

**PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT  
PROPOSED SAND MINING ON THE  
FARM WILLEMSFONTEIN NO. 1079  
CONSISTING OF PORTION 1 OF THE FARM  
JAKHALSFONTEIN 98, PORTION 1 OF THE FARM  
ROUWKOOP 97 AND PORTION 1 OF THE FARM  
HONING KLIP 101  
VREDENBURG**

Prepared for

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## Executive summary

Pro-Earth Consulting requested that the Agency for Cultural Resource Management conduct a Phase 1 Archaeological Impact Assessment for a proposed sand mining operation on the Farm Willemsfontein 1079 situated in Vredenburg, Western Cape Province.

The proposed mining site consists of three properties and is about 90 ha in extent. The affected site is located on the R399 between Vredenburg and Veldriff. The farm has previously been ploughed since the 1900s and it is surrounded by vast tracts of similarly transformed farmland. There are no significant landscape features occurring on the proposed mining site. The predominant land use of the surrounding properties is agriculture with some mining operations immediately to the west of the R399.

The aim of the study is to locate and map archaeological heritage sites and remains that may be negatively impacted by the planning, construction and implementation of the proposed project, to assess the significance of the potential impacts and to propose measures to mitigate against the impacts.

Despite the severely degraded and transformed nature of the receiving environment, relatively large numbers of Later Stone Age tools were located during the baseline study. The archaeological heritage remains are, however, spread very thinly and unevenly over the surrounding landscape, and occur in a severely disturbed context.

**The archaeological heritage remains have been rated as having low local significance.**

The Phase 1 Archaeological Impact Assessment has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated prior to proposed development activities.

The archaeological assessment has rated the potential impacts to archaeological material as being low provided that:

- A professional palaeontologist is appointed to assess the possible palaeontological significance of fossiliferous material on the property if underlying limestone deposits are intercepted during earth-moving operations.
- Should any unmarked human remains be disturbed, exposed or uncovered during earthworks, these should immediately be reported to the South African Heritage Resources Agency (Mrs Mary Leslie 462 4502), or Heritage Western Cape (Dr. A. Jerardino 483 9687).

The above measures must be included in the Environmental Management Plan (EMP) for the proposed project.

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## 1. INTRODUCTION

### 1.1 Background and brief

Pro-Earth Consulting, on behalf of Moutons Siviél (Pty) Ltd, requested that the Agency for Cultural Resource Management conduct a Phase 1 Archaeological Impact Assessment for a proposed sand mining operation on the Farm Willemsfontein 1079 situated in Vredenburg, on the Cape West Coast.

The development site consists of three neighboring properties; namely Portion 1 of the Farm Jakhalsfontein 98, Portion 1 of the Farm Rouwkoop 97 and Portion 1 of the Farm Honing Klip 101.

Proposed mining operations will entail the removal of sand at an average depth of  $\pm 1.12$  m. Available top soil will be removed prior to mining and will be stored until it can be replaced after mining. Mining will not penetrate or intersect any underlying limestone or associated sediments. Signs of limestone being present on the site were observed only in one profile hole. The underlying clay layer will be the mine-limiting layer. Mining will not extend into the clay (Vivienne Mabilie Pro-Earth Consulting pers. comm.).

1.1m deep  
Mines remain  
extending into  
the clay.

The extent of the proposed development (nearly 90 ha) falls within the requirements for an archaeological impact assessment as required by Section 38 of the South African Heritage Resources Act (No. 25 of 1999).

90ha

The aim of the study is to locate and map archaeological heritage sites/remains that may be negatively impacted by the planning, construction and implementation of the proposed project, to assess the significance of the potential impacts and to propose measures to mitigate against the impacts.

## 2. TERMS OF REFERENCE

The terms of reference for the archaeological study were:

- to determine whether there are likely to be any archaeological sites of significance within the proposed site;
- to identify and map any sites of archaeological significance within the proposed site;
- to assess the sensitivity and conservation significance of archaeological sites within the proposed site;
- to assess the status and significance of any impacts resulting from the proposed development, and
- to identify mitigatory measures to protect and maintain any valuable archaeological sites that may exist within the proposed site

### 3. THE STUDY SITE

A locality map is illustrated in Figure 1.

An aerial photograph of the proposed site is illustrated in Figure 2.

