



Archaetnos Culture & Cultural
Resource Consultants
BK 98 09854/23

**A REPORT ON A CULTURAL HERITAGE IMPACT ASSESSMENT FOR A
PROPOSED MINING RIGHTS APPLICATION ON THE FARM KANAKIES 332,
CLOSE TO LOERIESFONTEIN, NORTHERN CAPE PROVINCE**

For:

CABANGA ENVIRONMENTAL
Unit 5 & 6 Beyers Office Park
Bosbok Road
Randpark Ridge

REPORT NO.: AE01812V

By:

Prof. A.C. van Vollenhoven (L.AKAD.SA.)
Accredited member of ASAPA (Accreditation number: 166)
Accredited member of SASCH (Accreditation number: CH001)

29 March 2018

Archaetnos
P.O. Box 55
GROENKLOOF
0027
Tel: 083 291 6104
Fax: 086 520 4173
E-mail: antonv@archaetnos.co.za

Member: AC van Vollenhoven BA, BA (Hons), DTO, NDM, MA (Archaeology) [UP], MA (Culture History) [US], DPhil (Archaeology) [UP], Man Dip [TUT], D Phil (History) [US]

SUBMISSION OF REPORT

Please note that the South African Heritage Resources Agency (SAHRA) or one of its subsidiary bodies needs to comment on this report.

It is the client's responsibility to do the submission via the SAHRIS System on the SAHRA website.

Clients are advised not to proceed with any action before receiving the necessary comments from SAHRA.

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EXECUTIVE SUMMARY

Purpose:

Archaetnos cc was requested by Cabanga Environmental to conduct a cultural heritage impact assessment (HIA) for a proposed mining right application on the farm Kanakies 332. This is close to the town of Loeriesfontein in the Northern Cape Province. Loeriesfontein falls within the Hantam Local Municipality of the Namaqua District.

The heritage study forms part of an Environmental Impact Assessment (EIA). This report is the result of the HIA study.

Project description:

The applicable mineral related to the project is gypsum. Witkop Fluorspar Mine (Pty) Ltd has submitted an application for a mining right in terms of the Minerals and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA) over Portion 0 (the Remaining Extent), Kanakies 332, Calvinia Rd.

Methodology:

The methodology for the study includes a survey of literature followed by a field assessment. The latter was conducted according to generally accepted HIA practices and was aimed at locating all possible objects, sites and features of cultural significance in the area of proposed development.

If required, the location/position of any site was determined by means of a Global Positioning System (GPS), while photographs were also taken where needed. The survey was undertaken by doing a physical survey via off-road vehicle and on foot and covered as much as possible of the area to be studied. Certain factors, such as accessibility, density of vegetation, etc. may however influence the coverage.

All sites, objects, features and structures identified were documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities were determined by means of the Global Positioning System (GPS). The information was added to the description in order to facilitate the identification of each locality.

Public consultation:

Public consultation is done by the Environmental Practitioner.

Findings:

During the survey no sites of cultural heritage significance were identified within the immediate project area.

Recommendations:

- This report is seen as ample mitigation and the proposed development may thus continue, but only after the report had been approved by SAHRA.

- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. Due to the density of vegetation it also is possible that some sites may only become known later on. Operating controls and monitoring should therefore be aimed at the possible unearthing of such features. Care should therefore be taken when development commences that if any of these are discovered, a qualified archaeologist be called in to investigate the occurrence.

It is also important to take cognizance that it is the client's responsibility to do the submission of this report via the SAHRIS System on the SAHRA website. No work on site may commence before receiving the necessary comments from SAHRA.

CURRICULUM VITAE OF SPECIALIST: PROF ANTON CARL VAN VOLLENHOVEN

Tertiary education

- BA 1986, University of Pretoria
- BA (HONS) Archaeology 1988 (cum laude), University of Pretoria
- MA Archaeology 1992, University of Pretoria
- Post-Graduate Diploma in Museology 1993 (cum laude), University of Pretoria
- Diploma Tertiary Education 1993, University of Pretoria
- DPhil Archaeology 2001, University of Pretoria.
- MA Cultural History 1998 (cum laude), University of Stellenbosch
- Management Diploma 2007 (cum laude), Tshwane University of Technology
- DPhil History 2010, University of Stellenbosch

Employment history

- *1988-1991*: Fort Klapperkop Military Museum - Researcher
- *1991-1999*: National Cultural History Museum. Work as Archaeologist, as well as Curator/Manager of Pioneer Museum (1994-1997)
- *1999-2002*: City Council of Pretoria. Work as Curator: Fort Klapperkop Heritage Site and Acting Deputy Manager Museums and Heritage.
- *2002-2007*: City of Tshwane Metropolitan Municipality. Work as Deputy Manager Museums and Heritage.
- *August 2007* – present – Managing Director for Archætnos Archaeologists.
- *1988-2003*: Part-time lecturer in Archaeology at the University of Pretoria and a part-time lecturer on Cultural Resources Management in the Department of History at the University of Pretoria.
- *2014*: Part-time lecturer for the Honours degree in Museum Sciences in the Department of History and Heritage Studies at the University of Pretoria
- *2015*: Appointed extraordinary professor in history at the Mafikeng Campus of the Northwest University

Other

- Published 75 articles in scientific and popular journals on archaeology and history.
- Author and co-author of over 580 unpublished reports on cultural resources surveys and archaeological work. A list of reports can be viewed on www.archætnos.co.za
- Published a book on the Military Fortifications of Pretoria.
- Contributed to a book on Mapungubwe.
- Delivered more than 50 papers and lectures at national and international conferences.
- Member of SAHRA Council for 2003 – 2006.
- Member of the South African Academy for Science and Art.
- Accredited professional member of Association for South African Professional Archaeologists.
- Accredited professional member of the South African Society for Cultural History (Chairperson 2006-2008; 2012-2014).
- Has been editor for the SA Journal of Cultural History 2002-2004.
- Member of the Provincial Heritage Resources Agency, Gauteng's Council.
- Member of Provincial Heritage Resources Agency, Gauteng's HIA adjudication committee (Chairperson 2012-2019).

