

**Heritage impact assessment for the
PROPOSED EXPANSION OF THE WONDERKOP GRANITE QUARRY,
NORTH WEST PROVINCE**

THE PROJECT:

Expansion of existing quarrying facilities

THIS REPORT:

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED EXPANSION OF THE
WONDERKOP GRANITE QUARRY, NORTH WEST PROVINCE

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EXECUTIVE SUMMARY

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED EXPANSION OF THE WONDERKOP GRANITE QUARRY, NORTH WEST PROVINCE

Nell Brothers (Pty) Ltd, Kudu Granite (Wonderkop), propose to expand their existing quarrying activities on the farm Wonderkop 400JQ. As this is a type of granite that is of particular quality and colour, it is quarried only when ordered in large quantities. Operations therefore are very slow and unpredictable and the quarry expands at an unpredictable rate.

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area in which it is proposed to expand old quarrying activities.

- **A number of sites dating to the Iron Age were identified in the study area. These are of Tswana origin and date to the period post 1600.**

In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have Grade III significance.

Some of the sites would eventually be impacted on by the expansion of the quarry. The different sites were identified and by taking a GPS coordinate in the centre for each site, a buffer area with a radius of 50 metres was established around each site. In some areas these would overlap. In this manner, areas that should be avoided, or where mitigation actions should be implemented prior to quarrying activities, were established.

- **In this case, it is recommended that mitigation involve documentation (mapping and photographing) and test excavation of each site that is to be impacted on by the expanding quarrying activities.**

Therefore, from a heritage point of view we recommend that the proposed development can continue. However, we request that the approach outlined above should be implemented and as soon as an area where sites occur is approached by the quarrying activities, an archaeologist should be called in to implement appropriate mitigation measures, i.e. documentation and test excavation of each site.



J A van Schalkwyk
Heritage Consultant
September 2009

TECHNICAL SUMMARY

Property details						
Province	North West					
Magisterial district	Bafokeng					
Topo-cadastral map	2527DA					
Closest town	Brits					
Farm name	Wonderkop 400JQ					
Portions/Holdings						
Coordinates	Centre point					
	No	Latitude	Longitude	No	Latitude	Longitude
	1	S 25.64975	E 27.54731			

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	
Construction of bridge or similar structure exceeding 50m in length	
Development exceeding 5000 sq m	Yes
Development involving three or more existing erven or subdivisions	
Development involving three or more erven or divisions that have been consolidated within past five years	
Rezoning of site exceeding 10 000 sq m	
Any other development category, public open space, squares, parks, recreation grounds	

Development	
Description	Expansion of granite quarrying activities
Project name	Wonderkop

Land use	
Previous land use	Farming
Current land use	Quarrying/farming

Heritage sites assessment		
<i>Site type</i>	<i>Site significance</i>	<i>Site grading (Section 7 of NHRA)</i>
Late Iron Age	Medium on regional level	III
Impact assessment		
<i>Impact</i>	<i>Mitigation</i>	<i>Permits required</i>
Destruction	Documentation & excavation	SAHRA

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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
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 EXPANSION OF THE WONDERKOP GRANITE QUARRY, NORTH WEST PROVINCE

1. INTRODUCTION

Nell Brothers (Pty) Ltd, Kudu Granite (Wonderkop), propose to expand their existing quarrying activities on the farm Wonderkop 400JQ. As this is a type of granite that is of particular quality and colour, it is quarried only when ordered in large quantities. Operations therefore are very slow and unpredictable and the quarry expands at an unpredictable rate. Prior quarrying activities took place in the 1950s and for many years the quarry has been dormant. These early quarrying activities did not consider the heritage sites in the region and some were compromised as a result.

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

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by **EIM Environmental** 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 develop the bus and taxi facility.

2. TERMS OF REFERENCE

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.

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.

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 and historical sources were consulted.

- A few publications deal with the region and none with the study area specifically. Some information was obtained on the mining in the region, e.g. Coetzee (1976) as well as the current inhabitants (Breutz 1953) and the Late Iron Age (Pistorius & Steyn 1995). An earlier heritage impact assessment report has been done for a section of the farm (Van Schalkwyk 2004).

