

**Heritage impact assessment for the
PROPOSED UPGRADE OF A SECTION OF THE N11 NATIONAL ROUTE
NORTH OF MOKOPANE, LIMPOPO PROVINCE**

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED UPGRADE OF A SECTION OF THE N11 NATIONAL ROUTE NORTH OF MOKOPANE, LIMPOPO PROVINCE

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Declaration:

I, J.A. van Schalkwyk, declare that I do not have any financial or personal interest in the proposed development, nor its developers or any of their subsidiaries, apart from the provision of heritage assessment and management services.



J A van Schalkwyk (D Litt et Phil)
Heritage Consultant
September 2011

EXECUTIVE SUMMARY

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED UPGRADE OF A SECTION OF THE N11 NATIONAL ROUTE NORTH OF MOKOPANE, LIMPOPO PROVINCE

SANRAL to undertake the Basic Assessment for the rehabilitation of the N11 Section 13 from Mokopane (KM 0.0) to (KM 24.1), ground.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by **SSI Environmental Consultants** to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where it is planned to upgrade the section of the road, as well as the various borrow pit areas, to evaluate the potential impacts of the proposed development on these resources and to recommend mitigation measures to ameliorate any negative impacts.

Based on current knowledge, the sites, features and objects known to exist or that are expected to exist in the study area, are judged to have Grade III significance and therefore would not prevent the project from continuing.

However, the following recommendations are made:

- One large cemetery was identified to occur adjacent to the road servitude. It therefore would not be impacted on directly. It is recommended that the area facing the N11 is demarcated with danger tape in order that accidental damage can be minimised.
- The four identified bridges show no interesting or unique technological or engineering features and no significant event or person could be linked to them. As they will soon be 60 years old, they will enjoy general protection status under the Heritage Act. It is therefore recommended that they are documented (mapped and photographed) by a heritage specialist before they are upgraded.

Therefore, from a heritage point of view it is recommended that the proposed development be allowed to continue. It is requested that 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.



J A van Schalkwyk
Heritage Consultant
September 2011

TECHNICAL SUMMARY

Property details						
Province	Limpopo					
Magisterial district	Mokerong; Potgietersrus					
Topo-cadastral map	2428BB. 2429AA					
Closest town	Mokopane					
Farm name	Various					
Portions/Holdings	-					
Coordinates	End points					
	No	Latitude	Longitude	No	Latitude	Longitude
	1	S 23.94349	E 29.79758	2	S 23.80119	E 30.12531

Borrow pits						
Centre points						
	1	S 24.03492, E 28.92849		2	S 24.05852, E 29.97406	
	3	S 24.00187, E 28.96263		4	S 24.09910, E 28.98977	
	5	S 24.09964, E 28.99720		6	S 24.11312, E 29.03587	
	7	S 24.14869, E 29.02710				

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		Yes
Construction of bridge or similar structure exceeding 50m in length		No
Development exceeding 5000 sq m		No
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

Development	
Description	Upgrading of a section of the N11 road from Mokopane northwards
Project name	N11 upgrade

Land use	
Previous land use	Farming
Current land use	Farming/urban

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GLOSSARY OF TERMS AND ABBREVIATIONS

TERMS

Study area: Refers to the entire study area as indicated by the client in the accompanying Fig. 1 & 2.

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

Iron Age: Period covering the last 1800 years, when new people brought a new way of life to southern Africa. They established settled villages, cultivated domestic crops such as sorghum, millet and beans, and they herded cattle as well as sheep and goats. These people, according to archaeological evidence, spoke early variations of the Bantu Language. Because 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
Late Iron Age	AD 1300 - AD 1830

Historical Period: Since the arrival of the white settlers - c. AD 1840 - in this part of the country

ABBREVIATIONS

ADRC	Archaeological Data Recording Centre
ASAPA	Association of Southern African Professional Archaeologists
BP	Before Present
CS-G	Chief Surveyor-General
EIA	Early Iron Age
ESA	Early Stone Age
LIA	Late Iron Age
LSA	Later Stone Age
HIA	Heritage Impact Assessment
MSA	Middle Stone Age
NASA	National Archives of South Africa
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Agency
SAHRA	South African Heritage Resources Agency

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED UPGRADE OF A SECTION OF THE N11 NATIONAL ROUTE NORTH OF MOKOPANE, LIMPOPO PROVINCE

1. INTRODUCTION

SANRAL to undertake the Basic Assessment for the rehabilitation of the N11 Section 13 from Mokopane (KM 0.0) to (KM 24.1), ground.

