



ACO Associates cc
Archaeology and Heritage Specialists

Postal: 8 Jacobs Ladder, St James, 7945

Physical: Unit D17, Prime Park, 21 Mocke Road, Diep River
7800

Tel: 021-7064104 Fax: 0866037195

E-mail: admin@aco-associates.com

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Ms Susanna Nel
Landscape Dynamics
3 Palomino Close
Die Wingerd
Somerset West, 7130

Dear Ms Nel

**DU PLESSIS DAM SOLAR PV1 FACILITY ENVIRONMENTAL AUTHORISATION AMENDMENT:
HERITAGE SPECIALIST IMPACT STATEMENT**

The Du Plessis Dam Solar PV1 facility, to be constructed on the remainder of the farm Du Plessis Dam No. 179 outside De Aar in the Northern Cape, received environmental authorization from the then Department of Environmental Affairs on 28 September 2015.

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

The BESS (BESS 3) will consist of multiple battery units or modules 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 BESS 3 site which will be less than 20 hectares in extent will be situated within the previously authorised laydown area for the PV facility.

A Basic Assessment for the proposed amendment to the project is 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 EMPr. The specialist impact statements must be accompanied, if required, by new impact ratings, considering the additional BESS component to the authorized project.

The integrated heritage impact assessment (HIA) produced by ACO Associates as part of the Environmental Impact Assessment (EIA) process in 2013 (Orton & Webley 2013a) considered archaeological heritage resources, the historical built environment, cultural landscapes, scenic routes and sense of place and graves. Palaeontological heritage resources were assessed by an independent specialist and did not form part of the HIA.

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Members: D Halkett & T Hart

The findings of the HIA were:

- **Archaeology:** The HIA recorded the presence of the following archaeological sites and materials on the farm Du Plessis Dam:
 - A widespread occurrence of pre-colonial archaeological material across the farm, the bulk of which were low density scatters of mainly Middle Stone Age (MSA) artefacts that are of little or no significance and which were not recorded;
 - Sites of greater archaeological value, worthy of mitigation, included:
 - Two dense scatters of MSA lithics; and
 - Several scatters of Later Stone Age (LSA) stone artefacts, the most significant of which contained burnt bone fragments and may have some depth of archaeological deposit to it. With excavation, the site may yield temporal data. With one exception, all the LSA scatters were either on top of low rises or else along the base of a rocky ridge.
 - A patch of ground bedrock, a rare and possibly unique archaeological feature in the De Aar area, which is the result of people using another stone to grind some sort of material, perhaps seeds or ochre;
 - A number of historical archaeological sites, in some cases overlapping with LSA sites on areas of high ground and usually associated with low packed stone features. The frequent presence of gun cartridges suggests that many of these historical sites relate to the South African War. While none are particularly important, they add to our understanding of the war and the defence of the railway junction at De Aar in that they demonstrate that almost every low hill in the area was likely to have been used at some point during the war as a look out station; and
 - A ruined historical farmstead and dump associated with a spring. This complex of sites was assessed by the HIA to be the most significant site recorded on Du Plessis Dam.
- **Built Environment:** The HIA identified the ephemeral stone features covered under archaeology above as the only “built” items that might be directly impacted by the proposed PV facility.

No buildings will be directly affected, and no highly significant buildings were noted in the study area that could be subject to indirect (visual) impacts.

- **Cultural landscapes:** The HIA assessed the landscape around De Aar and on Du Plessis Dam to be only minimally altered by humans. It noted that De Aar lies immediately alongside the proposed PV facility but concluded that although the facility would pose a negative visual impact to the context of the town, the part of town being impacted is entirely modern.

The many small scatters of artefacts related to the South African War were assessed to be an archaeological cultural landscape because it is landscape features that conditioned the placement of these sites. The HIA concluded, however, that far more significant South African War sites are known from across the Karoo and that the impacts of the proposed PV facility on this aspect of the cultural landscape was not significant.

- **Scenic Routes and Sense of Place:** The landscape around De Aar is one of great natural beauty and has a very distinctive character: wide-open grasslands punctuated by typical flat-topped Karoo hills. Any road traversing the area can be considered a scenic route. The addition of solar panels (with an industrial character) to a predominantly natural/rural landscape will

alter the sense of place and result in a loss of context. The HIA found, however, that the presence of other renewable energy facilities in the area – both constructed and planned - will produce a new cultural landscape with an industrial character.