The proposed site (currently zoned Agriculture) is located about 11 kms north of Vredenburg, directly adjacent to the R399 (Vredenburg – Veldruff road). The subject property is flat and featureless and has been used for agricultural purposes since the 1900's. No natural vegetation occurs on the property and it is surrounded by vast tracts of similarly transformed farmland. There are no significant landscape features occurring on the proposed site. There are no buildings or structures on the affected property. The proposed site is severely degraded and constitutes a much disturbed and transformed landscape. The predominant land use of the surrounding properties is intensive agriculture with some gravel and sand mines as well as a hard rock quarry to the north and west of the R399. The nearest town is Vredenburg.

*Ammanville 400  
since 1900s*

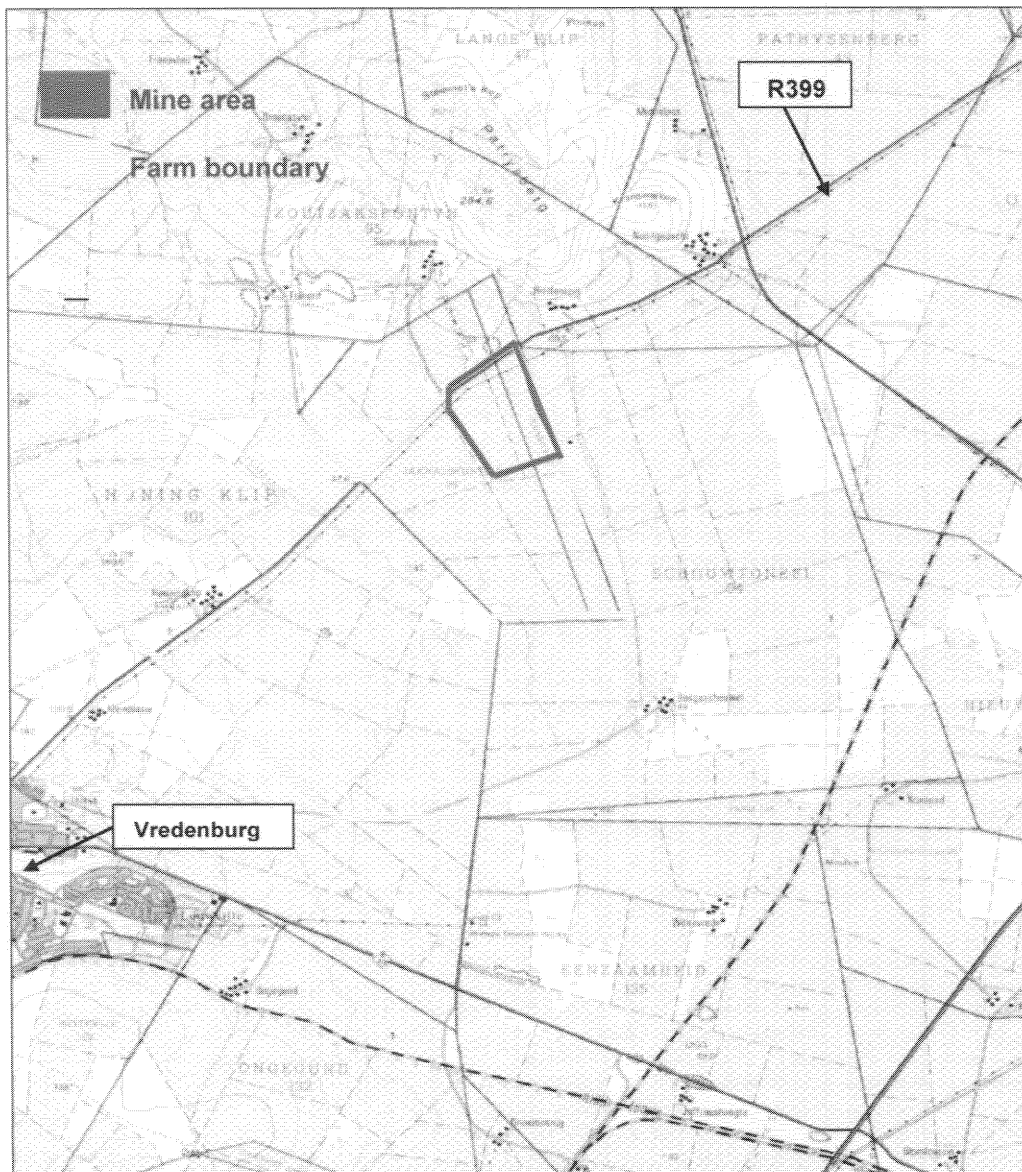


Figure 1. Locality Map (321 CA & CC Veldruff)

