76). The Group III sites appear to have been built after 1855 when the Voortrekkers took control of the area. Areas where Group II sites were located were seldom reoccupied, most likely out of reverence for the ancestral spirits. These sites were occupied by minor headman with little real power and the site layout reflects the socio-economic situation of these groups during this time (Loubser 1994:143).

Within a radius of about six kilometres from the project area, three such Late Iron Age stonewalled sites existed. One site was situated approximately 2 km to the south-west on the farm Tweefontein 915 Ptn 154 (mitigated as a Phase 2 assessment (Roodt 2009) for the development of the Mall of the North) and another adjacent to the suburb of Sterpark on the farm Krugersburg 933 LS (author's own observation) in Polokwane. A Late Iron Age stonewalled site exists on the farm Onverwacht 914 LS about 5 km to the north-east of the project area (Roodt 2007 & 2008).

3.3 The historical landscape
Polokwane (Pietersburg) was established in 1886, although people of European descent had occupied the area since 1848 - and especially after 1867 with the collapse of the Schoemansdal town - which was located at the base of the Soutpansberg. By then most of the organised Ndebele chieftainships had relocated away from the Polokwane area to the Mokopane area. From 1867 the general area was subdivided into farms and as the town developed, so did the need for industrialisation and the development of the local mining infrastructure (Changuion 1986).

4. RESULTS OF THE FOLLOW-UP SURVEY

4.1 Palaeontology
The area falls within the gray and blue colour code of the SAHRIS Palaeontological Sensitivity Map. For the small portion that is coloured blue, a protocol for finds has been prepared for the client (see ANNEXURE A).

4.2 Stone Age remains
No Stone Age material was observed on the terrain.

4.3 Iron Age (Early Farming Communities)
No Iron Age remains were observed on the terrain.

The ceramic shards recorded in the original report were most likely discarded by farm workers who used clay pots into modern times. No archaeological remains or deposits were observed in the study area.

4.4 Grave and burial sites

During the original survey, three sites with graves were recorded on the terrain.

The original survey identified nine marked graves and one possible grave located at three different sites:

- **Site 1** (S23º 51'47.0" E29º 31' 45.7") marks the unmarked isolated grave under the tree (Fig 5).
- **Site 2** (23º 51'48.5" E29º 31'56.6") marks four graves with oval soil mounds (Fig 6).
- **Site 3** (S23º 51' 53.1" E29º 31'58.9") marks five graves; one which is marked by a concrete slab with the four remaining graves marked by stone cairns (as seen on Fig 7).

These sites were revisited in order to verify the *status quo*:

Site 1. The possible gravesite in the original report is verified. The tree still stands and a pile of quartzite stones are located under the tree (see Figs 12 & 13). It is thus highly probable that this is a grave.

Site 2. This gravesite is verified. However, since the original report was written, there had been some activity at the site and the graves had been marked with nameplates, one which is still readable. Five (5) nameplates are now marking the graves, adding another grave to the four (4) originally counted (see Fig 14 & 15). This action was the result of consultations with the Machete grave owners that took place in 2007 in preparation of the then statutory approved development. In January 2008 we had supplied a cost estimate to Kamekho Town Planners for the relocation of the graves and we were about to apply for a permit from SAHRA. However, the development was put on hold and never materialised.

Site 3. The *status quo* of the gravesite with five (5) graves is verified although it is covered in dense grass resulting in poor visibility (see Figs 16 & 17).

The graves are regarded as highly significant.

4.5 The built environment

All buildings and structures currently in use in the study area are of a modern nature and less than 60 years of age.

The foundation structures recorded in the original survey have no architectural or aesthetic value and were not regarded as significant.

5. DISCUSSION

The nature of the development and optimal use of space for the project will negatively impact on the recorded gravesites. It is therefore advisable to relocate the graves. The consultations with the known grave owners in 2007/2008 must be followed up as soon as possible to bring then on board. Their consent will be vital for the project to continue.

