



SOUTH AFRICAN HERITAGE RESOURCES AGENCY
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FOR ATTENTION: **PHRA Northern Cape
Dept of Environmental Affairs**

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SAHRA File No: **9/2/075/0001**
Date Received: **5 October 2011 and 14 March 2012**
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Sent to Peer Review:
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SAHRA Contact Person: **Ms Katie Smuts**
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REVIEW COMMENT ON ARCHAEOLOGICAL AND PALAEOLOGICAL IMPACT ASSESSMENTS

BY THE 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 OF REPORT: **Dr J. van Schalkwyk**
- C. ARCHAEOLOGY CONTRACT GROUP:
- D. CONTACT DETAILS: **62 Coetzer Avenue, Monument Park 0181, tel: 076 790 6777 email: jvschalkwyk@mweb.co.za**
- E. DATE OF REPORT: **December 2011**
- F. TITLE OF REPORT: **HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED ESTABLISHMENT OF PV SOLAR FACILITIES BY MAINSTREAM RENEWABLE POWER ON THE FARM MIERDAM IN THE PRIESKA REGION NORTHERN CAPE PROVINCE**
- G. AUTHOR OF REPORT: **Dr J. van Schalkwyk**
- H. ARCHAEOLOGY CONTRACT GROUP:
- I. CONTACT DETAILS: **62 Coetzer Avenue, Monument Park 0181, tel: 076 790 6777 email: jvschalkwyk@mweb.co.za**
- J. DATE OF REPORT: **December 2011**
- K. TITLE OF REPORT: **HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED ESTABLISHMENT OF PV SOLAR FACILITIES BY MAINSTREAM RENEWABLE POWER ON THE FARM PLATSJAMBOK IN THE PRIESKA REGION NORTHERN**

CAPE PROVINCE

- L. AUTHOR OF REPORT: **Dr J.E. Almond**
- M. ARCHAEOLOGY CONTRACT GROUP: **Natura Viva cc.**
- N. CONTACT DETAILS: **P.O. Box 12410 Mill Street Cape Town 8010, email: naturaviva@universe.co.za**
- O. DATE OF REPORT: **June 2011**
- P. TITLE OF REPORT: **PALAEONTOLOGICAL DESKTOP STUDY – PROPOSED MAINSTREAM WIND FARM NEAR PRIESKA, PIXLEY KA SEME DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE**

- Q. PLEASE CIRCLE AS RELEVANT: Archaeological and Palaeontological components of **EIA** / EMP / HIA / CMP/ Other (Specify)

- R. REPORT COMMISSIONED BY (**CONSULTANT** OR DEVELOPERS): **SIVEST**

- S. CONTACT DETAILS: P.O. Box 2921 Rivonia 2128, tel: 011 798 0600, email: nicolenev@sivest.co.za

- T. COMMENTS:

REVIEW COMMENT ON ARCHAEOLOGICAL AND PALAEOLOGICAL IMPACT ASSESSMENTS

Dr J. van Schalkwyk

Dated: December 2011, Received: May 2012

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED ESTABLISHMENT OF PV SOLAR FACILITIES BY MAINSTREAM RENEWABLE POWER ON THE FARM MIERDAM IN THE PRIESKA REGION NORTHERN CAPE PROVINCE

Dated: December 2011, Received: May 2012

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED ESTABLISHMENT OF PV SOLAR FACILITIES BY MAINSTREAM RENEWABLE POWER ON THE FARM PLATSJAMBOK IN THE PRIESKA REGION NORTHERN CAPE PROVINCE

Dr J. Almond

Dated: June 2011, Received: October 2011

PALAEOLOGICAL DESKTOP STUDY – PROPOSED MAINSTREAM WIND FARM NEAR PRIESKA, PIXLEY KA SEME DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE

INTRODUCTION

Mainstream Renewable Power South Africa is proposing the establishment of a 40 MW Photovoltaic solar facility on 449.34 ha of the property Mierdam and two 75 MW PV facilities on 7168.66 ha of Platsjambok: the western PV field will occupy a buildable area of 454.76 hectares and the eastern one 708.12 hectares. These facilities will require administration buildings and possibly a warehouse for storage. The solar panels will be connected via wires and cables to on site inverters, with a distribution substation connecting the facilities to the ESKOM grid via existing power lines or via new power lines to the Kronos Substation. Two alternatives for each location have been proposed.

Wind farms are also being proposed for the farms and these projects will be commented on separately.

DISCUSSION

Dr van Schalkwyk conducted a preliminary investigation of the relevant literature as well as field assessments of the study area. The literature revealed no records of Early Stone Age material and few of Later Stone Age sites. Most occurrences date from the Middle Stone Age and these are from open, unstratified sites. Historically, trekboers moved into the area from the early 19th century and they stayed close to water sources.