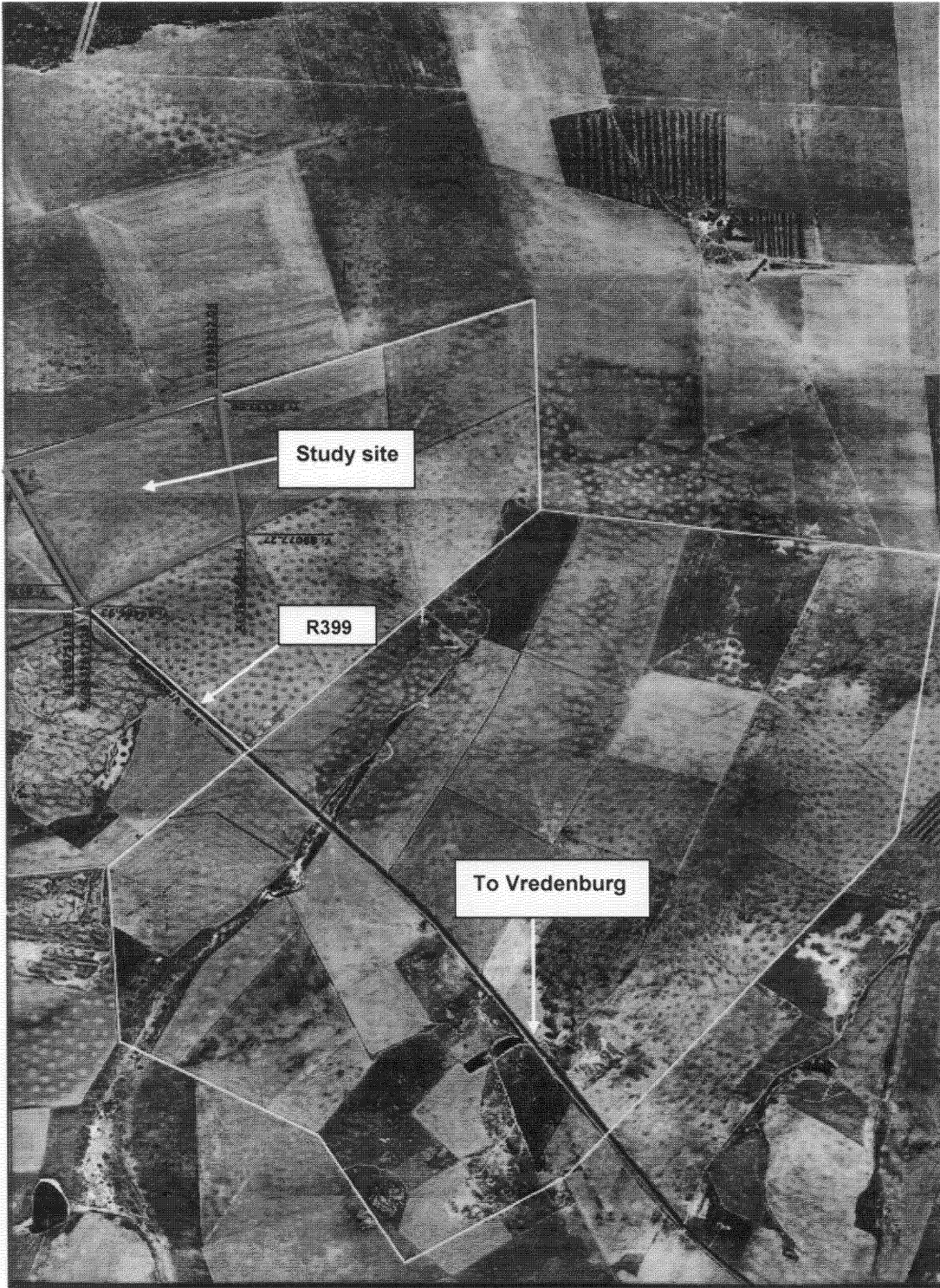
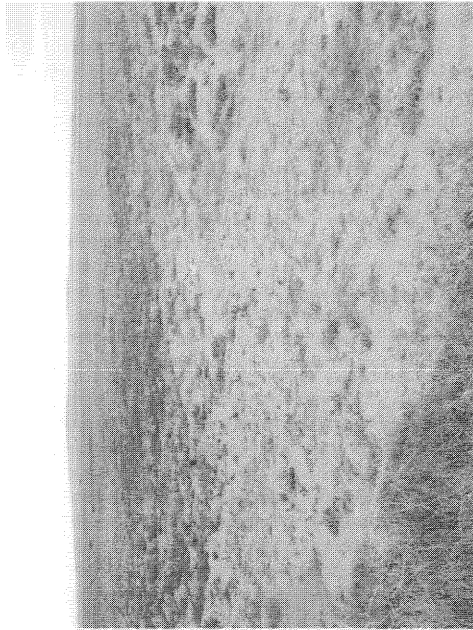