South Africa's heritage resources, also described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. 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 **SSI Environmental Consultants** to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where it is planned to upgrade the section of the road, as well as the various borrow pit areas, to evaluate the potential impacts of the proposed development on these resources and to recommend mitigation measures to ameliorate any negative impacts.

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

2. TERMS OF REFERENCE

2.1 Scope of work

The scope of work for this study consisted of:

- Conducting of a desk-top investigation of the area, in which all available literature, reports, databases and maps were studied.
- A visit to the proposed development area.

The objectives were to

- 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.

2.2 Limitations

The investigation has been influenced by the following factors:

- The unpredictability of buried archaeological remains.

Table 1: Applicable category of heritage impact assessment study and report.

Type of study	Aim	SAHRA involved	SAHRA response
Heritage Impact Assessment	The aim of a full 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.	Provincial Heritage Resources Authority	Comments on built environment and decision to approve or not
	The result of this investigation is a heritage impact assessment 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 will receive permission to proceed with the proposed development, on condition of successful implementation of proposed mitigation measures.	SAHRA Archaeology, Palaeontology and Meteorites Unit	Comments and decision to approve or not

3. HERITAGE RESOURCES

3.1 The National Estate

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

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

- objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
- objects to which oral traditions are attached or which are associated with living heritage;
- ethnographic art and objects;
- military objects;
- objects of decorative or fine art;
- objects of scientific or technological interest; and
- books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

3.2 Cultural significance

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

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

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

A matrix was developed whereby the above criteria were applied for the determination of the significance of each identified site (see Appendix 1). This allowed some form of control over the application of similar values for similar sites.

4. STUDY APPROACH AND METHODOLOGY

4.1 Extent of the Study

This survey and impact assessment covers the area as presented in Section 5 and as illustrated in Figures 1 - 2.

4.2 Methodology

4.2.1 Preliminary investigation

4.2.1.1 Survey of the literature

A survey of the relevant literature was conducted with the aim of reviewing the previous research done and determining the potential of the area. In this regard, various anthropological, archaeological, historical sources and heritage impact assessment reports were consulted (De Beer 1986; Jackson n.d.; Küssel 2007; Van Schalkwyk 2009; Van Warmelo 1935, 1944).

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

4.2.1.2 Data bases

The *Heritage Atlas Database*, the *Environmental Potential Atlas*, the *Chief Surveyor General (CS-G)* and the *National Archives of South Africa (NASA)* were consulted.

- Database surveys produced a number of sites located in the larger region of the proposed development. The original Title Deed for the various farms could not be traced.

4.2.1.3 Other sources

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

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

4.2.2 Field survey

As this is a linear development the route was surveyed by travelling the total distance. In addition, transects were walked across the various borrow pits.

5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

5.1 Site location and description

The study area includes a section of the N11 from the northern side of Mokopane (Potgietersrus). It runs for a short section through townships that formed part of the old Lebowa homeland. The borrow pits and hard rock quarry are located at different locations along the route, in some cases quite far away from the road (Fig. 1).

The geology of the area is made up of gabbro, with granite occurring to the west. The original vegetation is classified as Clay Thorn Bushveld, but has been destroyed over large sections due to agricultural activities. The topography over most of the area is very flat, with a few small hills and outcrops located to the east. Topographically, this area is also known as the Pietersburg Plateau.

The current land use is farming, with grazing making up the largest part of the activities, although some crop production also occurs.



Fig. 2. Views of the different borrow pits.

5.2 Development overview

According to information supplied by the developer (see Fig. 1), SANRAL propose the rehabilitation of the N11 Section 13 from Mokopane (KM 0.0) to (KM 24.1).

The Scope of Work is as per the contract documentation with the following adjustments as agreed upon on the day of inception meeting with Client.

- The EMPs prepared for borrow pits 1-4 needs to be reviewed in order to establish their validity. If these EMPs are still valid only three new EMPs need to be prepared for borrow pits 3A and 5 and the third hard rock quarry. If the EMPs are not valid anyone five EMPs need to be prepared for four borrow pits as identified by the Engineer and the hard rock quarry.

