

**Heritage Impact Assessment for the Farm Onbekend 54 IT  
Portion 9, 12 and RE, Mpumalanga**



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**Date:** February 2011

## Executive summary

Western Crown Properties (Pty) Ltd is in the process of applying for a mining license to extract coal on the farm Onbekend 54 IT portion 9, 12 and RE close to the town Carolina, Mpumalanga. GEM-Science CC was contracted to review the area and conduct the environmental impact assessment on their behalf. This heritage impact assessment forms part of the total impact assessment of the proposed mining activities.

The heritage assessment was conducted on the 21<sup>st</sup> of February 2011. The team consisted of an archaeological field expert and assistant. The aim of the survey was to determine the extent of cultural heritage within the boundaries of the area to be affected by the proposed mining activities.

Various sites of heritage significance were identified during the survey. Sites that were identified ranged from abandoned farmhouses, a walled kraal, an old house, a stone walled structure, cemeteries and single graves and a rock art site. The significance of these sites varies from those sites of little significance, to those sites with a high significance, for example the cemeteries.

The proposed mining activities are based on extracting the coal by making use of an open cast method and a small portion to be mined underground. The result of this will be a large scale destruction of the identified heritage sites.

The heritage remains in this area is mostly of a historical context, however the rock art site and related stone cores and flake identified date from the Later Stone Age.

It is recommended that if mining in this area is approved and mining operations are to commence, that large scale social consulting should take place. Family members and the local community must become involved in the identification and decision making regarding individual graves and cemeteries in order to plan the mitigation process if the mining process do commence. It is also recommended that a Rock Art Specialist be consulted

regarding the rock art paintings. To be able to evaluate the impact of the mining activities on the rock art site it is suggested that a Rock Mechanics study be commissioned.

**Disclosure**

GEM-Science acts as an independent consultant in the Heritage Impact Assessment. All possible care was taken to identify all sites of cultural and archaeological importance during the investigation of the study areas. It is possible that hidden or sub-surface sites could be overlooked during the study. Neither GEM-Science nor its staff will be held liable for such oversights or for costs incurred as a result of such oversights.

## Table of Contents

Executive summary.....	i
Disclosure.....	ii
Table of Contents.....	iii
List of Figures .....	v
List of Tables .....	vi
1 Background information on the project.....	1
1.1 Introduction.....	1
1.2 Aim of the study .....	1
1.3 Overview of proposed mining activity .....	2
1.4 Environmental Approvals and Permits required for mining operations .....	2
1.5 Developer’s, consultant’s and owner’s name and contact details .....	3
1.6 Legislative requirements.....	3
2 Background to the archaeological history.....	4
2.1 Terminology .....	4
2.2 Literature review .....	5
2.3 Reference used.....	6
3 Description of the property of affected environment .....	6
3.1 Location of surveyed area .....	6
3.2 Methodology .....	8
4 Significance and Recommended Rating .....	9
4.1 Site Significance.....	9
4.2 Field Ratings .....	10
4.3 Impact Rating .....	11
4.4 Certainty of Prediction .....	12
4.5 Duration of impact .....	13
4.6 Mitigation measures .....	13
5 Description of sites identified, artefacts, other finds and features and burials grounds and graves.....	13
5.1 Site OB 1 .....	14
5.2 Site OB 2 .....	15
5.3 Site OB 3 .....	18

5.4	5.4 Site OB 4 .....	21
5.5	Site OB 5 .....	22
5.6	Site OB 6 .....	23
5.7	Site OB 7 .....	24
5.8	Site OB 8 .....	28
5.9	Site OB 9 .....	29
5.10	Site OB 10 .....	30
5.11	Site OB 11 .....	31
5.12	Site OB 12 .....	32
5.13	Site OB 13 .....	33
5.14	Site OB 15 .....	34
5.15	Site OB 16 .....	35
5.16	Site OB 17 .....	37
6	Recommendation .....	40
6.1	Site OB 1 .....	40
6.2	Site OB 2 .....	41
6.3	Site OB 3 .....	42
6.4	Site OB 4 .....	44
6.5	Site OB 5 .....	46
6.6	Site OB 6 .....	47
6.7	Site OB 7 .....	49
6.8	Site OB 8 .....	50
6.9	Site OB 9 .....	50
6.10	Site OB 10 .....	52
6.11	Site OB 11 .....	54
6.12	Site OB 12 .....	56
6.13	Site OB 13 .....	58
6.14	Site OB 15 .....	60
6.15	Site OB 16 .....	61
6.16	Site OB 17 .....	63
7	Conclusion .....	65
8	Bibliography .....	65

## List of Figures

Figure 1. Location of the proposed Mining Right Area.....	7
Figure 2. Cadastral map of the proposed mining area. ....	7
Figure 3. Land use map of the site.....	8
Figure 4 Location of significant sites.....	14
Figure 5. OB 1 Remains of an old farm house.....	15
Figure 6. OB 1 Remains of an old farm house.....	15
Figure 7. OB 2 A stone walled cattle kraal and associated buildings. ....	16
Figure 8. OB 2 A stone walled cattle kraal and associated buildings. ....	17
Figure 9. OB 2 A stone walled cattle kraal and associated buildings. ....	17
Figure 10. OB 2 A stone walled cattle kraal and associated buildings. ....	17
Figure 11. OB 3 An unfenced informal cemetery. ....	19
Figure 12. OB 3 An unfenced informal cemetery. ....	19
Figure 13. OB 3 An unfenced informal cemetery. ....	19
Figure 14. OB 3 An unfenced informal cemetery. ....	20
Figure 15. OB 3 An unfenced informal cemetery. ....	20
Figure 16. OB 3 An unfenced informal cemetery. ....	20
Figure 17. OB 4 An informal cluster of graves . ....	21
Figure 18. OB 4 An informal cluster of graves . ....	22
Figure 19. OB 5 An old house.....	23
Figure 20. OB 6 An unfenced informal cemetery. ....	24
Figure 21. OB 6 An unfenced informal cemetery. ....	24
Figure 22. OB 7 Rock art painting. ....	26
Figure 23. OB 7 Rock art paintings.....	26
Figure 24. OB 7 Stone tool associated with rock art site.....	26
Figure 25. OB 7 Rock art site.....	27
Figure 26. OB 7 Rock art paintings.....	27
Figure 27. OB 7 Rock art painting. ....	27
Figure 28. OB 7 Rock art painting. ....	28
Figure 29. OB 8 Elongated stone wall structure. ....	29
Figure 30. OB 8 Elongated stone wall structure. ....	29

Figure 31. OB 9 Single informal grave.....	30
Figure 32. OB 10 Single informal grave.....	31
Figure 33. OB 11 Two informal graves.....	32
Figure 34. OB 12 Single informal grave.....	33
Figure 35. OB 13 Single informal grave.....	34
Figure 36. OB 15 Three informal graves. ....	35
Figure 37. OB 16 Remains of old farm house and associated buildings.....	36
Figure 38. OB 16 Remains of old farm house and associated buildings.....	36
Figure 39. OB 17 Small cemetery.....	38
Figure 40. OB 17 Small cemetery.....	38
Figure 41. OB 17 Small cemetery.....	39
Figure 42. OB 17 Small cemetery.....	39

## List of Tables

Table 1. Relevant permits/ authorizations and relevant authorities. ....	2
Table 2. Field rating.....	10

# 1 Background information on the project

## 1.1 Introduction

GEM-Science CC, an independent consultant, was contracted by Western Crown Properties (Pty) Ltd to conduct an Environmental Impact Assessment (EIA) and public participation process for the proposed mining activities on the farm Onbekend 54 IT portion 9, 12 and RE. This Heritage Impact Assessment forms part of the EIA produced for the client.

Western Crown Properties (Pty) Ltd is in the process of applying for a mining license to extract coal on the farm Onbekend 54 IT portion 9, 12 and the Remaining Extent. This Heritage Impact Assessment was conducted to determine the extent of the heritage within the boundaries of the proposed mining area and how the proposed activities would impact on the heritage.

Mitigation methods and recommendations could be made as a result of the information gathered from the Mine Works Programme (MWP), field survey and desktop study.

## 1.2 Aim of the study

- To fulfill in the requirements of the South African Heritage Resources Act (Act nr. 25 of 1999) Section 38.
- To identify and describe sites of archaeological importance that would be affected by proposed development activities.
- To identify and describe sites of cultural heritage that would be affected by proposed development activities.
- To identify and describe the impacts of development activities on the identified sites.
- To evaluate the impacts of development activities on identified sites.
- To make recommendations regarding the conservation of identified sites.
- To recommend mitigation on the affected identified sites.
- To identify and propose management measures.



### 1.3 Overview of proposed mining activity

MINERAL DEPOSITS:	Bituminous coal found in the coal seams of the Ermelo Coalfield, also known as the Mpumalanga Coalfield
MINE PRODUCT:	Coal from the C coal seam horizon will be mined
RESERVES:	The estimated mineable in situ resource within the C coal seam will have to be confirmed
MINING METHOD:	Mining will be conducted by opencast mining using a truck and shovel method and a small portion by underground mining
PRODUCTION RATE:	The production rate will have to be confirmed for the Onbekend Colliery as opencast and underground mining methods will be utilized
PLANNED LIFE OF MINE:	It is planned to mine for approximately 5-10 years after the star-up period to closure

### 1.4 Environmental Approvals and Permits required for mining operations

According to South African Legislation, several permits/authorizations are required for the approval of the proposed mining activities to take place at the site. The Environmental Impact Assessment and Environmental Management Programme will elaborate on the requirements for these approvals, by giving the necessary recommendations for compliance. These permits/authorizations and the relevant authorities are listed in Table 1.

