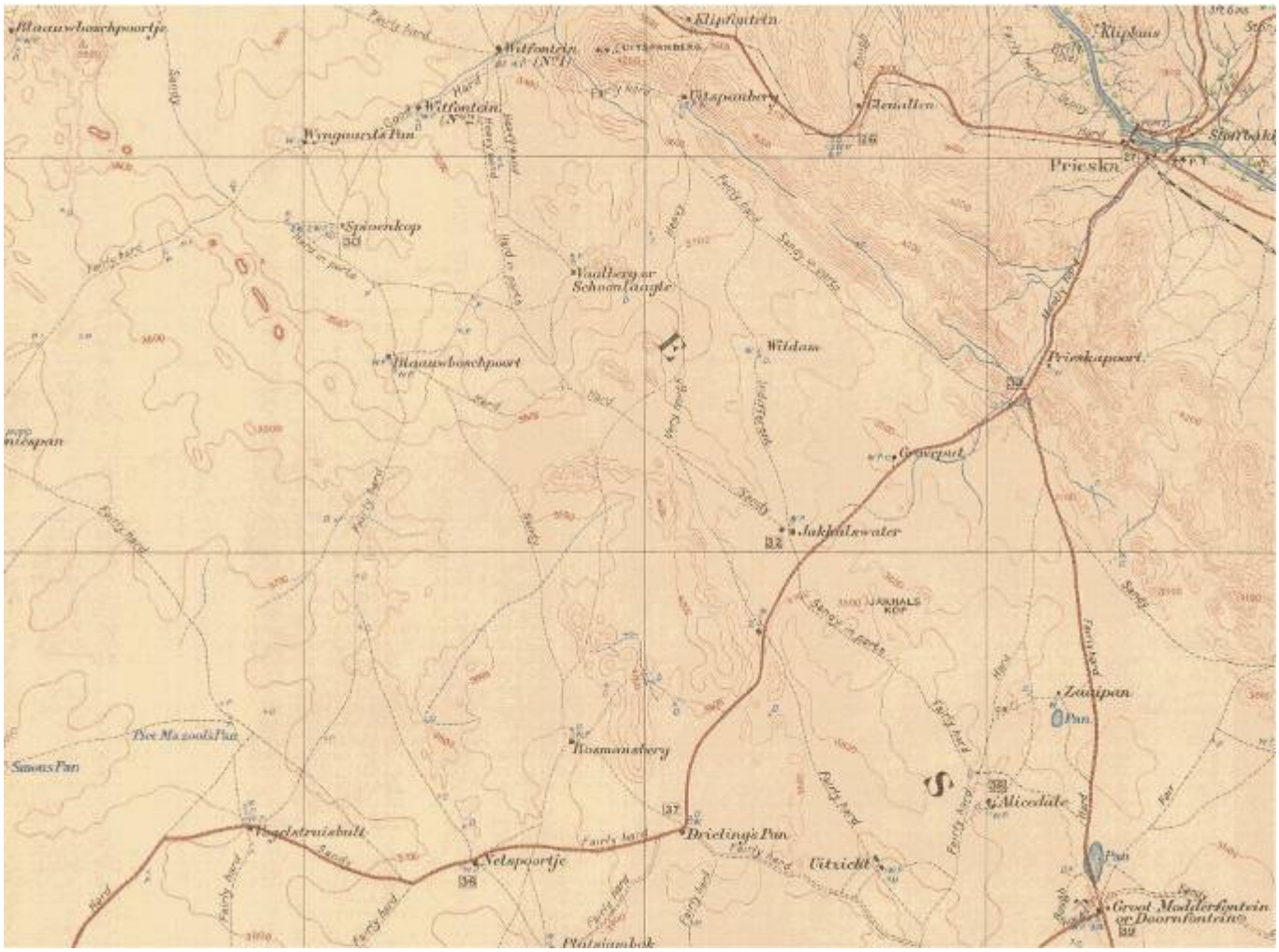
SAHRA Case Id: 6334

INTEGRATED HERITAGE IMPACT ASSESSMENT IN TERMS OF SECTION 38(8) OF THE NATIONAL HERITAGE RESOURCES ACT, 1999 (ACT 25 OF 1999)