ASAPA Accreditation number: 166
SASCH Accreditation number: CH001

DECLARATION OF INDEPENDENCE

I, Anton Carl van Vollenhoven from Archaetnos, hereby declare that I am an independent specialist within the field of heritage management.

Signed:



Date: 29 March 2018

LIST OF ACRONYMS:

AIA – Archaeological Impact Assessment
AMP – Archaeology, Meteorites and Palaeontology unit of SAHRA
CMP – Cultural Management Plan
EAP – Environmental Assessment Practitioner
EIA – Environmental Impact Assessment
HIA – Heritage Impact Assessment
PIA – Palaeontological Impact Assessment
SAHRA –South African Heritage Resources Agency

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1. INTRODUCTION

Archaetnos cc was requested by Cabanga Environmental to conduct a cultural heritage impact assessment (HIA) for a mining right application on the farm Kanakies 332. This is close to the town of Loeriesfontein in the Northern Cape Province. Loeriesfontein falls within the Hantam Local Municipality of the Namaqua District (Figure 1-4).

A central co-ordinate of the development is 30°59'3.11"S; 18°57'31.85"E. The topographic 1:50 000 map sheet numbers are 3018DD, 3019CC, 3118BB, 3119AA.

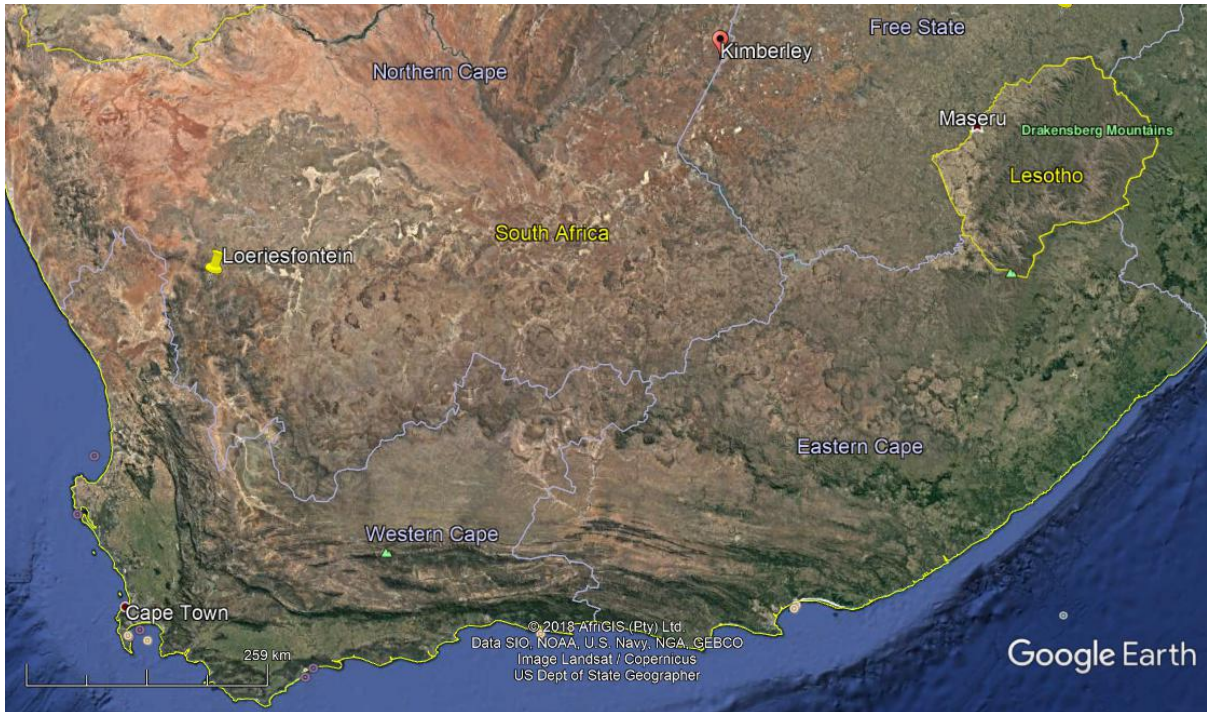


FIGURE 1: LOCATION OF LOERIESFONTEIN IN THE NORTHERN CAPE PROVINCE.

The applicable mineral related to the project is gypsum. Witkop Fluorspar Mine (Pty) Ltd Has submitted an application for a mining right in terms of the Minerals and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA) over Portion 0 (the Remaining Extent), Kanakies 332, Calvinia Rd.

The deposit consists of 2 layers of gypsum i.e. a powder layer and nodular crystalline (clay) layer of gypsum. Mining will be conducted via surface trench mining; the dimensions of a single mining block will be approximately 50m x 100m. The powder will be screened to remove foreign materials and is expected to be recovered by a margin of at least 90%. The clay layer will be roll-crushed and screened by means of high frequency screening plant at an estimated recovery of approximately 50%.

Product will be stockpiled in designated areas for pre-qualification prior to being either trucked to market or loaded onto train trucks using the existing rail siding on the farm. The proposed infrastructure includes:

- A mobile crushing and screening plant
- Mobile “container” offices
- A vehicle park area, including workshop and bays
- A built hydrocarbon storage (max 30m³)
- Gravel access roads (10km x 5m wide).

The heritage study forms part of the EIA process which currently is in its scoping phase. The relevant reference number for the project is NC30/5/1/2/3/2/1 (10136) MR.

