



Archaetnos Culture & Cultural
Resource Consultants
BK 98 09854/23

**REPORT ON THE HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED
DEVELOPMENT AT THE GLISA COAL MINE NEAR BELFAST IN
MPUMALANGA PROVINCE**

Project number: 10-289

For:

**GCS
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On behalf of:

Exxaro

REPORT: AE1061b

by:

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EXECUTIVE SUMMARY

Archaetnos cc was requested by GCS to conduct a heritage impact assessment (HIA) for the proposed expansion of mining activities at the Glisa Mine close to Belfast in the Mpumalanga Province.

The Terms of Reference for the survey were to identify, document and assess all objects, sites, occurrences and structures of cultural heritage importance located on the property. Furthermore suitable mitigation measures relating to the identified cultural heritage resources had to be proposed.

A survey of the available literature was undertaken in order to obtain background information regarding the area. This was followed by a field survey conducted according to generally accepted HIA practices endorsed by SAHRA and ASAPA. The survey was done in an area indicated by officials from the mine.

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. Although care was taken to give a comprehensive background on the history of the area, it has to be stated that it is impossible to give a complete indication on human activities of the past as sources are not always readily available. The survey was done in an area indicated by officials from the mine and the survey was therefore limited accordingly. A large area was covered by an impenetrable blue gum bush. Therefore this area may not have been covered sufficiently.

Legislation relevant to heritage was also discussed. The most important of these are the National Heritage Resources Act (25 of 1999).

During the survey two sites of heritage significance was located. These are discussed and recommendations relating to the mitigation thereof are made. In short it boils down to the following:

- The proposed development may continue in lieu of the recommendations made in this report.
- Site number 1 is a grave yard and has a high cultural significance. As the mining activities are extremely close to the graves and it seems to have already impacted negatively on the stones. Therefore the only option at first seems to be to exhume the graves and have the bodies reburied. For this a process of social consultation is needed. This process is a lengthy process and one should try to obtain the permission of families.
- Urgent discussion with the community was however held and the matter was resolved. As the mine are also moving away from the graves the option of preserving it in situ and compiling a management plan now is viable. Therefore this option is supported.
- Site number 2 is a farm yard and is of a low cultural significance. It may be demolished. As it probably is younger than 60 years no heritage permit is needed.

- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. Care should therefore be taken when destruction commences that if any of these are discovered, a qualified archaeologist be called in to investigate. This is especially true of the large eucalyptus bush in the west. Graves have been found inside of such forestry areas in the past and therefore special care should be given to this.

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1. INTRODUCTION AND BACKGROUND

Archaetnos cc was requested by GCS to conduct a heritage impact assessment for the proposed expansion of mining activities at the Glisa Mine. The mine is situated about 5 km to the west of the town of Belfast in the Mpumalanga Province on the farm paardeplaats 380 JT (Figure 1).

Glisa isa coal mine managed by Exxaro. The client indicated the areas to be surveyed and the survey was confined to this area.

