



Archaetnos Culture & Cultural  
Resource Consultants  
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**A REPORT ON THE ASSESSMENT OF GRAVE SITES AT THE PEMBANI  
COLLIERY CLOSE TO CAROLINA IN THE MPUMALNAGA PROVINCE**

For:

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REPORT: **AE01371V**

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## SUMMARY

Archaetnos cc was requested by Cabanga Concepts on behalf of Pembani Colliery to assess six grave sites which are close to the proposed mining activities and to make recommendations in this regard. A Heritage Impact Assessment was done in 2004 in the area. Many other sites were identified during this survey, but no mine plans were available at the time. Therefore a new assessment of these grave sites was now needed.

The location of the area where the mining development is to take place, is approximately 10 km to the east of the town of Carolina, on various portions of different farms. This is in the Mpumalanga Province.

The site was visited in order to obtain contextual information. This was coupled with information known about the mine plan, the graves, applicable legislation and the best practice of dealing with graves.

It is recommended that the sites be preserved in situ. In order to do this the appropriate mitigation would be to leave a 25 m buffer zone at each site. A management plan for each of the sites will also have to be drafted. The development can continue once the mitigation has been done.

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## 1. INTRODUCTION

Archaetnos cc was requested by Cabanga Concepts on behalf of Pembani Colliery to assess six grave sites which are close to the proposed mining activities and to make recommendations in this regard. A Heritage Scoping Report was done in 2006 in the area (Fourie 2006). Many other sites were identified during this survey, but no mine plans were available at the time. Therefore a new assessment of these grave sites was now needed.

The location of the area where the mining development is to take place, is approximately 10 km to the east of the town of Carolina, on various portions of different farms. This is in the Mpumalanga Province (Figure 1-2).

It needs to be stated that no Archaeological Review Comments from the South African Heritage Resources Agency (SAHRA) on the 2006 report could be found. The six grave sites were visited by the author of this report in order to obtain contextual information and do the assessment.