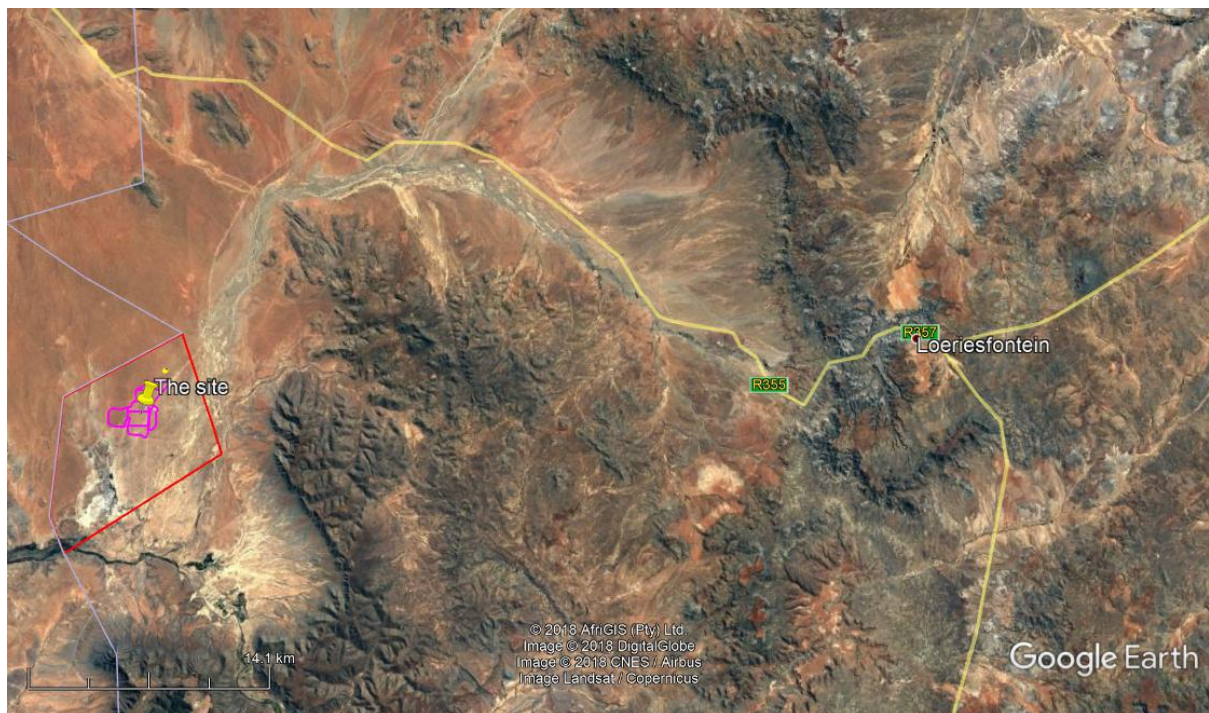


FIGURE 2: LOCATION OF THE SITE IN RELATION TO LOERIESFONTEIN.

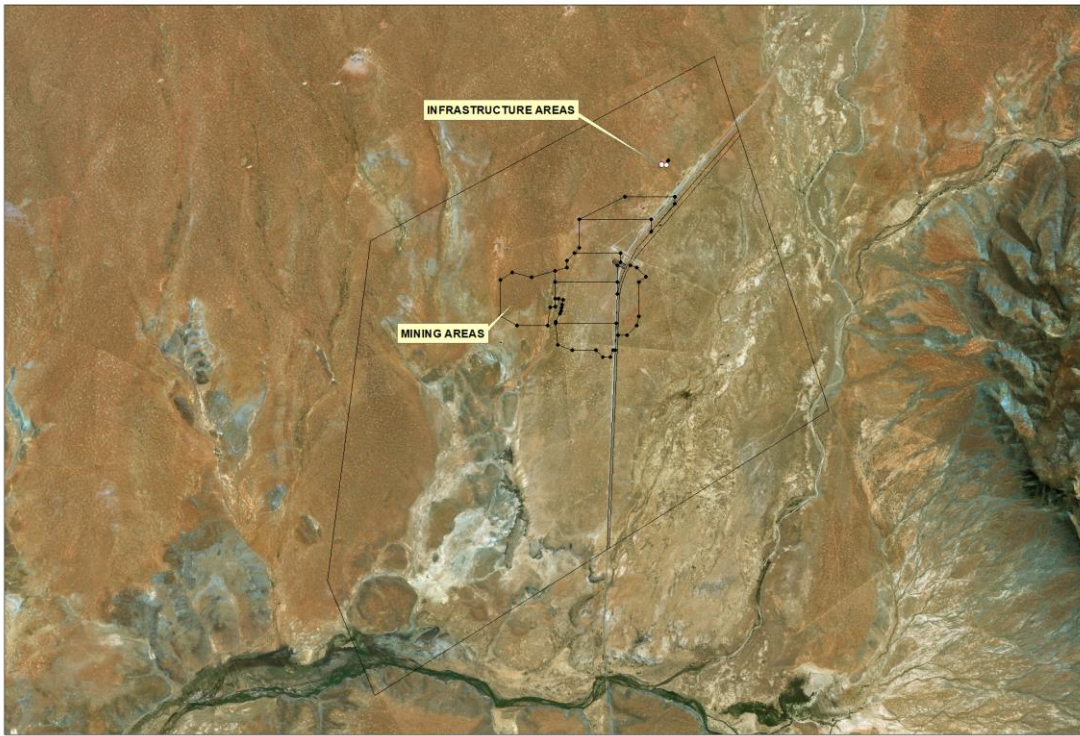


FIGURE 3: DETAIL OF THE PROPOSED MINING AREA.

