



Archaetnos Culture & Cultural
Resource Consultants
BK 98 09854/23

**A REPORT ON AN ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE
PROPOSED ROODEPOORT MINING PROJECT, CLOSE TO PULLENS HOPE,
MPUMALANGA PROVINCE**

For:

Geovicon
E-mail: Riana Bate - riana@geovicon.co.za

REPORT NO.: AE02103V

By:

Prof. A.C. van Vollenhoven (L.AKAD.SA.)
Accredited member of ASAPA (Accreditation number: 166)
Accredited member of SASCH (Accreditation number: CH001),
Johan Smit &
Daniël Viljoen

27 January 2021

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

Archaetnos cc was requested by Geovicon to conduct an archaeological impact assessment (AIA) for the proposed Roodepoort Mining Project. The site is located south west of Pullens Hope in the Mpumalanga Province.

The mine is planned on a Portion of the Remaining Extent of the farm Roodepoort 151 IS. The study forms part of the Environmental Authorisation Process.

The methodology for the study includes a survey of literature and a field survey. 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 GPS. The information was added to the description in order to facilitate the identification of each locality.

During the survey, two sites of cultural heritage significance were identified.

The following is recommended:

- Since the graveyard is outside of the area of direct development, and already fence in, it should remain as such.
- However, a cultural heritage management plan (CMP) needs to be drafted to ensure the protection of the graves.
- After implementation of the above mitigation measures and upon receiving the necessary comments from the heritage authority, the proposed development may continue.
- 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.

- In This regards the following 'Chance find Procedure' should be followed:
 1. Upon finding any archaeological or historical material all work at the affected area must cease.
 2. The area should be demarcated in order to prevent any further work there until an investigation has been completed.
 3. An archaeologist should be contacted immediately to provide advice on the matter.
 4. Should it be a minor issue, the archaeologist will decide on future action, which could include adapting the HIA or not. Depending on the nature of the find, it may include a site visit.
 5. SAHRA's APM Unit may also be notified.
 6. If needed, the necessary permit will be applied for with SAHRA. This will be done in conjunction with the appointed archaeologist.
 7. 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.
 8. Work on site will only continue after removal of the archaeological/ historical material was done.

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CURRICULUM VITAE

Prof. Anton Carl van Vollenhoven

PERSONAL INFORMATION

- Born: 20 January 1966, Pretoria, RSA
- Address: Archaetnos, PO Box 55, Groenkloof, 0027
- Cell phone: 083 291 6104
- Nationality: RSA
- E-mail: antonv@archaetnos.co.za

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 Archaetnos 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.
- *2014-2015*: Part-time lecturer for the Honours degree in Museum Sciences in the Department of History and Heritage Studies at the University of Pretoria
- *Since 2015*: Extraordinary Professor of History at the Mahikeng campus of the Northwest University

OTHER

- Has published 35 peer-reviewed and 43 popular articles.
- Has written 11 books/book contributions/conference proceedings .
- Has been the author and co-author of over 973 unpublished reports on cultural resources surveys and archaeological work.
- Has delivered more than 75 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.
- Member of Association for South African Professional Archaeologists.
- Member of the South African Society for Cultural History (Chairperson 2006-2008; 2012-2014; 2018-

2020).

- Has been editor for the SA Journal of Cultural History 2002-2004.
- Editorial member of various scientific journals.
- Member of the Provincial Heritage Resources Agency, Gauteng's Council.
- Member of Provincial Heritage Resources Agency, Gauteng's HIA adjudication committee (Chairperson 2012-2020).

A list of reports can be viewed on www.archaetnos.co.za.

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: 27 January 2021

LIST OF ACRONYMS:

AIA – Archaeological Impact Assessment
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

1. INTRODUCTION

Archaetnos cc was requested by Geovicon to conduct an archaeological impact assessment (AIA) for the proposed Roodepoort Mining Project. The site is located south west of Pullens Hope in the Mpumalanga Province (Figure 1-2).

The mine is planned on a Portion of the Remaining Extent of the farm Roodepoort 151 IS. The study forms part of the Environmental Authorisation Process. The client indicated the area to be surveyed. It was surveyed via foot and off-road vehicle.

The development will firstly consist of an opencast pit that will be mined from the planned boxcut with adjacent opencast strips to be mined using the continuous roll over mining method over a 35 Ha opencast pit area. There will also be an underground mining area, which is located adjacent and south of the planned opencast pit and dust road and entails a further 33 ha to be mined by underground mining bord and pillar mining. Furthermore additional infrastructure such as an office, stockpile overburden and road will be provided (Figure 3-4).