Figure 2. Aerial photograph of the study site

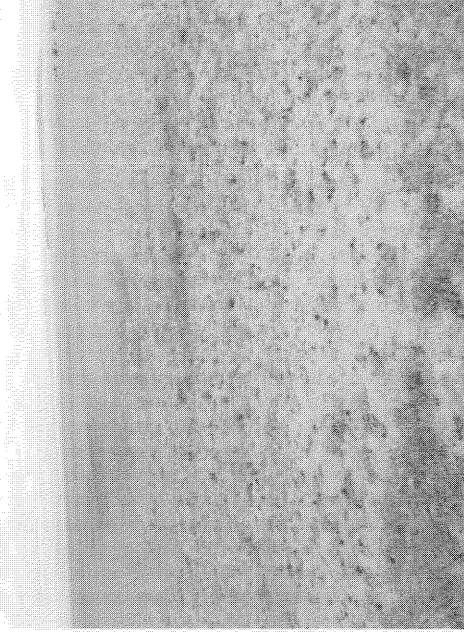
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**Figure 5. View of the site facing north west**



**Figure 3. View of the site facing north east**



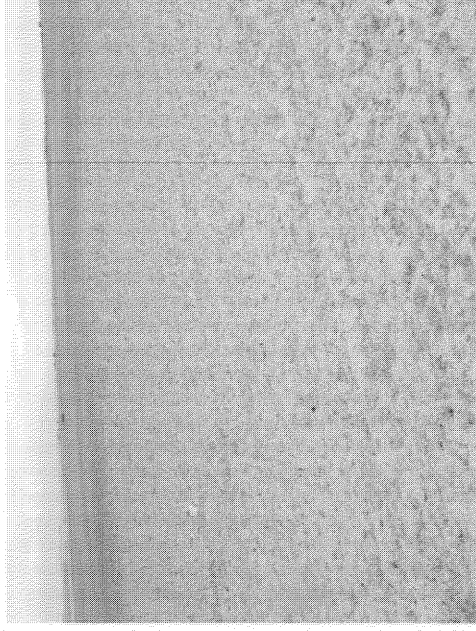
**Figure 6. View of the site facing north**



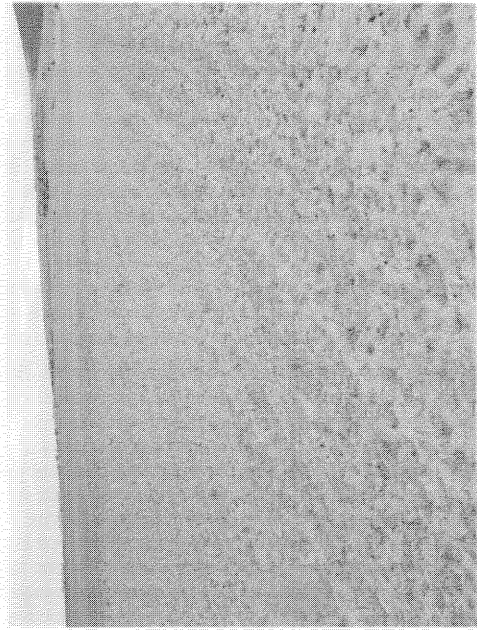
**Figure 4. View of the site facing north**