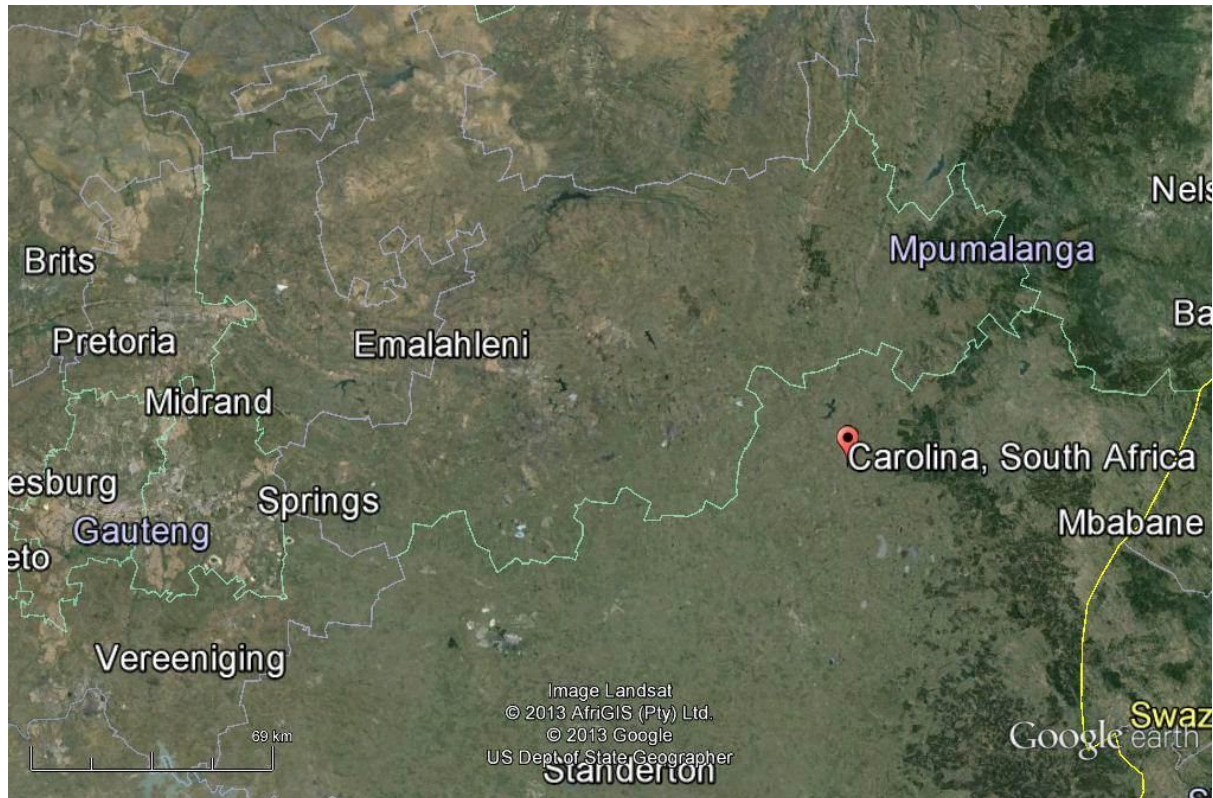


Figure 1 Location of Carolina in Mpumalanga. North reference is to the top.



**Figure 2 Location of the mine (site) in relation to Carolina.**

## **2. TERMS OF REFERENCE**

The Terms of Reference for the study were as follows:

1. Assessing the possible grave sites in relation to the mining activities at Pembani Colliery.
2. To make recommendations for the creation of a buffer zone for the protection of these sites.

## **3. CONDITIONS & ASSUMPTIONS**

The following conditions and assumptions have a direct bearing on the study:

1. Cultural Resources are all non-physical and physical man-made occurrences, as well as natural occurrences associated with human activity. These include all sites, structure and artifacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development (Appendix A). **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 (Appendix B). **Graves are always given a high cultural significance as it is an extremely emotional issue.**

3. 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. **This includes graves.**
4. 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).
5. All recommendations are made with full cognizance of the relevant legislation.
6. It has to be mentioned that this was not a Heritage Impact Assessment (HIA), but an assessment of specific sites already known to the mine. Therefore no other possible heritage resources are included.

#### **4. LEGISLATIVE REQUIREMENTS**

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

##### **4.1 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 only looks at archaeological resources. 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 000m<sup>2</sup> or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m<sup>2</sup>
- 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;



- 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 Human Tissue Act (Act 65 of 1983) 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 **Human Tissues Act (Act 65 of 1983 as amended)**.

#### **4.2 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.

### **5. METHODOLOGY**

#### **5.1 Survey of literature**

A survey of literature was undertaken in order to obtain background information regarding the process of dealing with graves.

#### **5.2 Study of additional documentation**

The original Heritage Scoping Report, dating to 2006, the EMP, also dating to 2006, and the EMP approval from the DME, dated 11 December 2011, were studied. The original Heritage study did not shed much light due to two factors. Firstly, it was not strictly an HIA as no impact could be assessed since no mine plan was available at the time. Secondly, the GPS coordinates were inaccurate as a result of the type of GPS instruments used during the time which were just not as accurate as the ones in use today.

The EMP approval only indicated that compliance to other relevant statutory obligations, should be adhered to. It made no specific mention to any heritage sites, but in the mine's EMP documents, these sites were listed. One can therefore assume that the EMP approval took this into consideration.

#### **5.3 Site visit**

The six grave sites of relevance to this report were visited in order to obtain contextual information on the area and the implications the mining may have on the

graves. The area surrounding the graves was also visited in order to see if there are any related or other cultural heritage resources nearby. The site was marked by means of the Global Positioning System (GPS), while photographs were also taken. A track route was done (Figure 3), but it needs to be indicated that it is not really applicable since 6 specific sites were visited, and an area was not surveyed. It therefore only reflects that movement relevant to those 6 sites.



**Figure 3 Track route of the assessment.**

## **6. DESCRIPTION OF THE ENVIRONMENT**

The environmental characteristics are not really of importance since specific sites, known to the mine were visited. However, in short, the following can be said. The area seems to have been mostly used for grazing and agriculture in the past. During the survey the vegetation cover mainly consisted of short grass, with a dense underfooting (Figure 4). Here and there the grass was longer and clumps of trees or other bushes could be seen.

