

# **Archaeological Impact Assessment**

---

**Proposed Aberdeen Photovoltaic Plant –Eastern Cape  
Province**

---

**Prepared For**

**Savannah Environmental (Pty) Ltd**

**By**



**HERITAGE**

Contracts and Archaeological Consulting

TEL: +27 82 373 8491. E –MAIL JACO.HERITAGE@GMAIL.COM

**VERSION 1.0  
4 May 2012**

**CLIENT:**

Savannah Environmental (Pty) Ltd

**CONTACT PERSON:**

Umeshree Naicker

Cell: 082 775 5628

Tel: 011 234 6621

Fax: 086 684 0547

Unit 606, 1410 Eglin Office Park, 14 Eglin Road,  
Sunninghill

PO Box 148, Sunninghill, 2157

**SIGNATURE:** \_\_\_\_\_**LEADING CONSULTANT:**

Heritage Contracts and Archaeological Consulting CC

**CONTACT PERSON:**

Jaco van der Walt

Heritage Contracts and Archaeological Consulting

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:** BioTherm Energy (Pty) Ltd is proposing to establish a commercial photovoltaic solar energy facility of up to 20MW installed capacity as well as associated infrastructure on Portion 1 of the Farm Wildebeestpoortje 153. This property falls within the Camdeboo Local Municipality. A broader area of approximately 70 ha is being considered within which the facility is to be constructed.

**Purpose of the study:** Phase 1 Archaeological Impact Assessment to determine the presence of archaeological sites and the impact of the proposed project on these resources within the areas demarcated for the solar development.

**1:50 000 Topographic Map:** 3223 DB

**EIA Consultant:** Savannah Environmental (Pty) Ltd

**Developer:** Bio Therm Energy (Pty) Ltd

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

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

E –mail jaco.heritage@gmail.com.

**Date of Report:** 4 May 2012

### **Findings of the Assessment:**

No sites of archaeological significance were found during the survey. However, the larger area is known for its fossil record and the palaeontological component of the project needs to be addressed as per the recommendations in Section 7 of the report.

If the developers adhere to the recommendations made under section 7 of this report, based on approval from SAHRA, there should be no reason why the development cannot commence work.

### **General**

Due to extensive sand cover, ground visibility was low on portions of the site during survey. The possible occurrence of unmarked or informal graves and subsurface finds can thus not 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.*

**Copyright:** Copyright of all documents, drawings and records – whether manually or electronically produced – that form part of the submission, and any subsequent reports or

project documents, vests in Heritage Contracts and Archaeological Consulting CC. None of the documents, drawings or records may be used or applied in any manner, nor may they be reproduced or transmitted in any form or by any means whatsoever for or to any other person, without the prior written consent of Heritage Contracts and Archaeological Consulting CC. The Client, on acceptance of any submission by Heritage Contracts and Archaeological Consulting CC and on condition that the Client pays to Heritage Contracts and Archaeological Consulting CC the full price for the work as agreed, shall be entitled to use for its own benefit and for the specified project only:

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

## CONTENTS

EXECUTIVE SUMMARY .....	3
ABBREVIATIONS .....	7
GLOSSARY .....	7
1 BACKGROUND INFORMATION .....	8
1.1 Terms of Reference .....	9
1.2. Archaeological Legislation and Best Practice .....	9
1.3 Description of Study Area .....	11
1.3.1 Location Data .....	11
1.3.2. Location Map .....	11
1.3.3. Google Maps .....	12
2. APPROACH AND METHODOLOGY .....	12
2.1 Phase 1 - Desktop Study .....	12
2.1.1 Literature Search .....	12
2.1.2 Information Collection .....	12
2.1.3 Consultation .....	13
2.1.4 Google Earth and Mapping Survey .....	13
2.1.5 Genealogical Society of South Africa .....	13
2.2 Phase 2 - Physical Surveying .....	13
2.3. Restrictions .....	13
3. NATURE OF THE DEVELOPMENT .....	13
4. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND OF THE STUDY AREA .....	14
4.1 Databases Consulted .....	14
4.2 Archaeological and Historical Information Available on the Study Area .....	15
4.2.1. Historiography And Methodology .....	15
4.2.2. Maps of The Area Under Investigation .....	16
4.2.3. A Brief History of Human Settlement and Black and White Interaction in the Aberdeen Area .....	17
4.2.4. Historical Overview of The Ownership and Development of the Farm Kaapse Poortjie .....	19
4.3. STONE AGE BACKGROUND .....	20
4.3.1. Introduction .....	20
5. HERITAGE SITE SIGNIFICANCE AND MITIGATION MEASURES .....	25
5.1. Field Rating of Sites .....	26
5.2 Impact Rating of Assessment .....	27
6. BASELINE STUDY-DESCRIPTION OF SITES .....	28
7. RECOMMENDATIONS .....	31
8. CONCLUSIONS .....	31
9. PROJECT TEAM .....	31
10. STATEMENT OF COMPETENCY .....	32
11. REFERENCES .....	33

## FIGURES

Figure 1: Location map. ....	11
Figure 2: Google Image showing the study area in blue and track log of the areas that were covered during the survey. ....	12
Figure 3 Google Earth image indicating the location of the area of study. One can see that the farm Kaapse Poortjie isolated a short distance to the southwest of Aberdeen. (Google Earth 2012) .....	16
Figure 4 1912 Map of the Aberdeen district. The farm Kaapse Poortjie is indicated by the yellow outline. It seems that the farm, together with Wildebeest Poortje was owned by one P. Carr at the time. (NASA Maps: 2/627) .....	17
Figure 5. Study area viewed from the south with the power line that photovoltaic plant will feed into.....	29
Figure 6. General Site conditions of Option 1, viewed from the West.....	29
Figure 7. Possible Middle Stone Age artefacts .....	29
Figure 8: Possible Later Stone Age artefacts .....	29

