Archaeological Impact Assessment

For the proposed Mine on De Roodepoort 435, IS, Mpumalanga Province

Prepared For

Greenmined Environmental

By

HERITAGE
Contracts and Archaeological Consulting

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VERSION 1.0

31 October 2013

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Professional Member of the Association of Southern African Professional Archaeologist (#159)

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.

SIGNATURE: _____

EXECUTIVE SUMMARY

Site name and location: The proposed Weideman quarry is located on a portion of Portion 7 (remaining extent) of the farm De Roodepoort 435, IS, Mpumalanga Province.

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: 2629DB

Environmental Consultant: Greenmined Environmental

Developer: B&E International (Pty) Ltd

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

Contact person: Jaco van der Walt Tel: +27 82 373 8491

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Date of Report: 31 October 2013

Findings of the Assessment:

The proposed development area for the Weideman quarry extension was assessed for sites of archaeological significance. No archaeological sites, grave sites or structures older than 60 years were identified in the quarry footprint. A stone walled settlement was identified, located approximately 96 meters north west of the quarry (Figure 12). The stone walled settlement covers an area of 4.5 hectares consisting of at least 7 enclosures some with entrances facing east, to the west is another possible settlement identified from Google Earth (Figure 13) Avoidance of this site as described in Section 7 of this report is recommended. The developer would also have to ensure that the current access road is used to the quarry to avoid damage to the site.

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 to avoid damage to the local heritage. Based on approval from SAHRA this project can go ahead.

Dr John Almond conducted a desktop study on the palaeontology of the area and concluded that it is recommended that exemption from further specialist palaeontological studies and mitigation be granted for this aggregate quarry development. His report is included as Annexure A.

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.

Disclaimer: *Although all possible care is taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. Heritage Contracts and Archaeological Consulting CC and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

CONTENTS

FIGURES

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

Kind of study	Archaeological Impact Assessment
Type of development	Aggregate Mining
Developer:	**B&E International (Pty) Ltd**
Consultant:	Greenmined Environmental

The Archaeological Impact Assessment report forms part of the AIA 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 heritage sites were identified within the proposed footprint of the quarry, however a LIA site is located to the north of the study area. 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 reinterment 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 Weideman Quarry is located on a portion of Portion 7 (remaining extent) of the farm De Roodepoort 435, IS, Mpumalanga Province. The site is located on an east to west running hill and is accessible from the N17 to the north of the study area. The vegetation type of the area is classified as Eastern Highveld Grassland within a Mesic Highveld grassland Bioregion (Mucina & Rutherford 2006).