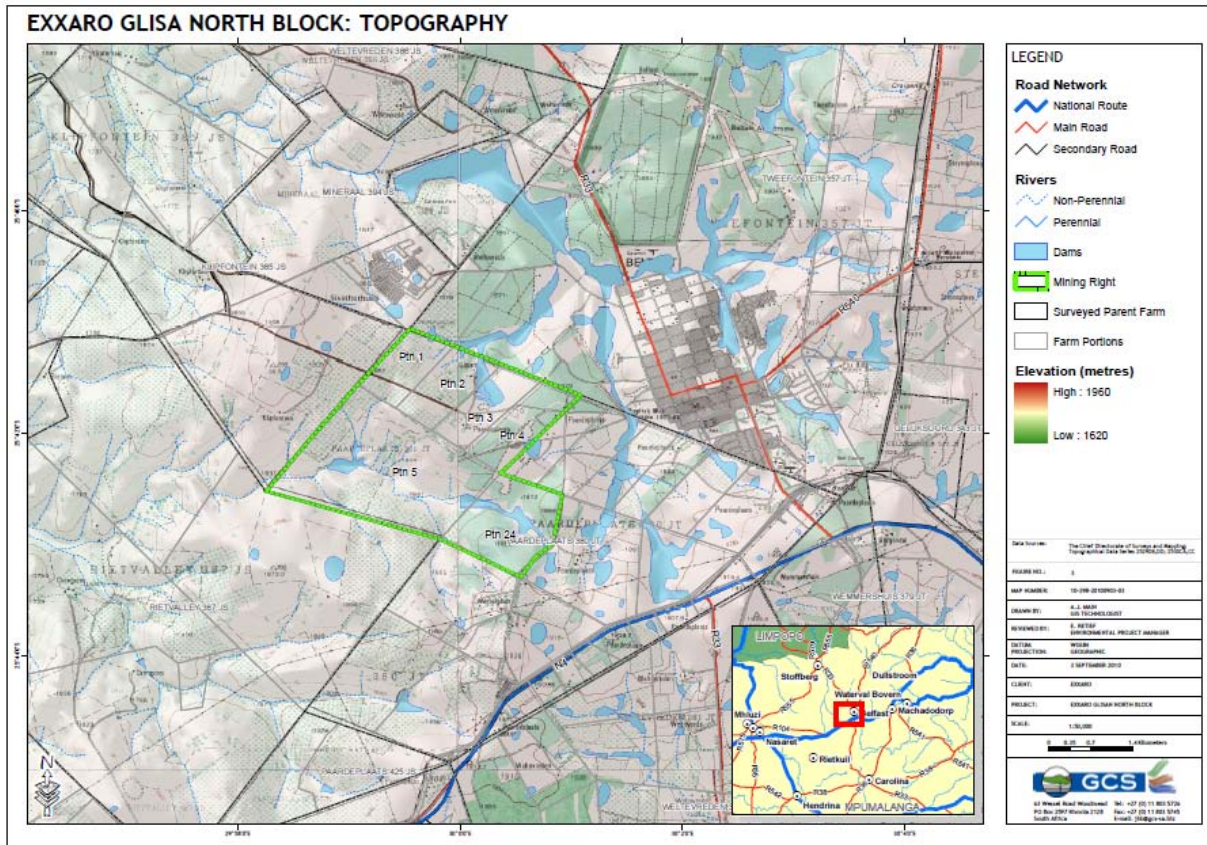


Figure 1 Map indicating the location of the Glisa Mine (in green) to the west of Belfast.

2. DECLARATION OF INDEPENDENCE AND SIGNING OFF

I, Anton Carl van Vollenhoven from Archaetnos, hereby declare that I am an independent specialist within the field of heritage management. I hereby sign off on this final report

Signed:

Date: 24 September 2010

3. TERMS OF REFERENCE

The Terms of Reference for the survey were to:

1. Identify all objects, sites, occurrences and structures of cultural heritage importance located on the property (see Appendix A).
2. Documenting such sites in a report including photographs and indicating them on a map with GPS references.
3. Assess the significance of the cultural heritage resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value (see Appendix B).
4. Propose suitable mitigation measures relating to the identified cultural heritage resources.
5. Review applicable legislative requirements.

4. METHODOLOGY

4.1 Survey of literature

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

4.2 Field survey

The survey was conducted according to generally accepted HIA practices endorsed by SAHRA and ASAPA. It was aimed at locating all possible objects, sites and features of archaeological 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 on foot and via an off-road vehicle.

4.3 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 a Global Positioning System (GPS). The information was added to the description in order to facilitate the identification of each locality.

5. CONDITIONS, ASSUMPTIONS AND KNOWLEDGE GAPS

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

1. Cultural Resources (including archaeological resources) are all non-physical and physical man-made occurrences, as well as natural occurrences associated with human activity. 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, architectural, technological, spiritual, linguistic 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 (see Appendix B).
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. Although care was taken to give a comprehensive background on the history of the area, it has to be stated that it is impossible to give a complete indication on human activities of the past as sources are not always readily available. The information given in the report should however give a fair reflection of the past.
8. The survey was done in an area indicated by officials from the mine. This information was used to determine the extent of what needed to be surveyed and the survey was therefore limited accordingly.
9. A large area was covered by an impenetrable blue gum bush. Therefore this area may not have been covered sufficiently.