The mining has already commenced in certain areas which of course means that the area has been disturbed. Signs of old mining activities (Figure 5) were also identified.

The topography of the area consist of rolling hills. There are no outstanding rock outcrops or high lying areas or rivers. Small streams are however found throughout the area.



**Figure 4 General view of the mine area.**



**Figure 5 An area indicating old mining activities.**



## 7. DISCUSSION

The relevant questions regarding the matter of the possible graves are discussed under this section. From the discussion the recommendations will follow.

### 7.1 Site assessment

As indicated earlier, six sites were assessed (Figure 6). The information for each of these is as follows:



**Figure 6 Google image indicating the six sites that were assessed. North reference is to the top.**

#### Site 1:

GPS: 26°03.093'S  
30°09.437'E

This is a site containing at least 5 graves (Figure 7). These are all stone packed and two have cement headstones. None of the graves have any legible information.

A local farm worker indicated that her mother's people were buried here a long time ago. Their surname was Masina. She however could not give any dates (Personal communication: Elsie Masuku). Therefore one of the three categories of graves was

identified, being unknown graves. Unknown graves are handled similarly to heritage graves.



**Figure 7 Graves at site no. 1.**

**Site 2:**



**Figure 8 Graves at site no. 2.**



GPS: 26°03.040'S  
30°09.415'E

This is a site containing at least 4 graves (Figure 8). These are all stone packed with stone headstones. None of the graves have any legible information.

Therefore one of the three categories of graves was identified, being unknown graves. Unknown graves are handled similarly to heritage graves.

**Site 3:**

GPS: 26°03.493'S  
30°08.744'E

This is a site containing at least 9 graves (Figure 9). These are mostly stone packed with a few having cement borders. Some have headstones, but the graves have been damaged by trees. None of the graves have any legible information.

Therefore one of the three categories of graves was identified, being unknown graves. Unknown graves are handled similarly to heritage graves.

The graves are currently close to the mining activities with mining encroaching on it from two sides (Figure 10). Currently the mining is about 100 m away from the site.



**Figure 9 Graves at site no. 3.**





**Figure 10 View of the mining activities behind the graves, about 100 m away,**

**Site 4:**

GPS: 26°03.349'S  
30°08.451'E

This is a site containing at least 15 graves (Figure 11). These are all stone packed and none have headstones. Accordingly none of the graves have any legible information.

Therefore one of the three categories of graves was identified, being unknown graves. Unknown graves are handled similarly to heritage graves.

The site is close to the edge of the mining activities. The distance between the site and the development currently is about 40 m.



**Figure 11 Graves at site no. 4.**

**Site 5:**

GPS: 26°02.798'S  
30°10.274'E

This is a site containing at least 24 graves (Figure 12). It seems as if the site is still in use. The graves are mostly stone packed with stone headstones. Two of the graves have granite dressing and headstones. One is a fresh heap of soil.

Two surnames could be identified being Nkambule and Maseko. Only one date of death could be identified, namely 1966. Therefore two of the three categories of graves were identified, being those younger than 60 years and unknown graves. Unknown graves are handled similarly to heritage graves.



**Figure 12 Graves at site no. 5.**

**Site 6:**

GPS: 26°02.399'S  
30°10.893'E

This is a site containing at least 25 graves (Figure 13). There are different types – stone packed with stone or slate headstones, graves with cement borders and cement headstones and lastly those with granite borders and headstones.

Four surnames were identified being Schoeman, Versveld, Becking and Joubert. The oldest date identified is 1948 and the youngest 2011. It may well be that the site is still in use. Some graves have no date of death indicated. Therefore all three of the categories of graves were identified, being four graves older than 60 years (called heritage graves), seven graves younger than 60 years and 14 unknown graves. Unknown graves are handled similarly to heritage graves.

Due to the sensitivity of this issue, graves are always regarded as having a **high** cultural significance. The field rating thereof is Local Grade III B. It should be included in the heritage register, but may be mitigated. This however depends on the impact on the sites (Figure 14).