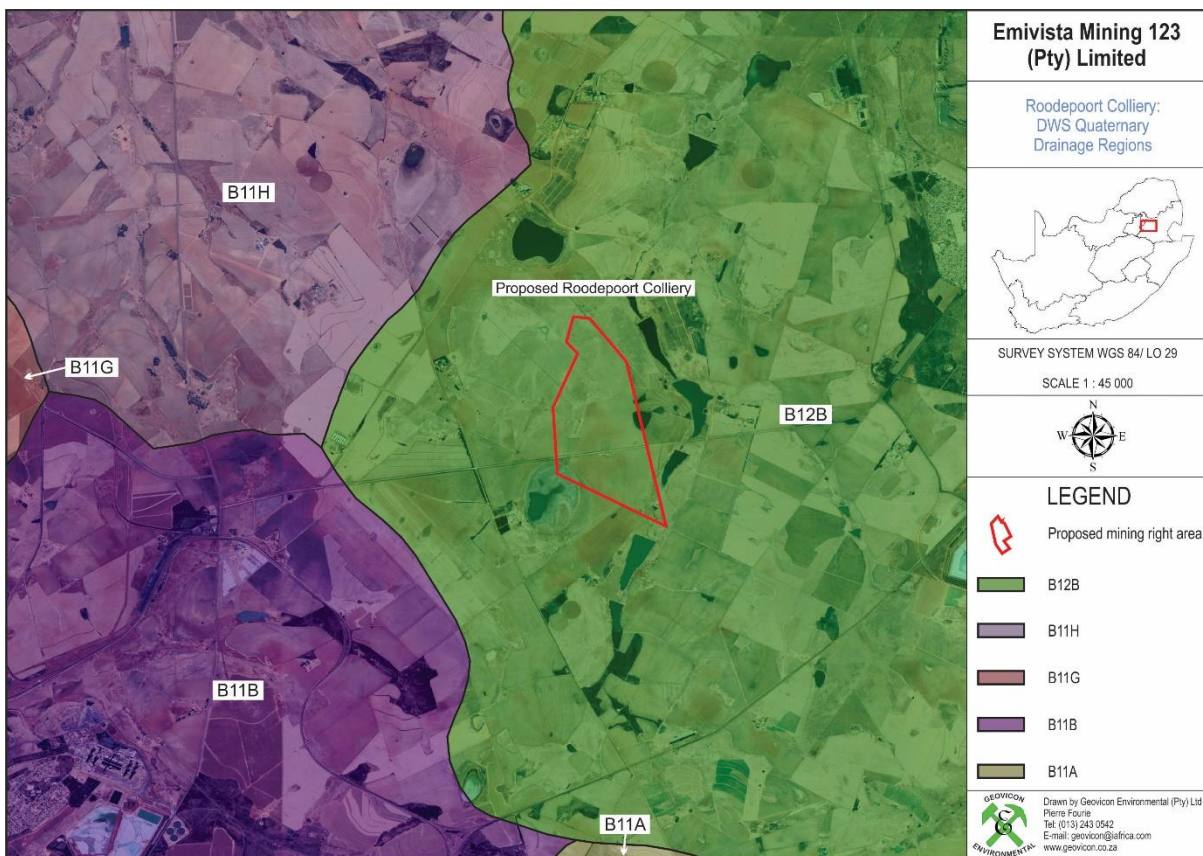


FIGURE 1: LOCATION OF THE SITE (GEOVICON).