6. 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).

6.1 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 palaeontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, palaeontological, 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. An HIA must be done under the following circumstances:

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

Structures

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

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 palaeontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
- c. trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and palaeontological 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 of 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.

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)**.

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

6.2 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.

7. DESCRIPTION OF THE AREA

The Glisa Coal Mine is located more or less 50 km to the west of the town of Belfast in the Mpumalanga Province on the farm Paardeplaats 380 JT. The topography of the surveyed area is very uneven – there is a high lying hillside to the west and north and it then falls relatively quickly to the east and south. It needs to be mentioned that most of the southern and eastern portions have already been extensively disturbed by mining activities (Figure 2-3).

The northeastern portion has been used for forestry with remains of the eucalyptus (bluegum) bush still present. This bush is mostly impenetrable as a result of young trees springing up. A non-perennial stream cuts through the south of the property forming a wetland area. Here a number of dams are situated (Figure 4). Another dam is found in the north.

Many dirt roads, used for mining purposes, are found on the property. Apart from the eucalyptus forest, the vegetation is reasonably low (Figure 5). Vegetation has already taken over much of the areas where past mining was done (Figure 6). In all the vegetation cover is quite extensive.



Figure 2 **Old mining area in the east of the property.**



Figure 3 General view of the central area being mined presently.



Figure 4 Dams in the southern part of the surveyed area.



Figure 5 General view of the northern part of the surveyed area.



Figure 6 Vegetation on old mining area.

8. DISCUSSION

During the survey two sites of cultural heritage significance was located in the area to be developed. However in order to be able to get a better understanding of the past in this area, it is necessary to give a background regarding the different phases of human history.

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.

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 occurrences are Late Stone Age sites at Carolina and Badplaas, and rock painting sites close to Machadodorp, Badplaas and Carolina (Bergh 1999: 4-5).

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 occurrence of water and 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.

In an area around Belfast, including Lydenburg, Nelspruit, Machadodorp and Badplaas a number of 1 792 Iron Age sites have been identified (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.

No Iron Age sites, features or objects were found during the survey. The type of environment however is suitable for human habitation. 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 south of where Glisa is situated. The Koni of Makopole stayed to the north-east and the Ndzundza Ndebele to the west. During the Difaquane they fled to the south, south-west and north-west as Mzilikazi's impi moved in from the southeast. During this time the Swazi also moved into this area (Bergh 1999: 10-11; 109).

The first white traveler to visit these surroundings was Robert Scoon in 1836 (Bergh 1999: 13). The area around Belfast, stretching as far as the Kruger Park, Middelburg and Ohrigstad, was first traded from the Swazi in 1846. White farmers therefore only settled here after this date (Bergh 1999: 16, 133).

The town of Belfast was established in 1890 and by the 1890's this area was inhabited by many white farmers (Bergh 1999: 21). Just to the south of the town, on the farm Wemmershuis, the remains of an old coach house were identified. This is on the old trade route between Middelburg and the far eastern Transvaal (Van Vollenhoven 2008: 14). A map from Bulpin (1974) shows that the eastern railway line went through Belfast and one can assume that this was an important stop for travelers. The reason is that the road forks here to the north in the direction of Ohrigstad and Lydenburg and to the east in the direction of Nelspruit.

Historical graves have also been found at Wemmershuis (see Van Vollenhoven 2008). These were exhumed during 2008. Other historical graves were also exhumed earlier at sites within the boundaries of the Glisa Mine (Pelser et.al. 2010).

During the Anglo-Boer War the area around Belfast saw much action. The last of the conventional military encounters between the British and Boer forces were that of the Battle of Bergendal, sometimes called the Battle of Dalmanutha. The battle took place between 21 and 27 August 1900.