**Table 1. Relevant permits/ authorizations and relevant authorities.**

Relevant Legislation
Minerals and Petroleum Resource Development Act, Act 28 of 2002
GNR 386 in Government Gazette No 28753 of 21 April 2006. Activity No 1 (c)
GNR 386 in Government Gazette No 28753 of 21 April 2006. Activity No 1 (n)
GNR 386 in Government Gazette No 28753 of 21 April 2006. Activity No 1 (s)
GNR 386 in Government Gazette No 28753 of 21 April 2006. Activity No 7
GNR 386 in Government Gazette No 28753 of 21 April 2006. Activity No 15

GNR 386 in Government Gazette No 28753 of 21 April 2006. Activity No 25
GNR 387 in Government Gazette No 28753 of 21 April 2006. Activity No 1 (c)
GNR 387 in Government Gazette No 28753 of 21 April 2006. Activity No 1 (g)
GNR 387 in Government Gazette No 28753 of 21 April 2006. Activity No 1 (p)
National Water Act, Act 36 of 1998, Section 21 (g)

### 1.5 Developer's, consultant's and owner's name and contact details

<b>Project Name</b>	Onbekend Colliery	
<b>Mining Right Applicant</b>	Western Crown Properties (PTY) Ltd	
<b>Contact Person</b>	Mr Owner Siweya	
<b>Contact Details</b>	Telephone	+27 11 484 6004
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	Fax number:	+27 11 642 9611
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		Johannesburg
		South Africa
		2013
<b>Consultant</b>	GEM-Science CC	P O Box 32748
		Glenstantia, 0010
		Tel: 012 348 7760
		Fax: 086 684 0141

### 1.6 Legislative requirements

The legislation, National Heritage Resources Act (Act No. 25 of 1999, section 35) requires that all objects of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance are protected. This includes, the protection of all these heritage components such as archaeology, shipwrecks, battlefields, graves and structures over 60 years, living heritage, and the collection of oral histories, historical settlements, landscapes, geological sites, paleontological sites and objects (SAHRA 2006).

The developer should take into consideration that the following legislation should be taken into account:

- National Environmental Management Act (NEMA) Act 107 of 1998
- National Heritage Resources Act (NHRA) Act 25 of 1999
- Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
- Development Facilitation Act (DFA) Act 67 of 1995

Sections referring directly to the identification, evaluation and assessment of cultural heritage resources in each Act are the following.

- National Environmental Management Act (NEMA) Act 107 of 1998
- Basic Environmental Assessment (BEA) – Section (23)(2)(d)
- Environmental Scoping Report (ESR) – Section (29)(1)(d)
- Environmental Impacts Assessment (EIA) – Section (32)(2)(d)
- Environmental Management Plan (EMP) – Section (34)(b)
- National Heritage Resources Act (NHRA) Act 25 of 1999
- Protection of Heritage resources – Sections 34 to 36; and
- Heritage Resources Management – Section 38
- Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002
- Section 39(3)
- Development Facilitation Act (DFA) Act 67 of 1995
- The GNR.1 of 7 January 2000: Regulations and rules in terms of the Development Facilitation Act, 1995. Section 31

## **2 Background to the archaeological history**

### **2.1 Terminology**

The following terminology is used when referring to cultural, historic and archaeological heritage:

**Stone Age:** The Stone Age began with the appearance of early humans. The Stone Age people were hunter-gatherers. Stone tools and rock art are found throughout South Africa. The Stone Age can be divided into the Early Stone Age (ESA) (2 000 000 – 150 000 Before Present); the Middle Stone Age (MSA) (150 000 – 30 000 BP) and the Late Stone Age (LSA) (30 000 until ca. AD 200).

**Iron Age:** This period covers the last 2000 years. Farming communities moved down from the eastern parts of Africa into the southern parts of Africa. These people settled permanently, practised agriculture and had domesticated animals. They introduced metal and mining to Southern Africa.

**Historical period:** This period falls into the last 300 years with the arrival of white settlers on the continent. These settlers moved into the interior of southern Africa to among other settle, farm and mine.

A Heritage Impact Assessment (HIA) is not limited to artefacts, historical buildings and graves; it is far more encompassing and includes intangible and invisible resources such as places, oral traditions and rituals. A heritage resource can be described as any place or object of cultural significance i.e. aesthetic, architectural, historic, scientific, social, spiritual, linguistic or technological value or significance.

## 2.2 Literature review

Various San rock art have been identified in the Carolina, Badplaas and Chrissiesmeer area, especially along rivers and rocky outcrops (Bergh 1998). This can be because of the easy access to water sources in the area. Mason (1962) refers to a number of settlements during the Prehistory of the Transvaal, whilst Maggs (1979) also comments on the Iron Age of the southern Highveld. In Bergh (1998) and Malan & Van Niekerk (1955) there is a referral to a Late Stone Age site Groenvlei close to Carolina. This site is one of a few in the area that dates to the past 2500 years and is associated with pottery and micro-lithic tools of the Late Stone Age hunters and herders (Korsman & Van der Ryst). Some Late Iron Age sites are found in the Badplaas area, north east of Carolina and towards the south west area close to Chrissiesmeer (Van der Ryst 1998).

The town of Carolina was initially proclaimed by the “Volksraad” on 22nd June 1885 but was only officially proclaimed on the 8<sup>th</sup> of June 1886 (Berg 1998). A number of Anglo Boer War skirmishes occurred in the greater area; however there is no mention of specific skirmishes of battles taking place in the proposed mining application area.

### **2.3 Reference used**

A number of HIA’s have been conducted in the southern part of Mpumalanga, the SAHRA database (2009) was used to find these assessments.

## **3 Description of the property of affected environment**

### **3.1 Location of surveyed area**

The proposed Onbekend Colliery is situated approximately 5 km west of the town Carolina on the Chrissiesmeer road, in the Albert Luthuli Local Municipality and Gert Sibande District Municipality, Mpumalanga, South Africa (Figure 1 and Figure 2). The farm Onbekend 54 IT is approximately 2400 ha.

The proposed area for the mining operation is primarily utilized for agricultural activities such as maize production and grazing. The remaining area comprises of grassland, wetlands riparian areas and small ridges/outcrops. The proposed mining site falls within the Grassland Biome and are classified as Eastern Highveld Grassland according to Mucina & Rutherford (2006).

There are farm roads and housing structures found on the site. Various primary and secondary roads, telephone lines and power lines cut through the site. The R36 and R38 also cut through the site in an east south and east west directions.

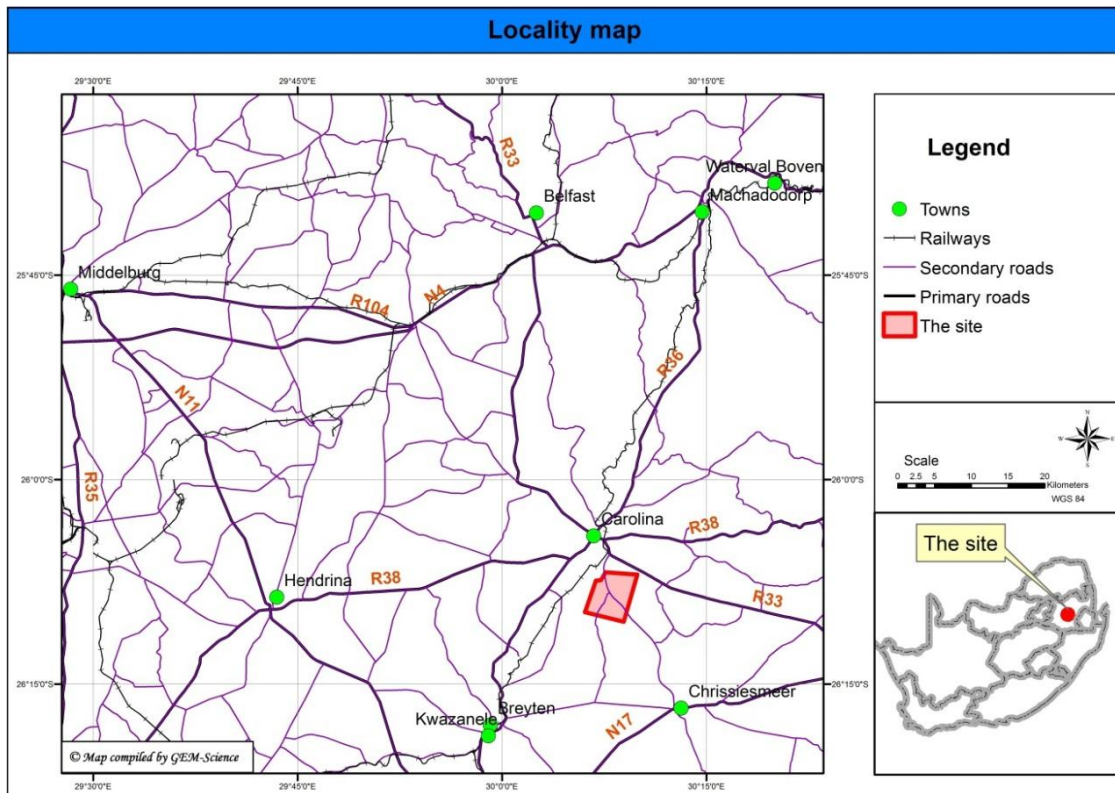


Figure 1. Location of the proposed Mining Right Area.