6. EVALUATION AND STATEMENT OF SIGNIFICANCE

6.1 Significance criteria in terms of Section 3(3) of the National Heritage Resources Act.

Significance		Rating
1.	The importance of the cultural heritage in the community or pattern of South Africa's history (Historic and political significance).	None
2.	Possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage (Scientific significance).	None
3.	Potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage (Research/scientific significance).	None
4.	Importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects (Scientific significance).	None
5.	Importance in exhibiting particular aesthetic characteristics valued by a community or cultural group (Aesthetic significance).	None
6.	Importance in demonstrating a high degree of creative or technical achievement at a particular period (Scientific significance).	None
7.	Strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (Social significance).	High (due to the graves)
8.	Strong or special association with the life and work of a person, group or organization of importance in the history of South Africa (Historic significance).	None
9.	The significance of the site relating to the history of slavery in South Africa.	None

6.2 Assessment of cultural significance or other special values because of:

6.2.1 Section 38(3) (c) An assessment of the impact of the development on such heritage resources.

The development will have an impact on the gravesites.

6.2.2 Section 38(3) (d) An evaluation of the impact of the development on heritage resources relative to the sustainable economic benefits to be derived from the development.

The development will have a negative impact on the recorded gravesites. Apart from the gravesites, no other significant heritage resources were detected within the project area.

6.2.3 Section 38(3) (e) The results of consultation with the communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources.

A public participation process is ongoing in terms of the environmental assessment process. In this particular case representatives of the Machete community will be consulted about the graves.

6.2.4 Section 38(3)(f) If heritage resources will be adversely affected by the proposed development the consideration of alternatives.

No alternatives exist.

6.2.5 Section 38(3)(g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.

Mitigation for the relocation of the recorded gravesites will be undertaken with the Machete community.

7. RECOMMEDATIONS

The recommendations of the original report in Section A are supported.

8. REFERENCES

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9. MAPS AND IMAGES FOR THE UPDATED REPORT *(Figures 10 – 16)*