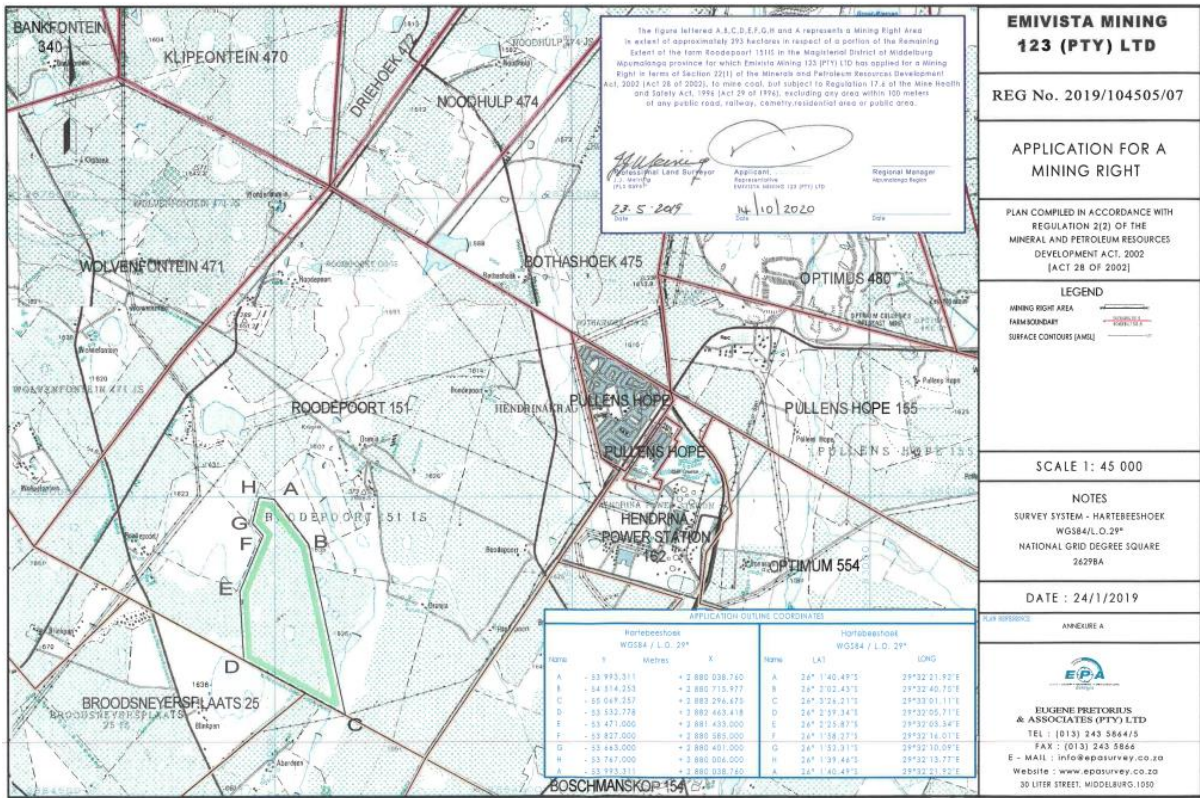


FIGURE 2: LOCATION OF THE SITE IN RELATION TO PULLENS HOPE (GEOVICON).



FIGURE 3: GOOGLE EARTH IMAGE INDICATING THE MINE BOUNDARY.

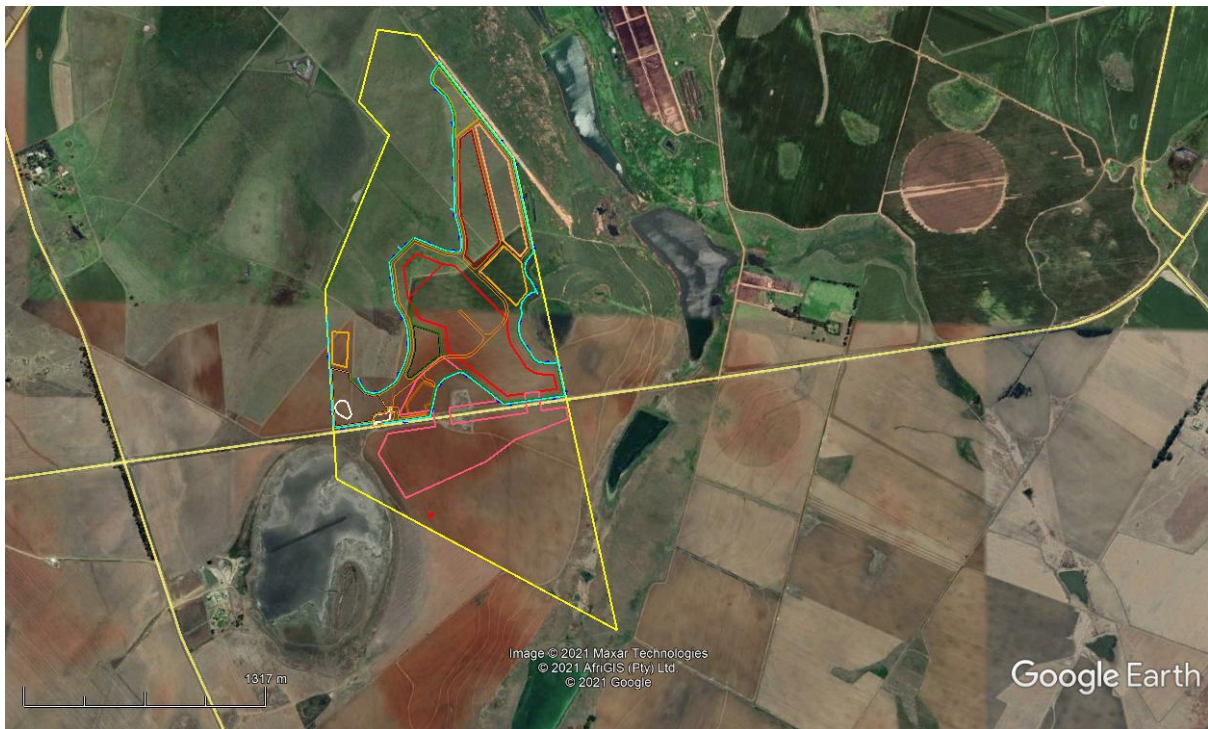


FIGURE 4: MINING LAYOUT (GEOVICON).