4.2.1.2 Data bases

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

- Database surveys produced a number of sites located in the larger region of the proposed development.
- A copy of the original Title Deed was found in the records of the Chief Surveyor-General, and a few general references were traced in the National Archives of South Africa.

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 were obtained from these sources

4.2.2 Field survey

The area that had to be investigated was identified by **EIM Environmental** by means of maps. The site was surveyed by not only walking around the two hills, but also across them.

4.2 Limitations

None at present.

5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

5.1 Site location and description

The site is located on two small hills on the eastern section of the farm Wonderkop. Both sites have been quarried in the past. For more information, please see the Technical Summary presented above.

The geology is made up of gabbro, which manifest in the study area as two low hills. The original vegetation is classified as Clay Thorn Bushveld.

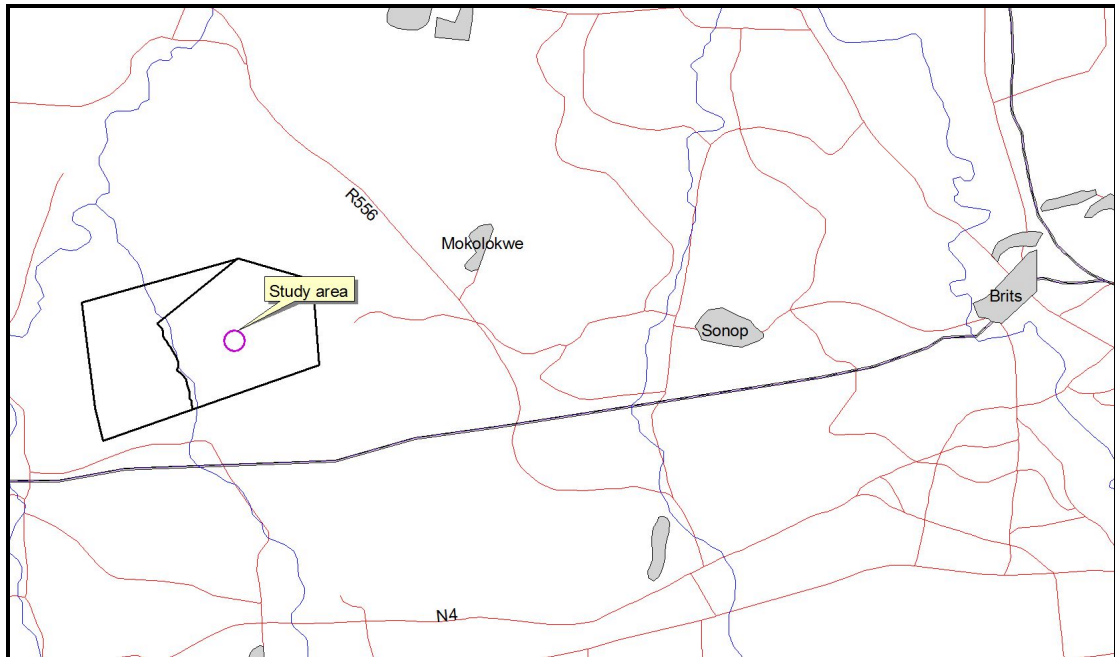


Fig. 1. Location of the study area (blue outline) in regional context.

5.2 Regional overview

5.2.1 Stone Age

Stone tools were noticed all over the survey area. These mostly date to the Middle Stone Age and include typical points, blades and rectangular flakes. However, all these objects were found on the surface and are therefore out of their original context. As result, they are viewed to have low significance.

5.2.2 Iron Age

Iron Age people started to settle in southern Africa c. AD 300, with one of the oldest known sites at Broederstroom south of Hartebeespoort Dam dating to AD 470. However, the occupation of the larger geographical area (including the study area) did not start much before the 1500s. This does not detract from the scale of the settlements found and the number of potential inhabitants. 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. In this particular area, because of the turf soil, which is not suitable for settling on, they preferred to settle close to the gabbro outcrops, using the abundance of stone to create their complex village layouts.

Iron Age sites dating to the Late Iron Age abound in the study area. These are linked to Tswana occupation of the area and date in all probability to the period from 1600 and later. They are all stonewalled and each site probably made up one individual settlement unit.