Figure 10. *Google map of project area with recorded gravesites.*

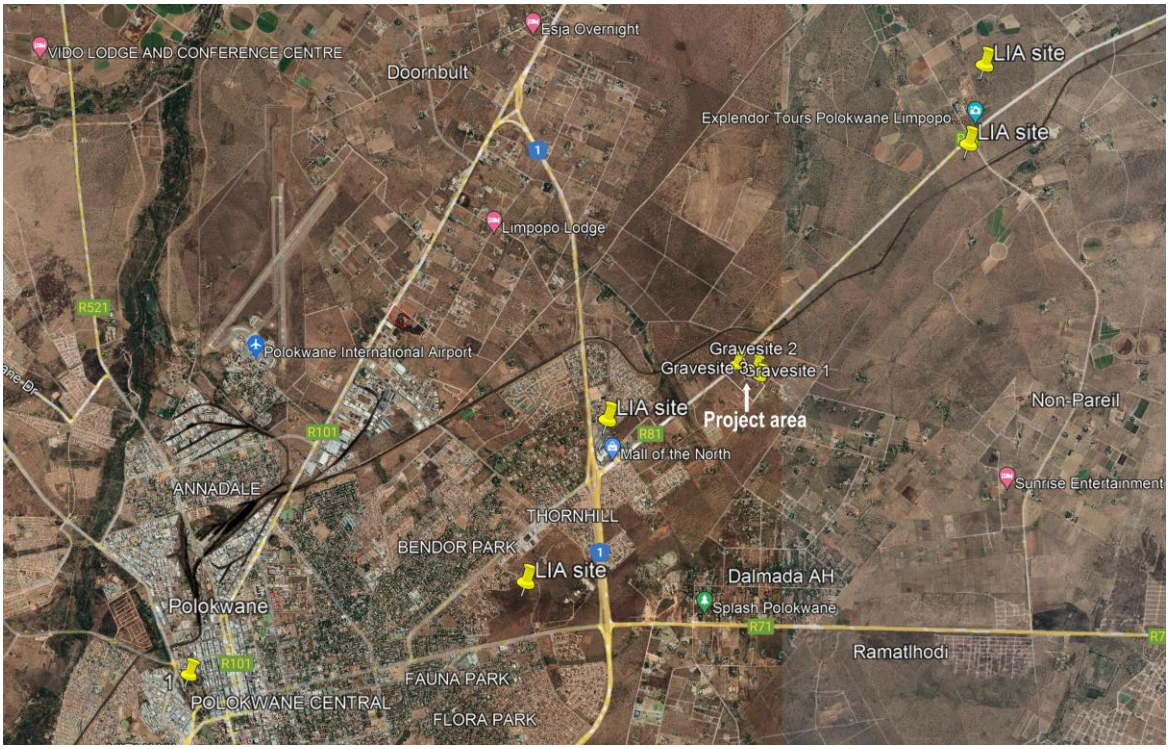

Figure 11. *Google map of project area in relation to Polokwane and LIA sites mentioned under point 3.2 above.*