The following construction activities will form part of the assessment for the road:

- AC batch plant
- Concrete batch plant

Activities at the bridges

- Will include widening at the bridges in order to contain run-off
- Some of the bridges' guard rails will be demolished so as to accommodate the envisaged widening

5.3 Regional overview

5.3.1 Stone Age

Occupation of the larger region has taken place since the Early Stone Age time. Various such sites occur in the larger region, and some were excavated by Prof. Revil Mason (1968).

However, it was largely during the Middle Stone Age (MSA) times (c. 150 000 – 30 000 BP), when human activities increased. People became more mobile, occupying areas formerly avoided (Thackeray 1992). The MSA is a technological stage characterized by flakes and flake-blades with faceted platforms, produced from prepared cores, as distinct from the core tool-based ESA technology. Open sites were still preferred near watercourses. These people were adept at exploiting the huge herds of animals that passed through the area, on their seasonal migration.

Late Stone Age (LSA) people had even more advanced technology than the MSA people and therefore succeeded in occupying even more diverse habitats. Also, for the first time we now get evidence of people's activities derived from material other than stone tools. Ostrich eggshell beads, ground bone arrowheads, small bored stones and wood fragments with incised markings are traditionally linked with the LSA. The LSA people have also left us with a rich legacy of rock art, which is an expression of their complex social and spiritual beliefs.

5.3.2 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. Because of their specific technology and economy, Iron Age people preferred to settle on the alluvial soils near rivers for agricultural purposes, but also for firewood and water.

The closest known Early Iron Age sites occur to the south in the Waterberg region (Huffman 1990) and to the north in the Blouberg/Makgabeng area (Van Schalkwyk 1998, 2004).

The occupation of the larger geographical area (including the study area) did not start much before the 1500s – see Section 5.3.4 below. 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 and the treeless plains of the Free State.

This wet period came to a sudden end sometime between 1800 and 1820 by a major drought lasting 3 to 5 years. The drought must have caused an agricultural collapse on a large, subcontinent scale.

This was also a period of great military tension. Military pressure from Zululand spilled onto the highveld by at least 1821. Various marauding groups of displaced Sotho-Tswana moved across the plateau in the 1820s. Mzilikazi raided the plateau extensively between 1825 and 1837. The White settlers trekked into this area in the 1830s.

5.3.3 Historic period

White settlers moved into the area during the first half of the 19th century. They were largely self-sufficient, basing their survival on cattle/sheep farming and hunting. Few towns were established and it remained an undeveloped area, with farming the most dominant economic activity. The Berlin Mission Society established a mission station, Makapanspoort, in the 1860

on the western outskirts of Mokopane (Potgietersrust). During the Anglo-Boer War, a number of skirmishes occurred in the larger area, especially to the southwest in the Waterberg area.

5.3.4 Ethno-history

The following is a summary compiled from Van Warmelo (1944), De Beer (1986) and Jackson (n.d.).

The study area is located in the area of the Northern Transvaal Ndebele, consisting of the tribes of Kekana, Langa, Letwaba, Maraba and Seleka. The Kekana, Langa and Seleka can all be found in the Mokerong magisterial district, whereas the others live not only in Mokerong, but also in the Seshego and Thabamopo magisterial districts.

The Transvaal Ndebele is usually divided into two groups, southern and northern, but claim a similar origin in the region of north western Natal. From here they moved, during the early 1600s, in two streams to the former Transvaal province. The first group, under chief Musi, settled in the vicinity of Pretoria, and over time subdivided into the Manala, Ndzungza, Hwaduba and Mathombeni. Of this latter group, one section eventually settled to the south west of Mokopane (Potgietersrust). A junior branch of this group came to be known as the Kekana of Mokopane and, in 1854, was responsible for the murder of a group of white Trekkers at Moorddrift. The punitive expedition against them had to dislodge them from the Makapansgat caves where they took refuge

The second group, under the leadership of Masebe I, after following a long and circuitous route, eventually settled at Fothane Hill in the Mokerong district. Similar to the Southern Ndebele, some subdivision took place over time. The Seleka section first settled near Rustenburg and, after a sojourn in Botswana, moved back to the Mokerong district in 1899. The Langa is also known as the Mapela, after one of their leaders, who died c. 1826 and was buried at Fothane Hill. They are also referred to as the бага Mankopane, with reference to one of their earlier leaders, who was also in 1854 responsible for the death of a number white Trekkers at what was to become known as Moordkoppie. Later, as a result of a dispute over succession, the tribe broke into two, the Langa of Mapela and a more junior branch, the Langa of Bakenberg.