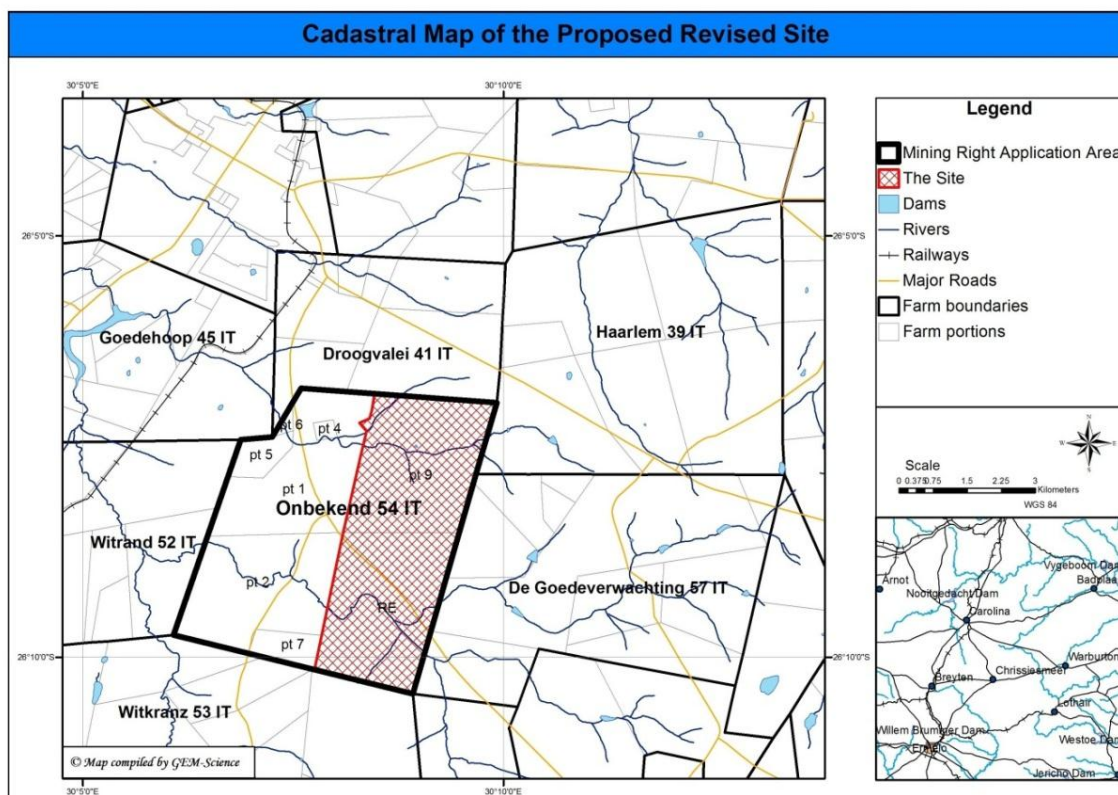
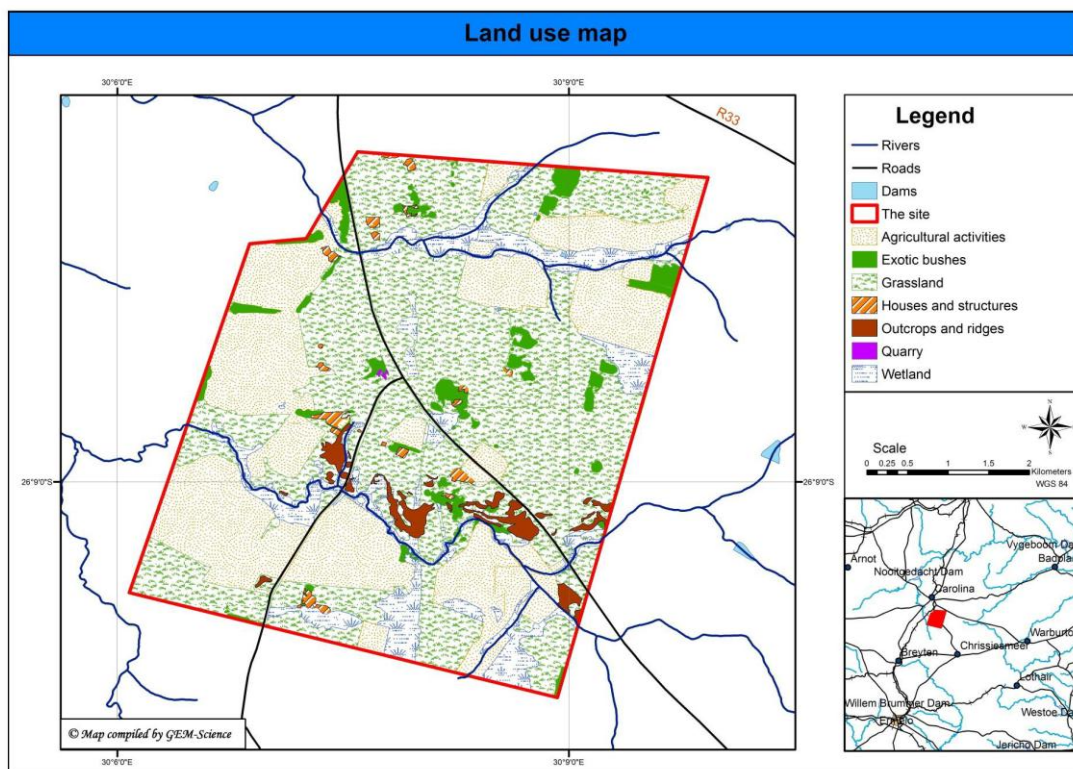


Figure 2. Cadastral map of the proposed mining area.



**Figure 3. Land use map of the site.**

### 3.2 Methodology

After the necessary permissions were obtained, a heritage assessment was conducted on the 21<sup>st</sup> of February 2011. The team consisted of an archaeological field expert and assistant. The aim of the survey was to determine the extent of archaeological and cultural heritage within the boundaries of the area to be affected by the proposed mining activities.

The team was initially guided to sites of heritage importance by the farmers and farm labourers. Subsequent interviews with the farm workers were conducted. They pointed out some of the identified sites. The majority of the surveyed area is covered by open ploughed agricultural land, the survey was therefore conducted on foot and vehicle.

A GPS was used during the survey process to log all the relevant sites and finds. Photographs of all the relevant sites were taken. No sampling was done during the survey. The sites were plotted using a Global Positioning System (GPS) (Garmin E-Trek Legend) and numbered accordingly.

No physical or other impediments had an impact on the survey. Data was acquired by using different databases, journal articles, HIA reports, interviews, maps and aerial photographs.

## 4 Significance and Recommended Rating

This section will deal with the significance and recommended rating of heritage sites. The following criteria were used to determine the significance of heritage sites.

- The unique nature of a site
- The amount/depth of the archaeological deposit and the range of features (stone walls, activity areas etc.)
- The wider historic, archaeological and geographic context of the site
- The preservation condition and integrity of the site
- The potential to answer present research questions

### 4.1 Site Significance

Site significance classification standards prescribed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used for the purpose of this report.

#### ***Low or No Significance:***

The constraint is absent, but in instances where present, poses a negligible significance on the proposed development in terms of heritage concerns.

#### ***Moderate Significance:***

The constraint is present and poses a notable but not major significance on the proposed development in terms of heritage concerns. If the constraint can not be avoided, appropriate mitigation measures must be implemented to minimize the significance.



**High Significance:**

The constraint is present and poses a high significance on the proposed development in terms of heritage concerns. It is recommended that the constraint be avoided or appropriate mitigation measures must be implemented to minimize the significance.

**4.2 Field Ratings**

The following field ratings were used describing the significant archaeological heritage value of each site in term of the legislation NHRA, section 3 (3).

**Table 2. Field rating.**

<b>FIELD RATING</b>	<b>GRADE</b>	<b>SIGNIFICANCE</b>	<b>RECOMMENDED MITIGATION</b>
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected (GP.A)	Grade 4A	High / Medium Significance	Mitigation before destruction
Generally Protected (GP.B)	Grade 4B	Medium Significance	Recording before destruction
Generally Protected (GP.C)	Grade 4C	Low Significance	Destruction

### 4.3 Impact Rating

#### *Very High*

These impacts would be considered by society as constituting a major and usually permanent change to the (natural and/or cultural) environment, and usually result in severe or very severe effects, or beneficial or very beneficial effects.

**Example:** The loss of a species would be viewed by informed society as being of *Very High* significance.

**Example:** The establishment of a large amount of infrastructure in a rural area, which previously had very few services, would be regarded by the affected parties as resulting in benefits with a *Very High* significance.

#### *High*

These impacts will usually result in long term effects on the social and /or natural environment. Impacts rated as *High* will need to be considered by society as constituting an important and usually long term change to the (natural and/or social) environment. Society would probably view these impacts in a serious light.

**Example:** The loss of a diverse vegetation type, which is fairly common elsewhere, would have a significance rating of *High* over the long term, as the area could be rehabilitated.

**Example:** The change to soil conditions will impact the natural system, and the impact on affected parties (e.g. farmers) would be *high*.

#### *Moderate*

These impacts will usually result in medium- to long-term effects on the social and/or natural environment. Impacts rated as *Moderate* will need to be considered by the public or the specialist as constituting a fairly unimportant and usually short term change to the (natural and/or social) environment. These impacts are real, but not substantial.

**Example:** The loss of a sparse, open vegetation type of low diversity may be regarded as *Moderately* significant.

**Example:** The provision of a clinic in a rural area would result in a benefit of *moderate* significance.

#### *Low*

These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as *Low* will need to be considered by society as constituting a fairly important and usually medium term change to the (natural and/or social) environment. These impacts are not substantial and are likely to have little real effect.

**Example:** The temporary changes in the water table of a wetland habitat, as these systems are adapted to fluctuating water levels.