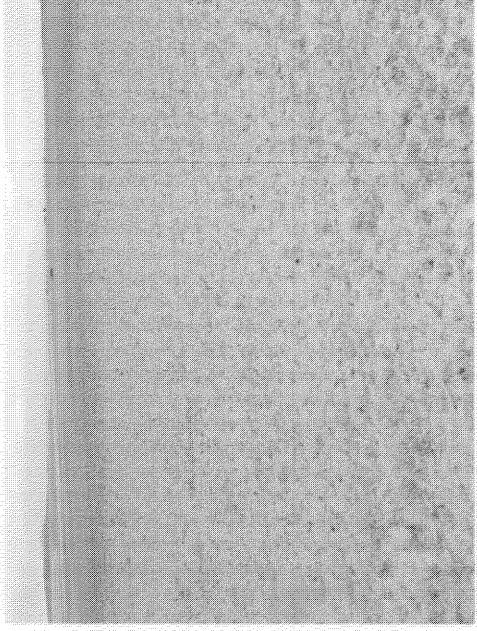
**Figure 7. View of the site facing east**



**Figure 9. View of the site facing south west**



**Figure 8. View of the site facing west**

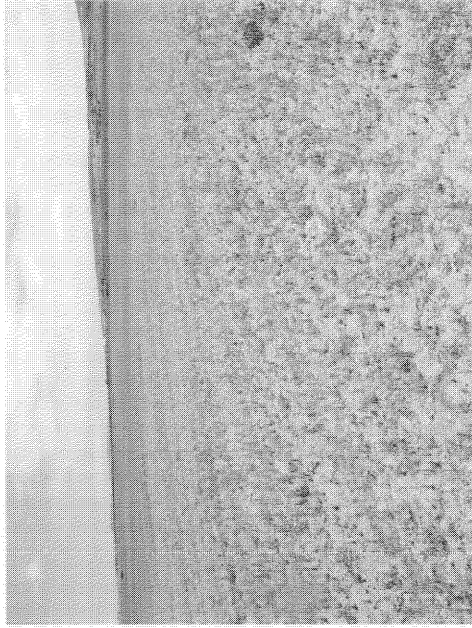


**Figure 10. View of the site facing south**

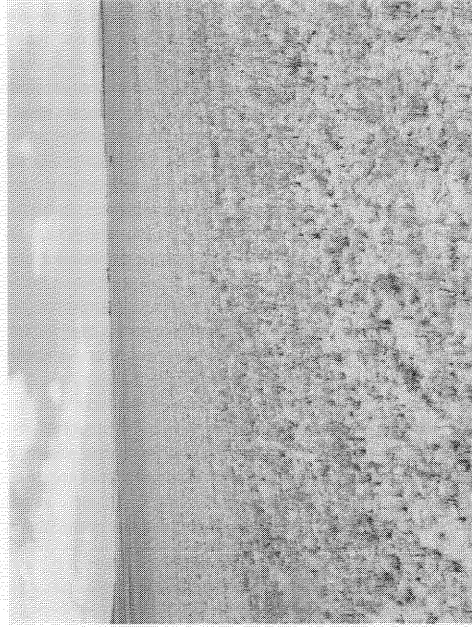




**Figure 13. View of the site facing west**



**Figure 11. View of the site facing west**



**Figure 12. View of the site facing north west**

## **4. STUDY APPROACH**

### **4.1 Method**

The approach followed in the archaeological study entailed a foot survey of the proposed site.

The site visit and assessment took place on the 6<sup>th</sup> and 7<sup>th</sup> December, 2006.

A desktop study was also undertaken.

### **4.2 Constraints and limitations**

There were no constraints or limitations associated with the study.

### **4.3 Identification of potential risks**

It is unlikely, given the extremely disturbed nature of the receiving environment, but unmarked human burials may be uncovered or exposed during sand mining operations.

Vertebrate fossils may also possibly be uncovered or exposed during the proposed activities.

### **4.4 Results of the desk top study**

The Saldanha Bay/Vredenburg coastal region is exceptionally rich in archaeological sites (Kaplan 1993). Its richness is determined largely by its unique rocky shoreline formation which was favoured by both Later Stone Age (LSA) hunter-gatherers and Khoi herders in the past, as it offered greater opportunities for the exploitation of marine foods, while the local shales and granites provided vital nutrients for domestic stock.

