

HERITAGE IMPACT ASSESSMENT

A DESKTOP STUDY

THE PROPOSED VICTORY HOUSE CENTER FUEL STATION AND ITS
ASSOCIATED INFRASTRUCTURES ON THE REMAINING EXTENT OF
THE FARM M'PHATLELE 457 KS,
PORTION 0 (LOCATIE VAN MPHATLELE)

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September 2023

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DECLARATION OF INDEPENDENCE

I, Frans Roodt representing Vhufa Hashu Heritage Consultants, hereby confirm my independence as a specialist archaeologist and heritage practitioner and declare that I have no business, financial, personal or other interest in any proposed activity, application or appeal in respect of this proposed project, other than fair remuneration for the work performed.



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Executive Summary

This report addresses the proposed development of the Victory House Center Fuel Station and associated infrastructure on the Remaining Extent of Locatie Van Mphatlele 457 farm M'Phahlela 457 KS in the Lepelle-Nkumpi Local Municipality within the Capricorn District of Limpopo.

This is a desktop study and the sources of information were published literature, relevant heritage and palaeontological impact assessment reports, relevant maps and Google earth.

The project area had been part of the original village layout with roads and demarcated plots. Had there been any heritage or archaeological sites on the terrain, the integrity of the sites would have been compromised as a result of the residential activities. No significant heritage resources are expected to have survived on the terrain.

In view of the above no mitigation measures are recommended.

Chance finds must however be reported to a heritage practitioner or the relevant Heritage Authority.

From a heritage resources management perspective, there is no reason why the development may not proceed.

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1. INTRODUCTION AND TERMS OF REFERENCE

1.1 Introduction

The author was appointed the Environmental Assessment Practitioner (EAP) Mr. R Tshibubudze of the Ronell Group (Pty) Ltd to undertake a Desktop Heritage Impact Assessment for the proposed development of the Victory House Center Fuel Station and associated infrastructure on the Remaining Extent of Locatie Van Mphatlele 457 KS.

1.2 Project location and description

The proposed development is located in the Lepelle-Nkumpi Municipality in the Capricorn District of Limpopo Province. It is located approximately 46km south-south-east of Polokwane and 15km east of Lebowakgomo. General coordinates: S24°18'14.23" E29°38'40.18". The location is within the original village layout plan with roads and demarcated plots. The 1970 data based topographical map show no building on the spot (see Figures 1 - 3).

Victory House Center intends to develop a Fuel station and associated infrastructure on the Remaining Extent of Locatie Van Mphatlele 457. The development will comprise of underground petrol and diesel tanks (4 x 20 000ℓ), fuel pumps, a canopy covered forecourt, Workshop, Carwash, offices and a convenience store. The filling station will be accessed via Malope Street Mphahlele, Seleteng (Road D4070). The Road belongs to Roads Agency Limpopo (RAL). The Proposed Site area is 0.5ha.

1.3 Terms of reference and scope of work

Undertake a Heritage Impact Assessment and submit a specialist report, which addresses the following:

- A desktop assessment to gather information on heritage resources within the proposed development site;
- Identify possible archaeological, cultural and historic sites within the proposed development area;
- 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
- Identifying key uncertainties and risks.

2. RELEVANT LEGISLATION

Two sets of legislation are relevant for this study with regard to the protection of heritage resources and graves.

2.1 The National Heritage Resources Act (25 of 1999) (NHRA)

This Act established the South African Heritage Resources Agency (SAHRA) and makes provision for the establishment of Provincial Heritage Resources Authorities (PHRA). The Act makes provision for the undertaking of heritage resources impact assessments for various categories of development as determined by Section 38. It also provides for the grading of heritage resources

(Section 7) and the implementation of a three-tier level of responsibilities and functions for heritage resources to be undertaken by the State, Provincial authorities and Local authorities, depending on the grade of the Heritage resources (Section 8).