**Figure 13 Graves at site no. 6.**

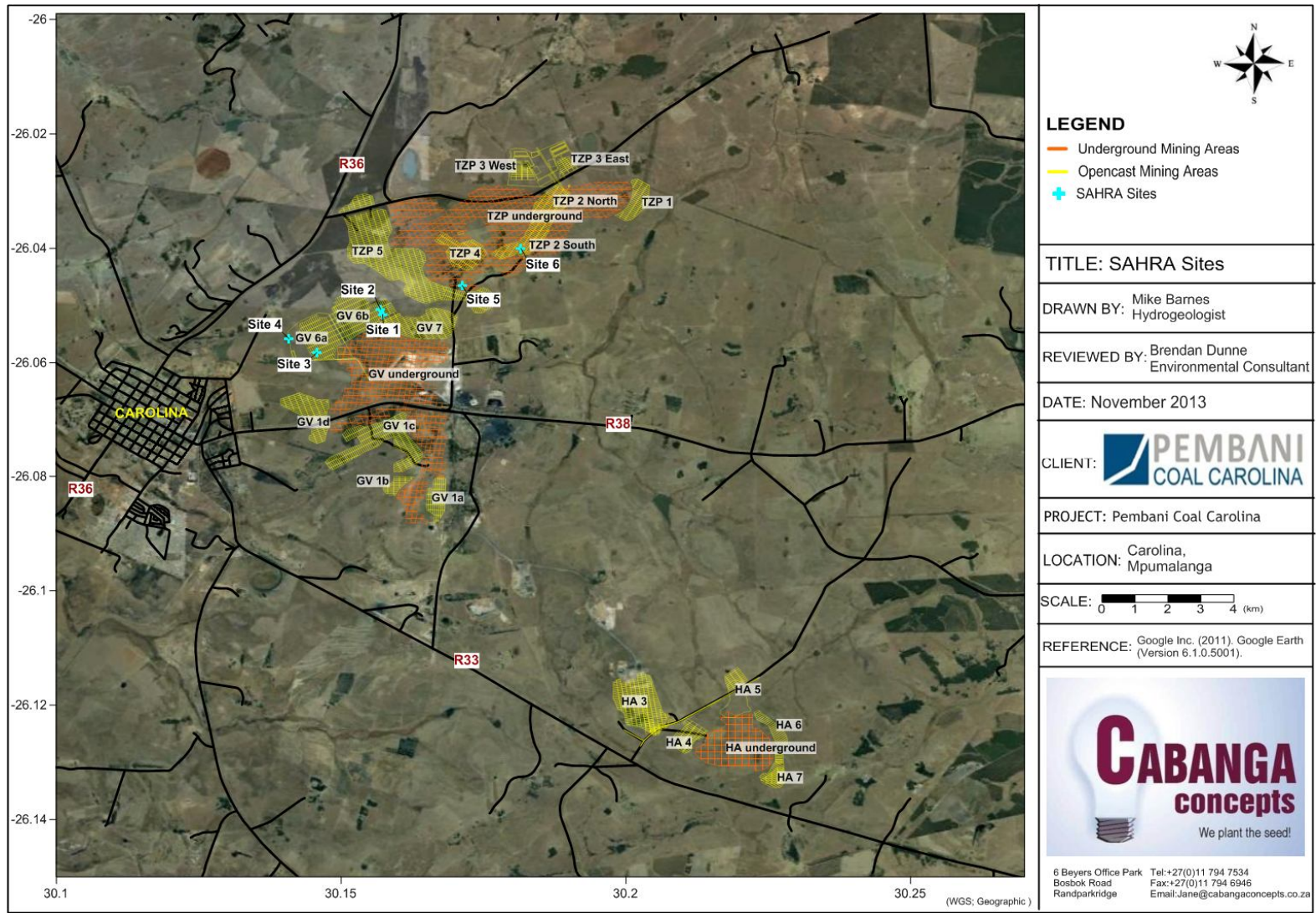
For clarity, the following is indicated:

- Site 1 – in the centre of the opencast mining area
- Site 2 – in the centre of the opencast mining area
- Site 3 – in the opencast mining area, but on the edge thereof
- Site 4 – close to the opencast mining area
- Site 5 – in the underground mining area, but on the edge thereof
- Site 6 – in the opencast and underground mining area, but on the edge thereof

At site no. 1, 2, 3 and 6 blasting will take place and this may damage the individual graves. However, only site 6 is a real problem since the graves have high upstanding headstones. Blasting closer than 100 m may damage these. At site 1, 2 and 3 there are only small headstones which are well embedded in the soil. Therefore the cracking of these are not envisaged.