Research focusing on the Khoekhoe herder economy around 2000 years ago in the Vredenburg Peninsula has, significantly, identified large numbers of sites up to several kilometres from the shoreline (Sadr *et al* 1992). Many of these sites, comprising substantial shellfish deposits with pottery and stone tools, are centered round the numerous large granite outcroppings that are ubiquitous in the Vredenburg, Paternoster and the St. Helena Bay area.

It is also well established that vertebrate fossils and archaeological occurrences in the Langebaan Limestone (calcrete) formations and associated deposits in the Saldanha Bay/Vredenburg area, are extremely valuable sources of information on the sedimentary, chronological, palaeoenvironmental and palaeoecological context of the development of modern human behaviour during the Middle Stone Age (MSA) and perhaps even the Early Stone Age (ESA) (Avery 1997).

Middle Pleistocene occurrences and the recovery of human remains in the limestone deposits at Sea Harvest, in Saldanha Bay, for example, has provided some of the earliest evidence we have in the world for the human exploitation of coastal resources, more than 100 000 years ago (Grine & Klein 1993; Volman 1978). Beside evidence of well preserved bone, ostrich eggshell, ochre and MSA stone implements, the Hoedjiespunt limestone sediments in Saldanha Bay also contains evidence of early modern human about 125 000 years ago (Berger & Parkington 1995).

With regard to even more ancient fossil sites, earthworks at the Saldanha Steel Project exposed rare and previously unknown crocodylian and other fossil remains from the Miocene Period, from deposits underlying calcareous formations during excavations for descaling pits (Roberts 1997a).

Several fossil hyena lairs have also provided glimpses of past Pleistocene (1.6 million – 200 000 years) faunas, including herbivores and carnivores, at Hoedjiespunt and Sea Harvest (Roberts 1997a).

An EIA for the proposed Alpha Saldanha Cement Project in Saldanha Bay revealed the presence of an unusual Mid-Miocene (~ 11-12 million years) fauna, including the shell of a giant extinct ostrich like bird (Kaplan 1999; Roberts 1997b).

The reasons for the abundance of fossil archaeological and palaeontological remains in the Saldanha – Vredenburg area is in part related to the highly calcareous character of the aeolianites (fossil dunes) and shallow marine sediments. Bones and implements are readily preserved by the rapid carbonate cementation of the strata in which they become entombed.

## **5. LEGISLATIVE REQUIREMENTS**

The following section provides a brief overview of the relevant legislation with regard to the archaeology of the Farm Willemsfontein No. 1079.

### **5.1 The National Heritage Resources Act (Act No. 25 of 1999)**

The National Heritage Resources (NHR) Act requires that "...any development or other activity which will change the character of a site exceeding 5 000m<sup>2</sup>, or the rezoning or change of land use of a site exceeding 10 000 m<sup>2</sup>, requires an archaeological impact assessment"

The relevant sections of the Act are briefly outlined below.

### **5.2 Archaeology (Section 35 (4))**

Section 35 (4) of the NHR stipulates that no person may, without a permit issued by HWC, destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object.

### **5.3 Burial grounds and graves (Section 36 (3))**

Section 36 (3) of the HHR stipulates that no person may, without a permit issued by the South African Heritage Resources Agency (SAHRA), 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.

## 6. FINDINGS

Surprisingly, given the severely degraded nature of the receiving environment, relatively large numbers of Later Stone Age tools were located during the baseline study, but these remains are spread very thinly and unevenly over the surrounding landscape and occur in a much disturbed context. No activity areas were identified, and there is no spatial coherence in the scatter of tools documented, although the majority of finds were made in the south western portion of the proposed mining area.

The tools were all found on the surface, on loose, ploughed sands. Most of the tools are in locally available quartz and include mainly flakes and chunks. However, several formal tools were found. These include one quartz segment, one snapped quartz backed bladelet, one retouched silcrete flake and one (weathered) broken edge-ground and retouched shale cobble flake. No pre-colonial pottery or other cultural items were noted during the baseline study. No biological remains such as bone or marine shell were found.

Several colonial-era artefacts were also documented on the site. These include one large piece of brown coloured stone ware, several small pieces of thin blue glass, two small pieces of white ceramics and one small fragment of Annular ware. Some modern cut bone was also noted, as well as several pieces of rusted metal.