## 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>	Photovoltaic solar energy facilities
<b><i>Rezoning/subdivision of land</i></b>	Rezoning
<b><i>Developer:</i></b>	Bio Therm Energy (Pty) Ltd
<b><i>Consultant:</i></b>	Savannah Environmental
<b><i>Farm owner:</i></b>	Christo Lategan

Heritage Contracts and Archaeological Consulting CC was contacted by Savannah (Pty) Ltd to conduct an Archaeological Impact Assessment(AIA) on the commercial Photovoltaic facility close to Aberdeen in the Eastern Cape Province. The project is proposed on Portion 1 on Farm Wildebeestpoortjie. This property falls within the Camdeboo Local Municipality. A broader area of approximately 70 ha is being considered within which the facility is to be constructed.

The aim of the study is to identify archaeological sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on these 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 review of the heritage scoping report 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. 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 appropriate SAHRA provincial office for peer review.



## **1.1 Terms of Reference**

### **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 of 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 the relevant 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 38(1), Section 38(8) of the NEMA and 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.

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 project is proposed on Portion 1 on Farm Wildebeestpoortjie 153 which is situated approximately 15 km south of Aberdeen. The topography of the area is flat with a small hill located to South of the study area. The study area falls within the bioregion described by Mucina *et al* (2006) as Lower Karoo in the Nama Karoo Biome. Land use in the general area is characterized by agriculture, dominated by sheep farming. The study area is characterised by sandy to loamy soils.

#### 1.3.2. Location Map

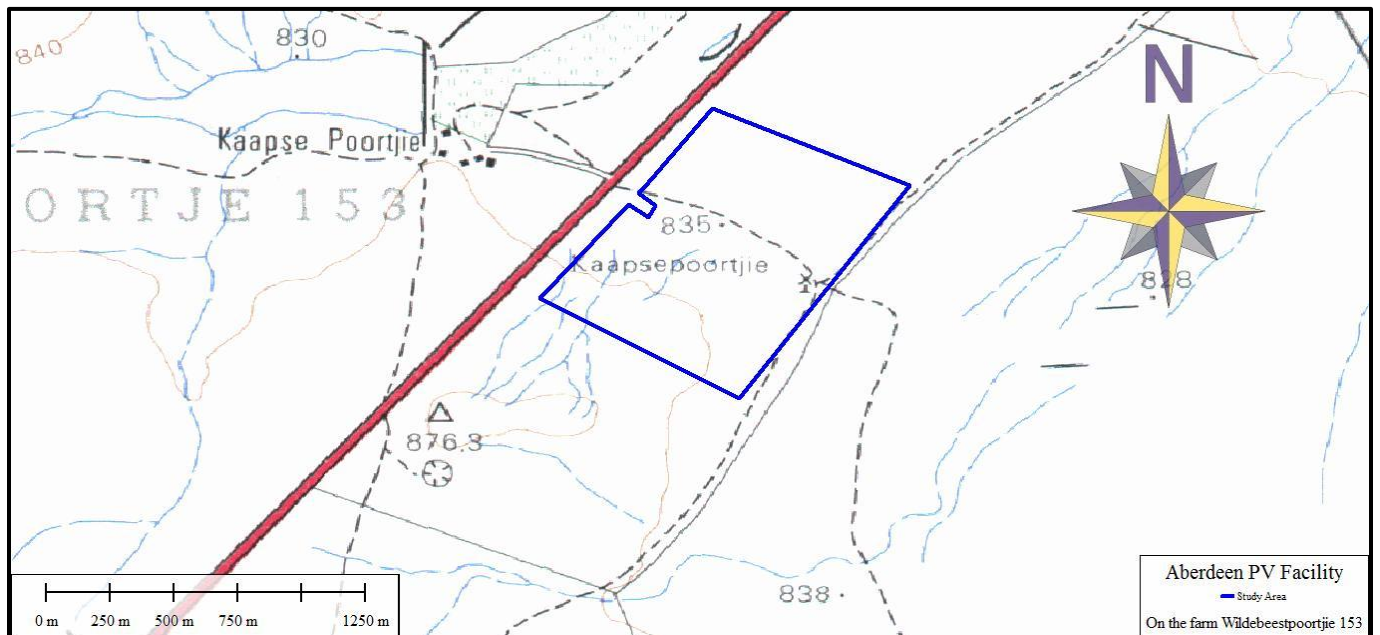


Figure 1: Location map.

### 1.3.3. Google Maps



Figure 2: Google Image showing the study area in blue and track log of the areas that were covered during the survey.

## 2. APPROACH AND METHODOLOGY

The aim of the study is to cover archaeological databases and historical sources to compile a background history of the study area followed by field verification; this was accomplished by means of the following phases. The results thereof are represented in section 4 of this report.

### 2.1 Phase 1 - Desktop Study

The first phase included a desktop study, gathering data to compile a background history of the area in question. It included scanning existing records for archaeological sites, historical sites, graves, oral history and ethnographical information on the inhabitants of the area.

#### 2.1.1 Literature Search

Utilising data for information gathering stored in the archaeological database at Wits, previous CRM reports done in the area and a search in the National archives. The aim of this is to extract data and information on the area in question, looking at archaeological sites, historical sites and graves of the area.

