



Archaetnos Culture & Cultural
Resource Consultants
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**A HERITAGE IMPACT ASSESSMENT REPORT FOR THE
PROPOSED SYLVANIA RESOURCES VOLSPRUIT MINE
ON THE FARMS VOLSPRUIT 326 KR and ZOETVELD 294 KR,
NEAR MOKOPANE, LIMPOPO PROVINCE**

For:

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REPORT: AE1183

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SUMMARY

Archaetnos cc was appointed by EScience Associates to conduct a Heritage Impact Assessment (HIA), for the proposed new Sylvania Resources Volspruit Mine. The mine is to be located on portions of the farms Volspruit 326 KR and Zoetveld 294 KR, near Mokopane in the Limpopo Province. The development area is located south of Mokopane and east of the NI Freeway. The aim of the HIA was to determine if there are any archaeological and historical sites, features and object in the area that might be impacted on and that needs be taken into consideration during the planned mining operations.

A Basic Scoping Report (AE1133) was also undertaken in March before the fieldwork was conducted, looking at determining if there could be any possible sites that could be expected in the area. Various sources were consulted for this report. From this it was clear that there are a number of known heritage resources in the area. It was also envisaged that a number of previously unknown sites might exist here. During the HIA survey a number of archaeological and more recent historical sites, features and objects were identified and recorded.

A number of recommendations are put forward at the end of this report. If these are adhered to then there would be, from a Cultural Heritage point of view, no objection to the proposed mining operations being implemented.

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1. INTRODUCTION

Archaetnos cc was appointed by EScience Associates to conduct a Heritage Impact Assessment (HIA), for the proposed new Sylvania Resources Volspruit Mine. The mine is proposed to be located on portions of the farms Volspruit 326 KR and Zoetveld 294 KR, near Mokopane in the Limpopo Province.

A Basic Scoping Report (AE1133) was also undertaken in March before the fieldwork was conducted, looking at determining if there could be any possible sites that could be expected in the area. Various sources were consulted for this report. From this it was clear that there are a number of known heritage resources in the area. During the HIA survey a number of archaeological and more recent historical sites, features and objects were also identified and recorded.

2. TERMS OF REFERENCE

The Terms of Reference for the survey were to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located in the area of the Volspruit Mine development
2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value.
3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions.
4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources.
5. Review applicable legislative requirements.

3. CONDITIONS & ASSUMPTIONS

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

1. Cultural Resources are all non-physical and physical man-made occurrences, as well as natural occurrences associated with human activity. These include all sites, structure and artifacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development. Graves and cemeteries are included in this.
2. The significance of the sites, structures and artifacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. The various aspects are not mutually exclusive, and the evaluation of any site is done with reference to any number of these aspects.

3. Cultural significance is site-specific and relates to the content and context of the site. Sites regarded as having low cultural significance have already been recorded in full and require no further mitigation. Sites with medium cultural significance may or may not require mitigation depending on other factors such as the significance of impact on the site. Sites with a high cultural significance require further mitigation (see **Appendix B**).
4. The latitude and longitude of any archaeological or historical site or feature, is to be treated as sensitive information by the developer and should not be disclosed to members of the public.
5. All recommendations are made with full cognizance of the relevant legislation.
6. It has to be mentioned that it is almost impossible to locate all the cultural resources in a given area, as it will be very time consuming. Developers should however note that the report should make it clear how to handle any other finds that might be found.

4. LEGISLATIVE REQUIREMENTS

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

4.1 The National Heritage Resources Act

According to the above-mentioned act the following is protected as cultural heritage resources:

- a. Archaeological artifacts, structures and sites older than 100 years**
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts
- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years**
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The national estate (see **Appendix D**) includes the following:

- a. Places, buildings, structures and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Sites of Archaeological and palaeontological importance**
- g. Graves and burial grounds**

- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources. An HIA must be done under the following circumstances:

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

Structures

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

A structure means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

Alter means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.

Archaeology, palaeontology and meteorites

Section 35(4) of this act deals with archaeology, palaeontology and meteorites. The act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial):

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

- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.

Human remains

Graves and burial grounds are divided into the following:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. **historical graves and cemeteries**
- f. **human remains**

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

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

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated) before exhumation can take place.

Human remains can only be handled by a registered undertaker or an institution declared under the **Human Tissues Act (Act 65 of 1983 as amended)**.

