

## Archaeological Impact Assessment

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**For the proposed quarry on the farm Boschmanspoort 159, close to Hendrina, Mpumalanga Province**

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Prepared For

**Greenmined Environmental**

By



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**17 August 2015**

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I, Jaco van der Walt as duly authorised representative of Heritage Contracts and Archaeological Consulting CC, hereby confirm my independence as a specialist and declare that neither I nor the Heritage Contracts and Archaeological Consulting CC have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which the client was appointed as Environmental Assessment practitioner, other than fair remuneration for work performed on this project.



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## EXECUTIVE SUMMARY

**Site name and location:** The proposed Boshmanspoort mining development is located on Portion 3 and portion 30 of Boschmanspoort 159 IS is situated approximately 15 km North of Hendrina approximately 6.5 km from the N11, in Mpumalanga.

**Purpose of the study:** Phase 1 Archaeological Impact Assessment to determine the presence of cultural heritage sites and the impact of the proposed project on these resources within the area demarcated for the proposed quarry.

**1:50 000 Topographic Map:** 2629 BA.

**Environmental Consultant:** Greenmined Environmental

**Developer:** Raubex Construction (Pty) Ltd

**Heritage Consultant:** Heritage Contracts and Archaeological Consulting CC (HCAC).

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**Date of Report:** 17 August 2015

### Findings of the Assessment:

The topography of the study area is relatively flat gently sloping eastwards. Within the study area there are no geographical features like drainage systems, pans or rocky outcrops with the main feature being the existing quarry on site and a thick Eucalyptus plantation. No buildings, formal cemeteries or archaeological sites were recorded in the study area during the survey. Several previous studies were conducted in the immediate vicinity of the study area and similarly no archaeological sites were recorded although cemeteries and historic structures were recorded (e.g. Pistorius 2004, de Jong 2006 and Fourie 2014).

As no archaeological, grave sites or structures older than 60 years were identified in the study area there are no fatal flaws in terms of the archaeological component to the project however management measures as made in section 7 of this report would need to be taken into account.

### General

Due to the subsurface nature of archaeological material and unmarked graves the possibility of the occurrence of unmarked or informal graves and subsurface finds cannot be excluded. If during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find.

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- The results of the project;
- The technology described in any report;
- Recommendations delivered to the Client.

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**ABBREVIATIONS**

AIA: Archaeological Impact Assessment
ASAPA: Association of South African Professional Archaeologists
BIA: Basic Impact Assessment
CRM: Cultural Resource Management
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EIA Practitioner: Environmental Impact Assessment Practitioner
EMP: Environmental Management Plan
ESA: Early Stone Age
GPS: Global Positioning System
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MPRDA: Mineral and Petroleum Resources Development Act
MSA: Middle Stone Age
NEMA: National Environmental Management Act
PRHA: Provincial Heritage Resource Agency
SADC: Southern African Development Community
SAHRA: South African Heritage Resources Agency

*\*Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations and must be read and interpreted in the context it is used.*

**GLOSSARY**

Archaeological site (remains of human activity over 100 years old)

Early Stone Age (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

## 1 BACKGROUND INFORMATION

<b><i>Kind of study</i></b>	Archaeological Impact Assessment
<b><i>Type of development</i></b>	Mining Development
<b><i>Developer:</i></b>	Raubex Construction (Pty) Ltd
<b><i>Consultant:</i></b>	Greenmined Environmental

The Archaeological Impact Assessment report forms part of the BAR for the proposed project.

The aim of the study is to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner. It is also conducted to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

The report outlines the approach and methodology utilized before and during the survey, which includes: Phase 1, a desktop study that includes collection from various sources and consultations; Phase 2, the physical surveying of the area on foot and by vehicle; Phase 3, reporting the outcome of the study.

During the survey no sites of significance was identified within the proposed development footprint. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report.

This report must also be submitted to the SAHRA for review.



## 1.1 Terms of Reference

### Desktop study

Conducting a brief desktop study where information on the area is collected to provide a background setting of the archaeology that can be expected in the area.