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. It contains different specialist reports, including, but not limited to, archaeology, built environment, palaeontology, visual aspects etc.¹

¹ Please consult SAHRA to determine which of these studies are needed.

An Archaeological Impact Assessment (AIA) only looks at archaeological resources. It does however make use of the same methodology generally used for HIA studies.

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)² should be done by a professional palaeontologist.

The different phases during the HIA/AIA process are described in Appendix E. An AIA/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.

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;

² Please consult SAHRA to determine whether a PIA is necessary.

- 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). In order 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.

4. 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.

5. METHODOLOGY

5.1 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.

5.2 Reference to other specialist desktop studies

Various other specialist studies are currently being prepared for the proposed project. It includes inter alia, geological, hydrological and traffic impact assessments. No heritage related reports on this farm could be identified on SAHRIS, but many reports have been done in the wider geographical area. The information is included in the discussion below.

5.3 Public consultation and stakeholder engagement

Public consultation will be done in by the EAP.

5.4 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)³, 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).

The entire surveyed area is disturbed by past and present agricultural practices. The northwestern part of the proposed development is a game camp and the team was

³ A Garmin Oregon 550 with an accuracy factor of a few meters.

accompanied as per the landowners request and due to the presence of dangerous wildlife. Because of this, the game camp area was surveyed where the team was directed to. This area was open grass land with a high archaeological visibility.

The rest of the surveyed area consisted of agricultural land with moderate archaeological visibility. Certain factors, such as accessibility, density of vegetation, etc. may however influence the coverage. In this instance, in the areas not disturbed, the under footing was reasonably dense, and the vegetation cover is low to medium. Accordingly, both the vertical and horizontal archaeological visibility was influenced negatively. However, it needs to be stated this area is deemed to be a low risk area for containing heritage sites. The site is approximately 293 Ha in size and the survey took 6 hours to complete.