**Example:** The increased earning potential of people employed as a result of a development would only result in benefits of *Low* significance to people living some distance away.

#### *No Significance*

There are no primary or secondary effects at all that are important to scientists or the public.

**Example:** A change to the geology of a certain formation may be regarded as severe from a geological perspective, but is of *No Significance* in the overall context.

### **4.4 Certainty of Prediction**

**DEFINITE:** More than 90% sure of a particular fact. Substantial supportive data exist to verify the assessment.

**PROBABLE:** Over 70% sure of a particular fact, or of the likelihood of an impact occurring.

**POSSIBLE:** Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.

**UNSURE:** Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.

#### 4.5 Duration of impact

<i>SHORT TERM:</i>	0 – 5 years
<i>MEDIUM:</i>	6 – 20 years
<i>LONG TERM:</i>	more than 20 years
<i>DEMOLISHED:</i>	site will be demolished or is already demolished

#### 4.6 Mitigation measures

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be classified as follows:

- **A** – No further action necessary
- **B** – Mapping of the site and controlled sampling required
- **C** – Preserve site, or extensive data collection and mapping required; and
- **D** – Preserve site

### 5 Description of sites identified, artefacts, other finds and features and burials grounds and graves

A number of sites were identified in the study area during the survey, as indicated on Figure. Graves/cemeteries, the remains of farm labourer homesteads, a dilapidated farm house and a circular stone wall structure. The sites are named using OB, abbreviation for Onbekend, and a numerical sequence.

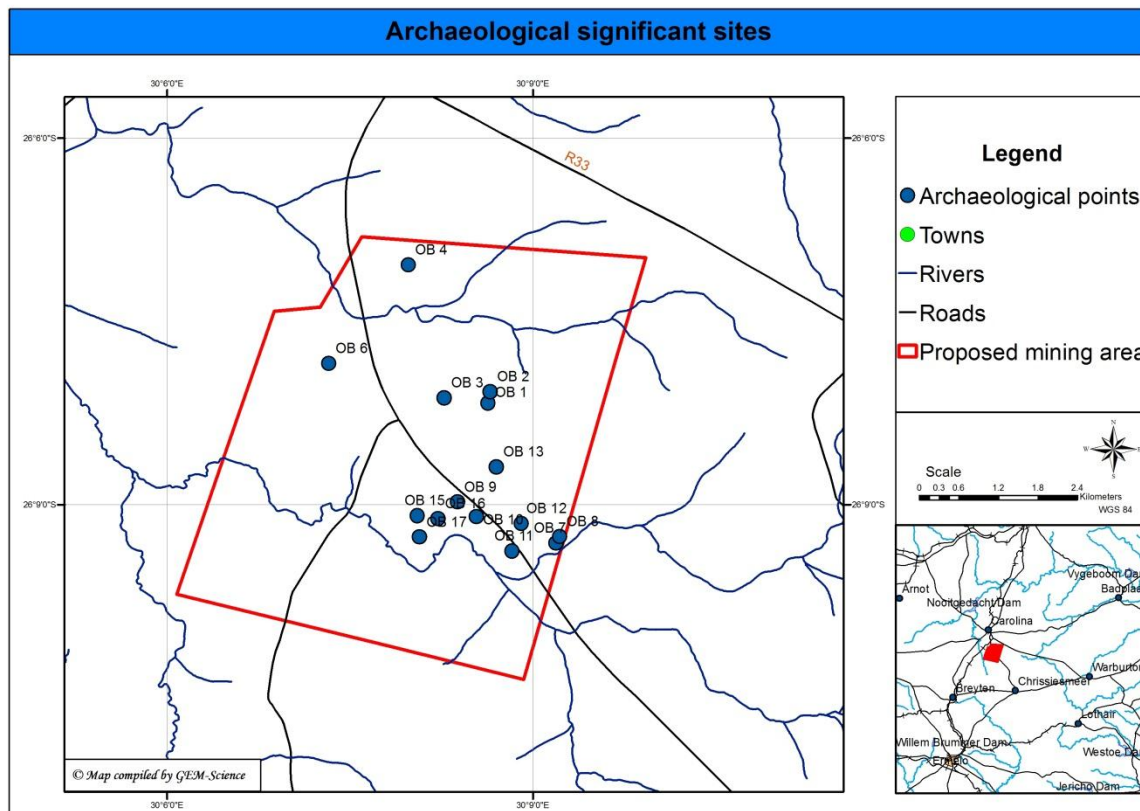


Figure 4 Location of significant sites.

### 5.1 Site OB 1

GPS: 26° 08,170 S

30° 08,632 E

The foundations and the remains of an old farm house and some of its associated out buildings were identified at this location. The structures were set amongst a cluster of Eucalypti trees. The buildings were brick-built, but were found to be in a dilapidated state. All the doors, windows and frames as well as the roof of both structures were removed. It was not possible to determine the age of the structures from the remains, but the use of cement and bricks in the construction, the presence of internal plumbing and electricity systems indicated the relative recent origins of these structures. The structures were dilapidated and damaged beyond repair. Most of the remains of the structures were overgrown with grass and other vegetation and building rubble were scattered around the site. Other exotic trees such as Jacaranda and some fruit trees were found around the structures.

Site size: Approximately 100m x 100m.



**Figure 5. OB 1 Remains of an old farm house.**



**Figure 6. OB 1 Remains of an old farm house.**

Field Rating:	Generally Protected A (4B)
Heritage Significance:	Medium Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	B – Mapping of the site and controlled sampling required

## **5.2 Site OB 2**

GPS: 26° 08,075 S

30° 08,649 E

A stone walled cattle kraal and associated livestock structures/buildings were identified here. Some sections of the kraal and the buildings consisted of dry stone walls and cement was used in the rest of the stone walled complex. The kraal was situated amongst another cluster of Eucalypti trees approximately 400m south of the farmstead identified at site OB 1. These structures seem to be older than the identified structures at site OB 1 due to building materials used (rocks v/s bricks; rough wooden lintels v/s cement lintels), building techniques used (dry stone walls v/s cemented walls).

The kraal and the associated structures were in a dilapidated state and some sections of the walls have collapsed. The kraal itself was rectangular in shape and measured approximately 20m x 10m in size. The walls of the kraal were approximately 2m high and measured approximately 0,75m wide. The associated building's walls were even higher (up to 3m) and it had three separate rooms which measured approximately 5m x 10m each. All of the rooms were interconnected and had their own entrances (doors) and windows. These rooms were most probably used as milking facilities or as a roofed holding facility for dairy cattle during cold winters. The roof of this structure was subsequently removed and only a few roof trusses were left.

Site size: Approximately 50m x 50m.



**Figure 7. OB 2 A stone walled cattle kraal and associated buildings.**



**Figure 8. OB 2 A stone walled cattle kraal and associated buildings.**



**Figure 9. OB 2 A stone walled cattle kraal and associated buildings.**



**Figure 10. OB 2 A stone walled cattle kraal and associated buildings.**



Field Rating:	Generally Protected A (4B)
Heritage Significance:	Medium Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	B – Mapping of the site and controlled sampling required

### 5.3 Site OB 3

GPS: 26° 08,127 S  
30° 08,272 E

An unfenced, informal cemetery with approximately 25 graves was identified at this location. The graves were placed in two unequal lines in an open field. All of the graves were orientated from west to east. Three of the graves had cemented dressings with brick and cement headstones. The rest of the graves had informal oval shaped mounds of packed rocks and soil as dressings.

Three of the graves at the southern end seemed to be younger and these graves were cleared recently. These three graves also had metal signs as grave markers and they belonged to the Nkabinde family. The graves ranged from 2004 to as recent as 2009. Tsembe Nkabinde, who pointed out the graves, said that the other graves belonged to the Motau family, but this family does not reside on the farm anymore. The age of these graves are not known as yet. These graves were overgrown with grass and other vegetation and it seemed as if they were not maintained or visited regularly. No grave goods were found with these graves.

Site size: Approximately 25m x10m.



Figure 11. OB 3 An unfenced informal cemetery.



Figure 12. OB 3 An unfenced informal cemetery.



Figure 13. OB 3 An unfenced informal cemetery.



**Figure 14. OB 3 An unfenced informal cemetery.**



**Figure 15. OB 3 An unfenced informal cemetery.**



**Figure 16. OB 3 An unfenced informal cemetery.**

Field Rating:	Generally Protected A (4A)
Heritage Significance:	High Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	C – Preserve site, or data collection and mapping required

#### 5.4 5.4 Site OB 4

GPS: 26° 07,038 S

30° 07,977 E

This site is situated outside the perimeters of the proposed mining activities, but situated in association with the other sites. A small informal cluster of 8 graves was identified at this location. The graves were placed in two unequal and skew lines amongst a cluster of wattle trees. The graves were all orientated from west to east and had informal oval shaped mounds of rocks and soil as dressings. The graves were recently cleared and the area was well maintained. No grave goods were found with the graves.

Site size: Approximately 15m x 15m.



**Figure 17. OB 4 An informal cluster of graves .**



**Figure 18. OB 4 An informal cluster of graves .**

Field Rating:	Generally Protected A (4A)
Heritage Significance:	High Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	C – Preserve site, or data collection and mapping required

### **5.5 Site OB 5**

GPS: 26° 07,164 S

30° 07,990 E

This site is situated outside the perimeters of the proposed mining activities, but situated in association with the other sites. An old house was identified at this location. The house was built and belonged to an Italian man who was known as Tsorotsoro by the locals. The house was brick-built and had a corrugated iron roof.

Site size: Approximately 40m x 40m.