- Graves: No unequivocal graves were located during the field assessments for the HIA but a few suspicious mounds of rocks were noted in places, particularly at the very tail end of the old dam where two, or possibly three, elongated mounds of stones aligned east-west were recorded. These mounds were all located outside of the proposed Alternative 1 development area but lay within the transmission line corridor for Alternatives 1 and 2. The HIA stressed that pre-colonial graves are often completely unmarked and can be located anywhere where the soil is suitable for digging a grave.

The HIA made the following assessment of impacts on heritage resources:

- Archaeological sites with research value were located in two main areas: along the dolerite ridge that runs from northwest to southeast across the western part of the farm and on the low ridge in the north-eastern corner of the farm.
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- The HIA significance ratings for sites in this area were thus elevated in the HIA and mitigation measures were proposed.

A portion of this area is currently covered by the footprint of the authorised Du Plessis Dam Solar PV1 facility;

- Impacts to the cultural landscape would be experienced during construction and operation but then, with rehabilitation, would revert to the status quo (assessed as the No-Go alternative) after decommissioning; and
- The possible graves, although all located outside of the proposed Alternative 1 development area, were within the transmission line corridors for Alternatives 1 and 2 and would need to be avoided to ensure no impacts. Alternatively, they would need to be tested, as appropriate.

The following heritage mitigation measures were proposed:

- Where archaeological sites cannot be avoided, mitigation in the form of excavation and collection of artefacts should be carried out;
- The historical homestead and all surrounding features and artefacts must be avoided (this site is too significant to be effectively mitigated in a commercial context);
- If any human remains are encountered during the development, they should be cordoned off and protected from further harm until they can be inspected and removed by an archaeologist under a permit issued for that purpose; and
- Once the exact lines have been identified for the linear components of the project, they should be examined from the desktop then subjected to a walk-down if deemed necessary.

Heritage Specialist Impact Statement:

The EA amendment application for the Du Plessis Dam Solar PV1 facility stems from the proposal to add a BESS to the project components. BESS 3 will be installed within the footprint of the area that was subject to a heritage impact assessment as part of the 2013 EIA process for the PV facility.

The authorized extent of PV1 excludes the important historical farm complex identified in the HIA, but the LSA scatters and the historical 'look out' sites possibly associated with the South African War on the rocky ridges are within the authorized boundary of the facility. None of these sites, however, are located in the area proposed for the installation of BESS 3.

It is our reasoned opinion that the installation of BESS 3 will occasion no changes to the identified impacts of the Du Plessis Dam Solar PV 1 facility on archaeology, the historical built environment or graves, provided the mitigation measures recommended in the HIA are implemented.

With regard to cultural landscape, scenic routes and sense of place, although BESS 3 will be installed close to the urban edge of De Aar, the up to 25 m stacked height of the unit has the potential to have a marked visual impact within the surrounding landscape which is largely flat and featureless in this area.

It is our assessment that the impact significance of the installation of BESS 3 to its maximum height is medium (negative). If, however, the units can be installed without stacking, the impact significance cultural landscape, scenic routes and sense of place of the installation of BESS 3 and the project as a whole will remain at low (negative), as assessed in the HIA.

If the mitigation measures recommended in the HIA and in this Impact Statement are implemented, the overall impact of the installation of BESS 3 on heritage resources is tolerable and generally of low significance.

From a heritage resources perspective, therefore, the proposed amendments are considered acceptable.

Yours sincerely



John Gribble
Senior Archaeologist and Heritage Consultant

References:

Orton, J. 2011. *Heritage impact assessment for three solar energy facilities at De Aar, Northern Cape*. Unpublished report for Aurecon South Africa (Pty) Ltd. ACO Associates cc. St James.

Orton, J & Webley, L. 2013a. *Heritage Impact Assessment for Multiple Proposed Solar Energy Facilities on Du Plessis Dam 179, De Aar, Northern Cape*. Unpublished report for Aurecon South Africa (Pty) Ltd. ACO Associates. Cape Town.