Site no. 4 is 100 m from blasting activities, but very close to the stockpile area. The impact from a stockpile is not that much. It should be indicated that none of the graves have headstones which may be damaged as a result of mining activities.

Site no. 5 is even further away than 100 m from where blasting will be done. It will also be underground activities which have less of an effect on graves since there is an absorption effect. In this case the headstones also consist of low ones, well embedded in the soil.



**Figure 14 Mine plan indicating the impact of the mining activities on the 6 grave sites.**

## **7.2 The way forward**

### **7.2.1 Option 1: Fencing of the site and management plan**

The mine has indicated that they would prefer this option. However they wish to have a buffer zone of 25 m. For sites number 4 and 5 this should be easy to manage, but it would be much more difficult with sites number 1, 2, 3 and impossible for site number 6, unless if the mine plan is amended. A buffer zone of 25 m would therefore be reasonable for sites 1-5. For site 6 however, it would not be possible and the mine would need additional measures to safeguard the graves should they wish a buffer zone of less than 100 m. However, this can be motivated to SAHRA, indicating possible preservation measures.

Usually this is the best option as it preserves the graves in situ. It is less time consuming than that of grave relocation and it also may be less expensive. However it does leave the mine with the responsibility to preserve the sites and also put measures in place for the preservation of the sites beyond the lifespan of the mine.

Apart from fencing the sites, the mine will have to manage and maintain these. For this a management plan would be needed, which should be drafted by a heritage expert. An extremely important aspect of the management of such a site is that any possible descendants who wish to visit the graves, be allowed by the mine to do so. Of course this should be done within the health and safety regulations of the mine.

In summary, this option would entail erecting a fence, writing a management plan for the preservation and management of the site and implementing the latter.

### **7.2.2 Option 2: Exhuming and relocation of the graves**

The second option is the exhumation and relocation of the graves to another graveyard, most likely the nearest municipal graveyard. Although the mine already indicated that they would not prefer this option, it is necessary to provide the information so that an informed decision can be made, especially in those cases where it would not be possible to reduce the buffer zone to 25 m.

The first important aspect is that SAHRA prefers not to have graves exhumed. Therefore an additional motivation would be required from the mine, indicating why this is the only viable option. Should it then be allowed, the process, which is quite complicated, can be implemented.

This is a more expensive option and is also time consuming as a result of the permitting and social consultation process one is compelled by law to engage into. However, it is a permanent solution meaning that the responsibility of the mine ends after relocation has been done. The grave relocation process is discussed below.

## **The grave relocation process:**

### ***Reporting the discovery***

The discovery of all graves not located in a formal cemetery administered by a recognized local authority should be reported to the regional representative of the South African Heritage Resources Agency and the South African Police Service. SAHRA and the SAPS should visit the site and are required to advise regarding heritage related and possible criminal and judicial, and legal issues.

This step is part of the process and should the graves be exhumed the necessary authorities will be informed.

### ***Identifying the graves***

Three categories of graves can be identified. These are:

- Graves younger than 60 years;
- Heritage graves (these are divided into two sub-categories being graves older than 60 years, but younger than 100 years and graves older than 100 years (archaeological graves);
- Unknown graves.

Both the categories older and younger than 60 years may also include graves of victims of conflict or of individuals of royal descent which also are protected.

The graves to be relocated should be classified as accurately as possible into these categories. A concerned effort should also be made to identify the specific buried individual. These tasks must be accomplished by the social consultation process.

### ***Social Consultation***

Section 36 (3)(a) of the National Heritage Resources Act 25 of 1999 reads:

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

- (a) Destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- (b) Destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- (c) Bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.”

Furthermore, Section 36 (5) of the Act reads:



“SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority-

- (a) Made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and
- (b) Reached agreements with such communities and individuals regarding the future of such grave or burial ground.”