The field survey of both farms identified low density artefact scatters, predominantly from the Middle Stone Age, with some material of Later Stone Age date; no indication of human settlement was recorded. The sites were mostly located on or at the base of small hills. Two Stone Age sites on Mierdam (Sites 1 and 2) and two on Platsjambok (Sites 3 and 4) were identified as being sufficiently significant to warrant preservation if possible and mitigation if not. None of the sites had evidence of human occupation and were deemed unlikely to be quarry or factory sites. Rather, these sites were interpreted as lookout points for hunting, and associated tools included retouched flakes, blades and scrapers made of hardened shale, chalcedony and quartzite; one Later Stone Age hammer stone was found. None of the sites was larger than 20x20m. The archaeologist notes that while these sites are likely to be common in the area, the region is under-researched and therefore worthy of recording.

The extent of the archaeological survey is unclear from the report since it does not contain track logs.

There is a farmhouse on Mierdam that had burnt down and was rebuilt in the 1970s, currently only a single, much altered outbuilding survives from the 1940s; this is outside of the proposed development area.

Dr Almond conducted a desktop study for the proposed wind energy development, as this project is proposed for the same properties, it has been considered for the Photovoltaic project. The assessment noted that the study area is underlain by Dwyka Group (Karoo Supergroup) sediments of Permocarboneous age. In this area, these belong to the Mbizane Formation, which are often intruded by Early Jurassic igneous dolerites of the Karoo Dolerite Suite. The Mbizane fossil assemblage is characterised by sparse, low density trace fossils, such as arthropod trackways; palynomorphs also occur as do vascular plant remains. Some marine fossils are known from the late Dwyka phases, including invertebrate fossils and primitive bony fish, while certain tillites from the southern margin of the Great Karoo have been known to contain Cambrian trilobites and sponge fossils. Although a wide range of fossils is known from the Dwyka Group, most of these sediments are unfossiliferous and the overall sensitivity rating of the Dwyka Group is low.

Within the Dwyka sediments are small, isolated inliers of Early to Late Precambrian metamorphic and igneous rocks of the Namaqua-Natal Metamorphic Province, including schists and quartzites of the Uitdraai Formation (Brulpan Group), the Spioenkop Formation (Marydale Group) and other rocks of Mid Proterozoic Age. All of these rocks are entirely unfossiliferous.

Most of the Precambrian and Palaeozoic bedrocks are mantled by superficial drift deposits of Quaternary to Recent Age. These include Recent calcretes, gravelly to silty alluvium and patches of aeolian sands, possibly from the Gordonia Formation of the Kalahari Group. These drift deposits, although largely neglected by researchers, can contain important fossil biota such as mammalian bones, teeth and horn cores as well as tortoise bones. Non-marine molluscs, ostrich eggshell, trace fossils, palynomorphs, rhizoliths and termitaria are also prevalent. A thin mantle of downwashed Dwyka gravels is also prevalent.

SAHRA RECOMMENDATIONS AND CONCLUSIONS

- The four sites identified (Sites 1 and 2 on Mierdam and 3 and 4 on Platsjambok) should be avoided by the development. If this is not possible and the sites are to be disturbed by the development, mitigation of the affected sites must take place. Mitigation should involve the proper recording of the sites and excavation of each site; a 5mx5m excavation is required to ensure an adequate sample for study. The specialist will require a mitigation permit in terms of Section 35 of the NHRA (Act 25 of 1999) 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. If the site is to be destroyed following mitigation, a destruction permit must be obtained from SAHRA.
- 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). This comment is only valid for the proposed Photovoltaic energy facilities on the two farms.
- The Environmental Control Officer should be made aware of the possibility of important fossils being unearthed on site. All substantial excavations into fresh bedrock should be monitored. These recommendations should be incorporated into the Environmental Management Plan for the project
- 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 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.

Again, this comment is only valid for the proposed Photovoltaic energy facilities on these properties. With regard to the proposed wind energy developments on Platsjambok and Mierdam, please note the following. As requested in the review comment of 3 October 2011, on the proposed wind energy development on Noupoot

- A Phase 1 Palaeontological Impact Assessment including a field survey must be undertaken;
- The Heritage Impact Assessment must also consider the impact of the proposed wind farms on the cultural landscape, if existing, also in relationship to the proposed neighbouring wind and solar energy facilities.

SIGNATURE OF ARCHAEOLOGIST PROCESSING REPORT:

EMAIL: ksmuts@sahra.org.za.....

SIGNATURE OF SAHRA HEAD ARCHAEOLOGIST:

EMAIL: cscheermeyer@sahra.org.za

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.