### Field study

Conduct a field study to: a) systematically survey the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points identified as significant areas; c) determine the levels of significance of the various types of heritage resources recorded in the project area.

### Reporting

Report on the identification of anticipated and cumulative impacts the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project; i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with Heritage legislation and the code of ethics and guidelines of ASAPA.

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

## 1.2. Archaeological Legislation and Best Practice

Phase 1, an AIA or a HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of a heritage specialist input is to:

- » Identify any heritage resources, which may be affected;
- » Assess the nature and degree of significance of such resources;
- » Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- » Assess the negative and positive impact of the development on these resources;
- » Make recommendations for the appropriate heritage management of these impacts.

The AIA or HIA, as a specialist sub-section of the EIA, is required under the National Heritage Resources Act NHRA of 1999 (Act 25 of 1999), Section 23(2)(b) of the NEMA and section s.39(3)(b)(iii) of the MPRDA.

The AIA should be submitted, as part of the EIA, BIA or EMP, to the PHRA if established in the province or to SAHRA. SAHRA will be ultimately responsible for the professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 AIA reports and additional development information, as per the EIA, BIA/EMP, to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level).

Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with SAHRA. ASAPA is a legal body, based in South Africa, representing professional archaeology in the SADC region. ASAPA is primarily involved in the overseeing of ethical practice and standards regarding the archaeological profession. Membership is based on proposal and secondment by other professional members.

Phase 1 AIAs are primarily concerned with the location and identification of sites situated within a proposed development area. Identified sites should be assessed according to their significance. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by SAHRA, are to be used as guidelines in the developer's decision making process.

Phase 2 archaeological projects are primarily based on salvage/mitigation excavations preceding development destruction or impact on a site. Phase 2 excavations can only be conducted with a permit, issued by SAHRA to the appointed archaeologist. Permit conditions are prescribed by SAHRA and includes (as minimum requirements) reporting back strategies to SAHRA and deposition of excavated material at an accredited repository.

In the event of a site conservation option being preferred by the developer, a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement.

After mitigation of a site, a destruction permit must be applied for from SAHRA by the client before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5]) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation. If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare.

Authorisation for exhumation and reinternment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. To handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

## **1.3 Description of Study Area**

### ***1.3.1 Location Data***

The proposed development is located on Portion 3 and portion 30 of the farm Boschmanspoort 159 and is situated approximately 15 km North of Hendrina approximately 6.5 km from the N11 (Figure 1). The area earmarked for the proposed mining falls on a section of the farm previously used for mining purposes. The GPS coordinates of the proposed mining is as follows:

A26°2'4,42"S; 29°43'11,05"E

B26°2'10,4"S; 29°43'12,82"E

C26°2'6,5"S; 29°43'20,72"E

D26°1'59,75"S; 29°43'18,96"E

### 1.3.2. Location Map

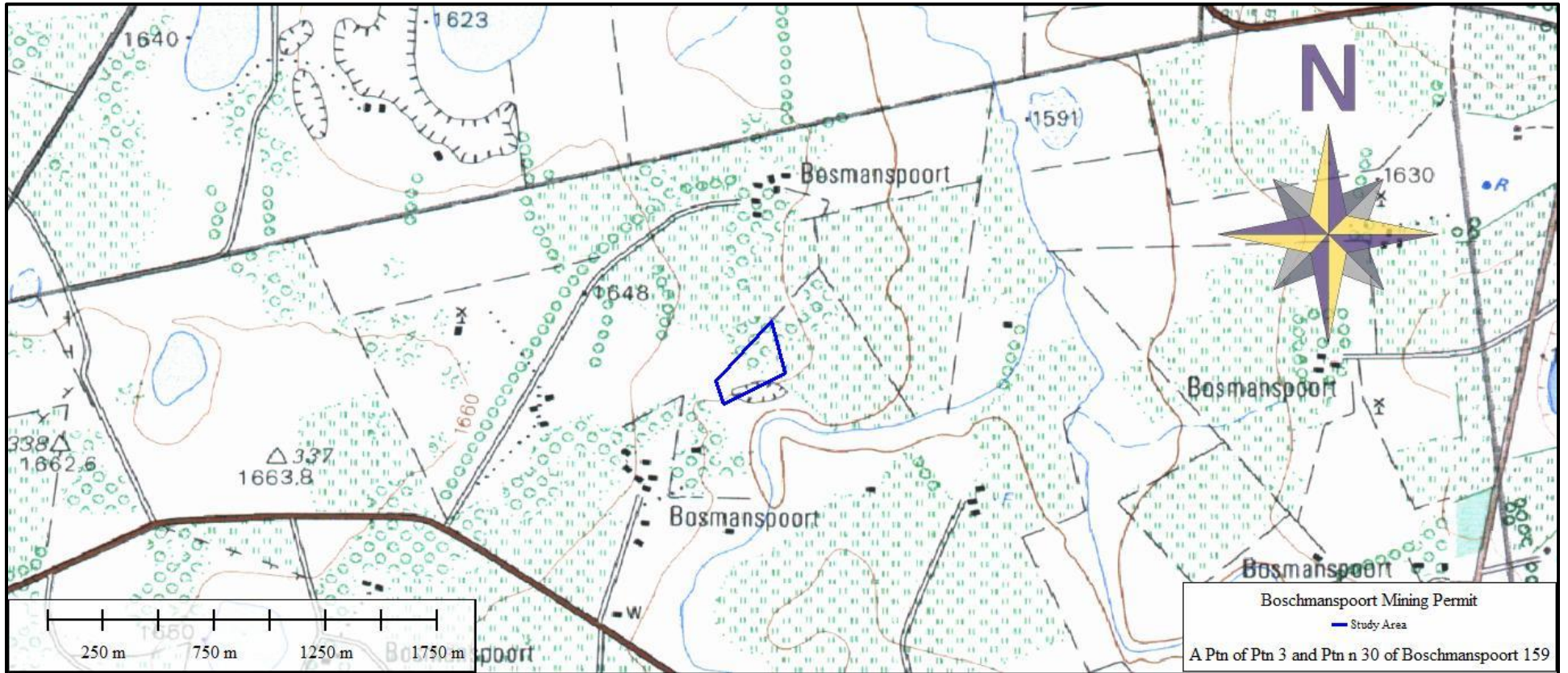


Figure 1: Location map.

## **2. APPROACH AND METHODOLOGY**

The aim of the study is to cover archaeological databases to compile a background of the archaeology that can be expected in the study area followed by field verification; this was accomplished by means of the following phases.

### **2.1 Phase 1 - Desktop Study**

The first phase comprised a desktop study scanning existing records for archaeological sites, historical sites, graves, architecture (structures older than 60 years) of the area.

#### **2.1.1 Literature Search**

Utilising data for information gathering stored in the archaeological database at Wits and previous CRM reports done in the area. The aim of this is to extract data and information on the area in question.

#### **2.1.2 Information Collection**

SAHRIS was consulted to collect data from previously conducted CRM projects in the region to provide a comprehensive account of the history of the study area.

#### **2.1.3 Consultation**

A social consultation process is conducted as part of the BA process.

#### **2.1.4 Google Earth and Mapping Survey**

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located.

#### **2.1.5 Genealogical Society of South Africa**

The database of the Genealogical Society was consulted to collect data on any known graves in the area.

### **2.2 Phase 2 - Physical Surveying**

Due to the nature of cultural remains, the majority of which occurs below surface, a field survey of the study area was conducted. The study area was surveyed by means of vehicle and extensive surveys on foot by a professional archaeologist on 7 August 2015.

No heritage significant sites were discovered inside the proposed development area.

### **2.3. Restrictions**

Due to the fact that most cultural remains may occur below surface, the possibility exists that some features or artefacts may not have been discovered/ recorded during the survey and the possible occurrence of unmarked graves and other cultural material cannot be excluded. Only the surface infrastructure footprint area was surveyed as indicated in the location map, and not the entire farm. Although HCAC surveyed the area as thoroughly as possible, it is incumbent upon the developer to stop operations and inform the relevant heritage agency should further cultural remains, such as stone tool scatters, artefacts, bones or fossils, be exposed during the process of development.