It is interesting to note that the granite outcrops on the farm Heuningklip/Honing Klip 101, within the farm boundary of the subject property (refer to Figure 1), do support several known archaeological sites (Smith *et al* 1991).

Table 1 lists the number and types of stone tools identified during the study.

Tools	Silcrete	Quartz	Quartzite	TOTAL
Chips	-	4	-	4
Chunks	3	11	1	15
Flakes	2	8	1	11
Bladelets	-	1	-	1
Cores	-	3	-	3
Utilized	1	-	-	1
Segments	-	1	-	1
Backed bladelet	-	1	-	1
Misc. retouched	1	-	-	1
Edge ground cobble	-	-	1	1

Table 1. Stone tools and raw material frequencies Willemsfontein 1079

**Given the highly disturbed context in which the archaeological remains were documented, the finds have been rated as having low local significance.**

## 7. IMPACT STATEMENT

The impact of proposed mining operations on pre-colonial archaeological heritage remains is likely to be low.

The probability of locating significant pre-colonial archaeological heritage remains during implementation of the proposed project is likely to be improbable.

Unmarked human burials may be uncovered or exposed during sand mining operations.

Vertebrate fossils may, possibly, be exposed in underlying limestone deposits during sand mining operations.

## 8. RECOMMENDATIONS

The archaeological assessment of proposed sand mining operations on the Farm Willemsfontein 1079 in Vredenburg has rated the potential impacts to archaeological material as being low provided that:

- A professional palaeontologist is appointed to assess the possible palaeontological significance of fossiliferous material on the property if underlying limestone deposits are intercepted during earth-moving operations<sup>1</sup>.
- Should any unmarked human remains be disturbed, exposed or uncovered during earthworks, these should immediately be reported to the South African Heritage Resources Agency (Mrs Mary Leslie 462 4502), or Heritage Western Cape (Dr. A. Jerardino 483 9687).

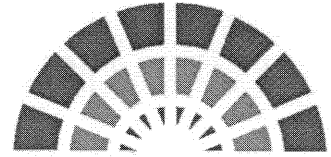
**These measures must be included in the Environmental Management Plan (EMP) for the proposed project.**

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<sup>1</sup> Consulting palaeontologist Dr John Pether can be contacted on 083 744 6295

## 9. REFERENCES

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Cape Town, 27 March 2007

Mr. J. Kaplan  
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P. O. Box 159  
Riebeeck West, 7306

Dear Mr. Kaplan,

**Re: PHASE 1 AIA – PROPOSED SAND MINING, FARM WILLEMSFONTEIN 98, PORTION 1 OF THE FARM JAKHALSFONTEIN 98, PORTION 1 OF THE FARM ROUWKOOP 97 AND PORTION 1 OF THE FARM HONING KLIP 101, VREDENBURG MAGISTERIAL DISTRICT**

The Archaeology, Palaeontology and Meteorites (APM) Committee of the Western Cape Provincial Heritage Resources Authority, Heritage Western Cape (HWC), at a meeting held on 27 March 2007, discussed the Phase I Archaeological Impact Assessment of the proposed Sand Mining, Farm Willensfontein no. 1079, Vredenburg.

The following was noted:

- i) The proposed mining covers three properties and is about 90 ha in total. The average depth of the mining would be about 1.12m and would not extend into the clay.
- ii) The proposed site has been used for agricultural purposes since the 1900s.
- iii) Predominant use of the surrounding properties includes agriculture, gravel and sand mining as well as quarrying activities.
- iv) Vertebrate fossils may also possibly be uncovered during the mining.

From the APM Committee area of competency, the following decisions were made.

- i) There were no objections to the development with regard to archaeological resources.
- ii) Palaeontology possibilities are low. However, a palaeontologist should assess the deeper excavations.
- iii) While it is unlikely, in the event that human burials or archaeological resources are uncovered or exposed during earthworks or excavations, they must be reported immediately to the South African Heritage Resources Agency – for burials only (Att: Mrs M. Leslie or Mrs. C. Scheermeyer 021 462 4502) and Heritage Western Cape (Att: Ndukuyakhe Ndlovu 021 483 9685). An archaeologist will be required to remove the remains at the expense of the developer.

Yours faithfully

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