#### 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 17 ha was conducted; focussing on drainage lines, hills and outcrops, high lying areas and disturbances in the topography. The study area was surveyed by means of vehicle and extensive surveys on foot by professional archaeologists on the 25 April 2012.

All sites discovered inside the proposed development area was plotted on 1:50 000 maps and their GPS co-ordinates noted. Digital photographs were taken at all the sites.

## **2.3. Restrictions**

Due to the fact that most cultural remains may occur below surface, the possibility exists that some features, unmarked graves or artefacts may not have been discovered/ recorded during the survey. Only the surface infrastructure footprint area was surveyed as indicated in the location map, and not the entire farm. This study did not assess the impact on the palaeontological component of the project. Although Heritage Contracts and Archaeological Consulting CC 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 PV/CPV solar energy facility is proposed to comprise the following infrastructure:

- » Photovoltaic (PV) panels or Concentrating photovoltaic (CPV) panels with an installed capacity of up to 20MW Aberdeen PV/CPV Plant.
- » A new on-site substation to evacuate the power from the facility into the Eskom grid via the Aberdeen Substation located adjacent to the proposed development site.
- » Mounting structure to be either rammed steel piles or piles with pre-manufactured concrete footings to support the PV/CPV panels.
- » Cabling between the project components, to be lain underground where practical.
- » Internal access roads and fencing.
- » Workshop area for maintenance, storage, and offices.

The overall aim of the design and layout of the facility is to maximise electricity production through exposure to the solar radiation, while minimising infrastructure, operation and maintenance costs, as well as social and environmental impacts. The use of solar energy for power generation can be described as a non-consumptive use of natural resources which emits zero greenhouse gas emissions. The generation of renewable energy contributes to

South Africa's electricity generating market which has been dominated by coal-based power generation.

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

##### **4.1 Databases Consulted**

###### ***Albany Museum Archaeological Data Bases***

No previously recorded sites are on record for the study area (e-mail correspondence C. Booth 3 Mei 2012).

###### ***SAHRA Report Mapping Project***

Only one unpublished CRM report (eThembeni Cultural Heritage 2007) was conducted close to the study area (in a radius of 50 km). This study consisted of an HIA for a proposed power line corridor. The current study area was covered under this survey and no sites were recorded in this area. It is important to note that the authors state that their study does not represent a complete heritage resource inventory for the entire area but rather documents their observations of the general heritage resource sensitivity of the proposed corridor.

###### ***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**

The following section will endeavour to give an account of the history of the farm Kaapsepoortje 1358 and also a brief overview of the history of the area and district in which the farm is located. The report has been divided into a number of sections that will focus on the following aspects:

- General history of human settlement in the area
- The history of black and white interaction in the farm area
- The development of the area, especially with regards to the town Aberdeen
- The development of the farm

### **4.2.1. Historiography And Methodology**

The two farms – Kaapsepoortje and Wildebeespoortje belonged to the same owner and for the purposes of the archival study the older farm name – Kaapsepoortje - was used for accuracy. This might create some confusion but it is important to note that the farms are next to each other and the two farms were consolidated later.

It was necessary to use a range of sources in order to give an accurate account of the history of the area in which the farm Kaapsepoortje is located. Sources included secondary source material, electronic sources and maps. A search on the database of the National Archives of South Africa revealed that there are no documents to be found in any of the main archive repositories with regards to this farm. Therefore, while it was possible to compile a more detailed history of the Aberdeen area, there was limited information available on the history of the actual farm under investigation. Thus, although many sources exist on the general history it is difficult to compile histories that focus on very specific parts of the area, such as individual farms. Unfortunately, due to the limited time in which the report was written, not all of the sources that were found could be incorporated into the report. The following are relevant sources that can be consulted in the future, if a more thorough investigation is done on the history of the farm area:

- A. Mountain. 2003. *The first people of the Cape*. Claremont: David Philip Publishers.
- A. R. E. Burton. 1903. *Cape Colony for the Settler*. Cape Town: J. C. Juta & Co.
- M. M. Evans. 2000. *Encyclopedia of the Boer War. 1899 – 1902*. Cornwall: MPG Books Limited.
- Kloppers, M. H. O. 1955. *Eeufees N.G. gemeente, Aberdeen, 1855-1955*. Stellenbosch : Pro Ecclesia Drukkery.



#### 4.2.2. Maps of The Area Under Investigation



Figure 3 Google Earth image indicating the location of the area of study. One can see that the farm Kaapse Poortjie isolated a short distance to the southwest of Aberdeen. (Google Earth 2012)





Figure 4 1912 Map of the Aberdeen district. The farm Kaapse Poortjie is indicated by the yellow outline. It seems that the farm, together with Wildebeest Poortjie was owned by one P. Carr at the time. (NASA Maps: 2/627)

#### 4.2.3. A Brief History of Human Settlement and Black and White Interaction in the Aberdeen Area

In order to understand the historical context of a certain area, it is necessary to consider the geographic and climatic nature of the region in question. Kaapse Poortjie is located in the Great Karoo Region in the Eastern Cape Province of South Africa. One gets a good idea of what the natural landscape in the Great Karoo was like between the late 1700s and early 1800s when one reads the transcripts of some of the early European travellers who passed through the area. One C. J. Skead compiled a book in which many of these texts are assembled. In December 1773, one C. P. Thunberg passed through the Great Karoo to Camdeboo, towards somewhere near Aberdeen. The following description of the area was

written from hearsay: "No farms nor houses on this extensive plain... scarcely any animals reside there except for a short time, in or immediately after the rainy season when a little salt water is found here and there in some hollow places... Grass is hardly to be met with in this tract so that it is with difficulty that a horse can find fodder here, but the oxen put up with the brackish water and the salt leaves of the shrubs and bushes." Thunberg furthermore noted that the Khoikhoi used a number of plants with large, succulent roots, known colloquially as canna-root, *kannawortel*, *kon* or *gunna*; a species of *Cyphia* and another called *ku*. It was noted that the plants, as well as herbs and bushes, stood very thin in the Carrow-veld; and in such a burning hot climate where not a drop of rain fell for at least eight months in a year, it was almost inconceivable how they could thrive at all. Based on this account, it seems that the area does not lend itself very well to human habitation, though some Khoikhoi and Bushman groups lived in the area in the 18<sup>th</sup> century. (Skead 2009: 77)