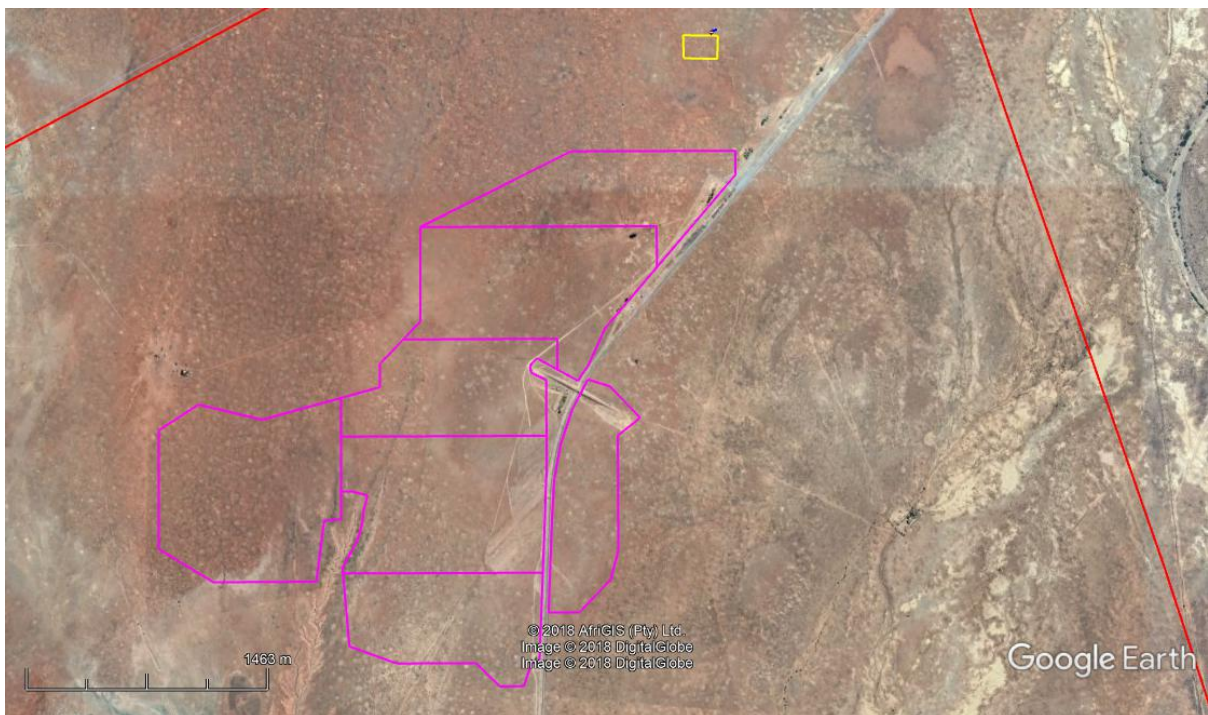


FIGURE 4: GOOGLE EARTH IMAGE INDICATING THE PROPOSED MINING AREA.

2. TERMS OF REFERENCE

The Terms of Reference for the survey were to:

1. Identify objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the property (see Appendix A).
2. Document the found cultural heritage sites according to best practice standards for heritage related studies.
3. Study background information on the area to be developed.
4. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value (see Appendix B).
5. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions.
6. Recommend suitable mitigation measures to minimize possible negative impacts on the cultural resources by the proposed development.
7. Review applicable legislative requirements.

3. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. The first of these are the National Heritage Resources Act (Act 25 of 1999) which deals with the cultural heritage of the Republic of South Africa. The second is the National Environmental Management Act (Act 107 of 1998) which inter alia deals with cultural heritage as part of the Environmental Impact Assessment process.

3.1 The National Heritage Resources Act

According to the above-mentioned act the following is protected as cultural heritage resources:

- a. Archaeological artifacts, structures and sites older than 100 years
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts
- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years

- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The national estate (see Appendix D) includes the following:

- a. Places, buildings, structures and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Archaeological and paleontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, paleontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources.

A Palaeontological Impact Assessment (PIA) is an assessment of palaeontological heritage. Palaeontology is a different field of study, and although also sometimes required by the South African Heritage Resources Agency (SAHRA)¹, should be done by a professional palaeontologist.

The different phases during the HIA process are described in Appendix E. An HIA must be done under the following circumstances:

- a. The construction of a linear development (road, wall, power line canal etc.) exceeding 300m in length
- b. The construction of a bridge or similar structure exceeding 50m in length
- c. Any development or other activity that will change the character of a site and exceed 5 000m² or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m²
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

Structures

Section 34 (1) of the mentioned act states that no person may demolish any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

¹ Please consult SAHRA to determine whether a PIA is necessary.

A structure means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

Alter means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.

Archaeology, palaeontology and meteorites

Section 35(4) of this act deals with archaeology, palaeontology and meteorites. The act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial):

- a. destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological 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 paleontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or paleontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and paleontological material or objects, or use such equipment for the recovery of meteorites.
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). To demolish such a site or structure, a destruction permit from SAHRA will also be needed.

Human remains

Graves and burial grounds are divided into the following:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. human remains

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

- 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 or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- c. bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Unidentified/unknown graves are also handled as older than 60 until proven otherwise.

Human remains that are less than 60 years old are subject to provisions of the **National Health Act (Act 61 of 2003)** and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated) before exhumation can take place. Human remains can only be handled by a registered undertaker or an institution declared under the **National Health Act (Act 61 of 2003)**.

3.2 The National Environmental Management Act

This Act (Act 107 of 1998) states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

3.3 The International Finance Corporations' performance standard for Cultural Heritage

This standard recognizes the importance of cultural heritage for current and future generations. It aims to ensure that clients protect cultural heritage in the course of their project activities.

This is done by clients abiding to the law and having heritage surveys done in order to identify and protect cultural heritage resources via field studies and the documentation of such resources. These need to be done by competent professionals (e.g.

archaeologists and cultural historians). Any possible chance finds, encountered during the project development, also needs to be managed by not disturbing it and by having it assessed by professionals.