PROPOSED DEVELOPMENT OF HUMANSRUS SOLAR PV ENERGY FACILITY 2 ON A PORTION OF THE FARM HUMANSRUS 147/ REMAINDER, PRIESKA DISTRICT, NORTHERN CAPE



On behalf of: Humansrus Solar PV Facility 2 (Pty) Ltd

November 2014

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CONTENTS:

ANNEXURES:

FIGURES:

REFERENCES and ACKNOWLEDGEMENTS:

1. Cape Town Archives
2. Chief Directorate: Surveys & Mapping
3. Surveyor General Office

ABBREVIATIONS:

1. CDSM – Chief Directorate Surveys & Mapping
2. DEA – National Department of Environmental Affairs
3. HIA – Integrated Heritage Impact Assessment
4. NHRA - National Heritage Resources Act, 1999 (Act 25 of 1999)
5. PHRA – Provincial Heritage Resources Agency
6. PHS – Provincial Heritage Site

COVER: *Extract from 1906-1914 mapping for the area south of Prieska (Source: Reconnaissance Series No 16, CDSM)*

1. INTRODUCTION

PERCEPTION Planning was appointed by *Humansrus Solar PV Facility 2 (Pty) Ltd* to compile and submit to the *South African Heritage Resource Agency (SAHRA)* and *Ngwao Boswa Kapa Bokoni* an Integrated Heritage Impact Assessment (HIA) in terms of Section 38(8) of the National Heritage Resources Act, 1999 (Act 25 of 1999) with relation to proposed development of the property listed below (hereafter referred to as, "the site"). Sanction for submission of this HIA was provided by Mr. Craig Stanley *(on behalf of registered owner)*, and is attached as part of Annexure 1.

The cadastral land unit subject to this application is as follows:
Humansrus 147/ Remainder, Prieska District and Pixley ka Seme District Municipality, measuring 4,769.4155 ha, registered to Ms. Christina Susanna Human and held under title deed T28367/1978.

This report serves as an ***Integrated Heritage Impact Assessment (HIA)*** and includes inputs from the following specialist reports sanctioned as part of the HIA:

- Basic archival background research (Perception Planning, S. de Kock);
- Archaeological Impact Assessment (ACO Associates, Dr. L. Webley & D. Hallkett);
- Desktop Palaeontological Impact Assessment (Natura Viva, Dr. J. Almond).

2. INDEPENDENCE OF ASSESSOR

With relation to the author's appointment to compile an Integrated Heritage Impact Assessment in terms of Section 38(8) of the National Heritage Resources Act, 1999 (Act 25 of 1999), it is hereby declared:

- This consultancy (including the author) is not a subsidiary, legally or financially, of the proponents;
- Remuneration for professional services by the proponent in relation to this proposal is not linked to approval by any decision-making authority responsible for permitting this proposal;
- Nor this consultancy, nor the author has any interests in secondary or downstream activities as a result of the authorisation of this project.

It is further hereby certified that the author has 17 years professional experience as urban planner (3 years of which were abroad) and 8 years professional experience as heritage practitioner. The author holds the following qualifications:

- Urban and Regional Planning (B-Tech, CPUT, 1997)
- Environmental Impact Assessment Management – Heritage, Environmental (Diploma, Dublin University, 2002)
- Architectural & Urban Conservation (CDP, UCT, 2007)
- Urban Design (CPD, UCT, 2009)

The author is professionally registered as follows:

- Professional Heritage Practitioner (Association for Professional Heritage Practitioners)
- Professional Planner (South African Council for Planners)

3. METHODOLOGY

As part of the compilation of this Integrated HIA report the site and its environs was studied, visited, photographed and assessed, which more specifically involved the following (for broad overview of HIA process refer to explanatory flow diagram below):

- Field work carried out by *ACO Associates* on 22nd October 2014;
- Liaising with project manager, environmental consultant and various specialist consultants;
- Assimilating findings and recommendations emanating from specialist inputs into HIA;
- Identification of heritage-related issues and concerns;
- Analysis of development site and its environs;
- Identification of contextual spatial informants;
- Establishing cultural significance, based on criteria set out in NHRA;
- Identification of heritage-related design informants based on the above;
- Focussed public participation process to be coordinated as part of Environmental Impact Assessment facilitated by *Cape Environmental Impact Assessment Practitioners (Pty) Ltd*;
- Assess conformity of final proposed site layout to design informants identified;
- Submission to competent authorities (*SAHRA* and *Ngwao Boswa Kapa Bokoni)* via SAHRIS.