The record book of the local magistrate office at Aberdeen contains some interesting statistics surrounding the rainfall in the region. In the 1880s it was noted that the dryness of the area made the heat of the summer more bearable. It was also noted that the area was subjected to great fluctuations in temperature, as the nights could be much cooler than daytime. According to the records, the climate was very favourable for sheep farming. Rainfall was apparently very sporadic and irregular, and there were no rivers that remained full enough throughout the year to be used for irrigation purposes. Very few farmers attempted planting small-scale crops. (Aberdeen Eeufeekomitee 1955: 16)

The history of Aberdeen can at least be traced back to the travels of early Dutch travelers and colonists who journeyed through the area since the late 1600s. The town was established on the farm Brakfontein after farmers in the district called for the establishment of a Dutch Reformed Church in the area. (Aberdeen Eeufeekomitee 1955: 6) The decision to build a church was taken on 16 October 1855. The town was named after the town Aberdeen in Scotland, which was the birth place of the well-known Dutch Removed Reverend Andrew Murray. (Aberdeen Eeufeekomitee 1955: 7) Although, the town was established in 1855 the first town plots were sold on auction in 1857. (Aberdeen Eeufeekomitee 1955: 10) In 1860 the Governor of the Cape, Sir George Grey issued a proclamation which enabled the Magistrate of Graaff-Reinet to establish a circuit court in the town. In 1879 Governor Sir Henry Bartle Frere, established a proper magisterial district in the area by combining areas that were previously part of the Beaufort West and Graaff-Reinet districts. (Aberdeen Eeufeekomitee 1955: 15)

The first school in the town was established in 1864 when a part of the church was ceded for this purpose. (Aberdeen Eeufeekomitee 1955: 19)

It would seem that due to the mineral wealth of the Karoo there has been a lot of prospecting in the area. Prospecting for gold near Schoorsteenbergh did not deliver any spectacular results. During the Second World War there was also speculation that the government drilled for oil in the vicinity of the town. This came about due to geological reports that indicated that the Karoo contained coal and that a "coal like mineral" was found on Grootplaas in the Camdeboo Mountains north of the town. Two boreholes of about a thousand feet deep were drilled; one at Kendrew and the other at Greatholm, but no oil was

discovered. (Aberdeen Eeufeekomitee 1955: 23) In 1910, a Dr. Rogers, of the Union Geological Survey did a study and found the “coal like mineral” to be fissure-coal or pseudo-coal. This substance occurred in a number of localities in the Beaufort West Region. In 1939 with the outbreak of the war the state took aerial photograph of Aberdeen and the surrounding districts to examine the possibility of finding oil in the Karoo. A borehole of 5500 feet was sunk at Grootfontein without any positive results. An examination of the fissure coal by the Fuel Research Institute established that the coal was indeed not coal at all but the solid residue of dried up oil. It thus became apparent this part of the Karoo had at one stage in its history been oil bearing but that the oil had dried up. (Aberdeen Eeufeekomitee 1955: 23)

Unsuccessful attempts at boring for oil had been made on Grootfontein and Alandale in the mid-1940s (Aberdeen Eeufeekomitee 1955: 16).

It is quite interesting that, by the mid-1950s, the largest private zoo in the world was located at Aberdeen. One Mr. Frank Wilke was the owner and trader of these animals. Oom Frank, as he was nicknamed, apparently tamed lions, baboons and horses at the zoo. Mr. Wilke lived in a house in Aberdeen, and provided circuses around the world with the animals that he tamed. (Aberdeen Eeufeekomitee 1955: 32).

#### ***4.2.4. Historical Overview of The Ownership and Development of the Farm Kaapse Poortjie***

A search on the database of the National Archives of South Africa revealed that there are no documents to be found in any of the main archive repositories with regards to this farm. There were also no documents to be found on the farm Wildebeestpoortjie. (This also applies to any variation of the names of the farms Kaapse Poortjie and Wildebeestpoortjie)

Although no documents referring to Kaapse Poortjie could be found, it was possible to draw some conclusions with bits and pieces of information that could be found elsewhere.

By looking at a 1912 map of the Aberdeen district, it was possible to ascertain that Kaapse Poortjie, as well as the neighbouring farm Wildebeest Poortjie was owned by one P. Carr at the time. (NASA Maps: 2/627)

Some of the places that are located near Kaapse Poortjie are the following:

- Bergskuil: 2.39 km south east
- Bergskuil: 3.61 km south east
- Sunnydale: 4.06 km north east
- Wildebeest Poortje: 4.06 km north west
- Wildebeeste Poortje: 6.41 km north west

(Traveljournals 2012)

### 4.3. STONE AGE BACKGROUND

#### 4.3.1. Introduction

The following section is adapted from Lombard 2011. South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, the Middle Stone Age and the Earlier Stone Age. Each of these phases contains sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. For Cultural Resources Management (CRM) purposes it is often only expected/ possible to identify the presence of the three main phases. Yet sometimes the recognition of cultural groups, affinities or trends in technology and/or subsistence practices, as represented by the sub-phases or industrial complexes, is achievable. Such finer-grained identifications may help to highlight the importance of some archaeological sites in a specific region. Table 1 provides a brief overview of the Stone Age phases and sub-phases/industrial complexes of South Africa, based on our current knowledge. The information is aimed at assisting the identification of Stone Age occurrences in the field by providing the main associated characteristics, and it provides the broadly associated age estimates. Users of this document should, however, remember that the outlines are broad, and any field interpretations can only be considered preliminary observations until further research is conducted (Lombard 2011).

