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Ms Susanna Nel
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Dear Ms Nel

**HOEKPLAAS 2-4 AND KLIPGATS 3 AND 7 SOLAR FACILITIES ENVIRONMENTAL AUTHORISATION
AMENDMENT: SPECIALIST IMPACT STATEMENT**

The Hoekplaas 2, 3 and 4 and Klipgats 3 and 7 solar PV facilities, to be constructed on the remainder of the farm Hoekplaas 146 and portion 4 of Klipgats Pan 117, outside Copperton in the Northern Cape, received environmental authorization from the then Department of Environmental Affairs on 9 July 2014 and 13 August 2012 respectively.

The project developer, Mulilo Renewable Project Developments (Pty) Ltd, wishes to amend the environmental authorizations for these five facilities to include the installation of a battery energy storage system (BESS) at each.

The BESS technology being considered is a solid state battery, consisting of multiple battery cells that are assembled together to form units or modules. The batteries are housed in shipping containers and/or an applicable housing structure which is delivered pre-assembled to the project site. Containers are usually raised slightly off the ground and can be stacked if required. Supplementary infrastructure (up to a maximum height of 25m) and equipment may include substations (132 kV), power cables, transformers, power converters, substation buildings and offices, HV/MV switch gear, inverters and temperature control equipment that may be positioned between the battery containers.

The five proposed BESS sites will be located within the previously authorised laydown areas for the Hoekplaas 2, 3 and 4 and Klipgats 3 and 7 facilities and a Basic Assessment for the proposed amendment to the projects is thus not required.

Instead, specialist impact statements are required to accompany the EA amendment application to confirm whether the installation of the BESS will result in additional impacts that were not assessed in the original environmental assessment and to recommend, where necessary, additional mitigation measures for inclusion in the EMP. The specialist impact statements must be accompanied, if required, by new impact ratings, considering the additional BESS component to the authorized project.

The heritage impact assessments (HIA) produced by ACO Associates as part of the Environmental Impact Assessment (EIA) process in 2012 (Orton 2012a and 2012b) considered archaeological heritage resources, the historical built environment, cultural landscapes and scenic routes and sense of place. Palaeontological heritage resources were assessed by an independent specialist and did not form part of the HIAs.

Although the 2011 survey to support the Hoekplaas and Klipgats Pan HIAs could not practically cover the entirety of both project areas, it focused on finding and examining landscape features that seemed most likely to yield archaeological or heritage finds and it is thus believed that an understanding of the overall archaeological and historical landscape was attained.

The Hoekplaas HIA assessed two proposed PV site alternatives on the farm: Alternative 1 approximately 1 km to the southeast of the R357 and now the site of Hoekplaas PV4, and Alternative 2, located directly alongside and to the northwest of the road, within which Hoekplaas PV 2 and 3 are now authorised. The findings of the HIA were:

- Archaeology: A background scatter of Early Stone Age (ESA) and Middle Stone Age (MSA) artefacts was found across the farm. This material was assessed to be of very low archaeological significance;
- Several discrete Later Stone Age (LSA) sites were found focused around the central pan adjacent to the eastern boundary of the authorised PV4 site; and
- A quarried pan located between the northern tip of the PV4 site and the R357 revealed a buried MSA site with at least one animal tooth preserved. The discovery of this site bears out evidence from further north in Bushmanland that important subsurface archaeological material can be expected close to the margins of pans.

The HIA found that the LSA sites and buried MSA sites are of significance and would require mitigation should they be under threat. Both pans and their associated sites were subsequently excluded from the area chosen for and authorized as Hoekplaas PV4.

- Built Environment: There are no buildings or structures were noted on the subject farm portion.
- Cultural landscapes: Only one cultural landscape was noted by the Hoekplaas HIA and it was assessed to be of very low significance. It comprised of an ephemeral pan with gum trees, a windmill, water troughs and an old cement dam alongside it located to the southeast of the PV4 site. All these elements are likely 20th century in age.
- Scenic Routes and Sense of Place: The HIA found that visual impacts to scenic routes and sense of place would be limited for Alternative 1 (the preferred layout) due to the topography of the site. Alternative 2 would result in more significant impacts due to its proximity to the R357 but these were somewhat offset by the existing abandoned mining infrastructure visible in the landscape to the northwest.
- Graves: No graves were reported by the HIA.