On 21-22 August skirmishes started on the farm Van Wyksvlei, to the south of Belfast. This was followed by an attack on 23 August by the British on the Boer forces on the farm Geluk. Later that day the Boers at Dalmanutha were also under attack. The final phase of the battle

was at Bergendal on 27 August 1900 (Van der Westhuizen & Van der Westhuizen 2000: 218-220). The Boers retrieved from the scene and the British could continue their advance to the Lowveld.

On 24 August 1900 the British occupied Belfast. In the town they had three concentration camps for Boer women and children (Van der Westhuizen & Van der Westhuizen 2000: 211-214). After the British reached Komatipoort on 24 September 1900, they erected blockhouses and other fortifications along the railway line in order to safeguard this from the Boers (Van Vollenhoven 1995: 86). The remains of two of these are found to the south of the railway line at Belfast (Van Vollenhoven 2008: 15). During the night of 7-8 January 1901 the Boers attacked Belfast and started against the blockhouses on Monument hill (Van der Westhuizen & Van der Westhuizen 2000: 217).

All the sites identified during the survey date to this period in time. These are discussed below.

8.4 Sites identified during the survey

Site no 1:

This is the remains of a graveyard very close to the mining activities in the central area (Figure 7-9). It consists of more or less 32 graves, mostly marked by stone dressing. Some have cement, bricks or granite markers and headstone. The graves are mostly older than 60 years or of an unknown date and are therefore considered to be heritage graves.

GPS: 25°42'21,5"S
30°00'07,1"E

Due to the sensitivity of this issue, graves are always regarded as having a **high** cultural significance. Graves with an unknown date are always handled as if older than 60 years. Graves older as 60 years are regarded as heritage graves.

The mining activities are extremely close to the graves (less than 10 metres) and it seems to have already impacted negatively on the stones. Some have cracked and others have fallen over. Therefore there is a direct impact thereon.

It therefore would seem at first as if the only option would therefore be to exhume the graves and have the bodies reburied as the graves may otherwise be damaged even further. However, it needs to be stated that for this a process of social consultation is needed and the wishes of the descendants should be considered. This process is a lengthy process including social consultation in order to find families of the deceased and to obtain their permission. From previous work at the mine, it is known that the community does not want to move these graves without compensation (Pelser & Van Vollenhoven 2010:5).

In the case of graves older than 60 years and those with an unknown date of death archaeologist as well as an undertaker will have to be part of the team involved. For graves with a date of death of younger than 60 years, only an undertaker is involved.



Figure 7 Some of the graves at site 1. Note the cracks and fallen headstones.



Figure 8 More graves at site 1.



Figure 9 Note the mining activities encroaching on the graves in the forefront.

However, usually the best option however is to preserve the graves in situ by fencing it in and writing a management plan. Therefore urgent discussion with the community was needed – this was done during the course of early 2011 and the matter was resolved.

The decision, in collaboration with the families was now made to preserve the graves. It also needs to be mentioned that the mining activities close to the graves have ceased and is moving away from it. The report from the blasting expert (Zeeman 2011) also indicated that air blasts would not provide problems at the graves, that ground vibrations closer than 100 m is unlikely to occur and that fly rock may only present problems in an area between 250 and 275 m from the site. The latter is however controllable and as long as the mine keeps to the indicated standards sets, there should not be any problems. The mining activities currently are more than 400 m away and moving even further away. Therefore this option now seems the most efficient.

EIA Ranking:

Occurrence: Probability: Definite = 5
Duration: Permanent = 5

Severity: Magnitude: Very high = 10
Scale: Local = 2

EIA Risk assessment:

Probability	Duration	Scale	Magnitude
5 - Definite	5 - Permanent	2 - Local	10 – Very high

$$\begin{aligned}
 SP &= (\text{magnitude} + \text{duration} + \text{scale}) \times \text{probability} \\
 &= (10 + 5 + 2) \times 5 \\
 &= 17 \times 5 \\
 &= 85
 \end{aligned}$$

The site therefore has a high (H) environmental significance. As the duration is permanent the SP will be the same for all phases of the mining operation (see Appendix E).