**Figure 19. OB 5 An old house.**

Field Rating:	Generally Protected C (4C)
Heritage Significance:	Low Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	A – No further action necessary

## 5.6 Site OB 6

GPS: 26° 07,846 S  
30° 07,326 E

This site is situated outside the perimeters of the proposed mining activities, but situated in association with the other sites. An unfenced, informal cemetery with approximately 20 graves was identified at this location. The graves were placed in two unequal lines along a boundary fence. All of the graves were orientated from west to east and had informal oval shaped mounds of packed rocks and soil as dressings. It was evident that the graves were maintained and cleared regularly as the current vegetation on the graves seemed to be from only this last season. No grave goods were present with the graves.

Site size: Approximately 20m x 5m.



**Figure 20. OB 6 An unfenced informal cemetery.**



**Figure 21. OB 6 An unfenced informal cemetery.**

Field Rating:	Generally Protected A (4A)
Heritage Significance:	High Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	C – Preserve site, or data collection and mapping required

### **5.7 Site OB 7**

GPS: 26° 09,316 S

30° 09,118 E

Several rock art paintings were identified at this location. The paintings were situated on the walls of an overhang overlooking a marshy area. This marshy area formed part of an unnamed tributary which flows into the Boesmanspruit further to the west. The overhang formed part of an extended bank of exposed rock which had several overhangs and small caves. The bank of rock was situated approximately 250m from the water or marshy area and was approximately 20m above it.

The paintings were identified on the walls of the most prominent overhang along the bank of exposed rock. Three separate sets of paintings were identified. The first set of paintings consisted of two unidentifiable animal figures and was situated on the southern side of the overhang. The second set of paintings consisted of three or four unidentifiable animal figures, two possible human figures and a series of geometrical figures which could possibly present animal/bird tracks. The third set comprised a single animal figure which could possibly be a rhino and was situated just to the northern side of the overhang. All of the paintings were produced in a reddish paint or colour and showed extensive wear and were faded. This made the figures difficult to identify.

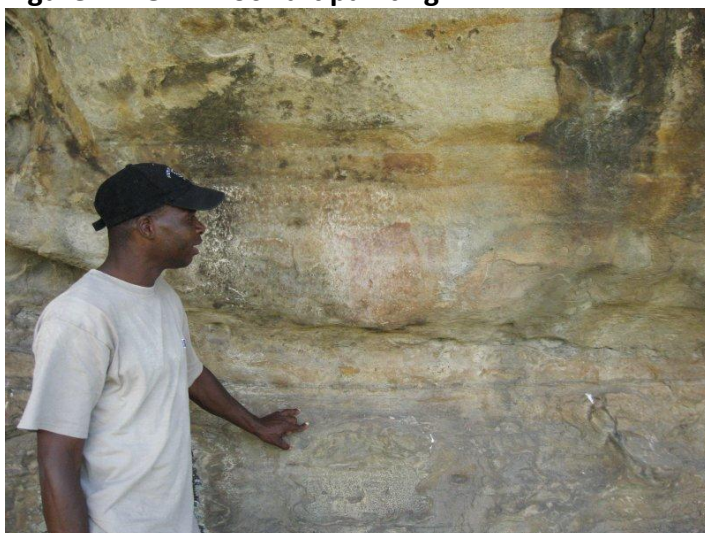
Two LSA cores and a flake were recovered from the floor inside the rock overhang. More artefacts could possibly be situated in the deposits from this floor. It was evident that fire was made recently inside the overhang. According to the landowner, Mr. Fanie Nel, security guards were responsible for these fires while tending the cattle herds at night. Mr. Nel vowed to have them discontinue this practise or let them make fires somewhere else. He also expressed his desire to protect the paintings in future.

Site size: Approximately 40m x10m.





**Figure 22. OB 7 Rock art painting.**



**Figure 23. OB 7 Rock art paintings.**



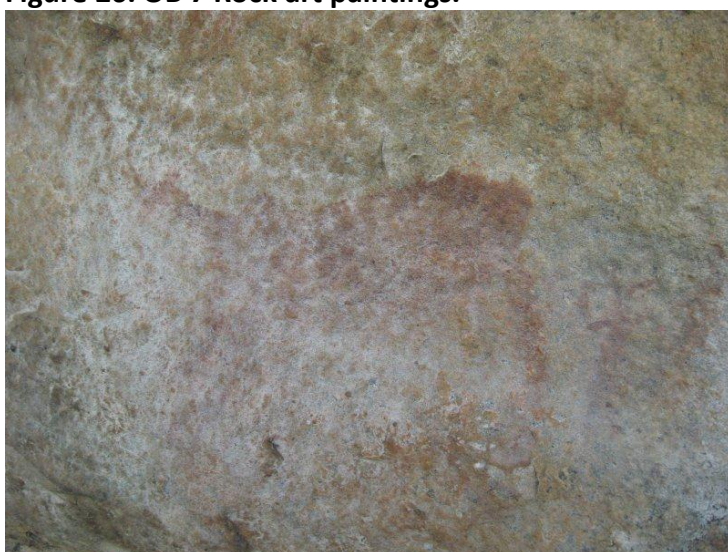
**Figure 24. OB 7 Stone tool associated with rock art site.**



**Figure 25. OB 7 Rock art site.**



**Figure 26. OB 7 Rock art paintings.**



**Figure 27. OB 7 Rock art painting.**



**Figure 28. OB 7 Rock art painting.**

Field Rating:	Local significance 3A (Conservation; Mitigation not advised)
Heritage Significance:	High Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	D – Preserve site

### **5.8 Site OB 8**

GPS: 26° 09,264 S

30° 09,219 E

A small, elongated stone walled enclosure was identified at this location. The stone walled structure measured approximately 8m x 3m and was situated at the top of and on the northern end of the exposed bank of rock described at site OB 7. The bank of rock formed the eastern part of the enclosure and the stone wall completed the enclosure to the other sides. The stone walls were in a dilapidated state and measured approximately 1m high and 0.75m wide. The enclosure was most probably used to hold livestock such as goats or young cattle.

Site size: Approximately 5m x 10m.



**Figure 29. OB 8 Elongated stone wall structure.**



**Figure 30. OB 8 Elongated stone wall structure.**

Field Rating:	Generally Protected A (4B)
Heritage Significance:	Medium Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	B – Mapping of the site and controlled sampling required

## 5.9 Site OB 9

GPS: 26° 08,980 S

30° 08,380 E

A single informal grave was identified at this location. The grave was situated approximately 25m north of a row of small RDP houses. The grave had a large elongated mound of packed rocks and soil as dressing and was orientated from west to east. There were no grave goods associated with the grave. The grave was maintained as could be seen from the short grass around the grave. The grave belonged to the Mnisi family who resided in the houses near the grave. Gideon Mnisi pointed out the grave and said that it was the grave of his father who was buried there in 2009.

Site size: Approximately 4m x 2m.



**Figure 31. OB 9 Single informal grave.**

Field Rating:	Generally Protected A (4A)
Heritage Significance:	High Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	C – Preserve site, or data collection and mapping required

### 5.10 Site OB 10

GPS: 26° 09,100 S  
30° 08,534 E

Another single, informal grave was identified at this location. The grave was situated in the open veld near a telephone line. The grave had an informal oval shaped mound of packed rocks and soil as dressing and was orientated from west to east. The grave was overgrown with grass and other vegetation and seemed not to be maintained. Mr Gideon Mnisi however, said that the relevant family does visit the grave once a year and clears it from all vegetation. No grave goods were found associated with the grave.

Site size: Approximately 4m x 2m.



**Figure 32. OB 10 Single informal grave.**

Field Rating:	Generally Protected A (4A)
Heritage Significance:	High Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	C – Preserve site, or data collection and mapping required

### 5.11 Site OB 11

GPS: 26° 09,381 S  
30° 08,829 E

Two informal graves were identified at this location. The graves were found to be placed next to each other inside a small circular stone walled enclosure. The stone walled enclosure

measured approximately 5m across and the walls were approximately 0,75m high and approximately 0,5m wide. The graves were orientated from west to east and had informal oval shaped mounds of packed rocks and soil as dressings. The graves were not maintained and were overgrown with grasses and other vegetation. No grave goods were found associated with the grave.

Site size: Approximately 4m in diameter.



**Figure 33. OB 11 Two informal graves.**

Field Rating:	Generally Protected A (4A)
Heritage Significance:	High Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	C – Preserve site, or data collection and mapping required

### 5.12 Site OB 12

GPS: 26° 09,157 S  
30° 08,905 E

Another single, informal grave was identified at this location. The grave was also found to be placed inside a small, square shaped stone walled enclosure. The stone walled enclosure measured approximately 5m x 5m and the walls were approximately 0,75m high and

approximately 0,75m wide. The grave was orientated from west to east and had an informal oval shaped mound of packed rocks and soil as dressing. The grave was not maintained recently, but it was evident that regular maintenance was performed at this grave site. No grave goods were found associated with the grave.

Site size: Approximately 4m in diameter.



**Figure 34. OB 12 Single informal grave.**

Field Rating:	Generally Protected A (4A)
Heritage Significance:	High Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	C – Preserve site, or data collection and mapping required

### 5.13 Site OB 13

GPS: 26° 08,691 S

30° 08,699 E

Another single, informal grave was identified at this location. The grave was situated in the open veld near a boundary fence. The grave had an informal oval shaped mound of packed rocks and soil as dressing and was orientated from west to east. The grave was overgrown with grass and other vegetation and seemed not to be maintained. Mr. Gideon Mnisi said



that it was the grave of a small child of which the family has left the area. No grave goods were found associated with the grave.

Site size: Approximately 4m x 2m.



