



SOUTH AFRICAN HERITAGE RESOURCES AGENCY

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FOR ATTENTION:

PHRA Northern Cape (Mr Andrew Timothy)
Department of Environmental Affairs

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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.

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- A. PROVINCIAL HERITAGE RESOURCES AUTHORITY: **Northern Cape**
- B. AUTHOR(S) OF THE REPORT: **Mr J. Orton**
- C. ARCHAEOLOGY CONTRACT GROUP: **ACO Associates**
- D. CONTACT DETAILS: **8 Jacob's Ladder, St James 7954**
- E. DATE OF REPORT: **February 2012**
- F. TITLE OF REPORT: **HERITAGE IMPACT ASSESSMENT FOR THREE SOLAR ENERGY FACILITIES AT DE AAR, WESTERN CAPE**
- G. AUTHORS OF THE REPORT: **Dr John Almond**
- H. PALAEOLOGY CONTRACT GROUP: **Natura Viva cc**
- I. CONTACT DETAILS: **Po Box 12410 Mill St, Cape Town 8010; email: naturaviva@universe.co.za**
- J. DATE OF REPORT: **January 2012**
- K. TITLE OF REPORT: **PALAEOLOGICAL SPECIALIST STUDY: COMBINED DESKTOP AND FIELD-BASED ASSESSMENT - PROPOSED MULILO RENEWABLE ENERGY PV2, PV3 AND PV4 PHOTOVOLTAIC ENERGY FACILITIES ON FARMS PAARDE VALLEY, BADENHORST DAM AND ANNEX DU PLESSIS DAM NEAR DE AAR, NORTHERN CAPE PROVINCE**

- L. Please circle as relevant: Heritage component of **EIA** / EMP / HIA / CMP/ Other (Specify)
- M. REPORT COMMISSIONED BY (**CONSULTANT** OR DEVELOPER): **Aurecon South Africa (Pty) Ltd**
- N. CONTACT DETAILS: **Aurecon Centre, 1 Century City Drive, Waterford Precinct, Century City**
- O. COMMENTS:

REVIEW COMMENT ON ARCHAEOLOGICAL AND PALAEOLOGICAL IMPACT ASSESSMENTS

Mr Jayson Orton

Dated and received: February 2012

HERITAGE IMPACT ASSESSMENT FOR THREE SOLAR ENERGY FACILITIES AT DE AAR, WESTERN CAPE

Dr John Almond

Dated: January 2012

Received: 30 March 2012

PALAEOLOGICAL SPECIALIST STUDY: COMBINED DESKTOP AND FIELD-BASED ASSESSMENT - PROPOSED MULILO RENEWABLE ENERGY PV2, PV3 AND PV4 PHOTOVOLTAIC ENERGY FACILITIES ON FARMS PAARDE VALLEY, BADENHORST DAM AND ANNEX DU PLESSIS DAM NEAR DE AAR, NORTHERN CAPE PROVINCE

INTRODUCTION

Mulilo Renewable Energy (Pty) Ltd has proposed the development of a 75 MW Photovoltaic (PV) facility near De Aar in the Northern Cape – De Aar PV3. This project is one of three in the area and is located on a 225 ha portion of Badenhorst Dam Farm 180. Two alternative locations are being considered and the specialist reports considered a larger area to accommodate both alternatives.

The infrastructure required for the development includes control and connection centres; offices; an electrical substation and a distribution substation; inverter houses; overhead transmission lines; internal and access roads; and stormwater and security infrastructure.

DISCUSSION

Dr Almond, the palaeontologist, considered the project outline, the scientific literature in the area and conducted a field survey to establish the likelihood of this project affecting sensitive palaeontological resources. The northern part of the study area is underlain by Tierberg Formation mudrocks, which are thinly mantled with soils and gravels. The Tierberg Formation contains sparse to locally concentrated trace fossil assemblages. The southern part of the study area is underlain by the Adelaide Formation of the Lower Beaufort Group sediments, which are heavily intruded by Early Jurassic dolerites. While the Adelaide Subgroup has one of the world's richest fossil records of Permo-Triassic terrestrial plants and animals, the extensive dolerite intrusions heat the deposits, destroying the fossils and reducing the palaeontological significance of the sediments. No fossils were observed in exposed Lower Beaufort Group sediments in the study area. This southern part of the study area is thickly mantled by calcretes, which are largely overlain by surface soils and downwasted gravels. These superficial deposits, in the north and south of the study area can contain important fossil biota such as mammalian

bones, teeth and horn cores as well as tortoise remains. Calcretized rhizoliths and possible Quaternary age invertebrate burrows were noted in the study area.

The archaeologist noted that two types of occurrences were present in the study area. Later Stone Age artefacts were prevalent on ridges, while Middle Stone Age scatters were associated with flat, open areas that probably contained water in the rainy season. These Middle Stone Age scatters were relatively few and of low density. The Later Stone Age scatters showed more spatial integrity, by comparison. Also noted were several piled stone structures; the archaeologist identified only one of these as a potential kraal, while the rest were interpreted as living spaces. One of these stone structures was associated with scratched/ground rocks. The remaining features on the farm are of Colonial Period age and include a rectangular kraal as well as several rocks engraved with historical engravings of names, dates and initials. The archaeologist notes the presence of the main farm complex, which dates to the mid-20th century. This feature is beyond the limit of the study area, but two outbuildings are located close to the proposed access road.

The author also notes the currently used graveyard associated with the nearby township, which is expanding towards the Badenhorst Dam Farm western boundary. It is not stated whether the graveyard is a municipal graveyard or not. The N10 which passes south of the study area is a scenic route in places, but has been largely degraded by other developments. Furthermore, the proposed PV3 development is screened from the road by a dolerite ridge.

SAHRA RECOMMENDATIONS

SAHRA supports the recommendations of the authors and requires that:

- The development should avoid the dolerite ridge to the southwest of the study area. Alternative 1 should not impact the dolerite ridge to the southwest of the property, but it should not be constructed closer than 50m from the ridge.
- Development west of proposed Alternative 1 should be avoided to allow for a buffer between the development and the expanding graveyard there.
- The northern end of the access road should be realigned to protect the ridge and reduce the visual impact.
- One proposed Alternative 2 powerline passes close to an area of concern and this will need to be cordoned off if Alternative 2 is chosen
- According to the Palaeontological Impact Assessment, most of the fossiliferous Karoo Supergroup deposits underlying the study area are well mantled by fossil-poor superficial sediments of low palaeontological sensitivity. Furthermore, dolerite intrusions have served to metamorphose much of this deposit, reducing its palaeontological significance. As the solar panel footprints are small, and extensive, deep excavations are not necessary, the development is unlikely to impact on local palaeontological heritage resources. The Ecological Management Officer should be notified of the possibility of finding fossils in the surface deposits and in fresh excavations. If development does expose any substantial fossils, however, these should be preserved, *in situ*, until SAHRA has been notified and a palaeontologist can be appointed to undertake a field survey and submit a report to SAHRA for further comments. Mitigation or monitoring may then be required.

CONCLUSION

If the recommendations made in the specialist reports 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 021 462 4502) and a professional archaeologist and/or palaeontologist must be alerted immediately.

Decisions on Built Environment (e.g. structures over 60 years) and Cultural Landscapes and associated Living Heritage (e.g. sacred sites) must be made by the Provincial Heritage Resources Authority of the Northern Cape (**Mr. Andrew Timothy, ratha.timothy@gmail.com**) to whom this Archaeological Review Comment will be copied.

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. 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 20 m between the fence of the grave and the development.
2. 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.