In terms of the National Heritage Resources Act (1999) the following is of relevance in terms of the general protection of heritage resources:

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(3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority or to the nearest local authority or museum, which must immediately notify such heritage resources authority.

Subsection 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 palaeontological site or any meteorite;
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
- (c) trade in, sell for private gain, export or attempt to export from the republic any category of archaeological or palaeontological material or object, or any meteorite; or
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist with the detection or recovery of metals or archaeological material or objects, or use such equipment for the recovery of meteorites.

Subsection 35(5) When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and no heritage resources management procedures in terms of section 38 has been followed, it may-

- (a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;
- (b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;
- (c) if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph (a) to apply for a permit as required in subsection (4); and
- (d) recover the costs of such investigation from the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.

Subsection 35(6) The responsible heritage resources authority may, after consultation with the owner of the land on which an archaeological or palaeontological site or meteorite is situated; serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

Burial grounds and graves

Subsection 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
- (d) 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.

Subsection 36(6) Subject to the provision of any law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority-

- (a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
- (b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the content of such grave or, in the absence of such person or community, make any such arrangement as it deems fit.

Culture Resource Management

Subsection 38(1) Subject to the provisions of subsection (7), (8) and (9), any person who intends to undertake a development* ...

must at the very earliest stages of initiating such development notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

***‘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;
- (b) carry out any works on or over or under 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;

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

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

2.2 The Human Tissues Act (65 of 1983)

This Act protects graves younger than 60 years. These fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant Local Authorities.

3. METHODOLOGY

3.1 Sources of information

The main sources of information are a literature review, the SAHRIS database. In addition, Google earth and the Topographical map 2429 BC was studied.

3.2 Limitations

The study is partially limited by the fact that no field survey was undertaken, but in view of recent disturbances, there is no reason to believe that any heritage remains with contextual integrity could exist on the terrain.

3.3 Categories of significance

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

No significance: sites that do not require mitigation.
Low significance: sites, which <i>may</i> require mitigation.
Medium significance: sites, which require mitigation.
High significance: sites, which must not be disturbed at all.

The significance of specifically 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.

3.4 Terminology

Early Stone Age:	Predominantly the Oldowan artefacts and Acheulian hand axe industry complex dating to + 1Myr yrs – 250 000 yrs. before present.
Middle Stone Age:	Various lithic industries in SA dating from ± 250 000 yrs. - 22 000 yrs. before present.
Late Stone Age:	The period from ± 22 000-yr. to contact period with either Iron Age farmers or European colonists.
Early Iron Age:	Most of the first millennium AD
Middle Iron Age:	10 th to 13 th centuries AD
Late Iron Age:	14 th century to colonial period. <i>The entire Iron Age represents the spread of Bantu speaking peoples.</i>
Phase 1 assessments:	Scoping surveys to establish the presence of and to evaluate heritage resources in a given area
Phase 2 assessments:	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 could be undertaken.

Sensitive:	Often refers to graves and burial sites, as well as ideologically significant sites such as ritual / religious places. <i>Sensitive</i> 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

4. BASELINE INFORMATION

No significant research has been conducted in the project area. The baseline information is therefore mainly generic as no publications cover the specific project area. Previous Heritage Impact Assessment reports in the general area of the project were consulted and referenced.

4.1 The Stone Age

The Stone Age covers most of southern Africa and the earliest consist of the Oldowan and Acheul artefacts assemblages. Oldowan tools are regularly referred to as “choppers”. Oldowan artefacts 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 Makapans Valley palaeontological site about 50km south-east of the project area it is possible that they may occur here. This 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 range in length from 100 to 200 mm or more. Collectively they 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 handaxes, 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 Makapans Valley Site is referenced; especially the Cave of Hearths.

The change from Acheulian with their characteristic bifaces, handaxes 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; 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 in the 40 – 100 mm size range 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 show dorsal preparation – one or more ridges or 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 be termed pointed and flake blades respectively. Other flakes in MSA assemblages are irregular in form. The Cave of Hearths in the Makapans 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 do much the same jobs 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 – both 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 to the north-west of the project area (from Deacon & Deacon 1999).