Impacts on the cultural heritage should be minimized. This includes the possible maintenance of such sites *in situ*, or when not possible, the restoration of the functionality of the cultural heritage in a different location. When cultural historical and archaeological artifacts and structures need to be removed, this should be done by professionals and by abiding to the applicable legislation. The removal of cultural heritage resources may, however, only be considered if there are no technically or financially feasible alternatives. In considering the removal of cultural resources, it should be outweighed by the benefits of the overall project to the affected communities. Again, professionals should carry out the work and adhere to the best available techniques.

Consultation with affected communities should be conducted. This entails that such communities should be granted access to their cultural heritage if this is applicable. Compensation for the loss of cultural heritage should only be given in extra-ordinary circumstances.

Critical cultural heritage may not be impacted on. Professionals should be used to advise on the assessment and protection thereof. Utilization of cultural heritage resources should always be done in consultation with the affected communities in order to be consistent with their customs and traditions and to come to agreements with relation to possible equitable sharing of benefits from commercialization.

4. METHODOLOGY

4.1 Survey of literature

A survey of literature was undertaken in order to obtain background information regarding the area. Sources consulted in this regard are indicated in the bibliography.

4.2 Reference to other specialist studies

One Archaeological Impact Assessments has been done on the farm Kanakies before (Wadley & Halkett 2010a). A few reports are known from the Loeriesfontein area (SAHRIS database). However, Loeriesfontein is approximately 50 km northeast of the site and therefore reference to these would not really be applicable to Kanakies.

4.3 Public consultation and stakeholder engagement

This aspect will be dealt with by Cabanga Environmental. It is currently in process and will be undertaken in line with NEMA EIA Regulations.

4.4 Oral histories

People from local communities are interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography. In this case, no interviews were undertaken as part of the HIA. It is assumed that this will be covered during the public consultation undertaken by the Environmental Practitioner.

4.5 Physical field survey

The survey was conducted according to generally accepted HIA practices and was aimed at locating all possible objects, sites and features of cultural significance in the area of proposed development. One regularly looks a bit wider than the demarcated area, as the surrounding context needs to be taken into consideration.

If required, the location/position of any site was determined by means of a Global Positioning System (GPS)², while photographs were also taken where needed. The survey was undertaken by doing a physical survey via off-road vehicle and on foot and covered as much as possible of the area to be studied (Figure 5).

Certain factors, such as accessibility, density of vegetation, etc. may however influence the coverage. In this instance the under footing was reasonably open, and the vegetation varied between medium and low. Accordingly, both the horizontal and the vertical archaeological visibility was influenced positively. The size of the surveyed area is limited to the positions indicated on the above maps, but the entire prospect area is approximately 7 456 Ha. The survey took 18 hours to complete.

4.6 Documentation

All sites, objects, features and structures identified were documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities were determined by means of the Global Positioning System (GPS). The information was added to the description in order to facilitate the identification of each locality.

4.7 Evaluation of Heritage sites

The evaluation of heritage sites is done by giving a field rating of each (see Appendix C) using the following criteria:

- The unique nature of a site
- The integrity of the archaeological deposit
- The wider historic, archaeological and geographic context of the site
- The location of the site in relation to other similar sites or features
- The depth of the archaeological deposit (when it can be determined or is known)

² A Garmin Oregon 550 with an accuracy factor of a few meters.

- The preservation condition of the site
- Uniqueness of the site and
- Potential to answer present research questions.

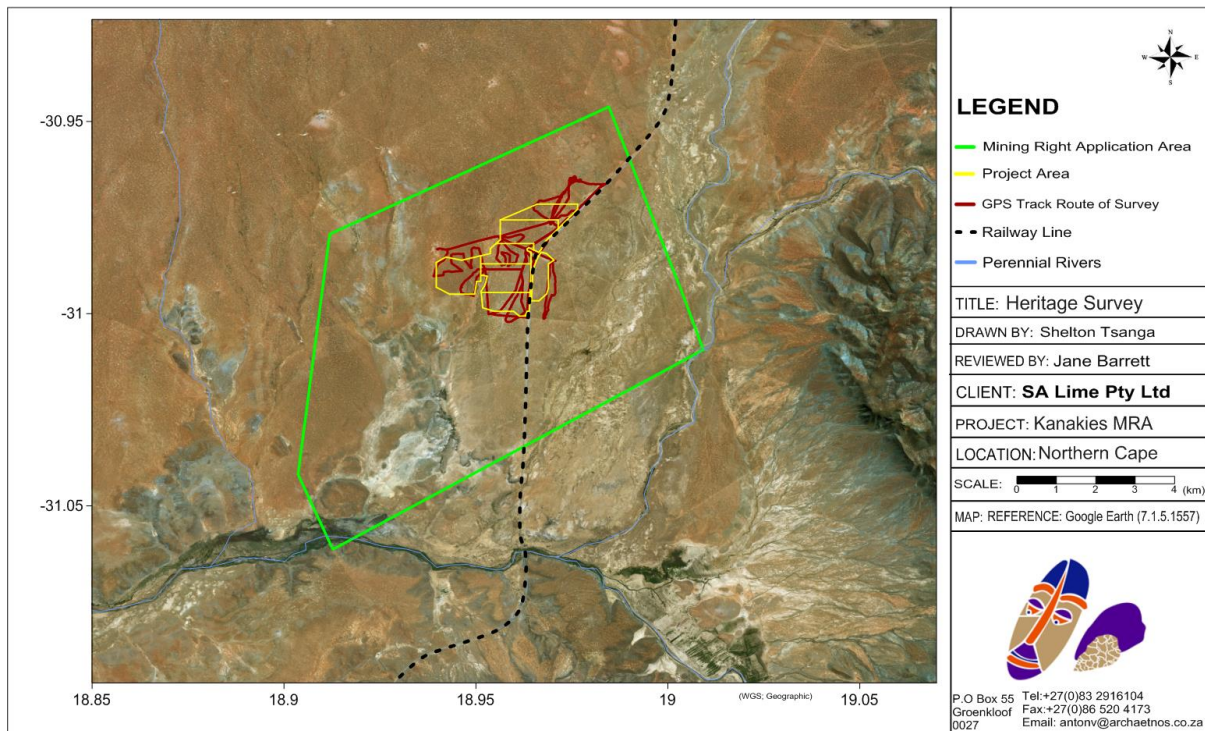


FIGURE 5: GPS TRACK OF THE SURVEYED AREA. NORTH REFERENCE IS TO THE TOP.