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

4.2 The National Environmental Management Act

This act states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

5. METHODOLOGY

5.1 Survey of literature

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

5.2 Field survey

The survey was conducted according to generally accepted HIA/AIA practices and was aimed at locating all possible objects, sites and features of cultural (archaeological and historical) significance in the area of proposed development. If required, the location/position of any site is determined by means of a Global Positioning System (GPS), while photographs are also taken where needed.

The survey was conducted on foot, although certain portions were travelled by vehicle. The survey focused on areas that were relatively undisturbed through various activities (such as agriculture), such as clumps of trees, rocky outcrops. Open patches of soil and erosion dongas were also concentrated on. Visibility was fairly good, although dense grass cover and other vegetation hampered this in certain portions.

5.3 Oral histories

People from local communities are sometimes interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography. **In this case no oral histories were recorded or interviews undertaken.**

5.4 Documentation

All sites, objects, features and structures identified are documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities are determined by means of the Global Positioning System (GPS). The information is added to the description in order to facilitate the identification of each locality.

6. DESCRIPTION OF THE AREA

The proposed new Sylvania Resources Volspruit Mine, a greenfields development, is located on portions of the farms Volspruit 326 KR and Zoetveld 294 KR near Mokopane in the Limpopo province. It lies around 21km south of the town and approximately 3km east of the N1 freeway.

The topography of the area is relatively flat, although there are some low hills and rocky outcrops. Large sections of the area have been disturbed through past and recent agricultural activities (such as ploughing, crop growing and cattle grazing). The Nyl Spruit cuts through the area (mostly on the western side of Volspruit). Dense grass and other vegetation cover in certain portions made visibility difficult, although there are also patches of open veld caused by grazing.

The area is located on the 1:50 000 topographic map 2428BD Haakdoring. On this map (both the 1969 and 1981 editions) agricultural activities (ploughed fields) and residential areas (farm labourer homesteads, farmsteads and kraals) are shown.