4.2 The Iron Age (Early Farming Communities)

In pre-colonial times, various Eastern Bantu-speaking people inhabited South Africa, including Nguni, Sotho-Tswana, and Tsonga. However, they were not the first groups to occupy southern Africa. About 1800 years ago their predecessors brought a new way of life to the region replacing the Stone Age hunter-gatherers. For the first time, people lived in settled communities, cultivating such crops as sorghum, millets, ground beans and cowpeas, and they herded cattle as well as sheep and goats. Because these early farming people also made their own iron tools, many archaeologists call this block of time the Iron Age. For convenience and to mark widespread events, it is divided into three periods: the Early Iron Age (AD 200-900), the Middle Iron Age (AD 900-1300) and the Late Iron Age (AD 1300-1820) to which the ancestors of the present day Nguni and Sotho-Tswana belonged.

Archaeologists of the Iron Age use ceramic style to establish culture-history sequences. Ceramic sequences are thus the framework for all other domains of Iron Age research, be it life ways (incorporating technology, subsistence and settlement patterns), or the explanation of cultural change.

The earliest cultural expression of the first black farmers that moved into South Africa belonged to the Uruwe Tradition from East Africa and migrated southwards as part of the Kwale Branch, i.e., the **Eastern stream** of migration and settled in the Tzaneen area in the 3rd century AD. This stream moved onto the escarpment in the Lydenberg area and as far south as Durban in KwaZulu-Natal. From the escarpment it moved to Broederstroom near Hartbeespoort Dam. During the 5th century onwards, the **Western stream** of migration, namely the Kalundu Tradition from the Congo/Angola regions reached the South Africa. The Happy Rest Branch represents this stream and has been found in the Zoutpansberg area. It too moved onto the escarpment and further on to KwaZulu-Natal. On the escarpment it developed into the *Doornkop* and later the *Klingbeil* facies. In the western Bushveld of Limpopo, Happy Rest developed into the Diamant facies from which the *Eiland* facies derived (Middle Iron Age). *Eiland* represents the last phase of the Kalundu Ceramic Tradition in the South African interior dating to the 10th – 13th century AD. It occurs in the project area and over a wide area from the Zoutpansberg to the Magaliesberg.

The earliest recorded facies of Sotho-Tswana **Moloko** Branch is *Icon*. *Icon* pottery first appears in the Phalaborwa area and spread to other parts of the Limpopo Province, Mpumalanga and perhaps Botswana, dating to between about AD 1300 and 1500. According to the ceramic evidence, in some places *Icon* incorporated earlier *Eiland* elements. This phase predates the oral record.

The next phase of **Moloko** includes at least three separate facies derived from *Icon*, each with a similar direction of change in motifs: *Letsibogo* in Botswana and north-western Limpopo, *Madikwe* in the North West Province, and central-western Limpopo and Botswana, and *Olifantspoort* in the Magaliesberg. Emphases on different decoration techniques separate these three facies: punctates in Letsibogo, stabs and fingernail impressions in Madikwe, and fine hatching in Olifantspoort.

Radiocarbon dates place this second phase between about AD 1500 and 1700. In all three areas, the second phase predates stonewalling ascribed to Sotho-Tswana speakers.

The fourth and final Sotho-Tswana cluster involves the Fokeng who originated at Ntsuanatsatsi Hill in the Free State. This pottery style did not penetrate to the project area (from Huffman 2007).

In terms of Huffman's (2007) distribution sequences of the Iron Age, the project area may contain the remains of the under-mentioned ceramic units which form distinct cultural groups:

➤ **Urewe Tradition**, originating in the Great Lakes area of Central Africa, was a secondary dispersal centre for eastern Bantu speakers. It represents the eastern stream of migration into Southern Africa. The Uruwe Tradition consists of various Branches of which two are relevant with their respective ceramic units:

- **Kwale Branch:**

Mzonjani facies (Broederstroom) AD 450 – 750 (Early Iron Age)

- **Moloko (Sotho-Tswana) Branch** (Late Iron Age)

Icon facies AD 1300 – 1500: This pottery is associated with the first Sotho Tswana people entering the country.