**Figure 35. OB 13 Single informal grave.**

Field Rating:	Generally Protected A (4A)
Heritage Significance:	High Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	C – Preserve site, or data collection and mapping required

#### **5.14 Site OB 15**

GPS: 26° 09,091 S

30° 08,052 E

Three informal graves were identified at this location. The graves were placed next to each other and were situated in the open veld. The graves had informal oval shaped mounds of packed rocks and soil as dressings and were orientated from west to east. The graves were overgrown with grass and other vegetation and seemed not to be maintained. No grave goods were found associated with the graves.

Site size: Approximately 8m x 2m.



**Figure 36. OB 15 Three informal graves.**

Field Rating:	Generally Protected A (4A)
Heritage Significance:	High Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	C – Preserve site, or data collection and mapping required

### 5.15 Site OB 16

GPS: 26° 09,117 S

30° 08,220 E

The remains of an old farm house and some of its associated out buildings were identified at this location. The structures were set amongst a cluster of Oak trees next to a small stream. The buildings were constructed with dressed stone and mortar, but were found to be in a dilapidated state now. All the doors, windows and frames as well as the roof of both structures were removed. It was not possible to determine the age of the structures from the remains, but the use of dressed stone and mortar instead of cement and bricks in the construction, the absence of plumbing and electricity systems indicated the existence of these structures before running water and electricity were part of everyday life. Possibly

dating from the 1940's. The structures were dilapidated and damaged beyond repair. Most of the remains of the structures were overgrown with grass and other vegetation and building rubble were scattered around the site. Other exotic trees such as Jacaranda and some fruit trees were found around the structures.

Site size: Approximately 100m x 100m.



**Figure 37. OB 16 Remains of old farm house and associated buildings.**



**Figure 38. OB 16 Remains of old farm house and associated buildings.**

Field Rating: Generally Protected A (4B)

Heritage Significance: Medium Significance

Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	B – Mapping of the site and controlled sampling required

### 5.16 Site OB 17

GPS: 26° 09,267 S

30° 08,068 E

A small informal cemetery with 14 formal graves was identified at this location. The cemetery was situated approximately 700m to the south of the farm house identified at site OB 16. It could be said that the cemetery could be directly linked to the occupants of the farm house when it was in use. The cemetery had a rectangular shaped stone wall which measured approximately 15m x 20m with an entrance on the eastern side. The cemetery's walls measured approximately 1m high and approximately 0,75m wide and were damaged in some areas. The graves had formal granite or cement dressings with inscribed headstones. The graves date from around 1900 to the 1940's and belonged to the De Villiers family. The dates on the graves could indicate the time of occupation of the farm house and other structures identified at site OB 16. The cemetery and the graves were not maintained and were overgrown with grass and other vegetation. Some of the graves were sunken in and had some damage to the dressings and headstones. According to Mr. Gideon Mnisi the graves were last visited in 2010 by some of the descendants, but they did not perform any maintenance at the burial site.

Mr. Mnisi pointed out another informal grave approximately 20m further to the south and outside of the small cemetery's walls. This grave had an informal, oval shaped mound of packed rocks and soil as dressing and was orientated from west to east. The grave was overgrown with vegetation and was also not maintained. No grave goods were found with any of the graves.

Site size: Approximately 2m x 2m.



Figure 39. OB 17 Small cemetery.



Figure 40. OB 17 Small cemetery.



**Figure 41. OB 17 Small cemetery.**



**Figure 42. OB 17 Small cemetery.**

Field Rating:	Generally Protected A (4A)
Heritage Significance:	High Significance
Impact:	Negative
Certainty:	Definite
Duration:	Long Term
Mitigation:	C – Preserve site, or data collection and mapping required

## 6 Recommendation

The following steps and measures are recommended regarding the investigated area:

### 6.1 Site OB 1

It is presently not certain how old the buildings are. If the site is older than 60 years it falls under the protection of the National Heritage Resources Act. All structures older than 60 years are protected by Section 34(1) of National Heritage Resources Act and may not be demolished or altered without a permit from the relevant heritage authority. Should the buildings be younger than 60 years, no heritage legislation applies.

The site must be assessed by an architectural historian. Provisionally, it can be stated that although there is a chance for the site to be older than 60 years, its condition is reasonably poor.

In terms of the criteria contained in the National Heritage Resources Act (25 of 1999), the site's significance grading was based on its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage.

Should the decision be made for the mining development footprint to be placed within a 250m buffer area around the site, the following mitigation measures would be required:

The site must be assessed by an architectural historian and any recommendations made should be adhered to. It must be noted here that there is a chance for the heritage specialist to conclude that the site is younger than 60 years and as a result does not have any significance.

Should the identified structures prove to be younger than 60 years and are therefore not protected under Section 34(1) of the National Heritage Resources Act (Act no. 25 of 1999). No further work or any other mitigation measures are required as these structures have little or no heritage value and significance.

Should the identified farm house and its associated structures prove to be 60 years and older and are therefore protected under Section 34(1) of the National Heritage Resources Act (Act no. 25 of 1999): “No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.”

A permit for the destruction and/or alteration of the structure is required. A report and detailed documentation of the structures would need to accompany the application for such a permit. It is therefore recommended that a specialist, an architectural historian (or similar qualified person), should document the structures and compile relevant reports during a second phase of investigation.

The compiled reports and documentations should accompany any applications for destruction and/or alteration of the structures. The heritage specialist and/or architectural historian can assist the developer in the application of such a permit.

## **6.2 Site OB 2**

It is presently not certain how old the buildings are. If the site is older than 60 years it falls under the protection of the National Heritage Resources Act. All structures older than 60 years are protected by Section 34(1) of National Heritage Resources Act and may not be demolished or altered without a permit from the relevant heritage authority. Should the buildings be younger than 60 years, no heritage legislation applies.

The site must be assessed by an architectural historian. Provisionally, it can be stated that although there is a chance for the site to be older than 60 years, its condition is reasonably poor.

In terms of the criteria contained in the National Heritage Resources Act (25 of 1999), the site’s significance grading was based on its potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage.



Should the decision be made for the mining development footprint to be placed within a 250m buffer area around the site, the following mitigation measures would be required:

The site must be assessed by an architectural historian and any recommendations made should be adhered to. It must be noted here that there is a chance for the heritage specialist to conclude that the site is younger than 60 years and as a result does not have any significance.

Should the identified structures prove to be younger than 60 years and are therefore not protected under Section 34(1) of the National Heritage Resources Act (Act no. 25 of 1999). No further work or any other mitigation measures are required as these structures have little or no heritage value and significance.

Should the identified farm house and its associated structures prove to be 60 years and older and are therefore protected under Section 34(1) of the National Heritage Resources Act (Act no. 25 of 1999): “No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.”

A permit for the destruction and/or alteration of the structure is required. A report and detailed documentation of the structures would need to accompany the application for such a permit. It is therefore recommended that a specialist, an architectural historian (or similar qualified person), should document the structures and compile relevant reports during a second phase of investigation.

The compiled reports and documentations should accompany any applications for destruction and/or alteration of the structures. The heritage specialist and/or architectural historian can assist the developer in the application of such a permit.

### **6.3 Site OB 3**

The identified graves fell within the area intended for development, and the developer should take note of the location and recommendations regarding these graves.

Graves and burial grounds fall under various legislative protections, depending on factors such as their age. Such legislation may include the National Heritage Resources Act 25 of 1999, the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the Human Tissues Act 65 of 1983, the Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.

Graves older than 60 years (or presumed older) and not in a municipal graveyard are protected in terms of the National Heritage Act (No. 25 of 1999). Human remains (graves) younger than 60 years may only be handled by a registered undertaker or institution declared under the Human Tissues Act.

The developer is required to follow the process described in the legislation (section 36 and its associated regulations) if he wants to develop in an area where there are graves older than 60 years.

**If the developer decides to plan the development around the graves and leave them undisturbed, adequate arrangements should be made to protect the graves from the impact of the development. These should include the following:**

- It is important to understand that the identified graves could have significant heritage value to the relevant families (if identified) and should therefore be preserved.
- It is recommended that the identified graves should be clearly marked with danger tape during the entire duration of the project and especially during earth-moving/bush clearing activities and a 10m - 20m buffer zone must be allowed around the graves.
- It is advisable to fence the graves to prevent future mistakes.
- The relevant families should be identified (if possible) and should be informed about the proposed activities which could possibly affect their graves.
- The proposed earth-moving/bush clearing activities should be altered and should be planned around these graves in order to protect them from any damage or other negative impacts.

- Bush clearing crews should be made aware of the graves in order that the graves will not be damaged during the earth-moving activities.
- The planning team should ensure that access to the graves is not limited in any way. A small management plan should be set up to ensure the future safety, access and maintenance of the graves next to the proposed development.

**If the above recommendations cannot be adhered to, further steps and measures should be taken to move the graves and relocate them to one of the official graveyards in the area. This should only be done as last resort if no other options deem to be possible. The following process is then required:**

- A process of consultation with the affected families and communities, if identified, should then be initiated to start the relocation of the graves.
- Various applications to various Departments should be put into motion to obtain the necessary permissions and permits to perform the relocation of the graves. These applications and permits are required by law. A detailed description of the required process will be at hand if the graves need to be relocated.
- Only after all the required permissions and permits have been obtained, can the relocation of the graves continue as performed by professionals.

#### **6.4 Site OB 4**

The identified graves fell within the area intended for development, and the developer should take note of the location and recommendations regarding these graves.

Graves and burial grounds fall under various legislative protections, depending on factors such as their age. Such legislation may include the National Heritage Resources Act 25 of 1999, the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the Human Tissues Act 65 of 1983, the Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.

Graves older than 60 years (or presumed older) and not in a municipal graveyard are protected in terms of the National Heritage Act (No. 25 of 1999). Human remains (graves)

younger than 60 years may only be handled by a registered undertaker or institution declared under the Human Tissues Act.

