



SOUTH AFRICAN HERITAGE RESOURCES AGENCY
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FOR ATTENTION: **PHRA: Mr Andrew Timothy**

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SAHRA File No: **9/2/075/0001**
Date Received: **8 March 2012**.....
Date of Comment: **15 May 2012**.....
Sent to Peer Review:
Date to Peer Review:
SAHRA Contact Person: **Ms K. Smuts**
DEA Ref. no: **12/12/20/2502**

REVIEW COMMENT ON ARCHAEOLOGICAL AND PALAEOLOGICAL IMPACT ASSESSMENTS

BY ARCHAEOLOGY, PALAEOLOGY AND METEORITES UNIT OF THE SOUTH AFRICAN HERITAGE RESOURCES AGENCY

South Africa has a unique and non-renewable archaeological and palaeontological heritage. Archaeological and palaeontological sites are protected in terms of the National Heritage Resources Act (Act No 25 of 1999) and may not be disturbed without a permit. Archaeological Impact Assessments (AIAs) and Palaeontological Impact Assessments (PIAs) identify and assess the significance of the sites, assess the potential impact of developments upon such sites, and make recommendations concerning mitigation and management of these sites. On the basis of satisfactory specialist reports SAHRA or the relevant heritage resources agency can assess whether or not it has objection to a development and indicate the conditions upon which such development might proceed and assess whether or not to issue permission to destroy such sites.

AIAs and PIAs often form part of the heritage component of an Environmental Impact Assessment or Environmental Management Plan. They may also form part of a Heritage Impact Assessment called for in terms of section 38 of the National Heritage Resources Act, Act No. 25, 1999. They may have other origins. In any event they should comply with basic minimum standards of reporting as indicated in SAHRA Regulations and Guidelines.

This form provides review comment from the Archaeologist of the relevant heritage resources authority for use by Heritage Managers, for example, when informing authorities that have applied to SAHRA for comment and for inclusion in documentation sent to environmental authorities. It may be used in conjunction with Form B, which provides relevant peer review comment.

- A. PROVINCIAL HERITAGE RESOURCES AUTHORITY: **Northern Cape**.....
- B. AUTHOR(S) OF REPORT: **Mr Jayson Orton**
- C. ARCHAEOLOGY CONTRACT GROUP: **Archaeology Contracts Office**
- D. CONTACT DETAILS: **Department of Archaeology, University of Cape Town,
Private Bag Rondebosch 7701**
- E. DATE OF REPORT: **February 2012**
- F. TITLE OF REPORT: **HERITAGE IMPACT ASSESSMENT FOR A PROPOSED
PHOTOVOLTAIC ENERGY PLANT ON THE FARM VOGELSTRUISBULT NEAR
COPPERTON, NORTHERN CAPE**
- G. AUTHOR(S) OF REPORT: **Dr John Almond**
- H. ARCHAEOLOGY CONTRACT GROUP: **Natura Viva**
- I. CONTACT DETAILS: **PO Box 12410, Mil Street, Cape Town 8010**
- J. DATE OF REPORT: **February 2012**
- K. TITLE OF REPORT: **PALAEOLOGICAL SPECIALIST ASSESSMENT:
DESKTOP STUDY: PROPOSED PHOTOVOLTAIC ENERGY PLANT ON FARM
STRUISBULT (PORTION 1 OF FARM 104) NEAR COPPERTON, NORTHERN
CAPE PROVINCE**

- L. Please circle as relevant: Archaeological component of **EIA** / EMP / HIA / CMP/
Other (Specify).....
- M. REPORT COMMISSIONED BY (**CONSULTANT** OR DEVELOPER): **Aurecon South
Africa (Pty) Ltd**
- N. CONTACT DETAILS: **P O Box 494, Cape Town, 8000; tel: 021 526 9400;
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- O. COMMENTS:

REVIEW COMMENT ON ARCHAEOLOGICAL AND PALAEOLOGICAL IMPACT ASSESSMENTS

Author Mr J. Orton

Dated: February 2012, Received: March 2012

HERITAGE IMPACT ASSESSMENT FOR A PROPOSED PHOTOVOLTAIC ENERGY PLANT ON THE FARM VOGELSTRUISBULT NEAR COPPERTON, NORTHERN CAPE

Author Dr J. Almond

Dated: February 2012, Received: March 2012

PALAEOLOGICAL SPECIALIST ASSESSMENT: DESKTOP STUDY: PROPOSED PHOTOVOLTAIC ENERGY PLANT ON FARM STRUISBULT (PORTION 1 OF FARM 104) NEAR COPPERTON, NORTHERN CAPE PROVINCE

INTRODUCTION

Mulilo Renewable Energy (Pty) Ltd is planning to establish a Photovoltaic (PV) energy facility on Farm Stuisbult (Portion 1 of Farm 104), 50km southwest of Prieska, near Copperton in the Northern Cape. A 100 MW facility on 300 ha is proposed, while the alternative is a 300 MW facility on 900 ha. The development would consist of panels of Photovoltaic cells, connected by overhead powerlines to the Kronos Substation along the southwest of the farm. Farm roads will be upgraded and new access roads built, along with offices, a connection centre and security facilities; the site will be fenced with electric fencing.

DISCUSSION

Two archaeologists, Mr Jayson Orton and Mr Ross Lyall, conducted a field survey of the wider property to provide information on possible alternative sites within the farm boundaries. Mr Orton notes that low density artefact scatters, predominantly of Early and Middle Stone Age material, were found across the site, but as these have no original context, they are of little archaeological value. Six discrete sites, all of Later Stone Age material, were also recorded. Four of these sites were recorded in the vicinity of the two pans on the study area, particularly around the larger pan. While most findings were small and of limited importance, one site, (VSB2011/005) was accorded high significance by the author due to the presence of a dense scatter of artefacts within a relatively well defined area and three clearly anthropogenic mounds of stone. The author notes that these mounds could represent burials. This site was about 90x100m and lay close to the edge of the larger pan. Two small, discrete scatters (VSB2011/008 and VSB2011/010), of predominantly CCS and quartz, located further from the large pan possibly represent campsites and could be viable for dating as they contained ostrich eggshell fragments. These sites were about 5m in diameter and located more than 500m from the pan. No buildings or other structures were identified on the site. The archaeologist considers the visual impact of the development, and notes that the R357 is not well used and the development will not be clearly visible from it, reducing the potential impact. Furthermore, the abandoned Prieska Copper Mine already detracts from the quality of the general environment.

Dr Almond conducted a desk based study of the proposed development area, using satellite images and geological maps. Underlying Precambrian basement rocks protrude through the Kalahari sands around Copperton and, on Struisbult, are assigned to the Vogelstruisbult Formation of the Jacobsmyrn Pan Group in the southwest of the study area. These rocks are unfossiliferous, metamorphic gneisses and migmatites. Within the northeast of the study area, within the PV 2 footprint, metasedimentary basement rocks belonging to the Spioenkop Formation of the Marydale Group are found. These comprise metamorphosed sedimentary and igneous rocks and are unfossiliferous. Also below the superficial sediments are Permo-Carboniferous, Dwyka Group, glacial sediments, belonging to the Mbizane Formation. These heterolithic deposits are very thick and, in this area, forms the upper part of the Dwyka succession. The Mbizane Formation,