1.3.2. Location Map

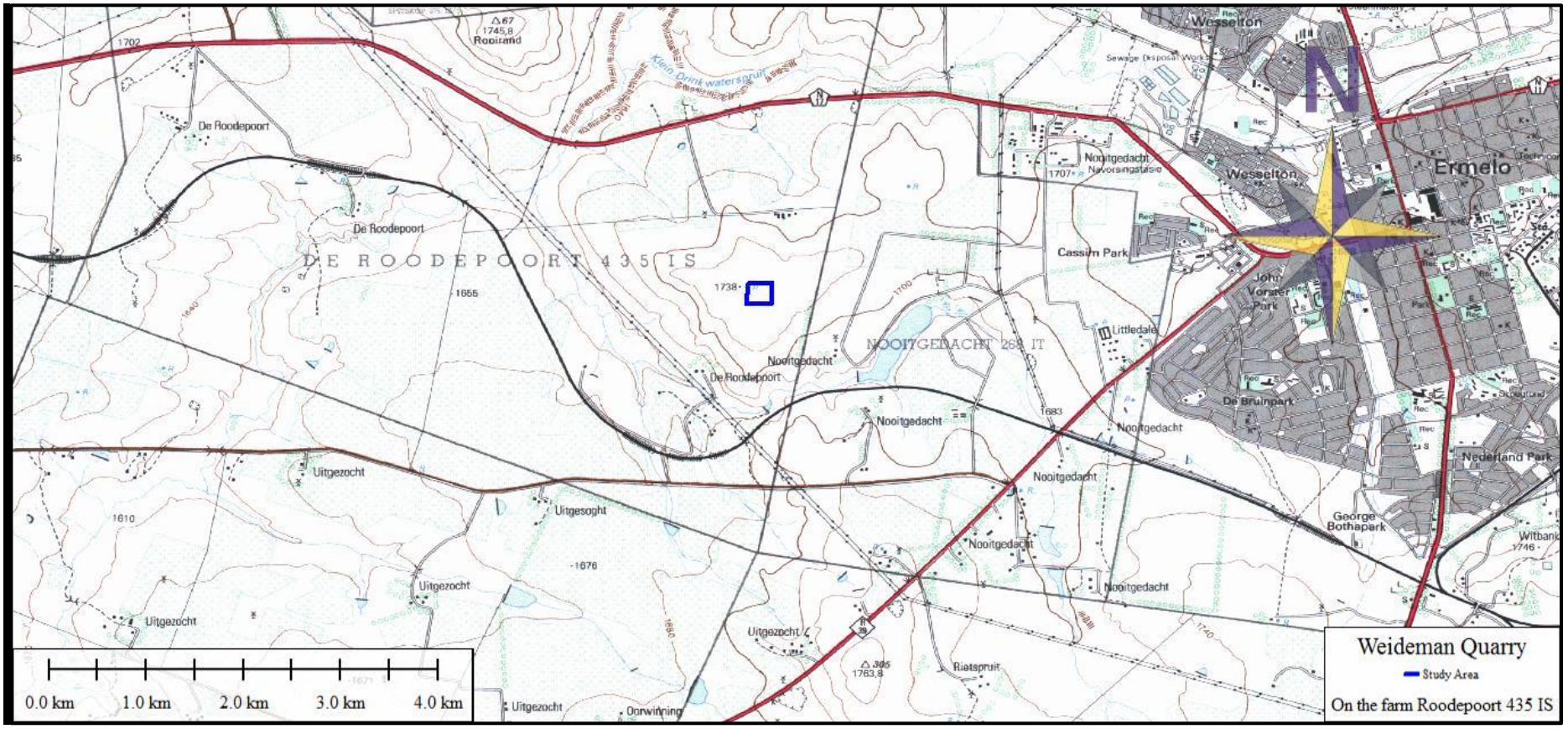

Figure 1: Location map showing the study area in blue.

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

The SAHRA report mapping project (Version 1.0) 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

No consultation was conducted since no one resides in the study area.

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 of 1.5 Ha was conducted. The study area was surveyed by means of vehicle and extensive surveys on foot by a professional archaeologist on 9th October 2012.

No sites were discovered inside the proposed development area but a stone walled settlement were recorded to the north of the study 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. Low ground visibility of parts of the study area is due to high vegetation, 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 mining activities will consist of the following:

- Site establishment
- Stripping and stockpiling of topsoil
- Blasting
- Excavating
- Stockpiling and transporting
- Sloping and landscaping
- Replacing the topsoil and vegetating the disturbed area

4. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND OF THE STUDY AREA

4.1 Databases Consulted

SAHRA Report Mapping Project and SAHRIS

The SAHRA Report Mapping project (version 1) and SAHRIS has two previous CRM survey on record just to the east of the study area by van Schalkwyk (2012) and Kusel (2008). Other studies were conducted to the east and north east of the study area by Kusel (2013) and Coetzee (2013). A large area to the north is also currently being investigated as part of a mining right application but is not in the public domain yet and the results of the study were not at the time of the deadline of this report.

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.Paleontology

A paleontological desktop study was conducted on the area by Dr John Almond. He concluded:

"In contrast to the nearby coal mining operations, the development of the proposed new dolerite quarry near Emelo, Mpumalanga, is of no significance in terms of local palaeontological heritage since these igneous rocks are entirely unfossiliferous, and any fossils preserved within the adjacent Ecca Group (Vryheid Formation) country rocks are likely to have been baked, perhaps even destroyed, during intrusion of hot dolerite magmas.

It is therefore recommended that exemption from further specialist palaeontological studies and mitigation be granted for this aggregate quarry development.

Should any substantial fossil remains (*e.g.* vertebrate bones and teeth, petrified wood, plant fossil assemblages) be encountered during excavation, however, these should be reported to SAHRA."

4.2.2 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 for the manufacture of stone tools. Some engravings can also be expected for the area.

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 west of the study area in the direction of Bethal. The larger area was most probably inhabited by the Phuting group (Berg 1999). 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 date from 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). The well-known Late Iron Age site of Tafelkop that is located North West of Ermelo where more than 100 corbelled huts are found on top of Tafelkop. The site are associated with early Sotho sites and associated with the stone huts which mainly occur in the north-eastern Free State (Mason 1962 and Maggs 1972).

The only early traveller in the area on record was Robert Scoon in 1836.

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. A recorded battle close 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 descend 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 Botŝabelo 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 ('ouklip') 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 Mpumalanga 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 Ermelo

In the mid-1800s, before the present town was established, transport from the Natal coast to the interior passed through the area as there is good water in the area.