The layout of these settlements usually consists of a group of large primary stone walled enclosures, with associated bilobial dwellings linked to it. The latter usually occur in groups of four to five units, facing the associated livestock pens to the centre of the settlement.

The plains to the west of the hills were mostly used for agriculture and herding of cattle, as well as for hunting, collecting of firewood, etc.

5.2.3 Historical period

According to Breutz (1953:176) this farm used to be occupied by the BaPo ba Mogale, a Tswana-speaking group originally of Ndebele origin. It is therefore deduced that they are responsible for these sites.

According to the Title Deed the farm Wonderkop 835 (400JQ) was originally surveyed in 1893. Apart from a few tracks (roads) across it, it shows no signs of human activities. In 1926 the farm was bought by the Bapo tribe (Reference n2/10/3(24)).

5.3 Identified sites

The following cultural heritage resources were identified in the study area:

5.3.1 Stone Age

- **Some Middle Stone Age tools were noticed to occur in sporadic manner all over. As it is surface material, it is viewed to have no significance.**

5.3.2 Iron Age

- **A number of sites dating to the Iron Age were identified in the study area. These are of Tswana origin and date to the period post 1600 (Fig. 2).**

5.3.3 Historic period

- **No sites, features or objects dating to the historic period were identified in the study area.**

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

In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have a

- **Grade III significance.**

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.

- **Sites date to the Late Iron Age would eventually be impacted on by the expansion of the quarry.**

The different sites were identified and by taking a GPS coordinate in the centre for each site, a buffer area with a radius of 50 metres was established around each site. In some areas these would overlap. In this manner, areas that should be avoided, or where mitigation actions should be implemented prior to quarrying activities, were established (Fig. 3).

- **In this case, it is recommended that mitigation involve documentation (mapping and photographing) and test excavation of each site that is to be impacted on by the expanding quarrying activities.**

7. RECOMMENDED MANAGEMENT MEASURES

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

7.1 Objectives

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

The following shall apply:

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

7.2 Control

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

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off.

8. CONCLUSIONS

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area in which it is proposed to expand old quarrying activities.

- **A number of sites dating to the Iron Age were identified in the study area. These are of Tswana origin and date to the period post 1600.**

In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have Grade III significance.

Some of the sites would eventually be impacted on by the expansion of the quarry. The different sites were identified and by taking a GPS coordinate in the centre for each site, a buffer area with a radius of 50 metres was established around each site. In some areas these would overlap. In this manner, areas that should be avoided, or where mitigation actions should be implemented prior to quarrying activities, were established.

- **In this case, it is recommended that mitigation involve documentation (mapping and photographing) and test excavation of each site that is to be impacted on by the expanding quarrying activities.**

Therefore, from a heritage point of view we recommend that the proposed development can continue. However, we request that the approach outlined above should be implemented and as soon as an area where sites occur is approached by the quarrying activities, an

archaeologist should be called in to implement appropriate mitigation measures, i.e. documentation and test excavation of each site.

9. REFERENCES

9.1 Data bases

Chief Surveyor General

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.

Heritage Atlas Database, Pretoria.

National Archives of South Africa

9.2 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.

Breutz, P-L. 1953. *The Tribes of Rustenburg and Pilanesberg Districts*. Ethnological Publications. Pretoria: Government Printer.

Coetzee, C.B. (ed.) 1976. Mineral resources of the Republic of South Africa. Handbook 7, Geological Survey. Pretoria: Government Printer.

Holm, S.E. 1966. *Bibliography of South African Pre- and Protohistoric archaeology*. Pretoria: J.L. van Schaik.

Pistorius, J.C.C. & Steyn, M. 1995. Iron working and burial practises amongst the Kgatla-Kwena of the Mabyanamatswaana complex. *Southern African Field Archaeology* 4(2):68-77.

Van Schalkwyk, J.A. 2004. *Heritage impact assessment for the new Wonderkop Platinum Mine development, Bafokeng district, North West Province*. Unpublished report 2004KH049. Pretoria: National Cultural History Museum.