Cultural sequence	~ Associated ages	Associated characteristics
<b>Later Stone Age;</b> associated with Khoi and San societies and their immediate predecessors		
See sub-phases below for more detailed chronology	Recently to ~30 thousand years ago	<p>Include stone tools mostly &lt; 25 mm, bored stones, grinding stones, grooved stones, ostrich eggshell beads, bone tools sometimes with decoration, decorated ostrich eggshell flasks and fishing equipment</p> <p>These are the general characteristics for the Later Stone Age. In the sub-divisions below I highlight differences or characteristics that may be used to refine interpretations depending on context.</p>
<b>Broad overview of Later Stone Age sub-phases/industrial complexes</b>		
Hunters-with-livestock/herders  (e.g. Mitchell 2002; Lombard & Parsons 2008; Sadr 2008)	Mostly less than 2 thousand years ago	<p>Regular occurrence of blades and bladelets, but formal stone tools are rare, backed pieces mostly absent, grindstones are common, stone bowls and boat-shaped grinding grooves may occur</p> <p>Sheep, goat, cattle and dog bones along with wild species</p> <p>Pottery is mostly well-fired, thin-walled, sometimes with lugs, spouts and coned bases, sometimes with comb-</p>

		stamping
Post-Wilton (includes some Smithfield phases)  (e.g. Deacon & Deacon 1999; Lombard & Parsons 2008)	~1 hundred -3 thousand years ago	Mostly macrolithic ( stone tools > 20 mm) and informal sometimes with blades and bladelets  Characterised by large untrimmed flakes  At some sites there are also small backed tools, scrapers and adzes  Sometimes includes thick-walled, grass-tempered potsherds
Wilton (includes some Smithfield phases)  (e.g. Deacon & Deacon 1999; Wadley 2007)	~4-8 thousand years ago	Microlithic (stone tools < 20 mm)  High incidence of backed bladelets and geometric shapes such as segments  Include borers, small scrapers, double scrapers, polished bone tools
Oakhurst (includes Albany and Lockshoek)  (e.g. Deacon & Deacon 1999; Wadley 2007)	~8-12 thousand years ago	Characterised by round, end and D-shaped scrapers, adzes and a wide range of polished bone tools  Few or no microliths
Robberg (Deacon & Deacon 1999; Wadley 2007)	~12-22 thousand years ago	Characterised by few backed tools, few scrapers, significant numbers of unretouched bladelets
Early Later Stone Age	~30-40 thousand years ago	Described at some sites, but as yet unclear whether this represents a real archaeological phase or a mixture of LSA/MSA artefacts
<b>Middle Stone Age;</b> associated with <i>Homo sapiens</i> and archaic modern humans		
See sub-phases below for more detailed chronology	~30-300 thousand years ago	Mostly based on prepared core techniques, and the production of triangular flakes with convergent dorsal scars and faceted striking platforms  Most pieces are in the region of 40-100 mm  Often includes the deliberate manufacture of parallel-sided blades and flake-blades  Sometimes produced using the Levallois technique  Occasionally includes marine shell beads, bone points, engraved ochre nodules and engraved ostrich eggshell

		<p>fragments</p> <p>These are the general characteristics for the Middle Stone Age. In the sub-divisions below I highlight differences or characteristics that may be used to refine interpretations depending on context</p>
<b>Broad overview of Middle Stone Age sub-phases/industrial complexes</b>		
Final Middle Stone Age (informal designation partly based on the Sibudu sequence) (Jacobs et al. 2008; Wadley, 2005, 2010)	~30-40 thousand years ago	<p>Could include bifacially retouched, hollow-based points</p> <p>Small bifacial and unifacial points</p> <p>Could include backed geometric shapes such as segments, as well as side scrapers</p>
Late Middle Stone Age (informal designation partly based on the Sibudu sequence) (Jacobs et al. 2008; Wadley 2010)	~45-50 thousand years ago	<p>Most formal retouch aimed at producing unifacial points</p> <p>Sometimes includes bifacially retouched points</p>
Post-Howieson's Poort (also referred to as MSA III at Klasies River or MSA 3 generally) (e.g. Soriano et al. 2007; Jacobs et al. 2008:734)	~47-58 thousand years ago	<p>Most points are produced using Levallois technique, and many are unifacially retouched</p> <p>Some side scrapers are present</p> <p>Backed pieces are rare</p>
Howieson's Poort Industry (e.g. Jacobs et al. 2008:734)	~58-66 thousand years ago	<p>Characterized by blade technology and the presence of small (&lt; 4 cm) backed tools (made on blades), including segments, trapezes and backed blades.</p>
Still Bay Industry (e.g. Jacobs et al. 2008; Lombard et al. 2010; Henshilwood & Dubreuil 2011)	~70-77 thousand years ago	<p>Characterised by thin (&lt; 10 mm), bifacially worked foliate or lanceolate points with either a semicircular or wide-angled pointed butt</p> <p>Could include finely serrated points</p>
Mossel Bay Industry (also referred to as MSA II at Klasies River or MSA 2b generally) (e.g. Wurz 2010, in press)	~85-105 thousand years ago	<p>Characterised by a unipolar Levallois-type point reduction</p> <p>Products have straight profiles, percussion bulbs are prominent and often splintered or ring-cracked</p> <p>Formal retouch is infrequent, restricted to sharpening the tip or shaping the butt</p>
Klasies River sub-stage (also referred to as MSA I at Klasies river)	~105-115 thousand years	<p>Mostly large blades, pointed flakes are elongated and thin, often with curved profiles</p>