The developer is required to follow the process described in the legislation (section 36 and its associated regulations) if he wants to develop in an area where there are graves older than 60 years.

**If the developer decides to plan the development around the graves and leave them undisturbed, adequate arrangements should be made to protect the graves from the impact of the development. These should include the following:**

- It is important to understand that the identified graves could have significant heritage value to the relevant families (if identified) and should therefore be preserved.
- It is recommended that the identified graves should be clearly marked with danger tape during the entire duration of the project and especially during earth-moving/bush clearing activities and a 10m - 20m buffer zone must be allowed around the graves.
- It is advisable to fence the graves to prevent future mistakes.
- The relevant families should be identified (if possible) and should be informed about the proposed activities which could possibly affect their graves.
- The proposed earth-moving/bush clearing activities should be altered and should be planned around these graves in order to protect them from any damage or other negative impacts.
- Bush clearing crews should be made aware of the graves in order that the graves will not be damaged during the earth-moving activities.
- The planning team should ensure that access to the graves is not limited in any way. A small management plan should be set up to ensure the future safety, access and maintenance of the graves next to the proposed development.

**If the above recommendations cannot be adhered to, further steps and measures should be taken to move the graves and relocate them to one of the official graveyards in the**

**area. This should only be done as last resort if no other options deem to be possible. The following process is then required:**

- A process of consultation with the affected families and communities, if identified, should then be initiated to start the relocation of the graves.
- Various applications to various Departments should be put into motion to obtain the necessary permissions and permits to perform the relocation of the graves. These applications and permits are required by law. A detailed description of the required process will be at hand if the graves need to be relocated.
- Only after all the required permissions and permits have been obtained, can the relocation of the graves continue as performed by professionals.

### **6.5 Site OB 5**

It is presently not certain how old the buildings are. If the site is older than 60 years it falls under the protection of the National Heritage Resources Act. All structures older than 60 years are protected by Section 34(1) of National Heritage Resources Act and may not be demolished or altered without a permit from the relevant heritage authority. Should the buildings be younger than 60 years, no heritage legislation applies.

The site must be assessed by an architectural historian. Provisionally, it can be stated that although there is a chance for the site to be older than 60 years, its condition is reasonably poor.

In terms of the criteria contained in the National Heritage Resources Act (25 of 1999), the site's significance grading was based on its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage.

Should the decision be made for the mining development footprint to be placed within a 250m buffer area around the site, the following mitigation measures would be required:

The site must be assessed by an architectural historian and any recommendations made should be adhered to. It must be noted here that there is a chance for the heritage specialist

to conclude that the site is younger than 60 years and as a result does not have any significance.

Should the identified structures prove to be younger than 60 years and are therefore not protected under Section 34(1) of the National Heritage Resources Act (Act no. 25 of 1999). No further work or any other mitigation measures are required as these structures have little or no heritage value and significance.

Should the identified farm house and its associated structures prove to be 60 years and older and are therefore protected under Section 34(1) of the National Heritage Resources Act (Act no. 25 of 1999): “No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.”

A permit for the destruction and/or alteration of the structure is required. A report and detailed documentation of the structures would need to accompany the application for such a permit. It is therefore recommended that a specialist, an architectural historian (or similar qualified person), should document the structures and compile relevant reports during a second phase of investigation.

The compiled reports and documentations should accompany any applications for destruction and/or alteration of the structures. The heritage specialist and/or architectural historian can assist the developer in the application of such a permit.

## **6.6 Site OB 6**

The identified graves fell within the area intended for development, and the developer should take note of the location and recommendations regarding these graves.

Graves and burial grounds fall under various legislative protections, depending on factors such as their age. Such legislation may include the National Heritage Resources Act 25 of 1999, the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the

Human Tissues Act 65 of 1983, the Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.

Graves older than 60 years (or presumed older) and not in a municipal graveyard are protected in terms of the National Heritage Act (No. 25 of 1999). Human remains (graves) younger than 60 years may only be handled by a registered undertaker or institution declared under the Human Tissues Act.

The developer is required to follow the process described in the legislation (section 36 and its associated regulations) if he wants to develop in an area where there are graves older than 60 years.

**If the developer decides to plan the development around the graves and leave them undisturbed, adequate arrangements should be made to protect the graves from the impact of the development. These should include the following:**

- It is important to understand that the identified graves could have significant heritage value to the relevant families (if identified) and should therefore be preserved.
- It is recommended that the identified graves should be clearly marked with danger tape during the entire duration of the project and especially during earth-moving/bush clearing activities and a 10m - 20m buffer zone must be allowed around the graves.
- It is advisable to fence the graves to prevent future mistakes.
- The relevant families should be identified (if possible) and should be informed about the proposed activities which could possibly affect their graves.
- The proposed earth-moving/bush clearing activities should be altered and should be planned around these graves in order to protect them from any damage or other negative impacts.
- Bush clearing crews should be made aware of the graves in order that the graves will not be damaged during the earth-moving activities.

- The planning team should ensure that access to the graves is not limited in any way. A small management plan should be set up to ensure the future safety, access and maintenance of the graves next to the proposed development.

**If the above recommendations cannot be adhered to, further steps and measures should be taken to move the graves and relocate them to one of the official graveyards in the area. This should only be done as last resort if no other options deem to be possible. The following process is then required:**

- A process of consultation with the affected families and communities, if identified, should then be initiated to start the relocation of the graves.
- Various applications to various Departments should be put into motion to obtain the necessary permissions and permits to perform the relocation of the graves. These applications and permits are required by law. A detailed description of the required process will be at hand if the graves need to be relocated.

Only after all the required permissions and permits have been obtained, can the relocation of the graves continue as performed by professionals.

## **6.7 Site OB 7**

The identified rock art site falls within the area intended for development, and the developer should take note of the location and recommendations regarding rock art site.

Due to the proposed mining activities it is recommended that a Rock Mechanics study is commissioned to evaluate the possible impact of blasting on the rock art site. It is further recommended that a Rock Art Specialist be commissioned to evaluate, document and monitor the site before any development takes place.

The rocky overhang and cliff can be unstable and the process of erosion will continue. It is therefore likely that the rock art will be lost at some point in the future due to the progressive natural process observed.



Blasting operations will result in vibrations and might have a significant impact on the stability of the rocky overhang and cliff area. Further evaluation of the possible impact by dust from the mining project has concluded that:

“Settling dust is more of an issue for the rock art than floating dust. Settling dust typically has a diameter far larger than PM10 but PM10 is used as an easily modelled indicator of likely flow patterns (as explained earlier). The modelling results indicate that the rock art area is unlikely to be heavily impacted. Cumulative impacts over the life of the mine could become a problem however. Thus, precautions against dust contamination should be taken.”

It is recommended that a monitoring program be developed whereby the rock art site is monitored on a frequency determined by the Rock Art Specialist and agreed upon by the mine.

#### **6.8 Site OB 8**

It was not possible to determine the exact age of the identified structure. The enclosure could possibly be older than 60 years and is therefore protected in terms of the National Heritage Act (No. 25 of 1999).

If it is decided that the structure will be in the way of the proposed development, the structure needs to be documented and a permit for destruction should be applied for. Only after proper documentation and a permit for destruction have been obtained can the development continue in this area.

If the structure will not be affected by the proposed development it should be included in the proposed heritage management plan for the development to ensure that it will not be damaged or destroyed in future.

#### **6.9 Site OB 9**

The identified graves fell within the area intended for development, and the developer should take note of the location and recommendations regarding these graves.

Graves and burial grounds fall under various legislative protections, depending on factors such as their age. Such legislation may include the National Heritage Resources Act 25 of 1999, the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the Human Tissues Act 65 of 1983, the Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.

Graves older than 60 years (or presumed older) and not in a municipal graveyard are protected in terms of the National Heritage Act (No. 25 of 1999). Human remains (graves) younger than 60 years may only be handled by a registered undertaker or institution declared under the Human Tissues Act.

The developer is required to follow the process described in the legislation (section 36 and its associated regulations) if he wants to develop in an area where there are graves older than 60 years.

**If the developer decides to plan the development around the graves and leave them undisturbed, adequate arrangements should be made to protect the graves from the impact of the development. These should include the following:**

- It is important to understand that the identified graves could have significant heritage value to the relevant families (if identified) and should therefore be preserved.
- It is recommended that the identified graves should be clearly marked with danger tape during the entire duration of the project and especially during earth-moving/bush clearing activities and a 10m - 20m buffer zone must be allowed around the graves.
- It is advisable to fence the graves to prevent future mistakes.
- The relevant families should be identified (if possible) and should be informed about the proposed activities which could possibly affect their graves.
- The proposed earth-moving/bush clearing activities should be altered and should be planned around these graves in order to protect them from any damage or other negative impacts.

- Bush clearing crews should be made aware of the graves in order that the graves will not be damaged during the earth-moving activities.
- The planning team should ensure that access to the graves is not limited in any way. A small management plan should be set up to ensure the future safety, access and maintenance of the graves next to the proposed development.

**If the above recommendations cannot be adhered to, further steps and measures should be taken to move the graves and relocate them to one of the official graveyards in the area. This should only be done as last resort if no other options deem to be possible. The following process is then required:**

- A process of consultation with the affected families and communities, if identified, should then be initiated to start the relocation of the graves.
- Various applications to various Departments should be put into motion to obtain the necessary permissions and permits to perform the relocation of the graves. These applications and permits are required by law. A detailed description of the required process will be at hand if the graves need to be relocated.

Only after all the required permissions and permits have been obtained, can the relocation of the graves continue as performed by professionals.