### **3. NATURE OF THE DEVELOPMENT**

The proposed mining site will be an extension of the existing quarry pit previously disturbed by aggregate mining activities. The mining methods will make use of blasting by means of explosives in order to loosen the hard rock; the material is then loaded and hauled out of the excavation to the mobile crushing and screening plants. The aggregate will be stockpiled and transported to clients via trucks and trailers. All activities will be contained within the boundaries of the site. The proposed mining area is approximately 4.9 ha in extent and the applicant intends to win material from the area for at least three years with a possibility of a two year extension. The aggregate / stone gravel to be removed from the quarry will be used for road construction in the vicinity. The proposed quarry will therefore contribute to the upgrading/maintenance of road infrastructure in and around the Hendrina and Middelburg area.

#### **THE MINING ACTIVITIES WILL CONSIST OF THE FOLLOWING:**

- Stripping and stockpiling of topsoil
- Blasting
- Excavating
- Crushing
- Stockpiling and transporting
- Sloping and landscaping upon closure of the site
- Replacing the topsoil and vegetating the disturbed area

#### **THE MINING SITE WILL CONTAIN THE FOLLOWING:**

- Drilling Equipment
- Excavating Equipment
- Earth Moving Equipment

## **4. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND OF THE STUDY AREA**

### **4.1 Databases Consulted**

Several previous CRM surveys are on record for the larger study area. The following studies were consulted for this report:

- Pistorius (2005) conducted a study to the east on the farm Schoonoord and recorded historical structures, three graveyards and remains dating from the relatively recent past.
- De Jong, (2006) conducted a study also on the farm Bochmanspoort and Schoonoord and recorded 56 heritage sites consisting of cemeteries, historical structures and findspots consisting of pottery and grinding stones.
- Fourie (2014) conducted a study also on the farm Bosmanspoort and recorded 2 cemeteries, a historic farmstead and farmworkers homestead.
- Van der Walt (2012) conducted a study to the south west for a quarry and recorded no heritage sites.

### ***Genealogical Society and Google Earth Monuments***

Neither the Genealogical Society nor the monuments database at Google Earth (Google Earth also include some archaeological sites and historical battlefields) have any recorded sites in the study area.

## 4.2 Archaeological and Historical Information Available on the Study Area

### 4.2.1 Stone Age sites

Stone Age sites are usually associated with stone artefacts found scattered on the surface or as part of deposits in caves and rock shelters. The Stone Age is divided into the Early Stone Age, the Middle Stone Age and the Late Stone Age. Three late Stone Age sites are on record in the greater area. The sites are Welgelegen Skuiling close to Ermelo, Chrissiesmeer (also known for rock art) and lastly Groenvlei close to Carolina, this area is also known for rock art (Bergh 1999). If any Stone Age sites occur in the study area they will be clustered around pans and where raw material is readily available. Some engravings can also be expected.

### 4.2.2. Late Iron Age remains

No Early Iron Age sites are on record in the greater region. Around 220 Late Iron Age stone walled sites are on record to the east of the study area (Bergh 1999) and is also associated with numerous pre-*difaqane* and *difaqane* wars that took place during the last quarter of the 18th century and during the first three decades of the 19th century. The sites are mostly east of the study area in the direction of Bethal. The study area was most probably inhabited by the Phuting group (Berg 1999). Around the study area the Phuting moved south due to the Ndebele migration (Difaqane). These wars led to the displacement of large numbers of Tswana clans on the Highveld where Mzilikazi's Ndebele caused chaos and havoc.

Late Iron Age settlements are characterised by extensive dry stonewalls and dates back to the 17th century. Late Iron Age communities who contributed to this stone walled architecture were the Sotho, Pedi, Ndebele and Swazi. The stone building tradition that these indigenous groups established many decades before the first colonial settlers arrived, may have influenced the colonial farmers to utilize these same resources as building material for the first farmsteads which arose on the Eastern Highveld (Pistorius 2006). No LIA sites have been recorded close to the study area but if any occur in the study area these should be clearly visible.