4. DESCRIPTION OF STUDY AREA

The subject site is located ±50km southwest of Prieska and ±8km southeast of Copperton, within the jurisdiction areas of Siyathemba Local Municipality and Pixley ka Seme District Municipality, Northern Cape as shown through the locality plan (Figure 1). The site is bound by the R357 to the southeast, is ±6km east of the existing Cuprum Substation and ±6km north of the existing Kronos Substation. The main access road as well as decommissioned railway line leading to Copperton traverses the site.

Figure 1: *Location of proposed development site in relation to Prieska and Copperton (Source: GoogleEarth)*

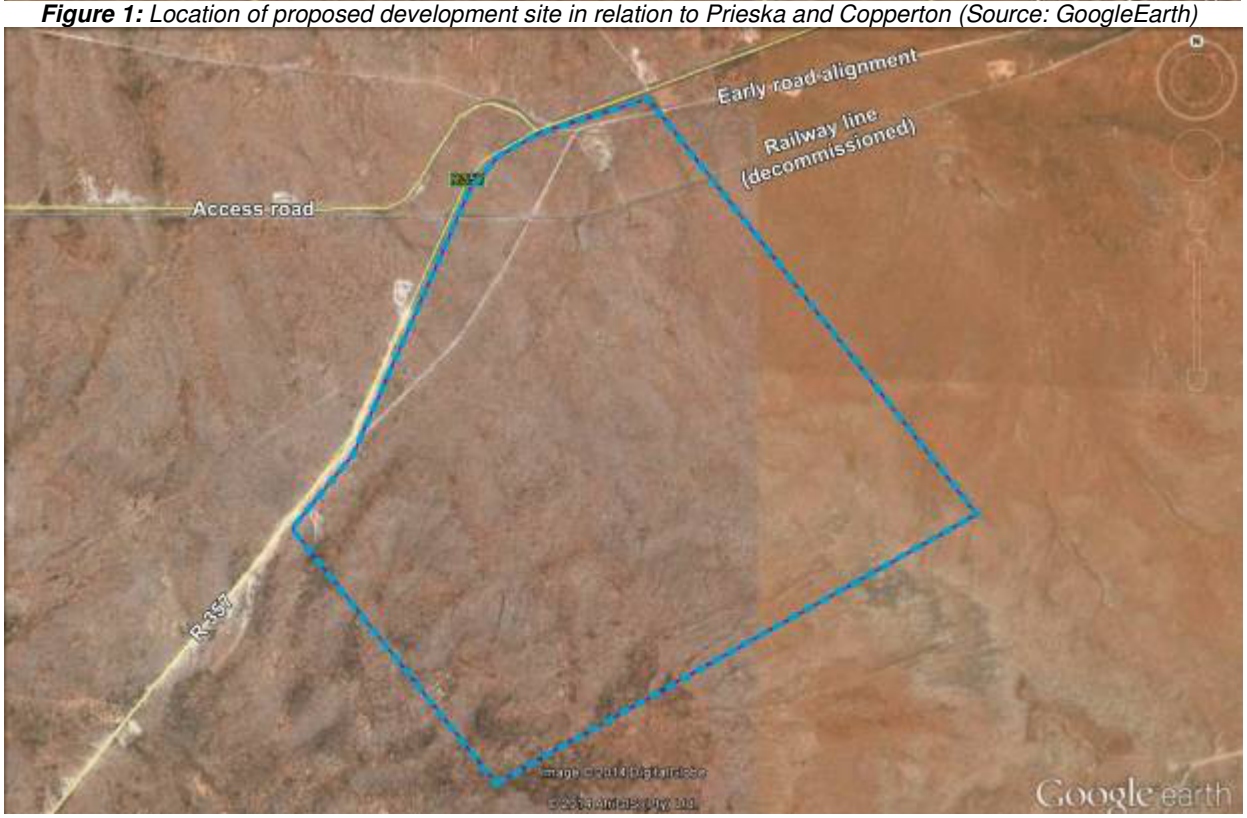

Figure 2: *Proposed site boundaries transposed onto recent aerial imagery (Source: GoogleEarth)*

The proposed development area is a generally flat, undulating plain of low dunes of red Kalahari sands interspersed with gravel and stony plains. Soils are generally shallow silty soils which favour shrubs

over grasses which usually dominate on more sandy soils. Towards the northern margin of the site, there are some deeper soils present with taller, denser vegetation present. There are also some patches of deeper or coarser soils present which are dominated by grasses. There are no significant rocky outcrops or large drainage lines within the proposed development area itself, although these features are present within the broader area[1].