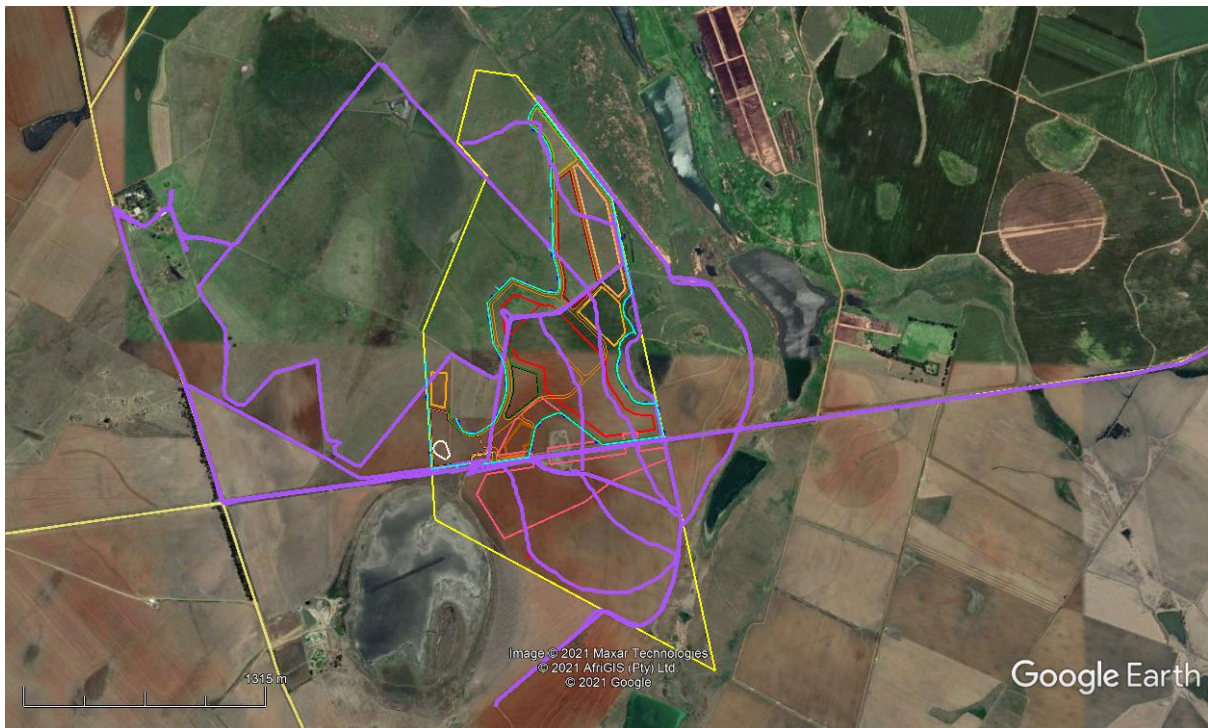


FIGURE 5: TRACK ROUTE OF THE SURVEY.

5.5 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 GPS. The information was added to the description in order to facilitate the identification of each locality.

5.6 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)
- The preservation condition of the site
- Uniqueness of the site and
- Potential to answer present research questions.

6. CONDITIONS AND ASSUMPTIONS

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. In this case much of the surveyed area has been disturbed by recent human activities. Accordingly, these areas are seen as low risk areas to reveal heritage sites due to it being almost entirely disturbed.
8. The vegetation cover in certain areas was reasonably dense and high, which had a negative effect on both the horizontal and the vertical archaeological visibility.
9. At the site certain areas could not be accessed due to safety concerns (locked gates and high fences, heavy machinery at work). However, the entire area here is disturbed giving it an extremely low chance of concealing heritage sites.

7. DESCRIPTION OF THE PHYSICAL ENVIRONMENT

The surveyed area is mostly agricultural land, with a game camp to the northwest and visibility was mostly good with 500m to 800m visibility in some directions (Figure 6). The vegetation consists mostly of low to medium grasses and pioneer plants in game camp (Figure 7). The latter also indicating that the area had been disturbed formerly. The agricultural land consists of low growing soya and tall growing maize (Figure 8-9), with little to no shrubs or trees in the surveyed area. An existing gravel road runs through the proposed area. (Figure 10)

The topography of the area is reasonably flat, with gradual sloping towards the west. The soil is loosely compacted, dams and a creek are found to the east of the site.



FIGURE 6: GENERAL VIEW OF THE OF THE SURVEYED AREA.



FIGURE 7: VIEW OF GAME CAMP IN NORTHWESTERN PART OF THE SURVEYED AREA.



FIGURE 8: MAZE GROWN IN THE SURVEYED AREA.



FIGURE 9: SOYA GROWN IN THE SURVEYED AREA



FIGURE 10: GRAVEL ROAD RUNNING THROUGH SURVEYED AREA.

8. HISTORICAL CONTEXT

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. Two sites of cultural heritage significance were located during the survey. Both are outside of the area of direct impact. Some background information is given below in order to place the surveyed area in a broad historical and geographical context and to contextualize possible finds that could be unearthed during construction activities.

No heritage report was identified on SAHRIS on this farm, but many heritage reports were done in the wider geographical area of the surveyed area (SAHRA's SAHRIS database; Archaetnos database). This information is also included below. Most of these reports indicate that nothing of heritage significance was found, or the sites that were found has no contextual link to the current surveyed area. It does however indicate the type of sites to be expected. These are mainly graves, farm buildings and occasionally Iron Age remains. Stone tools are usually found without any context.

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 known as an area containing prehistoric sites. No Stone Age sites are for instance indicated on a map contained in a historical atlas of this area (Bergh 1999: 4). The closest known Stone Age occurrence is a Late Stone Age site at Groenvlei, close to Carolina and that of rock art close to the Olifants River to the south of Witbank (Bergh 1999: 4-5). This may however only indicate a lack of research in the area.

The environment is such that it does not provide much natural shelter and therefore it is possible that Stone Age people did not settle here for long periods of time. They would have however been lured to the area due to an abundance of wild life as the natural vegetation would have provided ample grazing. One may therefore find small sites or occasional stone tools.

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.

Iron Age sites have been identified to the south of the area, around Bethal which lies far to the south-east of the surveyed area (Bergh 1999: 7). These all are dated to the Late Iron Age. Sites such as these are known for extensive stone building forming settlement complexes. No indication of metal smelting was identified at any of these sites (Bergh 1999: 8).

It is also known that the early trade routes did not run through this area (Bergh 1999: 9). However one should bear in mind that many of these areas may not have been surveyed before and therefore the possibility of finding new sites is always a reality.

The type of environment around Pullens Hope definitely is suitable for human habitation. There is ample water sources and good grazing. One would therefore expect that Iron Age people may have utilized the area. This is the same reason why white settlers later on moved into this environment.

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.