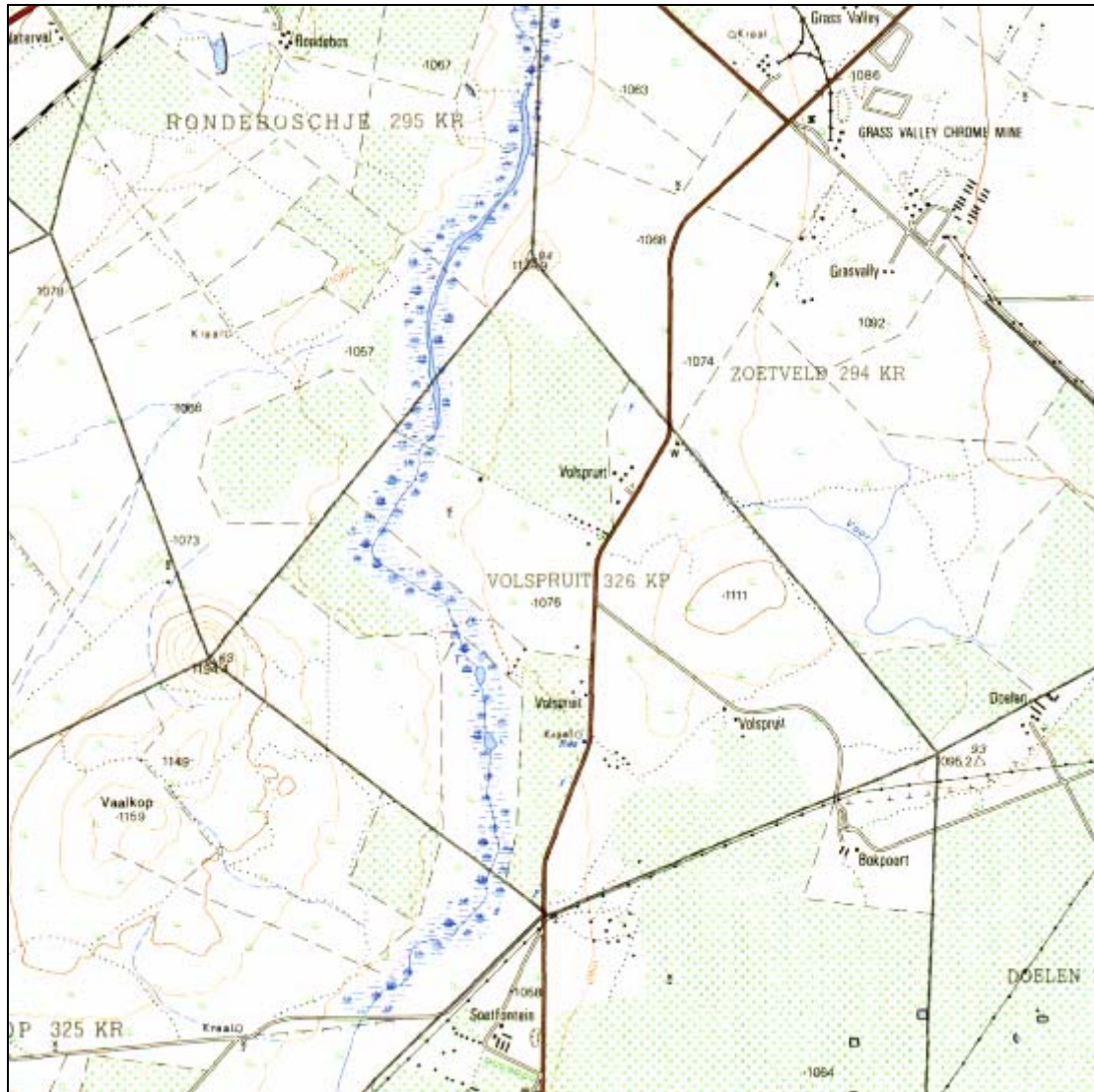


Figure 1: 1:50 000 map location of area (1981).