Site no 2:

This is the remains of a farm yard consisting of a small house and a store room in the northern part of the property (Figure 10-11). From the building material it is clear that it probably is younger than 60 years and therefore it has a **low** cultural significance. It does not need to be preserved and may be demolished if necessary.

GPS: 25°41'29,3"S
30°00'08,4"E



Figure 10 **Remains of a house at site 2.**



Figure 11 Storage building at site 2.

EIA Ranking:

Occurrence: Probability: Medium = 3
 Duration: Long-term = 4

Severity: Magnitude: Minor = 2
 Scale: Site only = 1

EIA Risk assessment:

Probability	Duration	Scale	Magnitude
3 - Medium	4 – Long-term	1 – Site only	2 - Minor

$$\begin{aligned}
 SP &= (\text{magnitude} + \text{duration} + \text{scale}) \times \text{probability} \\
 &= (2 + 4 + 1) \times 3 \\
 &= 7 \times 3 \\
 &= 21
 \end{aligned}$$

The site therefore has a low (L) environmental significance. As the duration is long-term it will cease with the operational life (see Appendix E).

9. MANAGEMENT PLAN

Action	Frequency	Responsible person	Annual management cost
Graves to be exhumed	Once off	Archaeologist in collaboration with an undertaker	None – once off cost
Graves to be managed in situ	As long as mine operation	Mine in collaboration with archaeologist	R 30 00.00 for first year, then R 10 000.00 with annual increase
Farm building to be destructed	Once off	Mine	None – once off

10. REHABILITATION OPTIONS

Preserving the site in situ will mean that it first have to be rehabilitated. This would entail the repair and/or replacement of headstones, the cleaning and fencing of the site and compilation and implementation of a management plan.

11. CUMULATIVE IMPACT EXPECTED

The only matter that may have a cumulative impact is the graves and only if they are not exhumed and removed. This would mean that a management plan needs to be drafted by a heritage expert and implemented by the mine. The plan should be approved by SAHRA and should be monitored annually.

12. CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the HIA in the area has been conducted successfully. Two cultural sites (Figure 12) were identified during the survey.