**Marateng facies* AD 1650 – 1840 (Later Iron Age).

*Marateng pottery which derived from Madikwe is associated with the Pedi. This is because the Pedi, an important offshoot from the Kgatla moved away from the area near present day Rustenburg and Pretoria in a north-east direction in the mid-seventeenth century and settled in what is today known as Sekhukhuneland.

➤ **Kalundu Tradition**, originating in the far North of Angola, was another secondary dispersal centre for eastern Bantu speakers and represents the western stream of migration into Southern Africa. Only the Happy Rest Sub-Branch with its respective ceramic units are relevant here:

- **Happy Rest Sub-branch:**

Doornkop facies AD 750 – 1000 (Early Iron Age).

Klingbiel facies AD 1000 – 1200 (Early Iron Age).

Eiland facies AD 1000 – 1300 (Middle Iron Age).

**Letaba facies* AD 1600 – 1840 (Later Iron Age)

*Letaba pottery is associated with some Bakone people who had interaction with Lovedu and BaPhalaborwa in the eastern Lowveld.

According to Huffman (2007) the Mphahlele and Kgaga were Sotho-ised Koni groups who had followed the Langa route over the Swazi area and the Mpumalanga/Limpopo Lowveld from northern KwaZulu-Natal. The Mphahlele moved westwards towards Moletlane and settled at Mphahlele in the early to mid-1800's.

4.3 The historical landscape

Pelser records that the oldest map for the farm Locatie van M'phahlele 457 KS was obtained from the Chief Surveyor General's database (www.csg.dla.gov.za) and dates to 1894 (**CSG Document A10202**). The area was situated in the Zoutpansberg District and Ward of Marabastad of the Zuid-

Afrikaansche Republiek (Z.A.R). It was surveyed for the government of the Z.A.R. between June and November 1893. Although no historical sites or features are shown on the map, it does show the location of M'Phatele's kraals (homesteads) roughly where Mphalele Village is today (Pelser 2021).

5. RESULTS OF THE DESKTOP STUDY

5.1 Palaeontology

The project area falls within the high sensitivity orange/yellow colour code of the SAHRIS Palaeontological Sensitivity Map (see Figure 6). This is based on the SAHRA Palaeotechnical Report; Palaeontological Heritage of Limpopo by Groenewald & Groenewald (2014). This report indicates that the Silverton Formation is highly sensitive because stromatolites may be present.

The Geological map 1: 250 000, 2428 Nylstroom (see Figure 7) places the area in the Silverton Formation (Vsi) of the Pretoria Group of the Transvaal Supergroup containing shale with interbedded quartzite, hornfels, and limestone. Bamford (2020 & 2021) notes that this environment was a high energy one with shallow to deep water shales being deposited as sub-storm wave-base pelagic deposits, within an epeiric embayment on the Kaapvaal. The formation is dated between 2202 and 2253 Ma and this is too old for body fossils, so the only potential fossils would be microscopic algae and bacteria which, if preserved, are in the form of the trace fossils such as stromatolites or microbial mats. However, stromatolites and microbial mats are usually formed in shallow, low energy environments and not in the environment described above. Prof Bamford notes that there are as yet no records of such trace fossils in the Silverton Formation and the geological records do not support this conclusion by Groenewald (2014) in the Limpopo Palaeotechnical report.

Taking account of the defined criteria, the potential impact to fossil heritage resources is of extremely low significance.

5.2 Archaeology

Very few heritage impact assessments were undertaken in the immediate vicinity of the project area (Pelser 2021, Stegmann 2013, Van der Walt 2017 and Vhubvo Archaeo-Heritage Consultant). Pelser and Vhubvo Archaeo-Heritage Consultant recorded no heritage resources in the area. Van der Walt (2017) recorded one Late Iron Age site and a scattering of MSA material was observed. Further to the east Stegmann recoded an Early Iron Age Site and a scattering of MSA material.