### 4.2.3. Historical Information

Sites dating to the historic period occur sporadically in the study area. These are mostly farming related, although some mining sites also occur. The farming related sites are usually farmsteads and farm cemeteries, either belonging to the landowners or their labourers. Mining related sites are for example the old Albion Colliery north of the study area, dating to the 1940's.

During the Anglo-Boer War, a number of battles took place in the region. The one closest to the study area took place on the farm Wilmansrust, some distance to the east, in June 1901. During this clash, more than 50 British troops were killed.

### 4.2.4. Indigenous architecture

The south-eastern Highveld is characterised by a vernacular architecture in which sand stone and ferricrete was used to build farmsteads and dwellings in urban as well as in rural areas. A historical stone vernacular architecture also occurred in the Karoo and in the eastern parts of the Free State Province of South Africa. One of the major differences in the vernacular stone architecture in the Eastern Highveld and in the eastern Free State Province and in the Karoo is the use of a wider variety of stone types in the Eastern Highveld. In the Karoo and in the eastern Free State Province only sandstone was used as building material (Pistorius 2006).



The origins of a vernacular stone architecture in the south-eastern Highveld may be attributed to the ecological characteristics of the region; the stone built tradition that was set by Late Iron Age communities over large parts of the country from as early as AD1600 and the influence that was brought by European immigrants to the Eastern Highveld during the late 18th and early 19th centuries. The fusion of ecological, traditional, new ideas (influences) and logic therefore may explain the use of stone as building material on the Eastern Highveld.

The ecological character of the Eastern Highveld favoured the use of stone as building material as this region is generally devoid of any natural trees which could be used for timber in the construction of dwellings, outbuildings, cattle enclosures, etc. The scarcity of wood, which was primarily used as fuel for cooking, also prevented the manufacturing of baked (clay) bricks. (Sun-dried bricks were of a lower quality than those baked on a stack). The need for timber in buildings on the Eastern Highveld therefore required that timber had to be imported from the Bushveld and from east of the escarpment into this region (Pistorius 2006).

Many farmers from Scottish, Irish, Dutch, German and Scandinavian descent farmed in the Eastern Highveld. These colonials brought knowledge of stone masonry from Europe that compensated for the lack of firewood to bake clay bricks. European architectural influence can also be seen in missionary stations such as Botšabelo near Middelburg which was constructed in the second half of the 19th century. Here the missionary's house, the school buildings and churches all have stone foundations while some of the buildings in the complex have been built in their entirety with stone. Rock types preferred in the southern districts of the Mpumalanga Province were sandstone, ferricrete ('oukclip') granite, shale and slate (Pistorius 2006).

#### **4.2.5. A coal mining heritage**

The earliest use of coal (charcoal) in South Africa was during the Iron Age (300-1880AD) when metal workers used charcoal, iron and copper ores and fluxes (quartzite, bone) to smelt iron and copper in clay furnaces.

The greater Hendrina area boasts a number of huge power plants and is home to a gargantuan underground coal-mining complex, regarded as the largest in the world. The largest consumers of coal are Sasol, Iscor and Eskom.

Other economic ventures on the Eastern Highveld include mixed farming such as the production of red meat, grain, maize, sunflowers, potatoes and other vegetables.

#### **4.2.6. Background to the town of Hendrina**

Hendrina was founded in 1914 on the farm Grasfontein, administered by a health committee from 1919, and by a village council since 1926. It was named after Hendrina Beukes, wife of Gert Beukes, who owned the farm.

Interestingly the initial shopkeepers in Hendrina were Lebanese traders whilst the town square was a gathering place every quarter for the Afrikaans farming community who gathered here for Nagmaal (a special church service) during the early 1900s.

Hendrina Power Station came into operation between June 1970 and December 1976. Between 1995 and 1997 half of Hendrina's 10 units were refurbished.

## 5. HERITAGE SITE SIGNIFICANCE AND MITIGATION MEASURES

The presence and distribution of heritage resources define a 'heritage landscape'. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area, or a representative sample, depending on the nature of the project. In the case of the proposed quarry extension the local extent of its impact necessitates a representative sample and only the footprint of the areas demarcated for development were surveyed. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface.