Figure 12. *The tree at gravesite 1.*

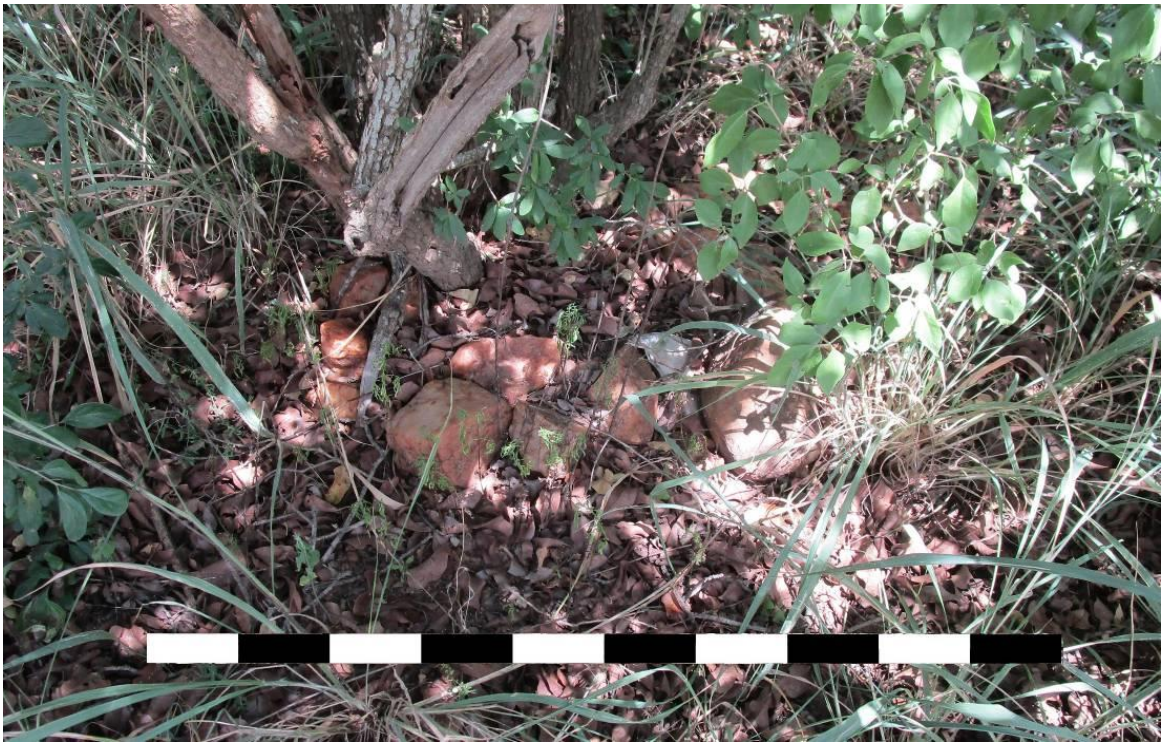

Figure 13. *Stone cairn at gravesite 1.*

Figure 14. *Gravesite 2. Note the five nameplates.*

Figure 15. *Close-up of a nameplate at gravesite 2.*

Figure 16. *A stone stacked grave at gravesite 3 (scale: 1 meter)*

Figure 17. *The arrow points to the concrete slap grave at gravesite 3.*

ANNEXURE A

PROTOCOL FOR PALAEONTOLOGICAL CHANCE FINDS

CHANCE FOSSIL FINDS PROTOCOL: Proposed development of Portion 181 of the farm Tweefontein 915 LS.	
Province & region	Polokwane Local Municipality of Capricorn District, Limpopo Province Farm: Tweefontein 915 LS Ptn 181.
Responsible Heritage Management Authority	SAHRA 111 Harrington Street, Cape Town PO Box 4637, Cape Town 8000, South Africa. Phone: +27 (0)21 462 4502. Fax: +27 (0)21 462 4509 Web: www.sahra.org.za
Rock unit(s) (see attached geological map, p3)	• A very small portion is underlain by the Mothiba Formation, the lowest unit of the Pietersburg Group, consisting of highly altered ultramafics with minor amphibolite, quartzite schist and quartz-feldspar porphyry. A Banded Iron Formation is also present in this location but is not laterally extensive. Early to Mid-Archaean (Swazian - Randian) 3.5 – 3 Ga. • Most of the terrain consists of Hout River Gneiss - Intrusive granitoids, gneisses, migmatites. Early to Late Archaean (3.6 – 2.4 Ga).
Potential fossils	• Greenstone Belts, of which the Mothiba Formation forms a part, provide samples of the oldest known crustal rocks, including minor marine and terrestrial sediments, but the rocks here are usually highly deformed and metamorphosed. • No fossils have been described from ancient Archaean rocks in Limpopo. The fossils of this period recorded elsewhere such as cyanobacteria are only visible under extreme magnification by electron microscope.
Environmental officer	**1.** Once alerted to fossil occurrence(s): alert site foreman, stop work in area immediately, safeguard site with security tape/fence/sand bags for support if necessary.
	2. Record key data while fossil remains are still in situ: • Accurate geographic location – describe and mark on site map / 1:50 000 map / satellite image / aerial photo / GPS. • Context – describe position of fossils within stratigraphy (rock layering) and depth below surface. • Photograph fossil(s) in situ with scale, from different angles, including images showing context (e.g rock layering).

Environmental officer continues

<table>
<tr><td rowspan="3">Environmental officer</td><td>3. If feasible to leave fossils in situ:
Alert Heritage Management Authority and project palaeontologist who will advise on any necessary mitigation.
Ensure fossil site remains safeguarded until clearance is given by the Heritage Management Authority for work to resume.</td><td>3. If not feasible to leave fossils in situ (emergency procedure only):
Carefully remove fossils, as far as possible still enclosed within the original sedimentary matrix (e.g entire block of fossiliferous rock).
Photograph fossils against a plain, level background, with scale.
Carefully wrap fossils in several layers of newspaper/tissue paper/plastic bags.
Safeguard fossils together with locality and collection data (including collector and date) in a box in a safe place for examination by a palaeontologist.
Alert Heritage Management Authority who will advise on any necessary mitigation.</td></tr>
<tr><td colspan="2">4. If required by Heritage Management Authority, ensure that a suitably-qualified specialist palaeontologist is appointed as soon as possible by the developer.</td></tr>
<tr><td colspan="2">5. Implement any further mitigation measures proposed by the palaeontologist and Heritage Management Authority.</td></tr>
<tr><td>Specialist palaeontologist</td><td colspan="2">Record, describe and judiciously sample fossil remains together with relevant contextual data (stratigraphy/sedimentology/taphonomy).
Ensure that fossils are curated in an approved repository (e.g museum / university / Council for Geoscience collection) together with full collection data.
Submit Palaeontological Mitigation report to Heritage Resources Authority. Adhere to best international practice for palaeontological fieldwork and Heritage Management Authority minimum standards.</td></tr>
</table>

1:250 000 Geological Series, 2328 Pietersburg.

REFERENCES

Groenewald, G & Groenewald, D. 2014. Palaeontological Heritage of Limpopo. SAHRA Palaeotechnical Report.