particularly within successions of interglacial mudrocks, is known to contain sparse, low density trace fossils such as arthropod trackways; sporadic vascular plant remains; palynomorphs; marine invertebrate fossils; primitive bony fish as well as fossilised wood. However, interglacial mudrocks are unlikely to be well represented at Hoekplaas and fossils are unlikely. Mantling these older deposits, are the superficial sediments of Pleistocene to Recent age, consisting largely of downwasting, while sandy to silty soils, ranging from very thin to up to 2m thick are also found. A laminated calcrete hardpan underlies these soil deposits across much of the study area. The calcretes and their overlying gravels are likely to be Pleistocene Mokalanen and Obogorop Formations, respectively, both of the Kalahari Group. Further, unconsolidated Gordonina Formation sands are found to the south of the study area, with a variety of gravelly, alluvial sediments found in water courses. Fossils, such as bones, teeth and horn cores, as well as freshwater molluscs, ostrich egg shells and trace fossils, are known to occur in these superficial sediments and important fossil mammalian remains are known to occur at nearby Bundu Pan. Dr Almond notes that the fluvial and pan sediments of the study area are likely to contain mammalian tooth and bone fossils, such as that found by Mr Orton on Hoekplaas.

SAHRA RECOMMENDATIONS

SAHRA supports the recommendations of the author and requires that:

- A buffer zone should be placed around the pans. These buffers should extend 100m from the edge of the pans and should be fenced off before and during construction.
- The Later Stone Age sites recorded in the study, which fall outside of the 100m buffer zone around the pans (VSB2011/008, VSB2011/010), should be mitigated, if they fall within the chosen development area.
- Should development, including transmission lines, encroach within 100m of the boundaries of the pans, test excavations should be carried out. Should this development involve disturbance of an archaeological or palaeontological site of some significance, Phase 2 mitigation will be required by SAHRA, in terms of s.35 of the National Heritage Resources Act, no. 25 of 1999. The specialist will require a mitigation permit from the relevant Heritage Resources Authority. On receipt of a satisfactory mitigation (Phase 2) permit report from the archaeologist, the heritage authority will make further recommendations in terms of the site. Very often permission is given for the destruction of the remainder of the archaeological or palaeontological sites. Very rarely, if a site has high heritage significance the authority may request that it be conserved, that mini-site management plans, interpretive material and possibly protective infrastructure be established.
- The three stone mounds identified by the archaeologist should be temporarily fenced before and during construction activities. The fence should be placed a minimum of 5m from the mounds
- Should any human remains be uncovered during development, work in the immediate vicinity should cease and the finds protected and reported to SAHRA Burial Grounds and Graves (BGG) Unit (Mr. T. Phili, email: tphili@sat.sahra.org.za, Tel: 012 362 2535).
- The Environmental Control Officer should be advised of the possible presence of important fossil finds and should monitor all substantial excavations into superficial sediments and unweathered sedimentary bedrock for fossil remains.

CONCLUSION

If the recommendations made in the specialist report and in this comment are adhered to, the SAHRA Archaeology, Palaeontology and Meteorites Unit has no objection to the development (in terms of the archaeological and palaeontological components of the heritage resources). If any new evidence of archaeological sites or artefacts, palaeontological fossils, graves or other heritage resources are found during development, construction or mining, SAHRA (Katie Smuts / Colette Scheermeyer, tel: 021 424 4502) and a professional archaeologist or palaeontologist, according to the findings, must be alerted immediately.

SIGNATURE OF ARCHAEOLOGIST PROCESSING REPORT:
 EMAIL: ksmuts@sahra.org.za.....
 SIGNATURE OF SAHRA HEAD ARCHAEOLOGIST:
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 NAME OF HERITAGE RESOURCES AGENCY: SAHRA.....