9.3 Archival sources

Depot TAB; **Source** KRB; **Type** leer; **Volume no** 16; **System** 01; **Reference** n2/10/3(24); **Part** 1

Description Native-owned and trust land. Purchase of remaining extent of "Wonderkop" No. 835. Rustenburg district by Bapo tribe

Starting 1924; **Ending** 1926

9.4 Maps and aerial photographs

1: 50 000 Topocadastral maps:

Google Earth

APPENDIX 1: CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON 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			

Significance of impact:

- low where the impact will not have an influence on or require to be significantly accommodated in the project design
- medium where the impact could have an influence which will require modification of the project design or alternative mitigation
- high where it would have a “no-go” implication on the project regardless of any mitigation

Certainty of prediction:

- Definite: More than 90% sure of a particular fact. Substantial supportive data to verify assessment
- Probable: More than 70% sure of a particular fact, or of the likelihood of that impact occurring
- Possible: Only more than 40% sure of a particular fact, or of the likelihood of an impact occurring
- Unsure: Less than 40% sure of a particular fact, or the likelihood of an impact occurring

Recommended management action:

For each impact, the recommended practically attainable mitigation actions which would result in a measurable reduction of the impact, must be identified. This is expressed according to the following:

- 1 = no further investigation/action necessary
- 2 = controlled sampling and/or mapping of the site necessary
- 3 = preserve site if possible, otherwise extensive salvage excavation and/or mapping necessary
- 4 = preserve site at all costs
- 5 = retain graves

Legal requirements:

Identify and list the specific legislation and permit requirements which potentially could be infringed upon by the proposed project, if mitigation is necessary.

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.

APPENDIX 3: SURVEY RESULTS

See Appendix 1 for an explanation of the conventions used in assessing the significance of the cultural remains.