or MSA 2a generally) (e.g. Wurz 2010, in press)	ago	Platforms are often diffuse and lack clear percussion marks  Low frequencies of retouch, few denticulated pieces
MSA 1  (tentative, informal designation) (Volman 1984; Thompson et al. 2010)	Suggested age OIS 6 (~130-195 thousand years ago)	Platforms are mostly plain  Very little formal retouch  Flakes are mostly short and broad, few have denticulate retouch  Rare scraper retouch
Sangoan  Sometimes observed between MSA and ESA deposits, some researcher place this phase under the Middle Stone Age, others under the Earlier Stone Age, the designation is thus not yet clear  (e.g. Kuman et al. 2005)	> 200 thousand years ago, but few sites in southern Africa have been dated	Contains small bifaces (< 100 mm), picks, heavy- and light-duty denticulated and notched scrapers
<b>Earlier Stone Age;</b> associated with early <i>Homo</i> groups such as <i>Homo habilis</i> and <i>Homo erectus</i>		
Fauresmith  (e.g. Porat et al. 2010)	~400-600 thousand years ago	Generally includes small handaxes, long blades and convergent/pointed pieces
Acheulean  (e.g. Kuman 2007; Mitchell 2002)	~300 thousand-1.5 million years ago	Bifacially worked handaxes and cleavers, large flakes > 10 cm  Some flakes with deliberate retouch, sometimes classified as scrapers  Give impression of being deliberately shaped, but could indicate result of knapping strategy  Sometimes shows core preparation  Mostly found in disturbed open-air locations
Oldowan  (e.g. Kuman 2007; d'Errico & Backwell 2009; Mitchell 2002)	~1.5 -> 2 million years ago	Cobble, core or flake tools with little retouch and no flaking to predetermined patterns  Hammerstones, manuports, cores  Polished bone fragments/tools

Table 1. *Outline of the Stone Age cultural sequence of South Africa. The information presented here provides a basic, simplified interpretation for the Stone Age sequence. Details may vary from region to region and from site to site. Most of the criteria such as dating, transitional phases, technological phenomena and recursions are currently being researched, so that the information cannot be considered static or final (Adapted from Lombard 2011)*

## **The Early Stone Age**

Substantial ESA sites are relatively scarce in the Eastern Cape and ESA sites are mostly represented by surface scatters of ESA artefacts. One site warrants further mention namely Amanzi Springs that is situated approximately 10km north-east of Uitenhage, near Port Elizabeth (Deacon 1970). Here a large number of stone tools were found *in situ* in spring deposits to a depth of 3-4m.

## **Middle Stone Age**

Middle Stone Age artefacts occur widely through South Africa as well as the Eastern Cape in the interior and the coast. Most notably, the type-site for the Howiesons Poort stone tool industry, Howiesons Poort rock shelter, situated close to Grahamstown. Surface scatters of Middle Stone Age stone artefacts are widely documented across the Karoo landscape and have been reported from around the Graaff-Reinet area (Binneman *et al.* 2011b), and close to Aberdeen (Binneman 2009a, b).

## **The Later Stone Age**

The Later Stone Age archaeology of the Great Karoo is rich and varied. Various studies have shown that this area is rich in archaeological sites and rock art (Beaumont & Morris 1990).

Later Stone Age sites occur both at the coast and the interior with the most significant sites in caves and rock shelters. Some significant sites in the province are the Wilton and Melkhoutboom rock shelters situated to the west of Grahamstown, and Kabeljous Rock Shelter situated just north of Jeffreys Bay.

Associated with the later Stone Age are rock art. In the study area engravings occur on the andesite basement rocks and the intrusive Karoo dolerites, but can also be found on other types of rock.

## **Palaeontology**

The area is well known for its rich palaeontological record with the recent recovery of a skull and lower jaw of a new burnetiid from a farm close to Aberdeen. This is closely related to *Proburnetia* which is otherwise only represented by a single specimen from northern Russia (<http://www.iziko.org.za>) as well as a petrified forest (<http://www.inabustours.com>).



## 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 PV Solar Facility 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 approved 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 9 of this report.

<b><i>FIELD RATING</i></b>	<b><i>GRADE</i></b>	<b><i>SIGNIFICANCE</i></b>	<b><i>RECOMMENDED MITIGATION</i></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

## 5.2 Impact Rating of Assessment

The criteria below are used to establish the impact rating of a site. as provided by the client:

- » The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- » The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
- » The **duration**, wherein it will be indicated whether:
  - \* the lifetime of the impact will be of a very short duration (0-1 years), assigned a score of 1;
  - \* the lifetime of the impact will be of a short duration (2-5 years), assigned a score of 2;
  - \* medium-term (5-15 years), assigned a score of 3;
  - \* long term (> 15 years), assigned a score of 4; or
  - \* permanent, assigned a score of 5;
- » The **magnitude**, quantified on a scale from 0-10 where; 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- » The **probability of occurrence**, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1-5 where; 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- » The **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and
- » the **status**, which will be described as either positive, negative or neutral.
- » the degree to which the impact can be reversed.
- » the degree to which the impact may cause irreplaceable loss of resources.
- » the *degree* to which the impact can be mitigated.