PLEASE NOTE THAT THE COMMENT (ABOVE OR APPENDED) CONSTITUTES THE COMMENT OF THE HERITAGE RESOURCES AGENCY ARCHAEOLOGIST AND THAT ANY DEVELOPMENT THAT INVOLVES DESTRUCTION OF ANY ARCHAEOLOGICAL/PALAEONTOLOGICAL SITE IS STILL SUBJECT TO A PERMIT/PERMISSION FOR DESTRUCTION OF SUCH SITE GIVEN TO THE DEVELOPER BY THE RELEVANT HERITAGE RESOURCES AGENCY ARCHAEOLOGICAL AND PALAEONTOLOGICAL PERMIT COMMITTEE (THIS WILL BE SUBJECT TO APPROVAL OF THE PHASE 2 OR ARCHAEOLOGICAL/ PALAEONTOLOGICAL MITIGATION AS NECESSARY). THIS REPORT MAY BE TAKEN ONLY AS APPROVAL IN TERMS OF SECTION 35 OF THE NATIONAL HERITAGE RESOURCES ACT. THE PROVINCIAL MANAGER OF THE HERITAGE RESOURCES AUTHORITY MUST ADVISE AS TO APPROVAL IN TERMS OF HERITAGE ISSUES ENCOMPASSED BY OTHER ASPECTS OF THE LEGISLATION, SUCH AS ISSUES OF THE BUILT ENVIRONMENT (STRUCTURES (E.G. FARM HOUSES), OVER 60 YEARS), INDIGENOUS KNOWLEDGE SYSTEMS OR OF CULTURAL LANDSCAPES AS THIS IS NOT WITHIN THE SCOPE OF THE ARCHAEOLOGIST.

PLEASE NOTE THAT SAHRA IS NOW RESPONSIBLE FOR GRADE I HERITAGE RESOURCES (AND EXPORT) AND THE PROVINCIAL HERITAGE RESOURCES ARE RESPONSIBLE FOR GRADE II AND GRADE III HERITAGE RESOURCES, EXCEPT WHERE THERE IS AN AGENCY ARRANGEMENT WITH THE PROVINCIAL HERITAGE RESOURCES AUTHORITY.

APPENDIX 1

Protection of Graves

In terms of the National Heritage Resources Act (No. 25 of 1999) graves older than 60 years (not in a municipal graveyard) are protected. Human remains younger than 60 years should be handled only by a registered undertaker or an institution declared under the Human Tissues Act.

Anyone who wishes to develop an area where there are graves older than 60 years is required to follow the process described in the legislation (section 36 and associated regulations). The specialist will require a permit from the heritage resources authority:

1. Determine/ confirm the presence of the graves on the property. Normally the quickest way to proceed is to obtain the service of a professional archaeologist accredited to undertake burial relocations. The archaeologist will provide an estimate of the age of the graves. There may be a need for archival research and possibly test excavations (permit required).
2. The preferred decision is to move the development so that the graves may remain undisturbed. If this is done, the developer must satisfy SAHRA that adequate arrangements have been made to protect the graves on site from the impact of the development. This usually involves fencing the grave(yard) and setting up a small site management plan indicating who will be responsible for maintaining the graves and how this is legally tied into the development. It is recommended that a distance of at least 5 m is left undisturbed between the grave and the fence around the graves and another 15 m between the fence of the grave and the development.
3. If the developer wishes to relocate or disturb the graves:
 - a. A 60-day public participation (social consultation) process as required by section 36 (and regulations), must be undertaken to identify any direct descendants of those buried on the property. This allows for a period of consultation with any family members or community to ascertain what their wishes are for the burials. It involves notices to the public on site and through representative media. This may be done by the archaeologist, who can explain the process, but for large or sensitive sites a social consultant should be employed. Archaeologists often work with undertakers, who rebury the human remains.
 - b. If as a result of the public participation, the family (where descendants are identified) or the community agree to the relocation process then the graves may be relocated.
 - c. The archaeologist must submit a permit application to SAHRA for the disinterment of the burials. This must include written approval of the descendants or, if there has not been success in identifying direct

descendants, written documentation of the social consultation process, which must indicate to SAHRA's satisfaction, the efforts that have been made to locate them. It must also include details of the exhumation process and the place to which the burials are to be relocated. (There are regulations regarding creating new cemeteries and so this usually means that relocation must be to an established communal rural or formal municipal cemetery.)

- d. Permission must be obtained before exhumation takes place from the landowner where the graves are located, and from the owners/managers of the graveyard to which the remains will be relocated.

Other relevant legislation must be complied with, including the Human Tissues Act (National Department of Health) and any ordinances of the Provincial Department of Health). The archaeologist can usually advise about this.