At the beginning of the 19th century the Phuthing, a South Sotho group, stayed to the east of where Komati is situated. During the Difaquane they fled to the south as Mzilikazi's impi moved in from the southeast (Bergh 1999: 10-11; 109).

The first white traveler to visit these surroundings was Robert Scoon in 1829. The first Voortrekker groups of Hans van Rensburg and Louis Tregardt also passed close to this area in 1836 (Bergh 1999: 13-14). The first white farmers only settled here during the late 1850's (Bergh 1999: 18-20).

One may therefore expect to find remains of buildings as well as graves dating to this period in time. In fact, graves were identified on surrounding farms during previous surveys by Archaetnos (Archaetnos database) as was graves found close to Hendrina (Behrens & Esterhuysen 2010: 7). The latter report also identified a few historical sites, but these were of low cultural significance.

9. DISCUSSION OF HERITAGE SITES IDENTIFIED

Mr. Jaco Pieterse, SANCOR (Pty) Ltd's farm manager of the Roodepoort 151IS farm informed us that only two graves are located close to, but not in the surveyed area. These graves were located and documented.

9.1 Site no. 1 – graves

This is a graveyard of about 13 m long and about 10 m wide on an open patch of land within the game camp area and is fenced off. It lies about 1 km west of proposed area and will not be directly affected by the mining development. The graves are orientated east to west. Grave good are sparsely distributed around the graves (Figure 11-12).

GPS: 26°02'28.78"S 29°31'24.38"E

The headstones are made of granite, natural stone and cement/concrete and the grave dressings are made of natural stones and bricks. The total number of graves is approximately 9. Two graves of 60 years and older was found, three graves are younger than 60 years and four unmarked graves were found. The oldest grave belongs to Lewes Masango -/1924 and the youngest grave is that of Boy N. 22/01/1979.

The following legible information was noted:

Maria Masango -/1946

Maleg Masango -/1956



FIGURE 11: SOME OF THE GRAVES AT SITE NO. 1.



FIGURE 12: GENERAL VIEW AT THE GRAVEYARD AT SITE NO. 1.

Cultural significance Table: Site 1

A place is considered to be part of the national estate if it has cultural significance because of -	Applicable or not	Rating: 1 - Neglible/ 2 -Low/ 3 - Low-Medium/ 4 - Medium/ 5 - Medium-High/ 6 - High/ 7 - Very High
Its importance in the community or pattern of South Africa's history	Y	High
Its possession of uncommon, rare, or endangered aspects of South Africa's natural or cultural history	N	
Its potential to yield information that will contribute to an understanding of South Africa's	Y	High

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	N	
Its importance in exhibiting particular aesthetic characteristics valued by a community cultural group	N	
Its importance in demonstrating a high degree of creative or technical achievement at a particular period	N	
Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	Y	High
Its strong or special association with the life or work of a person, group or organization of importance in the history of South Africa	N	
Sites of significance relating to the history of slavery in South Africa	N	
Reasoned assessment of significance using appropriate indicators outlined above:	High	

Integrity scale:

- 1 – Bad state of preservation, but no contextual information
- 2 – Bad state of preservation and includes contextual information
- 3 – Reasonable state of preservation, but no contextual information
- 4 – Reasonable state of preservation and includes contextual information
- 5 – Good state of preservation, but no contextual information
- 6 - Good state of preservation and includes contextual information
- 7 – Excellent state of preservation, but no contextual information
- 8 – Excellent state of preservation and includes contextual information

Field-rating = Cultural significance x Integrity

= High (6)x 4

= 24

The site therefore receives a field rating of Local Grade IIIB. It means that the site should be included in the heritage register and may be mitigated (high/ medium significance), if needed. Mitigation is subject to a permit application lodged with the relevant heritage authority.

Two possibilities exist. The first option would be to fence the graves in and have a management plan drafted for the sustainable preservation thereof. This should be written by a heritage expert. This usually is done when the graves are in no danger of being damaged, but where there will be a secondary impact due to the activities of the mine.

The second option is to exhume the mortal remains and then to have it relocated. This usually is done when the graves are in the area to be directly affected by the mining activities. For this a specific procedure should be followed which includes social consultation. For graves younger than 60 years only an undertaker is needed. For those older than 60 years and unknown graves an undertaker and archaeologist is needed. Permits should be obtained from the Burial Grounds and Graves unit of SAHRA. This procedure is quite lengthy and involves social consultation.

Since the graves are outside of the area of direct impact, Option 1 is recommended.

9.2 Site no. 2 – graves

This is a graveyard of about 16 m long and about 10 m wide on an open patch of land within the game camp, close to the farmyard. The area is fenced off. It lies about 1,5 km west of proposed area and will not be directly affected by the mining development. The graves are orientated east to west (Figure 13-14).