The **significance** is calculated by combining the criteria in the following formula:

$$S=(E+D+M)P$$

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are as follows:

- » < 30 points: Low (i.e., where this impact would not have a direct influence on the decision to develop in the area),
- » 30-60 points: Medium (i.e., where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- » > 60 points: High (i.e., where the impact must have an influence on the decision process to develop in the area).

## 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 PV layout area and access roads as indicated in Figure 1. During the survey no sites of heritage significance were identified. Isolated stone tools on fine grained material are however scattered over the site in extremely low frequencies and are therefore not considered as sites but rather as find spots. The artefacts found possibly belong to the MSA (figure 7) (possibly pre-Stilbaai) and LSA (figure 8). The MSA artefacts are not pristine and show signs of water weathering. The convergent flake in figure 7 show signs of edge modification/damage.



Figure 5. Study area viewed from the south with the power line that photovoltaic plant will feed into



Figure 6. General Site conditions of Option 1, viewed from the West.



Figure 7. Middle Stone Age artefacts



Figure 8: Later Stone Age artefacts

### Impact evaluation of the proposed project on heritage resources

**Nature:** During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological and paleontological material or objects.

	Without mitigation	With mitigation
<b>Extent</b>	Local (2)	Local (1)
<b>Duration</b>	Permanent (5)	Permanent (5)
<b>Magnitude</b>	Low (2)	Low (1)
<b>Probability</b>	Probable (1)	Probable (1)
<b>Significance</b>	<b>9 ( low)</b>	<b>8 (low)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Not reversible	Not reversible
<b>Irreplaceable loss of resources?</b>	Yes	Yes
<b>Can impacts be mitigated?</b>	Yes	

**Mitigation:**

No archaeological sites were identified during the survey. However, if any archaeological material is uncovered during construction or operation a qualified archaeologist must be contacted to verify and record the find. Mitigation will then include documentation and sampling of the material. This will also be required if any paleontological material is uncovered.

**Cumulative impacts:**

Archaeological sites are non-renewable and impact on any archaeological context or material will be permanent and destructive.

**Residual Impacts:** Depletion of archaeological record of the area.

## 7. RECOMMENDATIONS

No sites of archaeological significance were identified during the survey. However, from the desktop study it is clear that the area is known for palaeontological sites. The management actions below are recommended to be included in the EMP for the proposed project.

- that the construction crew is educated about the potential palaeontological and heritage resources they could encounter during the construction phase of the project. This includes basic training for construction staff on possible finds, action steps for mitigation measures, surface collections, and communication routes to follow in the case of a discovery.
- that a qualified palaeontologist is approached to deal with the palaeontological component before development commence.
- If any fossils are exposed (e.g. vertebrate teeth, bones, burrows, petrified wood) during construction, all operations must stop in the affected area until the finds are assessed by a palaeontologist
- 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.

## 8. CONCLUSIONS

No sites of archaeological significance were found during the survey. However, the larger area is known for its fossil record and the palaeontological component of the project needs to be addressed as per the recommendations in Section 7 of the report.

If the developers adhere to the recommendations made under section 7 of this report, based on approval from SAHRA, there should be no reason why the development cannot commence work.

## 9. PROJECT TEAM

Jaco van der Walt, Project Manager

Len van Schalkwyk, Principle Investigator

Liesl du Preez, Archival Research

## **10. 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 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 and Tanzania; having conducted more than 300 AIAs since 2000.



## 11. REFERENCES

### Secondary Sources:

Aberdeen Eeufeekomitee. 1955. *Aberdeen eeufees, 1855-1955. Aberdeen centenary, 1855-1955.* Aberdeen : Eeufeekomitee.

Beaumont, P. B. & Morris, D. 1990. Guide to archaeological sites in the Northern Cape. Kimberly: McGregor Museum.

Binneman, J. 2009a. A letter of recommendation (with conditions) for the exemption of a full phase 1 archaeological heritage impact assessment for the proposed upgrade of the Aberdeen Waste Water Treatment Works (WWTW), Aberdeen, Camdeboo Municipality, Cacadu District Municipality, Eastern Cape Province. Prepared for Anto Bok Aquatic Consultants cc.

Binneman, J. 2009b. A letter of recommendation (with conditions) for the exemption of a full phase 1 archaeological heritage impact assessment for the proposed dolerite mining on the Aberdeen Commange, Aberdeen, Camdeboo Municipality, Eastern Cape Province. Prepared for Stellenryck Environmental Solutions.

Binneman, J.; Booth, C. & Higgitt, N. 2011b. An archaeological desktop study and phase 1 archaeological impact assessment (AIA) for the proposed Clidet Data Cable between Bloemfontein, Orange free state and Graaff Reinet, Eastern Cape Province; Colesberg, Orange Free State and Port Elizabeth, Eastern Cape Province; George, Western Cape Province and Port Elizabeth, Eastern Cape Province and; Aliwal North and East London, Eastern Cape Province

Burton, A. R. E. 1903. *Cape Colony for the Settler*. Cape Town: J. C. Juta & Co.

Deacon, H.J. 1970. The Acheulian occupation at Amanzi Springs, Uitenhage District, Cape Province. *Annals of the Cape Provincial Museums*. 8:89-189.

Deacon, H.J. & Deacon, J. 1999. Human Beginnings in South Africa: Uncovering the Secrets of the Stone Age. Cape Town: David Phillips Publishers.

d'Errico, F. & Backwell, L. 2009. Assessing the function of early hominid bone tools. *Journal of Archaeological Science* 36: 1764–1773.