5.2.1 The Stone Age.

From personal observations and also mentioned in the sources above, it is known that the larger area contains Stone Age material, especially open air remains in erosion gullies and disturbed areas. The demarcated terrain for the proposed filling station has been disturbed residential activities that would obscure such material. Should there be any Stone Age material, it would be out of context and of little or no significance. It is also highly unlikely that a knapping site would occur in the open plains.

The study area is not suitable for Rock Art as there are no usable large loose-standing boulders or rock overhangs which would facilitate rock art.

5.2.2 The Iron Age (Early farming communities)

Van der Walt (2017) recorded a Late Iron Age stonewalled site approximately 2.7km north-west of the study area along the base of a mountain ridge (see Figure 2), while Stegmann (2013) recorded an Early Iron Age Doornkop (750 - 1000 AD) site about 17km to the east of the study area near the Olifants River.

Past human occupation normally leaves a characteristic impression on the landscape showing up as anomalies on aerial images such as Google earth. This is especially true with Iron Age settlements which were based on the central cattle pattern (CCP) layout, which was common in southern Africa, both in the Early and Late Iron Age. This settlement pattern involved the placing of cattle and other livestock in the center with the residential and communal areas around it. When a settlement is abandoned, the dung dries out over time and becomes grayish to white. The high concentrations of dung and ash from the communal area also inhibit the growth of most trees, leaving an open grass-covered space. Specific examples of such features can be seen on a Google earth image about 5km south-east-east of the study area where the area is still clear of residential development (see Figure 5). The grayish-white patches where past Iron Age settlements were located can clearly be seen on the image.

Such an anomaly will also be visible on the demarcated terrain of which there is none.

5.3 Historical structures

A residence no occurs on the property. The 1970's bases topographical map does not show any building on the premises.

5.4 Graves and burials sites

No graves are expected on the terrain due to its disturbed nature.

6. DISCUSSION

The project area had been part of the original village outlay. It is highly unlikely that any significant heritage resources exist on the terrain.

7. EVALUATION AND STATEMENT OF SIGNIFICANCE

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

Table 1: Significance criteria and rating

	Significance	Rating
1.	The importance of the cultural heritage in the community or pattern of South Africa's history (Historic and political significance)	Low
2.	Possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage (Scientific significance).	Low
3.	Potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage (Research/scientific significance)	Low

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)	Low
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

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

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

No impact on heritage resources is expected.

7.2.2 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 most likely have no impact on any heritage sites or remains and will have a positive economic benefit in the area.

7.2.3 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.*

The development will have no negative impact on local communities.

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

No alternatives have been proposed.

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

No mitigation measures are recommended.

8. RECOMMENDATIONS

In view of the above no mitigation measures are recommended.

Chance finds must however be reported to a heritage practitioner or the relevant Heritage Authority.

From a heritage resources management perspective, there is no reason why the development may not proceed.

9. REFERENCES

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10. MAPS AND IMAGES (Figures 1 – 7).



Figure 1. Google image of the project location in relation to Lebowakgomo.