5. ASSUMPTIONS, GAPS, RESTRICTIONS, CONDITIONS AND LIMITATIONS

The following conditions and assumptions have a direct bearing on the survey and the resulting report:

1. Cultural Resources are all non-physical and physical man-made occurrences, as well as natural occurrences associated with human activity (Appendix A). These include all sites, structures and artifacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development. Graves and cemeteries are included in this.
2. The significance of the sites, structures and artifacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. The various aspects are not mutually exclusive, and the evaluation of any site is done with reference to any number of these aspects.
3. Cultural significance is site-specific and relates to the content and context of the site. Sites regarded as having low cultural significance have already been recorded in full and require no further mitigation. Sites with medium cultural

significance may or may not require mitigation depending on other factors such as the significance of impact on the site. Sites with a high cultural significance require further mitigation (see Appendix C).

4. The latitude and longitude of any archaeological or historical site or feature, is to be treated as sensitive information by the developer and should not be disclosed to members of the public.
5. All recommendations are made with full cognizance of the relevant legislation.
6. It has to be mentioned that it is almost impossible to locate all the cultural resources in a given area, as it will be very time consuming. Developers should however note that the report should make it clear how to handle any other finds that might occur.
7. Certain areas which are clearly disturbed are also seen as very low risk areas and were therefore not surveyed in detail and sometimes just driven through.
8. In this particular case the vegetation under footing was reasonably open and the vegetation varied between medium and low. Accordingly, both the horizontal and the vertical archaeological visibility was influenced positively, and it was possible to see over a large distance with a diameter of approximately 300 m.

6. DESCRIPTION OF THE SOCIO-ECONOMIC ENVIRONMENT

The Hantam Municipality covers 36 128km² and includes Calvinia, the centre, as well as Brandvlei, Loeriesfontein, Middelpoos, Nieuwoudtville and Swartkop. Calvinia is approximately 400 km from Cape Town, Springbok, Upington and Beaufort West.

The Municipality provides work for more than 140 permanent employees. Seventy percent of the population of approximately 20 000 people live and work in the towns. Agriculture is however the main economic sector. Loeriesfontein was established in 1894 and was declared a municipality in 1958.

The village forms part of the spring flower spectacle centred on Nieuwoudtville and attracts many visitors during the flowering season which runs from late July through to the end of September. The Windpump Museum situated in the grounds of the Fred Turner museum is probably Loeriesfontein's most well-known tourism attraction and features a collection of 27 working windpumps originating from afar afield as the United States and Canada.

7. DESCRIPTION OF THE PHYSICAL ENVIRONMENT

The farm Kanakies lies within the Hantam/ Namaqualand region, known to be a very arid region. This region contains very little vegetation, primarily very low shrubs and

little grass among a sandy desert kind of landscape. Mountains are found in the vicinity, but Kanakies lies a reasonable distance from these. The topography of the surveyed area is considered flat, with a slight fall towards non-perennial rivers in the study area.

Vegetation cover is scarce, and consists of low shrubs in between open patches of dry land (Figure 6-8). Archaeological visibility was reasonably good during the survey. The mentioned non-perennial river is mostly outside of the surveyed area. Vegetation is denser along the river bed, but still very open (Figure 9).

Disturbance includes farm roads and an area with old agricultural fields (Figure 10). The largest disturbance is the Sishen-Saldanha railway line, which bisects the farm and surveyed area in two (Figure 11).



FIGURE 6: GENERAL VIEW OF THE SURVEYED AREA.



FIGURE 7: VIEW OF GROUND COVER IN THE SURVEYED AREA.



FIGURE 8: ANOTHER VIEW OF VEGETATION COVER ON SITE.



FIGURE 9: VIEW OF THE DRY RIVER BED JUST OUTSIDE OF THE SURVEYED AREA.



FIGURE 10: REMAINS OF OLD AGRICULTURAL FIELDS IN THE SURVEYED AREA.



FIGURE 11: THE RAILWAY LINE ON THE FARM. IT CURRENTLY IS UNDERGOING MAINTENANCE.

8. HISTORICAL CONTEXT

No sites of cultural heritage significance were identified during the survey. Background information is given in order to place the surveyed area in a historical context and to contextualize possible finds that could be unearthed during mining activities.

There is very little archaeological information available of the area around Kanakies. Only one report was identified on SAHRIS, whereas a few more are known from surrounding areas, including Loeriesfontein (SAHRIS database). The distance from the farm to Loeriesfontein is approximately 50 km and therefore this information is not really applicable to the study area.

8.1 Stone Age

The Stone Age is the period in human history when lithic material was mainly used to produce tools (Coertze & Coertze 1996: 293). In South Africa the Stone Age can be divided in three periods. It is, however, important to note that dates are relative and only provide a broad framework for interpretation. The division for the Stone Age according to Korsman & Meyer (1999: 93-94) is as follows:

Early Stone Age (ESA) 2 million – 150 000 years ago
Middle Stone Age (MSA) 150 000 – 30 000 years ago
Late Stone Age (LSA) 40 000 years ago – 1850 - A.D.

This geographical area is not well-known as one containing many prehistoric sites. One however has to realize that this most likely only indicates that not much research has been done here before.