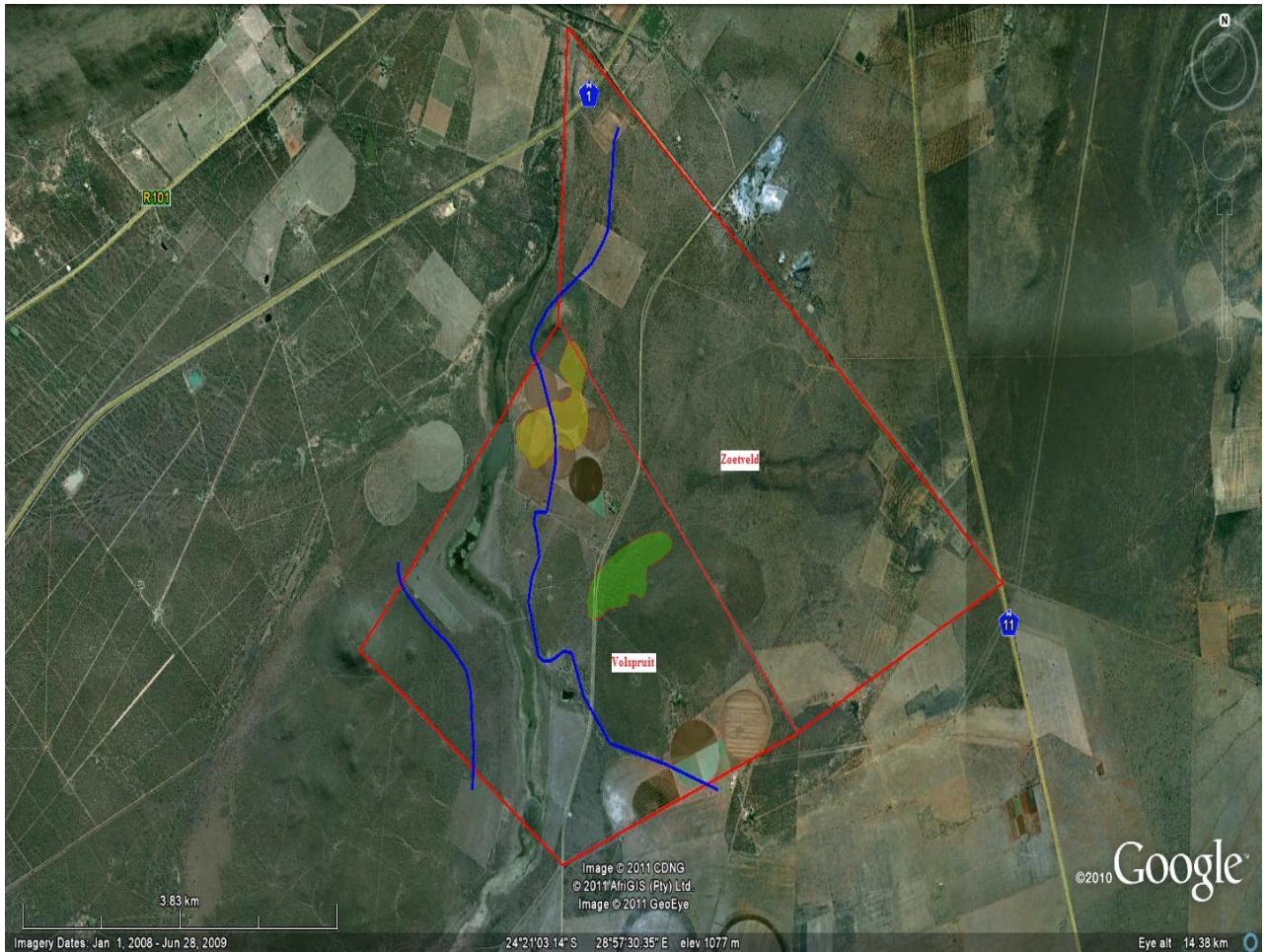


Figure 2: Aerial image showing flood lines and pit locations (courtesy Google Earth and EScience). Also note the two farms.



Figure 3: View of a portion of the survey area. Note the ploughed fields.



Figure 4: Freshly ploughed field in one section.



Figure 5: Dense grass cover in another section.



Figure 6: Dense grass and tree cover is found in certain sections.



Figure 7: Open patches are found throughout the area, possibly the result of over grazing.



Figure 8: Another view of the dense vegetation found throughout.

7. DISCUSSION

A short, general, background to archaeology is given in the following section, after which the archaeology and history of the development area (and its broader geographical context) will be discussed. The palaeontology of the study area will also be provided as part of the background (courtesy of Prof. Bruce Rubidge who conducted a Palaeontological desktop assessment for the project).

7.1 Palaeontology

Most of the farm Volspruit is underlain by Precambrian igneous rocks of the lower Rustenberg Layered Suite of the Bushveld Igneous Complex. To the west, a small part of the property is underlain by of the Precambrian Silverton Formation of the Pretoria Group. The extreme southern portions of the property are underlain by Jurassic volcanic rocks of the Karoo Supergroup. The floodplains of the Nyl River are covered by Quaternary alluvial deposits.

The Busveld Igneous Complex is an intrusive igneous body comprising a series of ultramafic-mafic layers and a suite of associated granitoid rocks, while the Silverton Formation of the Pretoria Group comprises hornfels and shale. As these rocks are Precambrian in age and most are of igneous origin, it is highly unlikely that fossils will be affected by the proposed mining development. The Jurassic Karoo rocks comprise lava which is certainly not fossil-bearing, and the Quaternary sediments on the floodplain of the Nyl River are the only sedimentary deposits where there is a possibility of fossils being preserved. As these deposits are not consolidated it is very unlikely that any fossils will be present (Palaeontological Desktop Report: Prof. Bruce Rubidge: April 2011).

7.2 Stone Age

The Stone Age is the period in human history when lithic (stone) material was mainly used to produce tools (Coertze & Coertze 1996: 293). In South Africa the Stone Age can be divided in three periods. It is however important to note that dates are relative and only provide a broad framework for interpretation. The division for the Stone Age according to Korsman & Meyer (1999: 93-94) is as follows:

- Early Stone Age (ESA) 2 million – 150 000 years ago
- Middle Stone Age (MSA) 150 000 – 30 000 years ago
- Late Stone Age (LSA) 40 000 years ago – 1850 - A.D.

A number of Stone Age sites (dating right from the Early to the Later Stone Age) are known in the larger geographical area, such as the famous Makapansgat and Cave of Hearths (Berg 1999: 4; 93-95). During a 2002 archaeological/heritage survey of the eastern portion of the farm by Matakoma Consultants, the purpose of the study being unknown, a number of Stone Age sites and finds were recorded. During the 2011 fieldwork conducted by Archaetnos cc a further number of Stone Age sites and finds were also recorded. The sites are mainly scatters of stone tools, cores and flakes, found in open-air locations, dating to mainly the Middle and Later Stone Ages (MSA/LSA), although there is a possibility of some earlier ESA material as well.