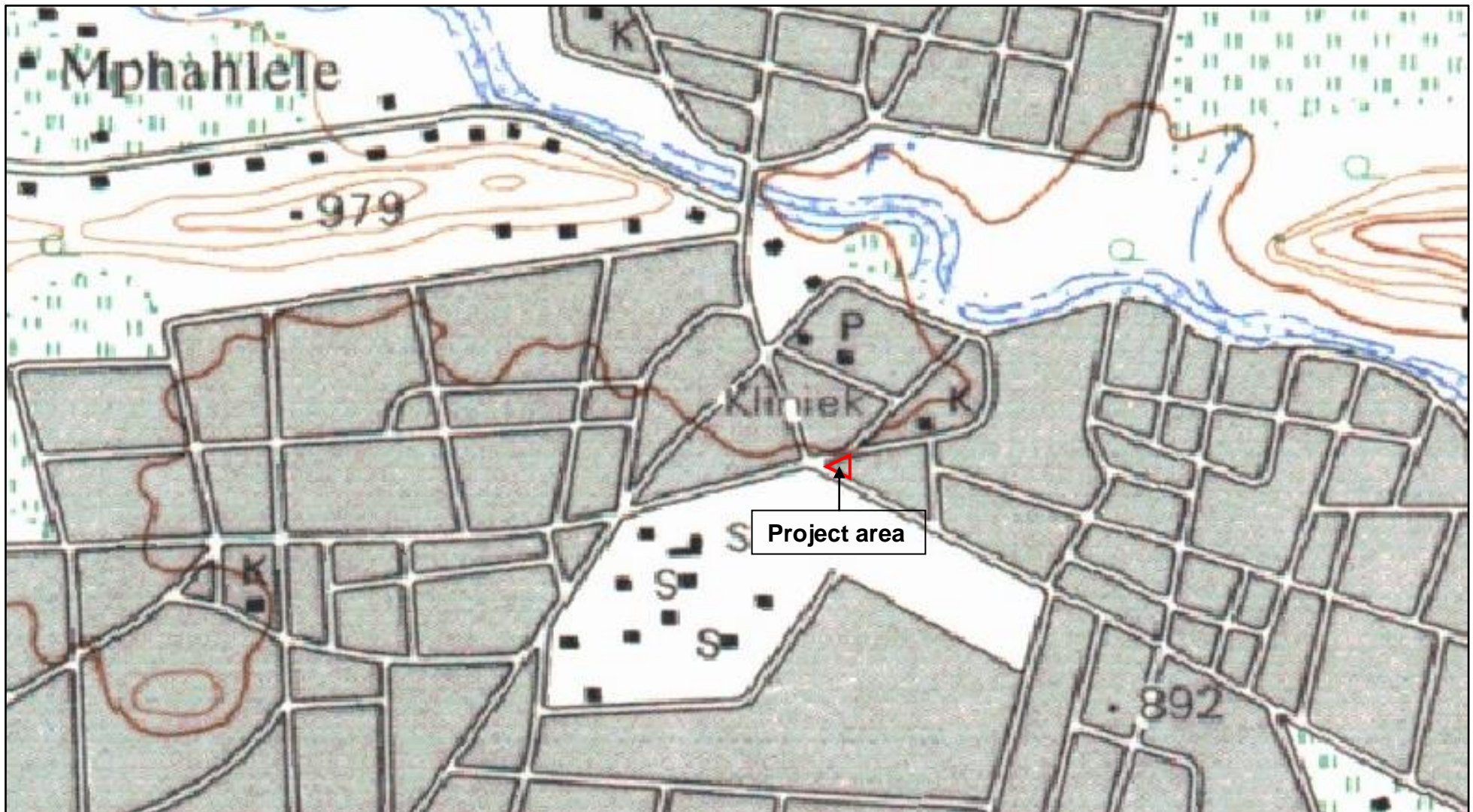


Figure 2. An extract from the 1:50 000 topographical map 2429 BC. This map shows that the area had been part of the village since the 1970's.



Figure 3. Google earth image showing the development footprint.



Figure 4. Google earth image showing Iron Age settlements which were based on the central cattle pattern (CCP) layout as discussed under point 5.2.2.