A parish was founded in the area where Ermelo is today in 1871 and this was also how the town was established in 1880 by Frans Lion Cachet. The Reverend Cachet was converted to Christianity (he was born Jewish) in the village of Ermelo in central Netherlands, near Veluwe Lake and the Mpumalanga town was named after this village. The Dutch village was in existence by year 855 CE.

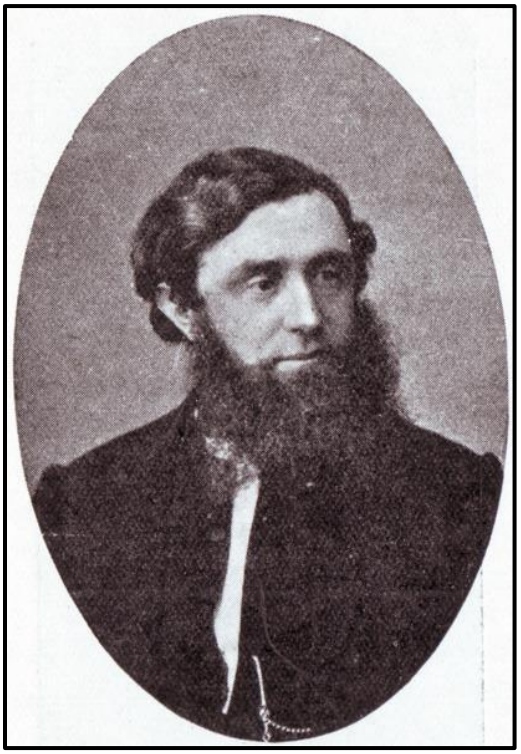

Figure 2: Founder of Ermelo – Frans Lion Cachet (Picture courtesy of Wikipedia)

Ermelo has a rich heritage and this includes the Le Goya Village, the ruins of which, dates back to the 1400's. The area is also known for rock art that can be found in caves and shelters around the town. More recent historical features include the Paul Kruger Bridge (constructed in 1897) and an Anglo Boer War Memorial. It has been reported that during the Angle Boer War the town was levelled by British troops and only one house remained standing.

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Approved:

Surveyor-General

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Discription of Beacons

A — ½" iron peg under cairn with three witness marks.

B.C.D. — Iron Standard under cairn with three witness marks.

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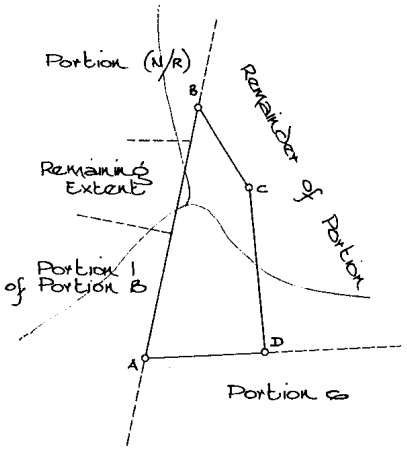

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of the farm DE ROODEPOORT No. 435-IS

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Surveyed in April & September 1964 by me

Carl F. Schneider

Land-Surveyor.

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Figure 3: Chief Surveyor Map of the farm drawn up in 1964.

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.

FIELD RATING	***GRADE***	***SIGNIFICANCE***	***RECOMMENDED MITIGATION***
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 De Roodepoort was not surveyed but only the footprint of the proposed quarry as indicated in Figure 1. During the survey (Figure 4) no sites of heritage significance were identified inside the quarry footprint. The study area is flat with almost no trees and grass covered, used for grazing (Figure 5 – 8). To the north west of the quarry footprint a stone walled settlement (S26 31 33.1 E29 55 25.2) was recorded consisting of very low stone wall foundations with circular depressions (figure 10 -11). Undecorated ceramics (figure 9) were also observed in eroded areas. The stone walled site is located approximately 96 meters north west of the quarry (Figure 12) and covers an area of 4.5 hectares consisting of at least 7 enclosures some with entrances facing east, to the west is another possible settlement identified from Google Earth (Figure 13).

Figure 4: Google Image of the study area (in blue) with track logs of the area covered in black

Figure 5. General site conditions in the north western portion of the study area.

Figure 6. General site conditions in the north eastern portion of the study area.

Figure 7. Study area viewed from the east.

Figure 8. General Site conditions in the central portion of the study area

Figure 9. Ceramic fragments.

Figure 10. Stone walling.

Figure 11. Circular stone wall foundations.

Figure 12. Acces route to site.