Although none of the sites are highly significant in terms of density of material, research potential, etc, some recommendations regarding mitigation measures are put forward at the end of this report. A Site Distribution map (Google image) at the end of the discussion section will also show the various sites recorded by both Archaetnos and Matakoma).

Matakoma Stone Age sites List

1. S24 20 18.4 E28 56 57.2
2. S24 21 55.1 E28 58 09.3
3. S24 21 55.8 E28 57 37.5
4. S24 21 14.2 E28 57 32.6
5. S24 22 07.1 E28 57 12.0
6. S24 22 19.1 E28 57 21.3
7. S24 22 04.4 E28 57 07.9
8. S24 21 52.5 E28 56 49.2
9. S24 21 43.6 E28 56 44.9
10. S24 21 42.9 E28 56 45.4
11. S24 21 35.6 E28 56 46.7
12. S24 21 11.2 E28 56 47.5
13. S24 21 19.8 E28 56 40.0

Archaetnos Stone Age sites List

1. S24 21 13.0 E28 56 53.1
2. S24 22 06.3 E28 57 05.5
3. S24 21 24.5 E28 56 48.1
4. S24 20 37.5 E28 58 43.7

5. S24 20 45.3 E28 58 27.2

All these sites consist of scatters of (with varying density) of stone tools, flakes and cores, dating mainly to the MSA and LSA, although there is a possibility of some earlier ESA tools as well. The sites are all in the open air, and found in erosion dongas and in patches of open veld. No caves or shelters are visibly located in the area.

Impact: Some of the sites will be impacted on by the development

Significance of sites: Low to medium

Mitigation measures: Surface sampling to obtain representative sample for the area



Figure 9: Some of the MSA tools found in the area.



Figure 10: Another stone tool (core) found in the area.



Figure 11: More MSA and LSA flakes and tools from the area.

7.3 Iron Age

The Iron Age is the name given to the period of human history when metal was mainly used to produce artifacts (Coertze & Coertze 1996: 346). In South Africa it can be divided in two separate phases according to Van der Ryst & Meyer (1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.

Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) however indicates that a Middle Iron Age should be included. His dates, which now seem to be widely accepted in archaeological circles, are:

Early Iron Age (EIA) 250 – 900 A.D.

Middle Iron Age (MIA) 900 – 1300 A.D.

Late Iron Age (LIA) 1300 – 1840 A.D.

No Early Iron Age sites are known in the area (Berg 1999: 6), although a number of Later Iron Age sites are known to exist in the area around Mokopane (Berg 1999: 7). The 2002 study by Matakoma also located some stone walled features on Volspruit that could be related to the LIA, although this is unconfirmed. According to Huffman's research the following Iron Age type pottery could be found in the area:

- (a) Moor Park facies (Urewe tradition) AD1350 – 1750 (Huffman 2007: 159)
- (b) Uitkomst facies (Urewe) AD1650 – 1820 (p.171)
- (c) Madikwe facies (Urewe) AD1500 - 1700 (p.199)
- (d) Diamant facies (Kalundu tradition) AD750 – 1000 (p.223)
- (e) Eiland facies (Kalundu) AD1000 – 1300 (p.227)

One piece of undecorated pottery was located in the area during the survey conducted by Archaetnos in September 2011.

Matakoma possible LIA stone walled features

1. S24 22 16.4 E28 58 38.4: Circular-shaped stone packed structure
2. S24 21 30.2 E28 57 02.3: Vague indication of packed stone walling

It was not possible to determine whether or not these indeed represent LIA stone walling. No other evidence of the existence of Iron Age settlement was found in the area during the 2011 survey.



Figure 12: Undecorated pottery fragment found in the area.

7.4 Historical Age

The historical age started with the first recorded oral histories in the area. It includes the moving into the area of people that were able to read and write. The first Europeans to move into the area was early travelers, adventurers, hunters and missionaries such as the Schoon expedition of 1836 (Berg 1999: 13), who passed close by to where Mokopane is today, followed by the Voortrekkers (Berg 1999: 14).

The town of Potgietersrus (Mokopane) was established at the end of 1860 although plans to establish was already presented in 1852 by Hendrik Potgieter (the plan was to name the town Vredenburg). Nothing came of these plans. The next plan was approved by the ZAR “Volksraad” in September 1858 (for Pieterpotgietersrust), although only in December 1860 did serious work on town establishment commence. In 1870 the town was abandoned because of high incidences of death caused by “fever” (malaria), and only in 1890 people moved in again (Berg 1999: 141-142).