GPS: 26°02'01.02"S 29°31'13.79"E



FIGURE 13: SOME OF THE GRAVES AT SITE NO. 2.



FIGURE 14: GENERAL VIEW AT THE GRAVEYARD AT SITE NO. 2.

The headstones are made of granite, natural stone and marble and the grave dressings are made of marble, granite, tiles, cement, and stone. The total number of graves is approximately 8. Six graves of 60 years and older was found, no graves are

younger than 60 years and two unmarked graves were found. The oldest grave belongs to Maria Susanna (geb. Swanepool) du Plessies 30/10/1911 and the youngest grave is that of Cornelius Johannes Muller 16/09/1941.

The following legible information was noted:

Nicolaas Johannes Muller 16/09/1913

Susanna Gertruida Muller 26/11/1935

Cultural significance Table: Site 2

A place is considered to be part of the national estate if it has cultural significance because of -	Applicable or not	Rating: 1 - Negligible/ 2 -Low/ 3 - Low-Medium/ 4 - Medium/ 5 - Medium-High/ 6 - High/ 7 - Very High
Its importance in the community or pattern of South Africa's history	Y	High
Its possession of uncommon, rare, or endangered aspects of South Africa's natural or cultural history	N	
Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage	Y	High
Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects	N	
Its importance in exhibiting particular aesthetic characteristics valued by	N	

a community cultural group		
Its importance in demonstrating a high degree of creative or technical achievement at a particular period	N	
Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	Y	High
Its strong or special association with the life or work of a person, group or organization of importance in the history of South Africa	N	
Sites of significance relating to the history of slavery in South Africa	N	
Reasoned assessment of significance using appropriate indicators outlined above:	High	

Integrity scale:

- 1 – Bad state of preservation, but no contextual information
- 2 – Bad state of preservation and includes contextual information
- 3 – Reasonable state of preservation, but no contextual information
- 4 – Reasonable state of preservation and includes contextual information
- 5 – Good state of preservation, but no contextual information
- 6 - Good state of preservation and includes contextual information
- 7 – Excellent state of preservation, but no contextual information
- 8 – Excellent state of preservation and includes contextual information

Field-rating = Cultural significance x Integrity

= **High (6)x 4**

= 24

The site therefore receives a field rating of Local Grade IIIB. It means that the site should be included in the heritage register and may be mitigated (high/ medium significance), if needed. Mitigation is subject to a permit application lodged with the relevant heritage authority.

Two possibilities exist. The first option would be to fence the graves in and have a management plan drafted for the sustainable preservation thereof. This should be written by a heritage expert. This usually is done when the graves are in no danger of being damaged, but where there will be a secondary impact due to the activities of the mine.

The second option is to exhume the mortal remains and then to have it relocated. This usually is done when the graves are in the area to be directly affected by the mining activities. For this a specific procedure should be followed which includes social consultation. For graves younger than 60 years only an undertaker is needed. For those older than 60 years and unknown graves an undertaker and archaeologist is needed. Permits should be obtained from the Burial Grounds and Graves unit of SAHRA. This procedure is quite lengthy and involves social consultation.

Since the graves are outside of the area of direct impact, Option 1 is recommended.

10. CONCLUSION AND RECOMMENDATIONS

The survey of the proposed Roodepoort Mining Project was completed successfully. As indicated, two sites of cultural heritage significance were identified, both outside of the area of direct impact (Figure 15-16).

The following is recommended:

- Since the graveyard is outside of the area of direct development, and already fence in, it should remain as such.
- However, a cultural heritage management plan (CMP) needs to be drafted to ensure the protection of the graves.
- After implementation of the above mitigation measures and upon receiving the necessary comments from the heritage authority, the proposed development may continue.
- 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.

- In This regards the following 'Chance find Procedure' should be followed:
 1. Upon finding any archaeological or historical material all work at the affected area must cease.
 2. The area should be demarcated in order to prevent any further work there until an investigation has been completed.
 3. An archaeologist should be contacted immediately to provide advice on the matter.
 4. Should it be a minor issue, the archaeologist will decide on future action, which could include adapting the HIA or not. Depending on the nature of the find, it may include a site visit.
 5. SAHRA's APM Unit may also be notified.
 6. If needed, the necessary permit will be applied for with SAHRA. This will be done in conjunction with the appointed archaeologist.
 7. 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.
 8. Work on site will only continue after removal of the archaeological/ historical material was done.