The Letwaba and Maraba share similar histories, and after long wanderings, settled, as different smaller tribes, in the region of Mokopane. Some of the groups are the Mašašane, the Letwaba of Eland and the Nkidikitlana. The Maraba sections are the Sekgopetšana and the Mapangula.

- Archaeological sites

NHRA Category	Archaeological and palaeontological sites
Protection status	General Protection - Section 35: Archaeology, palaeontology and meteorites
Significance	Medium on a regional level – Grade III



Fig. 3. Tools dating to the MSA found in an erosion donga.

- Cemeteries

Most of these cemeteries, irrespective of the fact that they are for land owner or farm labourers (with a few exceptions where they were integrated), are family orientated. They therefore serve as important ‘documents’ linking people directly by name to the land.

NHRA Category	Graves, cemeteries and burial grounds
Protection status	
	General Protection - Section 36: Graves or burial grounds

Significance	High on a local level – Grade III
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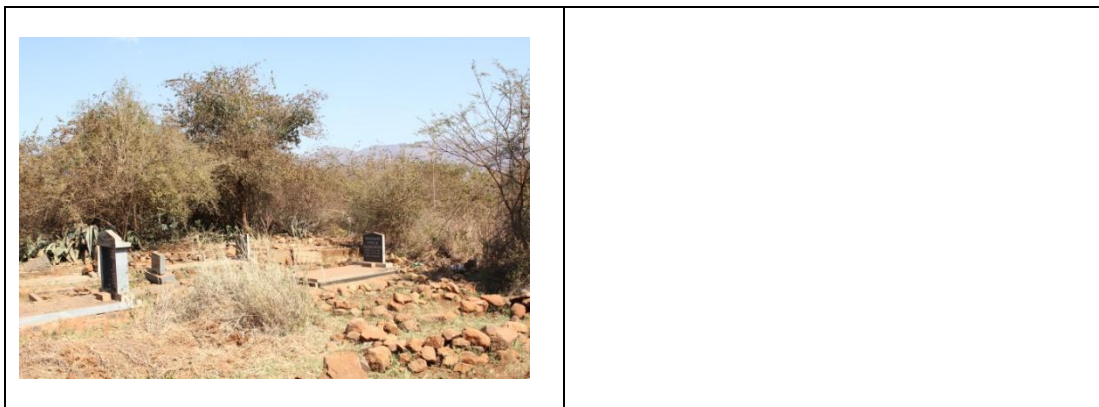


Fig. 4. Local cemeteries.

- Public monuments

Although most of these usually occur in urban areas, some also occur in rural areas where some event of significance took place.

NHRA Category	Buildings, structures, places and equipment of cultural significance
Protection status	
	General Protection - Section 37: Public Monuments and Memorials

Significance	High on a regional level – Grade III
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Fig. 5. Monuments in town and in the rural area.

- Infrastructure and industrial heritage

In many cases this aspect of heritage is left out of surveys, largely due to the fact that it is taken for granted. However, the land and its resources could not be accessed and exploited without the development of features such as roads, bridges, railway lines, electricity lines and telephone lines.

NHRA Category	Buildings, structures, places and equipment of cultural significance
Protection status	General Protection - Section 34: Structures older than 60 years

Significance	High on a regional level – Grade III
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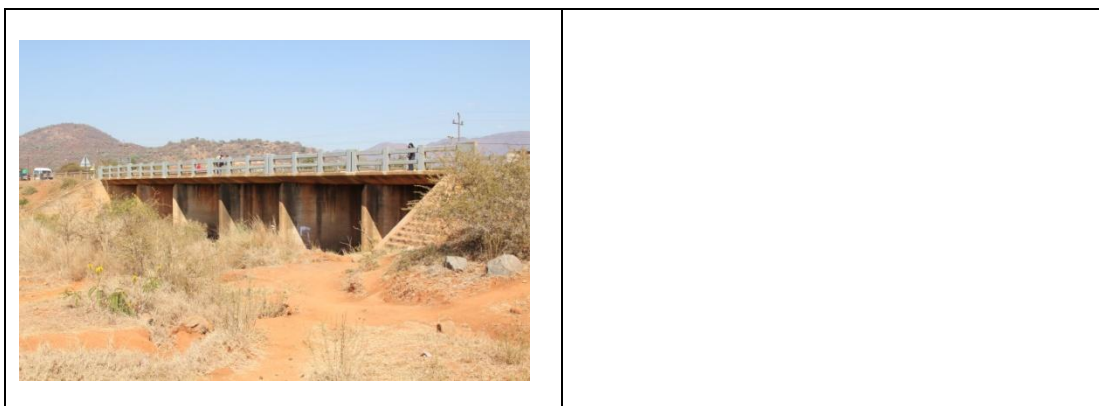


Fig. 6. Bridges.