Evans, M. M. 2000. *Encyclopedia of the Boer War. 1899 – 1902*. Cornwall: MPG Books Limited.

Jacobs, Z., Roberts, R.G., Galbraith, R.F., Barré, M., Deacon, H.J., Mackay, A., Mitchell, P.J., Vogelsang, R., & Wadley, L. 2008. Ages for Middle Stone Age innovations in southern Africa: implications for modern human behavior and dispersal. *Science* 322: 733-735.

Henshilwood, C.S. & Dubreuil, B. 2011. The Still Bay and Howiesons Poort, 77-59 ka: symbolic material culture and the evolution of the mind during the African Middle Stone Age. *Current Anthropology* 52: 361-400.

Kloppers, M. H. O. 1955. *Eeufees N.G. gemeente, Aberdeen, 1855-1955*. Stellenbosch : Pro Ecclesia Drukkery.

Kuman, K., Le Baron, J.C. & Gibbon, R.J. 2005. Earlier Stone Age archaeology of the Vhembe-Dongola National Park (South Africa) and vicinity. *Quaternary International* 129: 23-32

- Kuman, K. 2007. The Earlier Stone Age in South Africa: site context and the influence of cave studies. In Pickering, T.R., Schick, K. & Toth, N. (eds) *Breathing Life into Fossils: Taphonomic Studies in Honour of C.K. (Bob) Brain*: 181-198. Bloomington: Stone Age Institute Press.
- Lombard, M. & Parsons, I. 2008. Blade and bladelet function and variability in risk management during the last 2000 Years in the Northern Cape. *South African Archaeological Bulletin* 63: 18-27.
- Lombard, M., Wadley, L., Jacobs, Z., Mohapi, M. & Roberts, R.G. 2010. Still Bay and serrated points from Umhlatuzana Rock Shelter, Kwazulu-Natal, South Africa. *Journal of Archaeological Science* 37: 1773-1784.
- Mitchell, P. 2002. *The Archaeology of Southern Africa*. Cambridge: Cambridge University Press.
- Mountain, A. 2003. *The first people of the Cape*. Claremont: David Philip Publishers.
- Parsons, I. 2003. Lithic expressions of Later Stone Age lifeways in the Northern Cape. *South African Archaeological Bulletin* 58: 33-37.
- Parsons, I. 2004. Stone circles in the Bloubaos landscape, Northern Cape. *Southern African Humanities* 16: 59-69.
- Parsons, I. 2007. Hunter-gatherers or herders? Reconsidering the Swartkop and Doornfontein Industries, Northern Cape Province, South Africa. *Before Farming* 2007/4: Article 3.
- Parson, I. 2008. Five Later Stone Age artefact assemblages from the interior Northern Cape Province. *South African Archaeological Bulletin* 63: 51-60.
- Porat, N., Chazan, M., Grun, Aubert, R., Eisenmann, V. & Horwitz, L. 2010. New radiometric ages for the Fauresmith industry from Kathu Pan, southern Africa: Implications for the Earlier to Middle Stone Age transition. *Journal of Archaeological Science* 37: 269-283.
- Skead, C. J. 2009. *Historical plant incidence in southern Africa. A collection of early travel records in southern Africa*. Pretoria: South African National Biodiversity Institute.
- Soriano, S., Villa, P. & Wadley, L. 2007. Blade technology and tool forms in the Middle Stone Age of South Africa: the Howiesons Poort and post-Howiesons Poort at rose Cottage Cave. *Journal of Archaeological Science* 34: 681-703.
- Thompson, E., Williams, H.M. & Minichillo, T. 2010. Middle and late Pleistocene Middle Stone Age (MSA) lithic technology from Pinnacle Point 13B, Mossel Bay, Western Cape Province, South Africa. *Journal of Human Evolution* 59: 358-377.

### **Primary Sources:**

#### **ARCHIVAL SOURCES (National Archive, Pretoria)**

Cape Town Archives Repository. 1894-1895. *KAB\_LND\_1/510\_L8089\_Calvinia, Lot 7618, "Narosies": Application of CDJ Louw for purchase.*

Lombard, M. 2011. Background to The Stone Age Of The Kakamas/Keimoes Area For CRM Purposes. University of Johannesburg. Johannesburg.

Mucina, L. & Rutherford, M.C. 2006. The vegetation map of South Africa, Lesotho and Swaziland. SANBI, Pretoria

National Archives of South Africa. 1912. Maps: 2/627. Aberdeen Dist., Kaarte Landmeter-Gen. Kaapstad. Ongekleurde Litografie.

National Archives of South Africa. 1968. *SAB\_URU\_5523\_1058. Toepassing van sekere bepalinge van die wet op gemeenskapsonwikkeling, 1966, in gebiede te Loeriesfontein, Distrik Calvinia.*

### **Electronic Sources:**

Iziko Museums. 2012. [Online]. Available:  
(<http://www.iziko.org.za/static/page/terrestrial-palaeoecology-sedimentary-environments-karoo-aged-basins>) (<http://www.inabustours.com/EastCape.pdf>).

Traveljournals. 2012. Kaapse Poortje. [Online]. Available:  
[http://www.traveljournals.net/explore/south\\_africa/map/m1812743/kaapse\\_poortje.html](http://www.traveljournals.net/explore/south_africa/map/m1812743/kaapse_poortje.html). (Cited 01 May 2012)

### **MAPS**

Google Earth. 2012. 32°27'19.10" S 24°15'29.67" E elev 833m. [Online]. [Cited 30 April 2012].