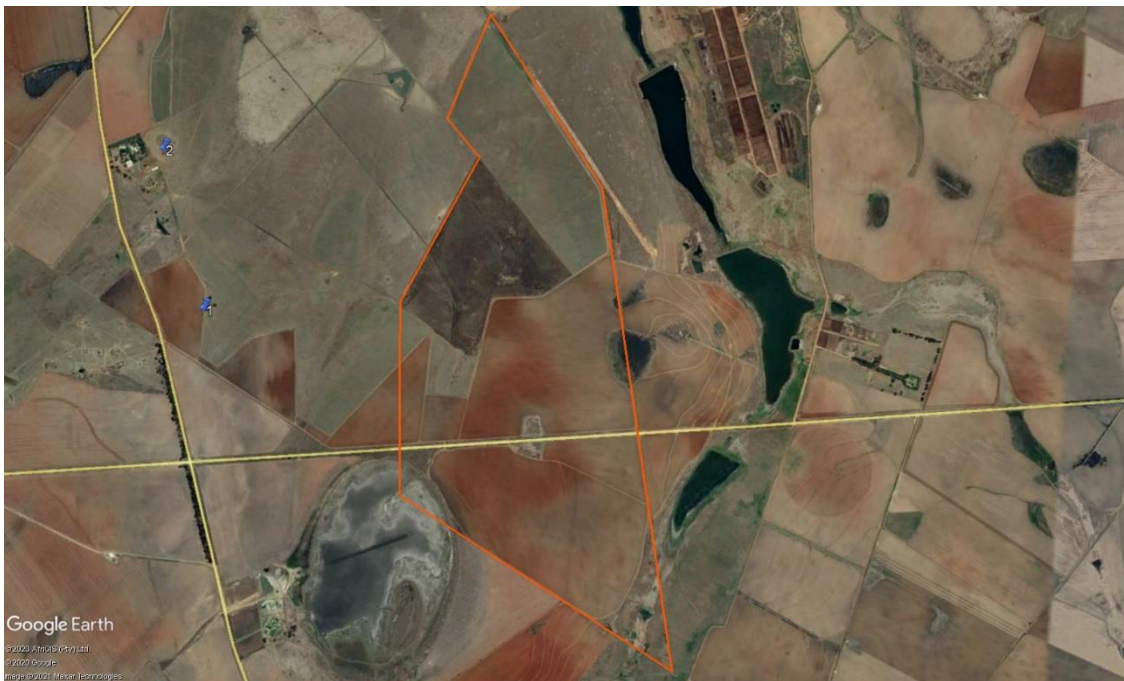


FIGURE 15: LOCATION OF THE GRAVEYARDS IN RELATION TO THE SURVEYED AREA.



FIGURE 16: ENLARGED VIEW OF GRAVES IN RELATION TO THE SURVEYED AREA.

11. REFERENCES

Archaetnos database.

Behrens, J. & Esterhuysen, A. 2010. **Zamokhule Substation, Hendrina, Mpumalanga Archaeological assessment.** (Unpublished report, UNISA & UWITS).

Bergh, J.S. (red.). 1999. **Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies.** Pretoria: J.L. van Schaik.

Coertze, P.J. & Coertze, R.D. 1996. **Verklarende vakwoordeboek vir Antropologie en Argeologie.** Pretoria: R.D. Coertze.

Huffman, T.N. 2007. **Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa.** Scottsville: University of KwaZulu-Natal Press.

International Finance Corporation. 2012. **Overview of performance standards on Environmental and Social Sustainability. Performance Standard 8, Cultural Heritage.** World Bank Group.

Knudson, S.J. 1978. **Culture in retrospect.** Chicago: Rand McNally College Publishing Company.

Korsman, S.A. & Meyer, A. 1999. Die Steentydperk en rotskuns. Bergh, J.S. (red.). **Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies.** Pretoria: J.L. van Schaik.

Pieterse, J. 21/01/2021. Farm manager of SANCOR (Pty) Ltd. on Roodepoort 151IS, Personal communication..

- Republic of South Africa. 1980. Ordinance on Excavations (**Ordinance no. 12 of 1980**). The Government Printer: Pretoria.
- Republic of South Africa. 2003. **National Health Act** (No 61 of 2003). The Government Printer: Pretoria.
- Republic of South Africa. 1999. **National Heritage Resources Act** (No 25 of 1999). Pretoria: The Government Printer.
- Republic of South Africa. 1998. **National Environmental Management Act** (no 107 of 1998). Pretoria: The Government Printer.
- SAHRA's SAHRIS database.
- Van der Ryst, M.M. & Meyer, A. 1999. Die Ystertydperk. Bergh, J.S. (red.). **Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies**. Pretoria: J.L. van Schaik.

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.