- Built environment

These are complex features in the landscape, being made up of different yet interconnected elements. Apart from normal features found in town, this also includes farmsteads and mission stations in rural areas.

NHRA Category	Buildings, structures, places and equipment of cultural significance
Protection status	
General Protection - Section 34: Structures older than 60 years	

Significance	High on a regional level – Grade III
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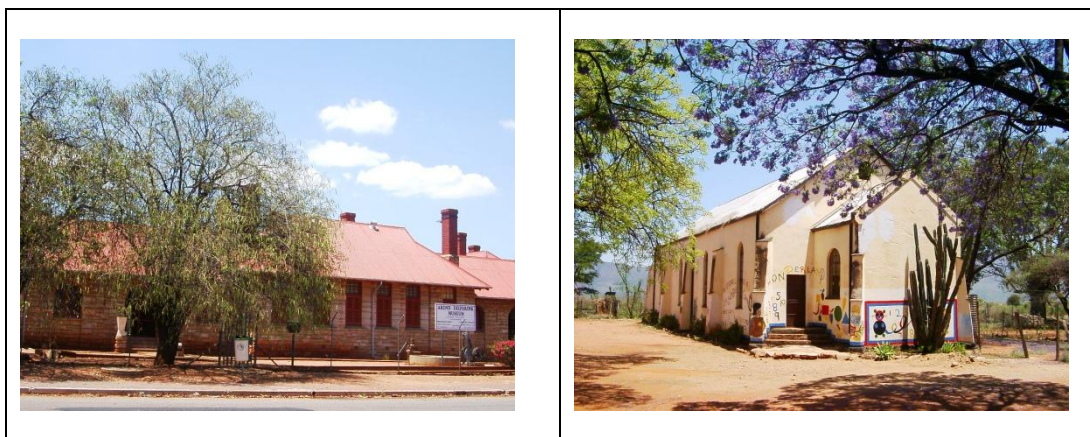


Fig. 7. An old school in town and a rural mission church.

5.4 Identified heritage sites

The following sites, features and objects of cultural significance have been identified to occur within the boundaries of the study area and would therefore be impacted on by the proposed development.

- Cemeteries

One large village cemetery was identified to occur in close proximity to the N11.

NHRA Category	Graves, cemeteries and burial grounds		
Protection status			
General Protection - Section 36: Graves or burial grounds			

Location	No. 1	S 24.16594	E 28.98405
Description			
Informal cemetery with probably more than 100 graves.			
Significance	High on a local level – Grade III		
Mitigation			
This site borders on the road reserve, but on the outside. It therefore would not be impacted on. However, care should be taken to avoid the site when construction takes place			



Fig. 8. Informal cemeteries

- Infrastructure and industrial heritage

Four bridges were identified along the section of the road that is to be upgraded. All of them date to the early 1950s, and would therefore soon have general protection under the Heritage Act.

NHRA Category	Buildings, structures, places and equipment of cultural significance
Protection status	General Protection - Section 34: Structures older than 60 years

Location	No. 1 - Dorpsrivier	S 24.17251	E 28.98650
Description	A single span bridge of cast concrete. The bridge deck is supported by a single concrete column. The abutment and wing walls are all of concrete. The original railings are still in place and are now supported by Armco barriers. According to a panel on the bridge it dates to 1958.		

Significance	Medium on a regional level – Grade III
Mitigation	This bridge shows no interesting or unique technological or engineering features and no significant event or person could be linked to it. However, as it will soon be 60 years old, it will enjoy general protection status under the Heritage Act. It is therefore recommended that it is documented (mapped and photographed) by a heritage specialist before it is upgraded.