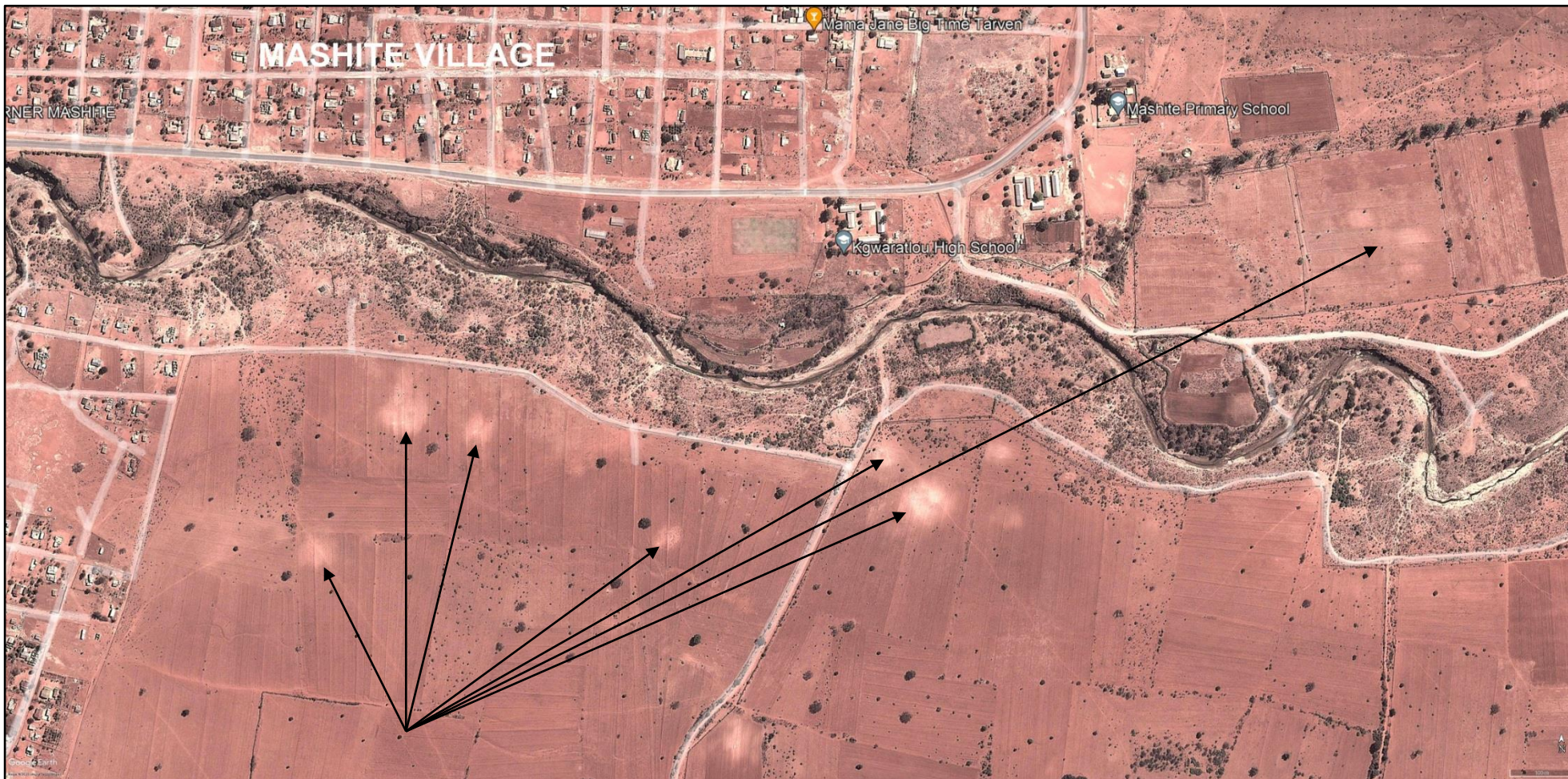


Figure 5. Google earth image with arrows showing the grayish-white patches where past Iron Age settlements were located as discussed under point 5.2.2 above. This is near Mashite approximately 5km south-east-east of the project area.



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

Figure 6. SAHRIS palaeosensitivity map for the site showing **orange/yellow** colour for high sensitivity. Project area marked by triangle in circle.