The earliest map for Volspruit dates to 1893, and is a map of the farm drawn up by a surveyor for one George W. Compton in June 1893 (<http://csg.dla.gov.za>). A number of recent

historical sites and features were recorded during Matakoma's 2002 survey on Volspruit, including a number of possible graves and graveyards, as well as the remains of homesteads and old farm structures. Archaetnos was able to re-locate some of these, while also recording a number of other more recent historical sites.

Although most of these features and sites are of fairly recent age, it is recommended that an Architectural Historian assess these structures before they are destroyed or disturbed in any way. Graves are always of high significance. A number of recommendations regarding the handling of graves are put forward at the end of this report.

Matakoma list of Historical sites

1. S24 21 13.4 E28 56 54.1: Graveyard with nearly 20 graves. Most stone packed. Inscriptions on some illegible and no dates could be determined. Archaetnos also located this site in 2001
2. S24 22 21.3 E28 58 28.4: De Beer family graves. 2 graves
3. S24 22 10.0 E28 57 47.8: Possible graves (number?)
4. S24 22 22.5 E28 57 21.1: 2 possible graves
5. S24 21 32.9 E28 57 04.9: Possible graves or stone heaps
6. S24 21 01.5 E28 57 34.4: Recent ruins consisting of 4 brick structures, including a cement and corrugated iron farm dam
7. S24 21 59.8 E28 57 09.7: Old farm stead

Sites found by Archaetnos cc during September 2011

1. S24 21 25.0 E28 56 41.7: Farm related structures, including a dam
2. S24 21 32.2 E28 55 56.6: Remains of possible farm labour structure. Cement and stone foundations
3. S24 20 32.9 E28 58 32.2: Two recent structures. Mining related. One is an Explosives Magazine



Figure 13: Graveyard with around 20 graves on Volspruit Ptn 1.



Figure 14: One of the graves with illegible inscription.



Figure 15: Cement dam and other recent farming related structures



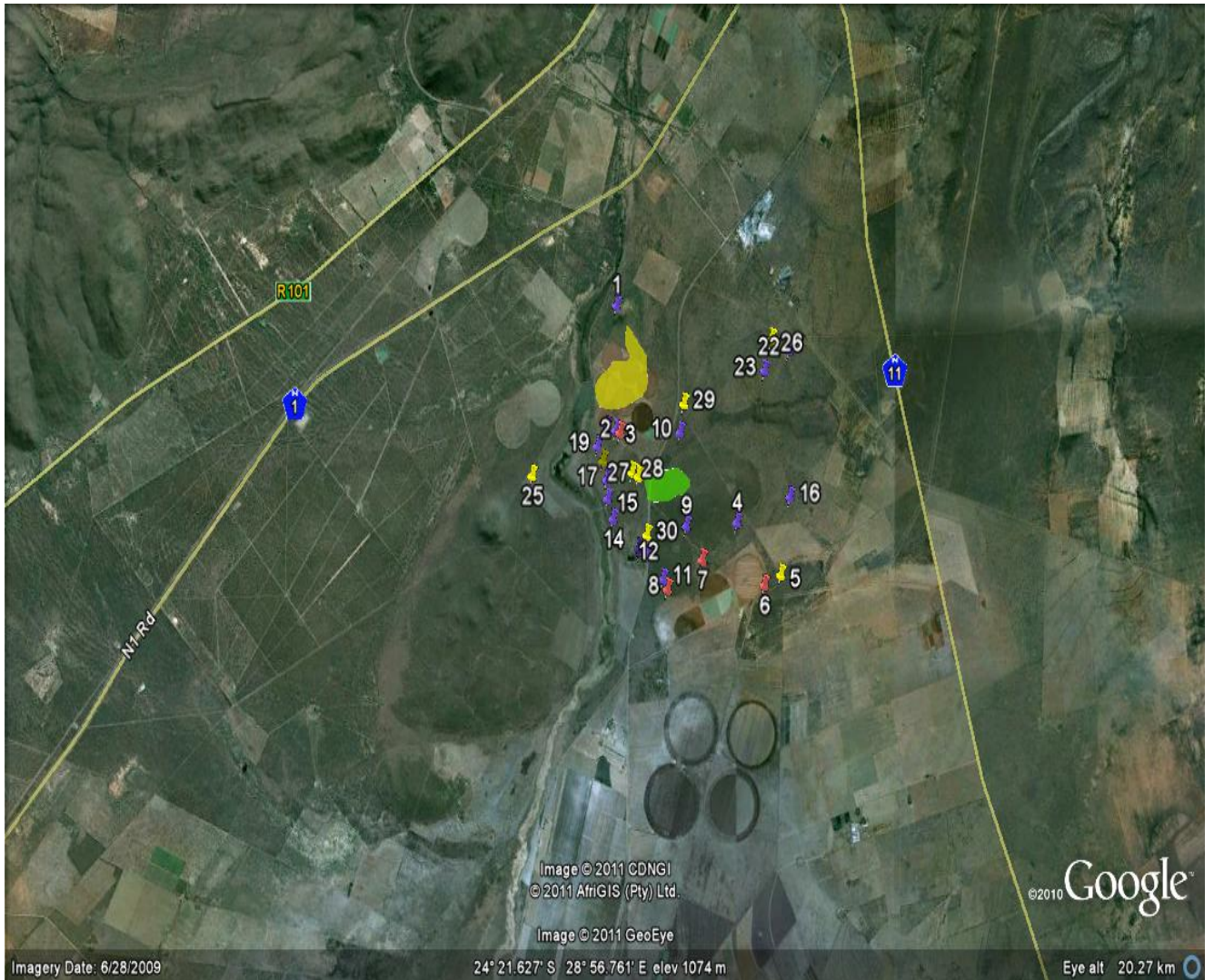
Figure 16: Foundations of stone and cement structure.