In terms of social consultation and permits issued by SAHRA, these sections from the Act means that a permit will only be supplied if a “concerted effort” has been made to “contact and consult” the relatives or persons associated with those specific graves. Normally, such a social consultation process would (as a minimum) consist of the following:

- Full documentation of the entire social consultation process, including signed permission forms from the closest relatives providing permission for the grave to be relocated
- Site notices (in the format and for the duration required by the Act), and proof thereof
- Newspaper notices, and proof thereof
- Documentary proof of social consultation process, i.e. minutes of meetings held with family members/affected parties

The process is dealt with by a social consultant. Most of the undertakers are qualified to handle this as they, in any case, have to place the necessary advertisements in newspapers before being able to apply for their permits.

### ***Authorization***

This component incorporates obtaining permissions, permits and authorizations from the relevant compliance agencies. In order to obtain permits, the above mentioned is needed:

Different legislation applies to the different categories of graves set out above:

- Graves younger than 60 years fall under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925) as well as the Human Tissues Act 65 of 1983. These graves fall under the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the Office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning, or in some cases the MEC for Housing and Welfare. Authorization for exhumation and re-interment must also be obtained from the relevant local or regional council where the grave is

situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. The institution undertaking the relocation must be authorized under Section 24 of the Human Tissues Act 65 of 1983 to handle and transport human remains.

- Graves older than 60 years, but younger than 100 years, fall under the jurisdiction of two acts, namely the National Heritage Resources Act 25 of 1999 (Section 36) as well as the Human Tissues Act 65 of 1983. Should graves older than 60 years, or if the age of the grave cannot be ascertained either by a grave marking or through a social consultation process, be located outside a formal cemetery, the Procedure for Consulting Regarding Burial Grounds and Graves (Section 36(5) of the Heritage Resources Act 25 of 1999) is applicable. However, graves older than 60 years but younger than 100 years, which are located within a formal cemetery administered by a local authority will also require the same authorization as set out for graves younger than 60 years over and above SAHRA authorization. If the grave is not located within a formal cemetery, but is to be relocated to one, permission must also be acquired from the local authority and all regulations, laws and by-laws set by the cemetery authority must be adhered to. The institution undertaking the relocation must be authorized under Section 24 of the Human Tissues Act 65 of 1983 to handle and transport human remains. A qualified archaeologist accredited by SAHRA must personally supervise any alteration to, or relocation of, graves in this category.
- Graves older than 100 years are classified as archaeological, and are protected in terms of Section 35 of the National Heritage Resources Act 25 of 1999. Authorization from SAHRA is required for these graves. A qualified archaeologist accredited by SAHRA must also supervise any alteration or relocation of graves in this category. On the discretion of SAHRA, the Procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of Act 25 of 1999) might also be required. If the grave is situated in cemetery administered by a local authority the authorizations as set out for graves younger than 60 years are also applicable over and above SAHRA authorization. The institution undertaking the relocation must be authorized under Section 24 of the Human Tissues Act 65 of 1983 to handle and transport human remains.
- All graves of victims of conflict regardless of how old they are or where they are situated are protected by Act 25 of 1999 (National Heritage Resources Act). SAHRA authorization is required for all graves in this category. Any alteration to a grave in this category or the relocation thereof must be personally supervised by a qualified archaeologist accredited by SAHRA. If the grave is situated in a cemetery administered by a local authority the authorizations as set out for graves younger than 60 years are also applicable over and above SAHRA authorization. On the discretion of SAHRA the Procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of Act 25 of 1999 (National Heritage Resources Act)) might also be required. In order to handle and transport human remains the institution

conducting the relocation should be authorized under Section 24 of Act 65 of 1983 (Human Tissues Act).

### ***Exhuming the remains***

The methods employed during exhumation will aim to recover all the remains, to minimize damage to the remains, to record the three-dimensional context of the remains and should preserve and respect the dignity of the buried individual. All evidence that might allude to the events leading to the death of the individual and circumstances regarding the event will be recorded and interpreted. The information gathered will be presented in a technical report as required by the relevant compliance agency.

The aim of the excavation should be the in situ exposure of the burial and associated artifacts (Nienaber and Steyn 1999). The focus should be on accurate and complete documentation (Nienaber 1997; Van Vollenhoven 1998). Various methods for the excavation of graves have been proposed by different authors (Hester 1975; Joukowsky 1980; Krogman and Iscan 1986; Morse 1978) but all stress the need for adequate workspace around the exposed remains and a systematic approach to the removal of individual bones.