Location	No. 2 - Rooisloot	S 24.23650	E 28.96373
Description	A single span bridge of cast concrete. The bridge deck is supported by a five concrete columns. The abutment and wing walls are all of concrete, although the upstream side of the walls have been strengthened with stone revetments that were cemented in. The railings are of prefabricated cement and were probably added at a later date. A date of 1953 was found on one of the pylons of the bridge.		

Significance	High on a regional level – Grade III
Mitigation	This bridge shows no interesting or unique technological or engineering features and no significant event or person could be linked to it. However, as it will soon be 60 years old, it will enjoy general protection status under the Heritage Act. It is therefore recommended

that it is documented (mapped and photographed) by a heritage specialist before it is upgraded.

Location	No. 3 - Dithokeng	S 24.06501	E 28.97309
Description			
A single span bridge of cast concrete. The bridge deck is supported by two concrete columns. The abutment and wing walls are all of concrete and some stone revetments were added to protect them from erosion. The original railings are still in place and are now supported by Armco barriers. A date of 1952 is painted on one of the abutment walls.			
Significance	High on a regional level – Grade III		
Mitigation			
This bridge shows no interesting or unique technological or engineering features and no significant event or person could be linked to it. However, as it will soon be 60 years old, it will enjoy general protection status under the Heritage Act. It is therefore recommended that it is documented (mapped and photographed) by a heritage specialist before it is upgraded.			

Location	No. 4 - Groot Sandsloot	S 23.99312	E 28.95990
Description			
A single span bridge of cast concrete. The bridge deck is supported by a single concrete column. The abutment and wing walls are all of concrete. The original railings are still in place and are now supported by Armco barriers. No date could be found on this bridge, but it is assumed to be in the same time-frame (1950s) as that of the other bridges. However, it was extensively repaired in the recent past by the adding of large sections of gabions as revetments. In addition a very large crack was noted on the north-eastern wing wall.			

Significance	High on a regional level – Grade III		
Mitigation			
This bridge shows no interesting or unique technological or engineering features and no significant event or person could be linked to it. However, as it will soon be 60 years old, it will enjoy general protection status under the Heritage Act. It is therefore recommended that it is documented (mapped and photographed) by a heritage specialist before it is upgraded.			





Fig. 9. The four bridges (clockwise from top left).

6. SITE SIGNIFICANCE AND ASSESSMENT

6.1 Heritage assessment criteria and grading

The NHRA stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

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

The occurrence of sites with a Grade I significance will demand that the development activities be drastically altered in order to retain these sites in their original state. For Grade II and Grade III sites, the applicable of mitigation measures would allow the development activities to continue.

6.2 Statement of significance

A matrix was developed whereby the above criteria, as set out in Sections 3(3) and 7 of the NHRA, No. 25 of 1999, were applied for each identified site (see Appendix 1). This allowed some form of control over the application of similar values for similar sites. Three categories of significance are recognized: low, medium and high.

Table 2. Summary of identified heritage resources in the study area.

Identified heritage resources	
Category, according to NHRA	Identification/Description
Formal protections (NHRA)	
National heritage site (Section 27)	None

Provincial heritage site (Section 27)	None
Provisional protection (Section 29)	None
Place listed in heritage register (Section 30)	None
General protections (NHRA)	
structures older than 60 years (Section 34)	Yes
archaeological site or material (Section 35)	None
palaeontological site or material (Section 35)	None
graves or burial grounds (Section 36)	Yes
public monuments or memorials (Section 37)	None
Other	
Any other heritage resources (describe)	None

- All the sites and features identified in the study area are judged to be Grade III sites and have high significance on a local level.

6.3 Impact assessment

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

- One large cemetery was identified to occur adjacent to the road servitude. It therefore would not be impacted on directly. However, it is recommended that the area facing the N11 is demarcated with danger tape in order that accidental damage can be minimised.
- The four identified bridges show no interesting or unique technological or engineering features and no significant event or person could be linked to them. However, as they will soon be 60 years old, they will enjoy general protection status under the Heritage Act. It is therefore recommended that they are documented (mapped and photographed) by a heritage specialist before they are upgraded.

7. CONCLUSIONS

The aim of this survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area of the proposed development, to assess the significance thereof and to consider alternatives and plans for the mitigation of any adverse impacts.

Based on current knowledge, the sites, features and objects known to exist or that are expected to exist in the study area, are judged to have Grade III significance and therefore would not prevent the project from continuing.