The Bokkeveldberge contain many rock art sites, but the only published accounts are from the Koebee River some 100km to the south of Kanakies (Webley & Halkett 2010a). Rock engravings are also known to occur near Brandvlei (Kaplan 2017), while Webley & Halkett (2010b) also recorded dispersed scatters of Middle Stone Age (MSA) tools around the Katkop Hills close to Loeriesfontein. Kaplan (2013) recorded exceptionally high-density scatters of MSA tools covering 10's of thousands of square meters about 40 km east of Brandvlei. A well preserved Later Stone Age (LSA) Khoekhoen herder site with large numbers of stone tools, hundreds of fragments of ostrich eggshell were also recorded by Kaplan (2013). Brandvlei however lies even further towards the east of the study area than Loeriesfontein.

Many Middle and Late Stone Age tools have been found by Archaetnos during surveys in the Northern Cape. The closest of these are isolated MSA and LSA stone tools found at Verdoorst Kolk, close to Brandvlei (Archaetnos' database). Webley & Halkett (2010a) points out that there is no published literature on the area. They indicate that MSA scatter were found some 40km to the north-east, while another MSA scatters have been found some 50km to the south-west along the Sout River.

At Kenhardt, more than 200 km north-east of the surveyed area stone tools were also identified. On the farm Konkooksies 91 in the Pofadder district, five sites with Middle and Late Stone Age tools were identified (Archaetnos database). Rock engraving (rock pecking) sites are known from the nearby Putsonderwater (Archaetnos database). Rock engravings are associated with the Late Stone Age people.

The mentioned Late Stone Age sites are associated with the San people. Mitchell (2002: 126) indicates that the language group who occupied the Northern Cape is the /Xam. These people were hunters and gatherers which means that they would have moved around, leaving little trace of their existence.

The Hantam, Namaqualand and Bushmanland were of the last regions of the Cape Province to be settled by early European farmers. The result was that it became a last outpost of the /Xam Bushman who still hunted and gathered there in the last decades of the 19th Century (Deacon 1986, 1997). Research suggests that the 'Grass Bushmen' may have lived between Kenhardt and Brandvlei, while the 'Flat Bushmen' lived between Vanwyksvlei and Kenhardt (Deacon 1996).

The environment here seems very similar to that at the study area, indicating that Stone Age material is likely to also be found within the Kanakies study area. This was indeed the case. Isolated MSA tools were found scattered throughout the area (Figure 12-15).

From the above mentioned it is clear that Stone Age people did utilize the area by settling and probably hunting and gathering in it. The environment definitely would be supportive to Stone Age activities. The hills surrounding the farm most likely would

have given natural shelter and material to make stone tools from. These volcanic intrusions definitely give material suitable for the manufacture of lithic tools. Although the large flat surrounding area would not have given shelter, it must have been a prime hunting area.



FIGURE 12: BROKEN MSA BLADE FOUND DURING THE SURVEY.



FIGURE 13: MSA TOOLS PICKED UP IN CLOSE VICINITY OF EACH OTHER INSIDE OF THE SURVEYED AREA.



FIGURE 14: TWO MSA TOOLS FOUND CLOSE TO THE NON-PERENNIAL RIVER.



FIGURE 15: MSA TOOLS FOUND ALONG THE RIVER, JUST OUTSIDE OF THE SURVEYED AREA.

8.2 Iron Age

The Iron Age is the name given to the period of human history when metal was mainly used to produce metal artifacts (Coertze & Coertze 1996: 346). In South Africa it can be divided in two separate phases according to Van der Ryst & Meyer (1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.

Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) however, indicates that a Middle Iron Age should be included. His dates, which now seem to be widely accepted in archaeological circles, are:

Early Iron Age (EIA) 250 – 900 A.D.

Middle Iron Age (MIA) 900 – 1300 A.D.

Late Iron Age (LIA) 1300 – 1840 A.D.

No Early or Middle Iron Age sites have been identified in the area of study. Iron Age people occupied the central and eastern parts of southern Africa from about 200 A.D., but the San and Khoi remained in the western and southern parts (Inskeep 1978: 126; see also Huffman 2007).

During the Late Iron Age (LIA), people stayed in extensive stonewalled settlements, such as the Thlaping capital Dithakong, 40 km north of Kuruman. Sotho-Tswana and Nguni societies, the descendants of the LIA mixed farming communities, found the region already sparsely inhabited by the Late Stone Age (LSA) Khoisan groups, the so-called 'first people'. Most of them were eventually assimilated by LIA communities and only a few managed to survive, such as the Korana and Griqua. This period of contact is sometimes known as the Ceramic Late Stone Age and is represented by the Blinkklipkop specularite mine near Postmasburg and finds at the Kathu Pan (De Jong 2010: 36). It is also known that Late Iron Age people did utilize the area close to the Orange River, albeit briefly, as they did mine copper in the Northern Cape (Inskeep 1978: 135).

Iron Age people therefore did not settle in the study area. It therefore is no surprise that no such sites were identified during the survey.

8.3 Historical Age

The historical age started with the first recorded oral histories in the area. It includes the moving into the area of people that were able to read and write. This era is sometimes called the Colonial era or the recent past. Due to factors such as population growth and a decrease in mortality rates, more people inhabited the country during the recent historical past. Therefore, and because less time has passed, much more cultural heritage resources from this era have been left on the landscape.

It is important to note that all cultural resources older than 60 years are potentially regarded as part of the heritage and that detailed studies are needed to determine

whether these indeed have cultural significance. Factors to be considered include aesthetic, scientific, cultural and religious value of such resources.

Such sites include the many historical buildings and structures indicated on the SAHRA database in Kakamas, Kenhardt, Keimoes and Brandvlei (SAHRA Database). In Loeriesfontein the Dutch Reformed Church building is noted as being of heritage significance. These sites are associated with the early missionaries, travelers, first white farmers and establishment of towns during the 19th century.