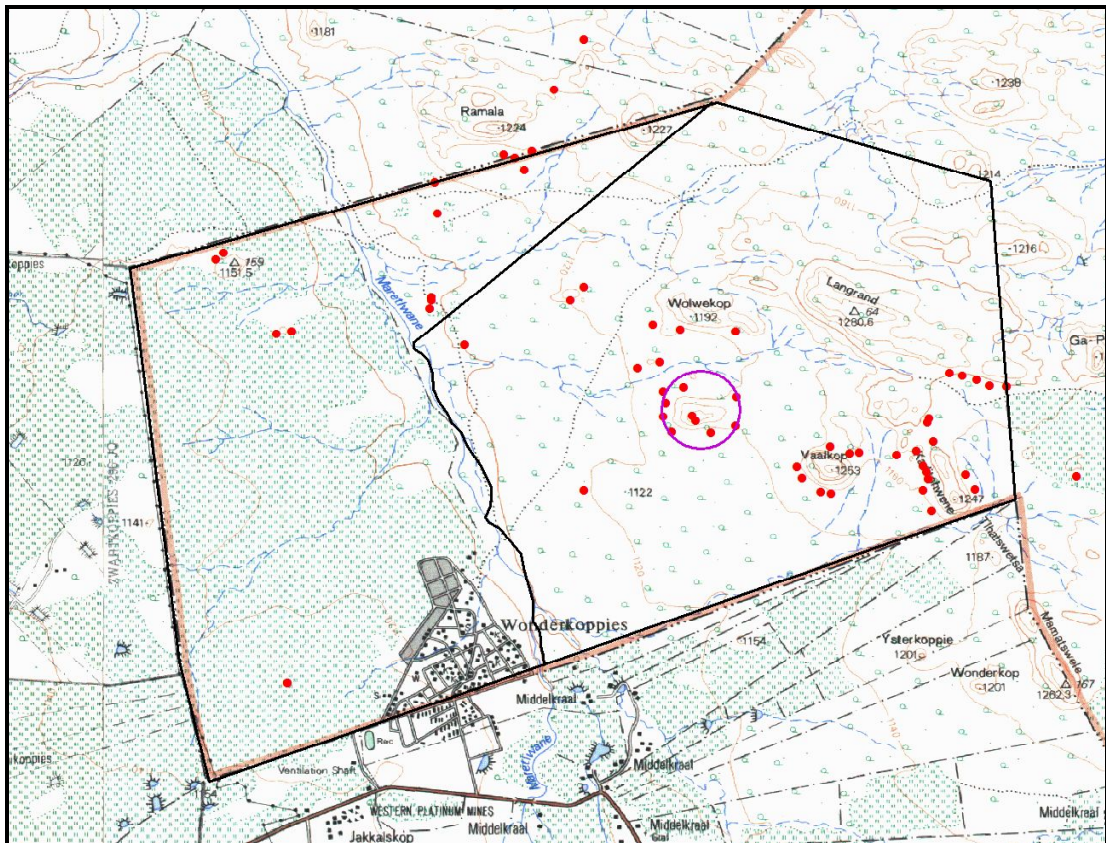


Fig. 2. Location of the study area (purple circle) with known heritage sites indicated. (Map 2527DA: Chief Surveyor-General).

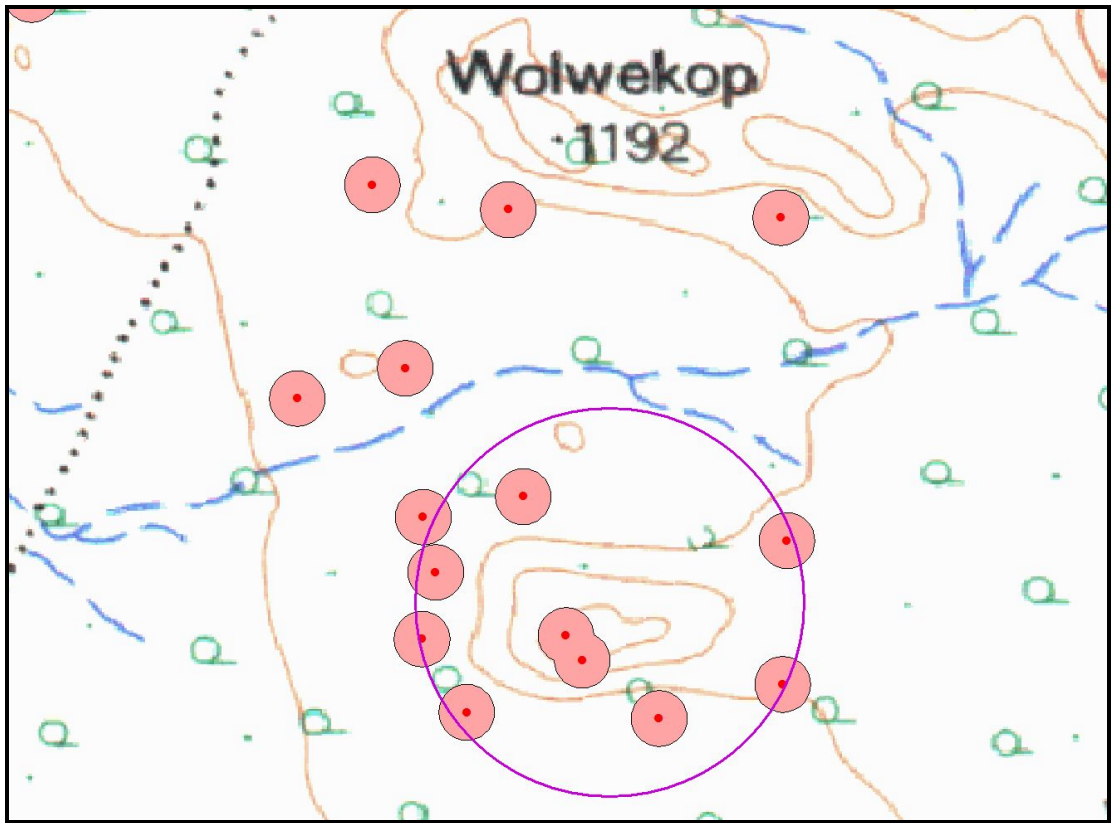


Fig. 3. Identified sites with a buffer of 50m radius surrounding each.

APPENDIX 4: ILLUSTRATIONS



Fig. 4. View over the quarrying operations.



Fig. 5. One of the typical Late Iron Age stonewalled sites.



Fig. 6. Stone walling on one of the sites, indicating its undisturbed status.



Fig. 7. Stone walling on top of the hill.