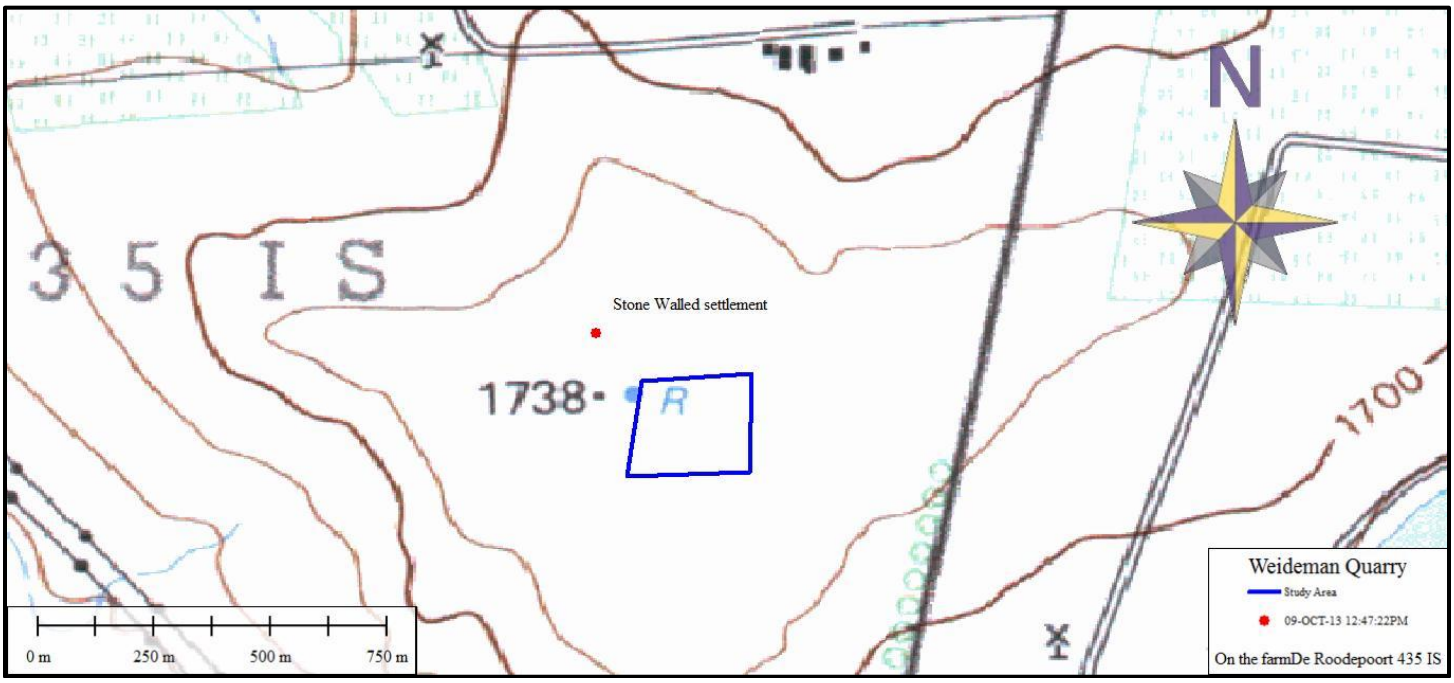

Figure 13: Location of the stone walled settlement in relation to the quarry

Figure 14: Recorded stone walled enclosures (white) with another possible site (yellow polygon) and current access route (blue)

7. RECOMMENDATIONS AND CONCLUSIONS

No sites of heritage significance were found in the development footprint during the survey and from an archaeological point of view there is no reason why the development cannot commence work provided that the recommendations made in the AIA and PIA are adhered by and based on approval from SAHRA.

An Iron Age Site (possibly a Post Difaqane Type V Iron Age Site) was identified close to the study area and it is recommended that the developer should implement measures to ensure that the site is avoided to protect it *in situ* as described in the table below:

OBJECTIVE: Prevent unnecessary disturbance and/or destruction of archaeological sites or features that has not been mitigated for the development.

Project component/s	All phases of construction.		
Potential impact	Damage/disturbance to Stone Walled sites.		
Activity risk/source	Construction workers and staff might unknowingly damage heritage sites.		
Mitigation: target/objective	To retain Stone Walled site in undisturbed condition.		
Mitigation: Action/control		Responsibility	Timeframe
Ensure that workers and construction vehicles remain away from the stone walled settlement on the current access road by demarcating the sites with danger tape or by fencing the sites.		Weideman Quarry Management and ECO	Construction and Operation
Performance indicator	Stone Walled Site remains undamaged.		
Monitoring	No pedestrians or construction vehicles allowed inside the demarcated area.		

If during construction, any archaeological finds are made (e.g. stone tools, skeletal material), the operations must be stopped, and the archaeologist must be contacted for an assessment of the finds. Please refer to the full PIA for recommendations regarding the palaeontology of the study area.

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.

Currently, I serve as Council Member for the CRM Section of ASAPA, and 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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