From the 1880's onwards colonial settlement was promoted in the area. Government-owned land was surveyed and divided into farms, which were transferred to farmers. Surveyors were given the task of surveying and naming some of the many farms in this region. These farms were allocated to prospective farmers, but permanent settlement only started in the late 1920s and the first farmsteads were possibly built during this period. The region remained sparsely populated until the advent of the 20th century (De Jong 2010: 36).

The farm Kanakies seems to have been measured out first in 1868 as Crown Land, although the deed was only registered in 1874 (Surveyor-General F476/1874). Another source about the region (Van Zyl 2010: 13) also indicates that most of the farms were still Government farms and were leased to farmers in 1875. It seems as if shortly hereafter farms were sold to individuals.

The above-mentioned information means that the buildings on these farms could only have been built after the mid-19th century and most likely after 1875. Buildings on the farm however fall outside of the surveyed area.

The town of Loeriesfontein is situated at the northern slopes of the Skurweberg. The town grew around a trading store established in 1894, however given its isolation grew very slowly and was only declared a municipality in 1958. Close to the town one of the world's largest quiver tree (kokerboom) forests is situated. Known as Choje to the indigenous San people, the Quiver tree gets its name from the San practice of hollowing out the tubular branches to form quivers for their arrows.

9. DISCUSSION OF SITES IDENTIFIED DURING THE SURVEY

As indicated no sites have been identified.

10. CONCLUSION AND RECOMMENDATIONS

The field work for the project has been completed successfully. The following is recommended:

- This report is seen as ample mitigation and the proposed development may thus continue, but only after the report had been approved by SAHRA.

- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. Due to the density of vegetation in certain areas it also is possible that some sites may only become known later. Operating controls and monitoring should therefore be aimed at the possible unearthing of such features. Care should therefore be taken when development commences that if any of these are discovered, a qualified archaeologist be called in to investigate the occurrence.
- In this regard the following 'Chance find Procedure' should be followed:
 - *Upon finding any archaeological or historical material all work at the affected area must cease.*
 - *The area should be demarcated to prevent any further work there until an investigation has been completed.*
 - *An archaeologist should be contacted immediately to provide advice on the matter.*
 - *Should it be a minor issue, the archaeologist will decide on future action. Depending on the nature of the find, it may include a site visit.*
 - *SAHRA's APM Unit may also be notified.*
 - *If needed the necessary permit will be applied for with SAHRA. This will be done in conjunction with the appointed archaeologist.*
 - *The removal of such archaeological material will be done by the archaeologist in lieu of the approval given by SAHRA, including any conditions stipulated by the latter.*
 - *Work on site will only continue after the archaeologist/ SAHRA has agreed to such a matter.*

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APPENDIX A

DEFINITION OF TERMS:

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

Structure: A permanent building found in isolation or which forms a site in conjunction with other structures.

Feature: A coincidental find of movable cultural objects.

Object: Artifact (cultural object).

(Also see Knudson 1978: 20).

APPENDIX B

DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE:

- Historic value: Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.
- Aesthetic value: Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
- Scientific value: Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period
- Social value: Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
- Rarity: Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.
- Representivity: Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or 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.

APPENDIX C

SIGNIFICANCE AND FIELD RATING:

Cultural significance:

- Negligible – The site has no heritage significance, although it may be older than 60 years.
- Low - A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings. A site with minimal importance which is decreased by its bad state of decay.
- Low-Medium - A site of lesser importance, which is increased by a good state of preservation and contextual importance (e.g. a specific community).
- Medium - Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also, any important object found out of context.
- Medium-High - A site that has high importance due to its age or uniqueness, but which decreases due to its bad state of decay.
- High - Any site, structure or feature regarded as important because of its age or uniqueness. Also, any important object found within a specific context.
- Very High - A site of exceptional importance due to its age, uniqueness and good state of preservation.

Heritage significance:

- Grade I Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III Other heritage resources of local importance and therefore worthy of conservation

Field ratings:

National Grade I significance: The site should be managed as part of the national estate, should be nominated as Grad I site, should be maintained in situ with a protected buffer zone and a CMP must be recommended. Score above 50.

Provincial Grade II significance: The site should be managed as part of the provincial estate, should be nominated as Grade II site, should be maintained in situ with a protected buffer zone and a CMP must be recommended. Score between 40 and 50.

Local Grade IIIA: The site should be included in the heritage register and not be mitigated (high significance), should be maintained in situ with a protected buffer zone and a CMP must be recommended. Score between 37 and 40.

Local Grade IIIB: The site should be included in the heritage register and may be mitigated (high/ medium significance). Mitigation is subject to a permit application lodged with the relevant heritage authority. Score between 6 and 36.

Local Grade IIIC: The description in the phase 1 heritage report is seen as sufficient recording (low significance) and it may be granted destruction at the discretion of the relevant heritage authority without a formal permit application, subjected to the granting of Environmental Authorisation. Score below 5.

APPENDIX D

PROTECTION OF HERITAGE RESOURCES:

Formal protection:

National heritage sites and Provincial heritage sites – grade I and II

Protected areas - an area surrounding a heritage site

Provisional protection – for a maximum period of two years

Heritage registers – listing grades II and III

Heritage areas – areas with more than one heritage site included

Heritage objects – e.g. archaeological, palaeontological, meteorites, geological specimens, visual art, military, numismatic, books, etc.

General protection:

Objects protected by the laws of foreign states

Structures – older than 60 years

Archaeology, palaeontology and meteorites

Burial grounds and graves

Public monuments and memorials

APPENDIX E

HERITAGE IMPACT ASSESSMENT PHASES

1. Pre-assessment or scoping phase – establishment of the scope of the project and terms of reference.
2. Baseline assessment – establishment of a broad framework of the potential heritage of an area.
3. Phase I impact assessment – identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.
4. Letter of recommendation for exemption – if there is no likelihood that any sites will be impacted.
5. Phase II mitigation or rescue – planning for the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
6. Phase III management plan – for rare cases where sites are so important that development cannot be allowed.