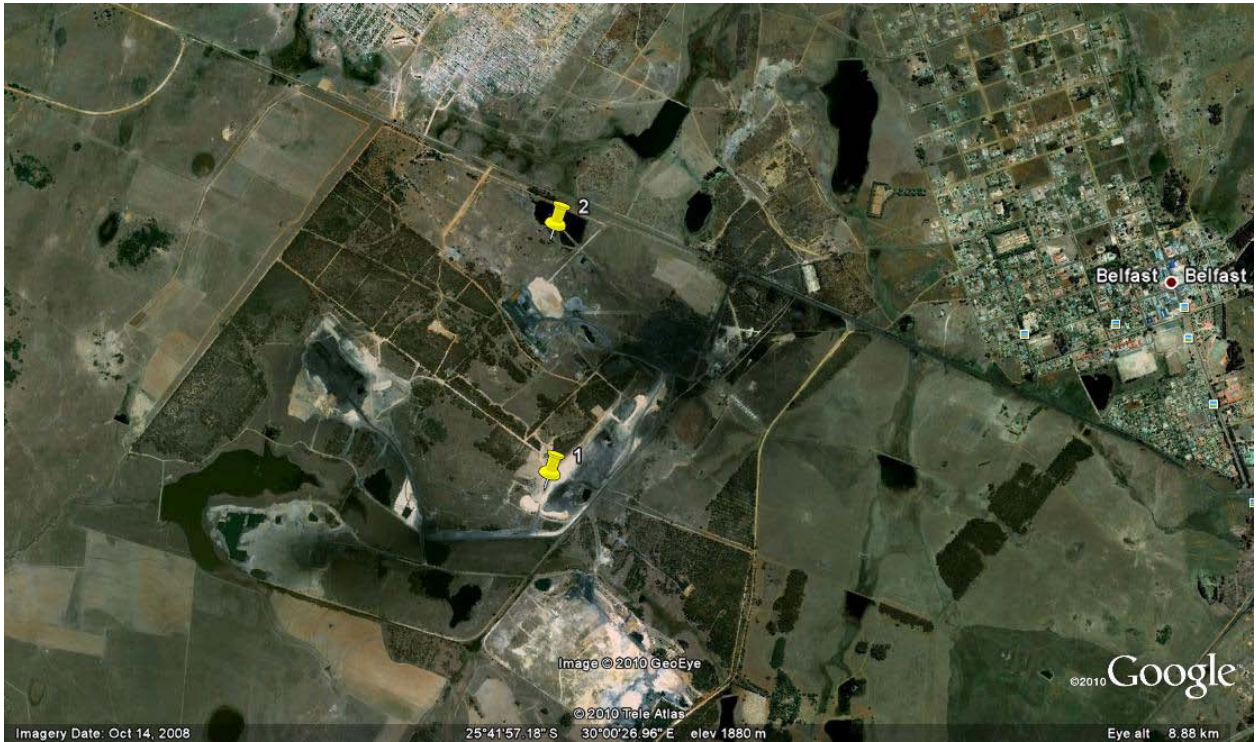


Figure 12 Google image showing the location of the two sites within the mining area. Note the extensive mining operations close to the graves (no 1).

The following is recommended:

- Site number 1, the grave yard, has a **high** cultural significance.
- The mining activities are extremely close to the graves (less than 10 metres) and it seems to have already impacted negatively on the stones. Some have cracked and others have fallen over. Therefore there is a direct impact thereon.
- The one option is to exhume the graves and have the bodies reburied. For this a process of social consultation is needed and the wishes of the descendants should be considered. This process is a lengthy process and one should try to obtain the permission of families.
- The second option however, is the fencing in and preservation of graves. In this instance the families have made it clear that they do not wish the graves to be relocated. Also the mining operations have moved much further away from the site. Information from the report of the blasting expert also indicated that the graves will no longer be threatened any further. After urgent discussion with the community the matter was resolved.
- The graves will therefore now be preserved in situ and a management plan will be compiled to ensure the future preservation thereof. That would be a separate document from this one.

- Site number 2 (farm yard) is of a low cultural significance. It may be demolished. As it probably is younger than 60 years no heritage permit is needed.
- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. Care should therefore be taken when any development commences that if any of these are discovered, a qualified archaeologist be called in to investigate the occurrence. This is especially true of the large eucalyptus bush in the west. Graves have been found inside of such forestry areas in the past and therefore special care should be given to this.

13. REFERENCES

- Bergh, J.S. (ed.), 1999. **Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies.** (J.L. van Schaik, Pretoria).
- Bulpin, T.V. 1974 (3rd edition). **Lost trials of the Transvaal.** (Cape & Transvaal Printers Ltd, Cape Town).
- 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.
- 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.
- Pelser, A.J., Van Vollenhoven, A.C. & Van der Walt, J. 2010. **A report on the archaeological investigation of graves on the farm Paardeplaats 380 JT, impacted on by the NBC Glisa Coal Mining Operations, Belfast district, Mpumalanga Province.** (Unpublished report, Archaetnos, Wonderboompoort).
- Republic of South Africa. 1980. Ordinance on Excavations (**Ordinance no. 12 of 1980**). **The Government Printer: Pretoria.**
- Republic of South Africa. 1983. **Human Tissue Act** (Act 65 of 1983). 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.
- 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.
- Van Der Westhuizen, G. & Van der Westhuizen, E. 2000. **Gids tot die Anglo-Boereoorlog in die Oos-Transvaal.** (TRANSRO Pers, Roodepoort).
- Van Vollenhoven, A.C. 1995. **Die militêre fortifikasies van Pretoria 1880-1902. 'n Studie in die historiese argeologie.** (Heinekor, Pretoria).
- Van Vollenhoven, A.C. 2008. **Report on an archival investigation on the farm Wemmershuis 370 JT, Belfast.** (Unpublished report, Archaetnos, Wonderboompoort).
- Zeeman, J.D. 2011. **Possible influence on graveyard in Blesbok pit.** (Unpublished report, Blast Management & Consulting, Centurion).

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 of 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

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

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
ASSESSMENT TABLES