Figure 17: Explosives magazine on Zoetveld.



Figure 18: Close-up of explosives magazine door.



**Figure 19: Distribution of sites found in the area (Google Earth 2011).
Blue pins = Stone Age Red = Graves Yellow = Possible LIA & other historical.**

8 CONCLUSIONS AND RECOMMENDATIONS

It is possible to conclude that the Heritage Impact Assessment (HIA) for the proposed new Volspruit Mine near Mokopane, Limpopo Province, has been conducted successfully. Based on the field survey done during September 2011 by Archætnos cc, as well as on information obtained from a 2002 study conducted by Matakoma Heritage Consultants (purpose of study unknown), it is clear that a number of cultural heritage (archaeological and historical) sites occur in the area. Some of these sites will be impacted on by the proposed development activities. The sites include Stone Age open-air scatters, possible Iron Age features, farmsteads and other farming related structures and graves.

The following recommendations are made regarding mitigation measures in order to minimize any negative impacts on some of these sites:

1. that a surface collection of Stone Age material in the area is undertaken in order to obtain a representative sample of material. A permit for this action will be

required from SAHRA, with the work to be carried out under the supervision of a Principal Investigator for Stone Age accredited at ASAPA

- 2. that an Architectural Historian be contacted to assess the significance and ages of any historical structures that might be earmarked for destruction**
- 3. that all graves and graveyards located in the area be fenced-off, cleaned and access provided to family members/descendants that might want to visit these graves. A Graves Management Plan should also be implemented. Should it not be possible to preserve the grave site then they should be exhumed and relocated, taking into consideration all the legal requirements and processes involved in graves.**

Finally, it should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts are always a distinct possibility. Care should therefore be taken during any development activities that if any of these are accidentally discovered, a qualified archaeologist be called in to investigate.

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APPENDIX A

Definition of terms:

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

Structure: A permanent building found in isolation or which forms a site in conjunction with other structures.

Feature: A coincidental find of movable cultural objects.

Object: Artifact (cultural object).

(Also see Knudson 1978: 20).

APPENDIX B

Cultural significance:

- Low A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.

- Medium Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.

- High Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

APPENDIX C

Heritage significance:

- Grade I Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III Other heritage resources of local importance and therefore worthy of conservation

APPENDIX D

Protection of heritage resources:

- Formal protection

National heritage sites and Provincial heritage sites – grade I and II

Protected areas - an area surrounding a heritage site

Provisional protection – for a maximum period of two years

Heritage registers – listing grades II and III

Heritage areas – areas with more than one heritage site included

Heritage objects – e.g. archaeological, palaeontological, meteorites, geological specimens,
visual art, military, numismatic, books, etc.

- General protection

Objects protected by the laws of foreign states

Structures – older than 60 years

Archaeology, palaeontology and meteorites

Burial grounds and graves

Public monuments and memorials