The Klipgats Pan HIA also assessed two proposed PV site alternatives: Alternative 1, located immediately north of the R357 and now the site of Klipgats PV3, and Alternative 2, south of the road, and the site of the authorised Klipgats PV7 facility. The findings of the HIA were:

- Archaeology: A background scatter of ESA and MSA artefacts was found across the farm. This material was assessed to be of very low archaeological significance; and
- A large number of discrete LSA sites were found focused around ephemeral pans across the farm, and on the hill south of Alternative 2 (now Klipgats PV7).

The HIA found that the LSA sites are of significance and would require mitigation should they be under threat.

- Built Environment: Three built structures and some ruins forming an old farm complex, likely dating to the early 20th century, were noted by the HIA within the Alternative 2 area and it was recommended that this complex is best avoided by the proposed development.
- Scenic Routes and Sense of Place: Visual impacts to scenic routes and sense of place will be limited for Alternative 2 due to the topography of the site, but Alternative 1 will result in more significant impacts due to its proximity to the road. These will be somewhat offset by the existing abandoned mining infrastructure to the north and the Kronos substation to the southeast of the site.
- Graves: No graves were reported by the HIA.

The two HIAs made the following assessment of impacts on heritage resources:

- The impacts to heritage resources were not considered to be highly significant for either Hoekplaas site options or for Klipgats Alternative 1, provided the mitigation measures recommended in the HIAs are implemented; and
- Impacts within Klipgats Alternative 2 on the historical built structures were assessed to be of high significance, but if the structures are avoided, these would reduce to very low.
- Impacts of visual concern for both Hoekplaas and Klipgats were rated as medium or low significance for the various site alternatives and no mitigation measures were suggested.

The following heritage mitigation measures were proposed in the both the Hoekplaas and Klipgats HIAs:

- If development comes within 100 m of any of the pan margins, test excavations around the pans should be done to check for buried archaeological material;
- Transmission lines should stay at least 100 m away from the edge of any pans implicated in the final route; and
- If any human remains are uncovered during development, then work in the immediate vicinity should be halted and the finds protected and reported to the South African Heritage Resources Agency.

Heritage Specialist Impact Statement:

The EA amendment applications for the Hoekplaas PV2, 3 and 4 facilities and the Klipgats PV 3 and 7 facilities arise from the proposal to add a BESS to the project components for each facility.

These BESS will be installed within the footprint of the areas that were subject to heritage impact assessment as part of the 2012 EIA process for the Hoekplaas PV2, 3 and 4 and Klipgats PV 3 and 7 facilities.

Although survey coverage of the five areas proposed for the installation of BESS was limited, no heritage resources identified by either the Hoekplaas or Klipgats HIAs are located within these areas. Furthermore, none of the five laydown areas appear to be associated with pans or koppies, which the HIAs indicated were the focus of particularly LSA and, to a lesser extent, MSA sites. Thus, were archaeological material to be present in any of the five laydown areas, it is likely to comprise of the decontextualized background scatters of ESA and MSA artefacts reported by the HIAs as occurring widely across both the farms.

It is our reasoned opinion , therefore, that the installation of a BESS at each of the five locations proposed will occasion no changes to the identified impacts of the Hoekplaas Solar PV 2, 3 and 4 and Klipgats Solar PV3 and 7 facilities on heritage resources, provided the mitigation measures recommended in the HIAs are implemented.

With regard to cultural landscapes, scenic routes and sense of place, the installation sites are in a flat and largely featureless open area of the landscape, and most are close to the R357. Their proximity to existing industrial features in the landscape – the Kronos substation and two nearby PV facilities - will do much to mitigate their impact but they do have the potential to have a visually intrusive in the surrounding rural landscape.

It is our assessment that the impact significance of the installation of the five BESS units on scenic routes and sense of place is medium (negative) but that this impact can be reduced significantly if BESS units are installed without stacking.

From a heritage resources perspective, the proposed amendments to the environmental authorisations for the Hoekplaas PV2, 3 and 4 and Klipgats PV3 and 7 facilities are considered acceptable.

Yours sincerely



John Gribble
Senior Archaeologist and Heritage Consultant

References:

Orton, J. 2012a. *Heritage Impact Assessment for a Proposed Photovoltaic Energy Plant on the Farm Hoekplaas near Copperton, Northern Cape*. Unpublished report for Aurecon South Africa (Pty) Ltd. Archaeology Contracts Office. Cape Town.

Orton, J. 2012b. *Heritage Impact Assessment for a Proposed Photovoltaic Energy Plant on the Farm Klipgats near Copperton, Northern Cape*. Unpublished report for Aurecon South Africa (Pty) Ltd. Archaeology Contracts Office. Cape Town.