This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The following criteria were used to establish site significance:

- » The unique nature of a site;
- » The integrity of the archaeological/cultural heritage deposits;
- » The wider historic, archaeological and geographic context of the site;
- » The location of the site in relation to other similar sites or features;
- » The depth of the archaeological deposit (when it can be determined/is known);
- » The preservation condition of the sites;
- » Potential to answer present research questions.

Furthermore, The National Heritage Resources Act (Act No 25 of 1999, Sec 3) distinguishes nine criteria for places and objects to qualify as 'part of the national estate' if they have cultural significance or other special value. These criteria are:

- » Its importance in/to the community, or pattern of South Africa's history;
- » Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- » Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- » Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- » Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- » Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- » Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- » Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- » Sites of significance relating to the history of slavery in South Africa.

### 5.1. Field Rating of Sites

Site significance classification standards prescribed by SAHRA (2006), and acknowledged by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 7 of this report.

<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 A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

## **6. BASELINE STUDY-DESCRIPTION OF SITES**

It is important to note that the entire farm was not surveyed but only the footprint of the proposed quarry as indicated in Figure 1 & 2. To the south of the quarry footprint is a large existing quarry (Figure 3) and earthworks associated with the old quarry would have impacted on the current study area. A large impenetrable Eucalyptus plantation (Figure 4) covers most of the site and from the first edition of the 1: 50 000 map of the area it seems as if the remaining portions was cultivated but is covered by grass now (Figure 5). All of these activities would have impacted on surface indicators of heritage sites. The thick Eucalyptus plantation hampered archaeological visibility but is currently being cleared (Figure 6).

Due to the disturbed nature of the site the chances of recovering archaeological materials in situ, are limited. And during the survey no buildings, formal cemeteries or archaeological sites were recorded in the study area. The lack of archaeological sites can be ascribed to the featureless landscape without any landmarks that would have attracted human occupation in antiquity. The lack of Stone Age sites can be attributed to the lack of suitable stone for knapping and sites are expected around the numerous large pans in the wider geographical area. Although not impossible no Iron Age sites are on record for the area.



Figure 2: Google Image of the study area (in blue) with track logs of the area covered in black



Figure 3. Existing quarry.



Figure 4. Thick Eucalyptus plantation.



Figure 5. General site conditions in the study area.



Figure 6. Clearing of trees.

## 7. CONCLUSIONS AND RECOMMENDATIONS

The area on which the proposed 4.9 ha quarry is located consists of an area previously impacted on by mining activities of the existing quarry, agricultural activities and a thick impenetrable Eucalyptus plantation and as such the chances of recovering archaeological materials *in situ*, are limited. No sites were recorded in the study area and due to the lack of shelters, knapping material or features in the landscape, like pans or rocky outcrops, no Stone Age Sites occur. The study area is also located outside of the known distribution of Iron Age sites and no sites dating to this period were recorded. Several previous studies were conducted in the immediate vicinity of the study area and similarly no archaeological sites were recorded although cemeteries and historic structures were recorded (e.g. Pistorius 2004, de Jong 2006 and Fourie 2014).

We are of the opinion that the development will not have a significant impact on the heritage of the area and from an archaeological point of view there is no reason why the development cannot commence work based on approval from SAHRA. No sites of heritage significance were identified during the survey. However, if during construction, any archaeological finds are made (e.g. stone tools, grave markers or skeletal material), the operations must be stopped, and the archaeologist must be contacted for an assessment of the finds.

Due to the dense Eucalyptus plantation that might obscure the visibility of graves and other heritage features it is recommended that a Chance Find Procedure is included in the EMP.

### **Chance finds procedure**

This procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.

- If during the construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area.
- The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

## **8. PROJECT TEAM**

Jaco van der Walt, Project Manager

## **9. STATEMENT OF COMPETENCY**

I (Jaco van der Walt) am a member of ASAPA (no 159), and accredited in the following fields of the CRM Section of the association: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation. This accreditation is also valid for/acknowledged by SAHRA and AMAFA.

I have been involved in research and contract work in South Africa, Botswana, Zimbabwe, Mozambique, Tanzania and the DRC; having conducted more than 300 AIAs since 2000.



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