### **6.10 Site OB 10**

The identified graves fell within the area intended for development, and the developer should take note of the location and recommendations regarding these graves.

Graves and burial grounds fall under various legislative protections, depending on factors such as their age. Such legislation may include the National Heritage Resources Act 25 of 1999, the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the Human Tissues Act 65 of 1983, the Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.

Graves older than 60 years (or presumed older) and not in a municipal graveyard are protected in terms of the National Heritage Act (No. 25 of 1999). Human remains (graves) younger than 60 years may only be handled by a registered undertaker or institution declared under the Human Tissues Act.

The developer is required to follow the process described in the legislation (section 36 and its associated regulations) if he wants to develop in an area where there are graves older than 60 years.

**If the developer decides to plan the development around the graves and leave them undisturbed, adequate arrangements should be made to protect the graves from the impact of the development. These should include the following:**

- It is important to understand that the identified graves could have significant heritage value to the relevant families (if identified) and should therefore be preserved.
- It is recommended that the identified graves should be clearly marked with danger tape during the entire duration of the project and especially during earth-moving/bush clearing activities and a 10m - 20m buffer zone must be allowed around the graves.
- It is advisable to fence the graves to prevent future mistakes.
- The relevant families should be identified (if possible) and should be informed about the proposed activities which could possibly affect their graves.
- The proposed earth-moving/bush clearing activities should be altered and should be planned around these graves in order to protect them from any damage or other negative impacts.
- Bush clearing crews should be made aware of the graves in order that the graves will not be damaged during the earth-moving activities.
- The planning team should ensure that access to the graves is not limited in any way. A small management plan should be set up to ensure the future safety, access and maintenance of the graves next to the proposed development.

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- Various applications to various Departments should be put into motion to obtain the necessary permissions and permits to perform the relocation of the graves. These applications and permits are required by law. A detailed description of the required process will be at hand if the graves need to be relocated.
- Only after all the required permissions and permits have been obtained, can the relocation of the graves continue as performed by professionals.

#### **6.11 Site OB 11**

The identified graves fell within the area intended for development, and the developer should take note of the location and recommendations regarding these graves.

Graves and burial grounds fall under various legislative protections, depending on factors such as their age. Such legislation may include the National Heritage Resources Act 25 of 1999, the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the Human Tissues Act 65 of 1983, the Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.

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The developer is required to follow the process described in the legislation (section 36 and its associated regulations) if he wants to develop in an area where there are graves older than 60 years.

**If the developer decides to plan the development around the graves and leave them undisturbed, adequate arrangements should be made to protect the graves from the impact of the development. These should include the following:**

- It is important to understand that the identified graves could have significant heritage value to the relevant families (if identified) and should therefore be preserved.
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- It is advisable to fence the graves to prevent future mistakes.
- The relevant families should be identified (if possible) and should be informed about the proposed activities which could possibly affect their graves.
- The proposed earth-moving/bush clearing activities should be altered and should be planned around these graves in order to protect them from any damage or other negative impacts.
- Bush clearing crews should be made aware of the graves in order that the graves will not be damaged during the earth-moving activities.
- The planning team should ensure that access to the graves is not limited in any way. A small management plan should be set up to ensure the future safety, access and maintenance of the graves next to the proposed development.

**If the above recommendations cannot be adhered to, further steps and measures should be taken to move the graves and relocate them to one of the official graveyards in the area. This should only be done as last resort if no other options deem to be possible. The following process is then required:**

- A process of consultation with the affected families and communities, if identified, should then be initiated to start the relocation of the graves.

- Various applications to various Departments should be put into motion to obtain the necessary permissions and permits to perform the relocation of the graves. These applications and permits are required by law. A detailed description of the required process will be at hand if the graves need to be relocated.

Only after all the required permissions and permits have been obtained, can the relocation of the graves continue as performed by professionals.

### **6.12 Site OB 12**

The identified graves fell within the area intended for development, and the developer should take note of the location and recommendations regarding these graves.

Graves and burial grounds fall under various legislative protections, depending on factors such as their age. Such legislation may include the National Heritage Resources Act 25 of 1999, the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the Human Tissues Act 65 of 1983, the Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.

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The developer is required to follow the process described in the legislation (section 36 and its associated regulations) if he wants to develop in an area where there are graves older than 60 years.

**If the developer decides to plan the development around the graves and leave them undisturbed, adequate arrangements should be made to protect the graves from the impact of the development. These should include the following:**

- It is important to understand that the identified graves could have significant heritage value to the relevant families (if identified) and should therefore be preserved.
- It is recommended that the identified graves should be clearly marked with danger tape during the entire duration of the project and especially during earth-moving/bush clearing activities and a 10m - 20m buffer zone must be allowed around the graves.
- It is advisable to fence the graves to prevent future mistakes.
- The relevant families should be identified (if possible) and should be informed about the proposed activities which could possibly affect their graves.
- The proposed earth-moving/bush clearing activities should be altered and should be planned around these graves in order to protect them from any damage or other negative impacts.
- Bush clearing crews should be made aware of the graves in order that the graves will not be damaged during the earth-moving activities.
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Only after all the required permissions and permits have been obtained, can the relocation of the graves continue as performed by professionals.

### 6.13 Site OB 13

The identified graves fell within the area intended for development, and the developer should take note of the location and recommendations regarding these graves.

Graves and burial grounds fall under various legislative protections, depending on factors such as their age. Such legislation may include the National Heritage Resources Act 25 of 1999, the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the Human Tissues Act 65 of 1983, the Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.

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The developer is required to follow the process described in the legislation (section 36 and its associated regulations) if he wants to develop in an area where there are graves older than 60 years.

**If the developer decides to plan the development around the graves and leave them undisturbed, adequate arrangements should be made to protect the graves from the impact of the development. These should include the following:**

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- It is recommended that the identified graves should be clearly marked with danger tape during the entire duration of the project and especially during earth-

moving/bush clearing activities and a 10m - 20m buffer zone must be allowed around the graves.

- It is advisable to fence the graves to prevent future mistakes.
- The relevant families should be identified (if possible) and should be informed about the proposed activities which could possibly affect their graves.
- The proposed earth-moving/bush clearing activities should be altered and should be planned around these graves in order to protect them from any damage or other negative impacts.
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#### 6.14 Site OB 15

The identified graves fell within the area intended for development, and the developer should take note of the location and recommendations regarding these graves.

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The developer is required to follow the process described in the legislation (section 36 and its associated regulations) if he wants to develop in an area where there are graves older than 60 years.

**If the developer decides to plan the development around the graves and leave them undisturbed, adequate arrangements should be made to protect the graves from the impact of the development. These should include the following:**

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### **6.15 Site OB 16**

It is presently not certain how old the buildings are. If the site is older than 60 years it falls under the protection of the National Heritage Resources Act. All structures older than 60 years are protected by Section 34(1) of National Heritage Resources Act and may not be

demolished or altered without a permit from the relevant heritage authority. Should the buildings be younger than 60 years, no heritage legislation applies.

The site must be assessed by an architectural historian. Provisionally, it can be stated that although there is a chance for the site to be older than 60 years, its condition is reasonably poor.

In terms of the criteria contained in the National Heritage Resources Act (25 of 1999), the site's significance grading was based on its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage.

Should the decision be made for the mining development footprint to be placed within a 250m buffer area around the site, the following mitigation measures would be required:

The site must be assessed by an architectural historian and any recommendations made should be adhered to. It must be noted here that there is a chance for the heritage specialist to conclude that the site is younger than 60 years and as a result does not have any significance.

Should the identified structures prove to be younger than 60 years and are therefore not protected under Section 34(1) of the National Heritage Resources Act (Act no. 25 of 1999). No further work or any other mitigation measures are required as these structures have little or no heritage value and significance.

Should the identified farm house and its associated structures prove to be 60 years and older and are therefore protected under Section 34(1) of the National Heritage Resources Act (Act no. 25 of 1999): "No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority."

A permit for the destruction and/or alteration of the structure is required. A report and detailed documentation of the structures would need to accompany the application for such a permit. It is therefore recommended that a specialist, an architectural historian (or similar

qualified person), should document the structures and compile relevant reports during a second phase of investigation.

The compiled reports and documentations should accompany any applications for destruction and/or alteration of the structures. The heritage specialist and/or architectural historian can assist the developer in the application of such a permit.

#### **6.16 Site OB 17**

The identified graves fell within the area intended for development, and the developer should take note of the location and recommendations regarding these graves.

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The developer is required to follow the process described in the legislation (section 36 and its associated regulations) if he wants to develop in an area where there are graves older than 60 years.

**If the developer decides to plan the development around the graves and leave them undisturbed, adequate arrangements should be made to protect the graves from the impact of the development. These should include the following:**

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Only after all the required permissions and permits have been obtained, can the relocation of the graves continue as performed by professionals.

## 7 Conclusion

The heritage survey intended to locate, identify, evaluate and document sites, objects and structures of heritage, cultural and archaeological importance found within the proposed development area. The study intended to assess to what extent the proposed development would impact on the identified sites.

A number of sites dating to the historic period and LSA have been identified that would be impacted on by the proposed development.

The identified sites will all be impacted on by the proposed mining activities, but legislation requires mitigation measures to be implemented. The impacts on the sites will be permanent and destructive due to the nature of the proposed activities.

It is recommended that the proposed development can continue in the area, on condition of the acceptance and implementation of the recommendations and mitigation measures for each identified site before development takes place.

The developer should keep in mind that archaeological sites and graves might be exposed during the mining activities. If anything is noticed during the development, work in that area should be stopped and the occurrence should immediately be reported to the necessary authorities or to a heritage consultant. Further investigation should then commence.

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