However, the following recommendations are made:

- One large cemetery was identified to occur adjacent to the road servitude. It therefore would not be impacted on directly. It is recommended that the area facing the N11 is demarcated with danger tape in order that accidental damage can be minimised.

- The four identified bridges show no interesting or unique technological or engineering features and no significant event or person could be linked to them. As they will soon be 60 years old, they will enjoy general protection status under the Heritage Act. It is therefore recommended that they are documented (mapped and photographed) by a heritage specialist before they are upgraded.

Therefore, from a heritage point of view it is recommended that the proposed development be allowed to continue. It is requested that 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.

8. REFERENCES

8.1 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)

8.2 Literature

- Acocks, J.P.H. 1975. *Veld Types of South Africa*. Memoirs of the Botanical Survey of South Africa, No. 40. Pretoria: Botanical Research Institute.
- De Beer, F.C. 1986. Groepsgebondenheid in die Familie-, Opvolging- en Erfreg van die Noord-Ndebele. Ongepubliseerde D.Phil proefskrif. Pretoria: Universiteit van Pretoria.
- Holm, S.E. 1966. *Bibliography of South African Pre- and Protohistoric archaeology*. Pretoria: J.L. van Schaik.
- Huffman, T.H. 1990. The Waterberg research of Jan Aukema. *South African Archaeological Research* 45:61-70.
- Jackson, A.O. n.d. *The Ndebele of Langa*. Ethnological Publications No. 54. Pretoria: Government Printer.
- Küsel, U.S. 2005. *Cultural heritage resources impact assessment on Malokong Hill*. Unpublished report. Pretoria: African Heritage Consultants cc.
- Mason, R. 1968. *Prehistory of the Transvaal*. Johannesburg: Witwatersrand University Press.
- Thackeray, A.I. 1992. The Middle Stone Age south of the Limpopo River. *Journal of World Prehistory* 6(4):385-440.
- Van Schalkwyk, J.A. 1998. Archaeological investigation of the Beuley Early Iron Age site in the Blouberg, Northern Province. *Southern African Field Archaeology* 7:35-41.
- Van Schalkwyk, J.A. 2004. Investigation of an Early Iron Age site in the Makgabeng area, Limpopo Province. *Research by the National Cultural History Museum* 13:16-27.
- Van Schalkwyk, J.A. 2009. *Heritage impact scoping report for the proposed Vanmag Mining development, Mokerong magisterial district, Limpopo Province*. Unpublished report 2009/JvS/015. Pretoria.
- Van Warmelo, N.J. 1935. *A preliminary survey of the Bantu tribes of South Africa*. Ethnological Publications No. 5. Pretoria: Government Printer.
- Van Warmelo, N.J. 1944. *The Ndebele of J. Kekana*. Ethnological Publications No. 18. Pretoria: Government Printer.

8.3 Maps and aerial photographs

1: 50 000 Topocadastral maps:
Google Earth

APPENDIX 1: CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE RESOURCES

Significance

According to the NHRA, Section 2(vi) the **significance** of heritage sites and artefacts is determined by its 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. 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				
2. Aesthetic value				
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group				
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				
4. Social value				
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons				
5. Rarity				
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage				
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.				
7. Sphere of Significance		High	Medium	Low
International				
National				
Provincial				
Regional				
Local				
Specific community				
8. Significance rating of feature				
1.	Low			
2.	Medium			
3.	High			

APPENDIX 2. RELEVANT LEGISLATION

All archaeological and palaeontological sites, and meteorites are protected by the National Heritage Resources Act (Act no 25 of 1999) as stated in Section 35:

(1) Subject to the provisions of section 8, the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority: Provided that the protection of any wreck in the territorial waters and the maritime cultural zone shall be the responsibility of SAHRA.

(2) Subject to the provisions of subsection (8)(a), all archaeological objects, palaeontological material and meteorites are the property of the State. The responsible heritage authority must, on behalf of the State, at its discretion ensure that such objects are lodged with a museum or other public institution that has a collection policy acceptable to the heritage resources authority and may in so doing establish such terms and conditions as it sees fit for the conservation of such objects.

(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 offices or museum, which must immediately notify such heritage resources authority.

(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 in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

In terms of cemeteries and graves the following (Section 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 such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority-

- (a) 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;
- (b) 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
- (c) 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 the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.