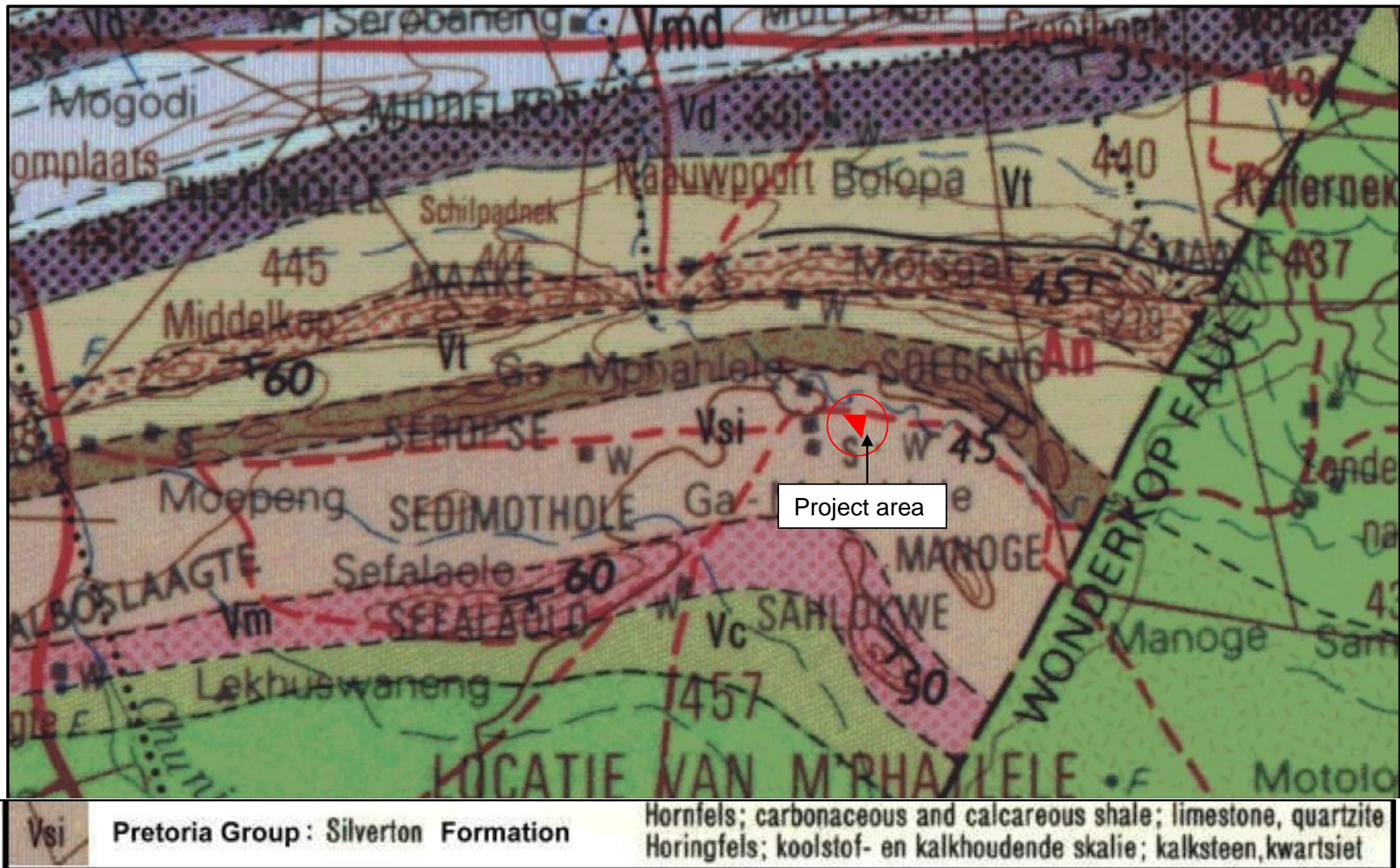


Figure 7. Geological Map – extracted and enlarged from the Geological Survey 1: 250 000 map 2428 Nylstroom showing the project area circled triangle in the Silvertown formation of the Pretoria Group. No fossils have as yet been recorded in the Silvertown Formation.