The archaeological method, including extensive test trenching to prevent damage to the remains, should be employed. This approach should be largely similar to that of forensic archaeology where buried body cases are concerned. This approach should be adapted for the situation since graves vary in shape, size, depth and content (Nienaber 1999). The methods of forensic archaeology are discussed by Steyn, et al. (2000).

This part of the process can only be followed after a permit has been issued by SAHRA and the health authorities. Both an undertaker and an archaeologist are needed for heritage graves as they are responsible for different aspects of the exhumation.

### ***Confirming the identity of the buried individual (Analysis)***

Where any doubts exist regarding the identity of exhumed remains, a physical anthropological analysis aiming to help confirm or ascertain the identity could be conducted. This can be accomplished by comparing the results of the reconstruction of certain characteristics of the remains with known facts regarding the individual. Data on the remains should be recorded in a suitable format (such as that proposed Buikstra and Ubelaker (1994)) for future reference and comparison.

Physical anthropological analysis of remains of archaeological origin can be undertaken as a matter of course, and could be required on the discretion of SAHRA. The techniques that are applied should aim to achieve the reconstruction of individuals rather than the study of populations. The only parallel methodology that exists is the techniques of forensic anthropology that also aims to ascertain the identity of individuals (Krogman and Iscan 1986). Where possible, deductions

regarding pathology, health and other indicators of stress should be considered during a reconstruction of events and the interpretation of evidence.

Usually it is not necessary to go through this step.

### ***Reinterment of the remains***

If the outcome of the social consultation allows for the curation of the remains, i.e. reinterment is not required by the identified families, persons or communities, the remains should be handed over for curation to a collaborating institution under Act 25 of 1999 (National Heritage Resources Act) authorized under section 24 of Act 65 of 1983 (Human Tissues Act).

Should the remains be reburied, it will be done by a registered funeral undertaker acting in compliance with the relevant local regulations, laws and by-laws stipulated by the cemetery authority. The ceremony will be organized with the full participation of stakeholders and according to the wishes of the concerned families where these were identified.

### ***Reporting***

Reports compliant to the stipulations of the relevant legislation will be submitted as required by the relevant compliance agencies. Copies of all reports will be made available to the families and other stakeholders on request. All stakeholders are to have access to information generated by the project at all stages.

### ***Anticipated timing***

The aspects that take most of the time during the process of grave relocation are the social consultation and advertisements. Advertisement has to be placed on site for at least 60 days (unless all families are identified in a shorter period of time). The archaeologist needs the copies of the advertisements and results of the social consultation before it is possible to apply for a permit. Copies of the SAHRA comments on the HIA, also needs to be included in the application, which in this case is already available.

Another factor to be taken into consideration is that SAHRA takes a long time to issue permits. In theory it should only take about three weeks, but the process usually takes much longer (sometimes up to six months). SAHRA has a Burials Grounds and Graves Unit dealing with these issues. This body did indicate that they are in a process of streamlining their service, which may considerably shorten the time period. This unit has a committee to whom the application is sent via e-mail for comments. The flaw in the system is that these members may not respond or take a long time to respond resulting in a slowing down of the process.

### 7.3 Risk assessment

The management of risks is a difficult issue as one is never sure what kind of problems may occur under different circumstances. It is therefore necessary to indicate possible risks for the two options (Table 1).

**Table 1: Risk assessment**

<b>Risk factor</b>	<b>Option 1: Fencing of site</b>	<b>Option 2: Exhumation and Relocation of graves</b>
Access	Descendants will need undisturbed access to graves (only if descendants are identified)	Descendants will have access to new grave yard (only if descendants are identified)
Compensation	Not needed	Descendants may want compensation, but it is advised that this be limited to a night vigil (only if descendants are identified)
Approval from descendants	Not needed	Needed and without it no relocation will be allowed (only if descendants are identified)
Security risk	Yes, as descendants must get access (only if descendants are identified)	No, as access would be at new cemetery
Management of sites	Yes, a sustainable management plan will be needed	No, as this will form part of an existing cemetery
Upgrade and cleaning	Yes, site should be left by developer in a better state than before and it should be maintained	No, as this would be dealt with as part of the existing cemetery
Land claims	Yes, but only in case of a forced removal (only if descendants are identified)	Yes, but only in case of a forced removal (only if descendants are identified)
Finances	Less expensive	More expensive
Time frames	Less time consuming	More time consuming
Responsibility	Permanent responsibility for the developer	The developers responsibility ends after the exhumation and relocation process

## 8 CONCLUSIONS AND RECOMMENDATIONS

In conclusion it is clear that there is most likely to be an impact to all six grave sites. Four of these (sites 1, 2, 3 and 6) are in the opencast area and will directly be impacted on. Site 4 is just outside of the opencast area and will therefore be indirectly impacted on. Site 5 is inside of the opencast area and may also be impacted on indirectly.

Direct impact basically means that the graves are in the way of the mining activities. Indirect (or secondary) impact refers to issues such as blasting, dust and other actions that may have a negative effect on the graves.

Since the mine prefers not to exhume the graves and rather keep it *in situ*, it means that they wish to cancel out the direct impact thereon. All six sites will therefore be impacted on indirectly. Accordingly the buffer zones need to be determined and the necessary management measures be put in place.

However the mine indicated that they wish to have a buffer zone of 25 m. For sites number 4 and 5 this should be easy to manage, but it would be much more difficult with sites number 1, 2, 3 and impossible for site number 6.

The final recommendations therefore are as follows:

- That option 1 is implemented for all six sites. This entails the fencing thereof and writing a management plan for the sustainable preservation of these sites. Such a management plan will entail detailed information regarding the preservation of the sites.
- At site no. 1, 2 and 3 blasting will take place. However there are no high headstones at any of these sites and the headstones are well embedded in the soil. All the graves are stone packed. Therefore the cracking of such stones are not envisaged. A buffer zone of 25 m may therefore be implemented.
- Since site no. 4 is 100 m away from blasting activities, this is less of a problem. The site is very close to the stockpile area. A 25 m buffer here will therefore suffice as the impact from a stockpile is not that much. Also the blasting will not have a big effect as none of the graves have high headstones.
- Site no. 5 is even further away than 100m from where blasting will be done. It also lies within the proposed underground mining area. In this case the buffer zone may also be limited to 25 m as none of the graves have high headstones.
- At site no. 6 blasting will take place. Although this is in the underground mining area, many of the graves have high upstanding headstones which may be damaged in the process. Therefore it would be impossible to implement a buffer zone of 25 m. It will have to be at least 100 m.
- In all cases where a 25 m buffer zone is recommended additional mitigation measures would be necessary. This would include weekly inspections as well as inspections after each blasting activity. Low vibration explosions should be used and the sites should also be netted in so that it is kept free of flying rocks.

- In the case of site no. 6, where a 100 m buffer zone is recommended, mitigation measures would be limited to weekly inspections as well as inspections after each blasting activity.
- Additional preservation measures may be implemented at site 6 in order to motivate to SAHRA to decrease the buffer zone. It however is unlikely that any measures will prevent the graves from being damaged.
- Until such time as SAHRA approval has been granted, a buffer zone of at least 50 m at sites no 1-5 and at least 100 m at site no 6, needs to be complied with.
- The management plans to be written for all 6 sites, should be approved by SAHRA.

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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:

- Low            A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.
- 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.
- High            Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

#### 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:

- |                                    |  |
|------------------------------------|--|
| 1 National Grade I significance    | should be managed as part of the national estate   |
| 2 Provincial Grade II significance | should be managed as part of the provincial estate   |
| 3 Local Grade IIIA                 | should be included in the heritage register and not be mitigated (high significance)         |
| 4 Local Grade IIIB                 | should be included in the heritage register and may be mitigated (high/ medium significance) |
| 5 General protection A (IV A)      | site should be mitigated before destruction (high/ medium significance)                      |
| 6 General protection B (IV B)      | site should be recorded before destruction (medium significance)                             |
| 7 General protection C (IV C)      | phase 1 is seen as sufficient recording and it may be demolished (low significance)          |

## **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, paleontology 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.