5. PROPOSED DEVELOPMENT

The proposed development of the *Humansrus Solar PV Energy Facility 2 (previously RE Capital 14)* is associated with the installation of proposed transmission lines/ grid alignments, which is the subject of a separate application (SAHRA Ref. _____).

5.1 Description of activity

The proposed photovoltaic (PV) solar facility will have a net generation capacity of 75 MW AC (86.25 MW DC installed) and the development footprint will be between 200 and 220ha in size. The PV technology will be either fixed-tilt PV, single-tracking/axis PV or double-tracking/axis PV. The infrastructure associated with this PV development will include the following:

- Solar field of PV modules/panel arrays with maximum structure height of ±3.5 metres;
- Maximum of 60 x inverter stations / mini-substations (including MV distribution transformers) at a height of 3m;
- On-site Switching Station / Substation of approx. 120m x 70m in size (including a transformer to allow the generated power to be connected to Eskom's electricity grid);
- Overhead 132kV transmission power line to distribute the generated electricity from the on-site substation to the existing Eskom Cuprum or Kronos Distribution Substation (directly adjacent to & south east of the site). Transmission line will be a single circuit line, approx. 800m to 1km in length, with a maximum height of 32m, within a servitude width of 31m – 40m;
- Auxiliary buildings, including:
  - Control Centre (±31m x 8m);
  - Office (±22m x 11m);
  - Warehouses (x2) (±50m x 20m)
  - Canteen & Visitors Centre (±30m x 10m)
  - Staff Lockers & Ablution (22m x 11m); and
  - Gate house / security offices (±6m x 6m),

Figure 3: *Typical layout of the components of a Solar PV facility (Source: Cape EAPrac, October 2014)*

- Internal electrical reticulation network (underground cabling);
- Access road and internal road / track network;

[1] *Final Scoping Report, RE Capital 13, Cape EAPrac, October 2014*

- Laydown areas, required for material & equipment (±200m x 150m);
- Rainwater tanks; and
- Parameter fencing& lighting around the solar facility.

In accordance with requirements of the National Department of Environmental Affairs, the overhead electrical transmission line / grid connection (connecting to existing Kronos or Cuprum Substation) associated with the proposed facility, will be dealt with through a separate EIA Process.

5.2 Development alternatives

Various alternatives, in terms of technology of the solar arrays, as well as layout for the solar arrays and associated infrastructure (excluding overhead transmission lines/ connecting grid lines) on the development site, will be considered and be informed by the environmental constraints identified and assessment by the various specialists as part of the on-going EIA Process. The following conceptual and preliminary layout alternatives, as well as the no-go option, are currently being considered for the *Humansrus Solar PV Energy Facility 2*:

Alternative 1 – A conceptual / uniform layout has been designed to make use of the entire approx. 1,010ha study area identified for the *Humansrus Solar PV Energy Facility 2* (the mid-western portion of cadastral unit RE/147, north of the R357). As this initial uniform layout does not consider any of the existing infrastructure located on and adjacent to the site (existing access / internal roads, transmission lines, dwelling & reservoirs etc.), nor any potential site constraints / environmental sensitive areas (to be identified by the various specialist studies), it has been excluded from the on-going environmental process and will therefore not be assessed further.

Alternative 2 – This Preferred Alternative is an area of between 200 and 220ha in size and concentrated in the western portion of the abovementioned 1010ha Alternative 1 development site (Figure 4). This preliminary layout has considered the following:

- Area of approximately 220ha, to ensure the project would be economically viable, allowing for exclusions of environmental sensitive areas;
- Minimal disturbance to water washes and highly sensitive areas;
- Road access to the site with regard to distance and minimal disturbance to sensitive areas;
- Grid connection taking into consideration minimal distance and minimal disturbance to sensitive areas.

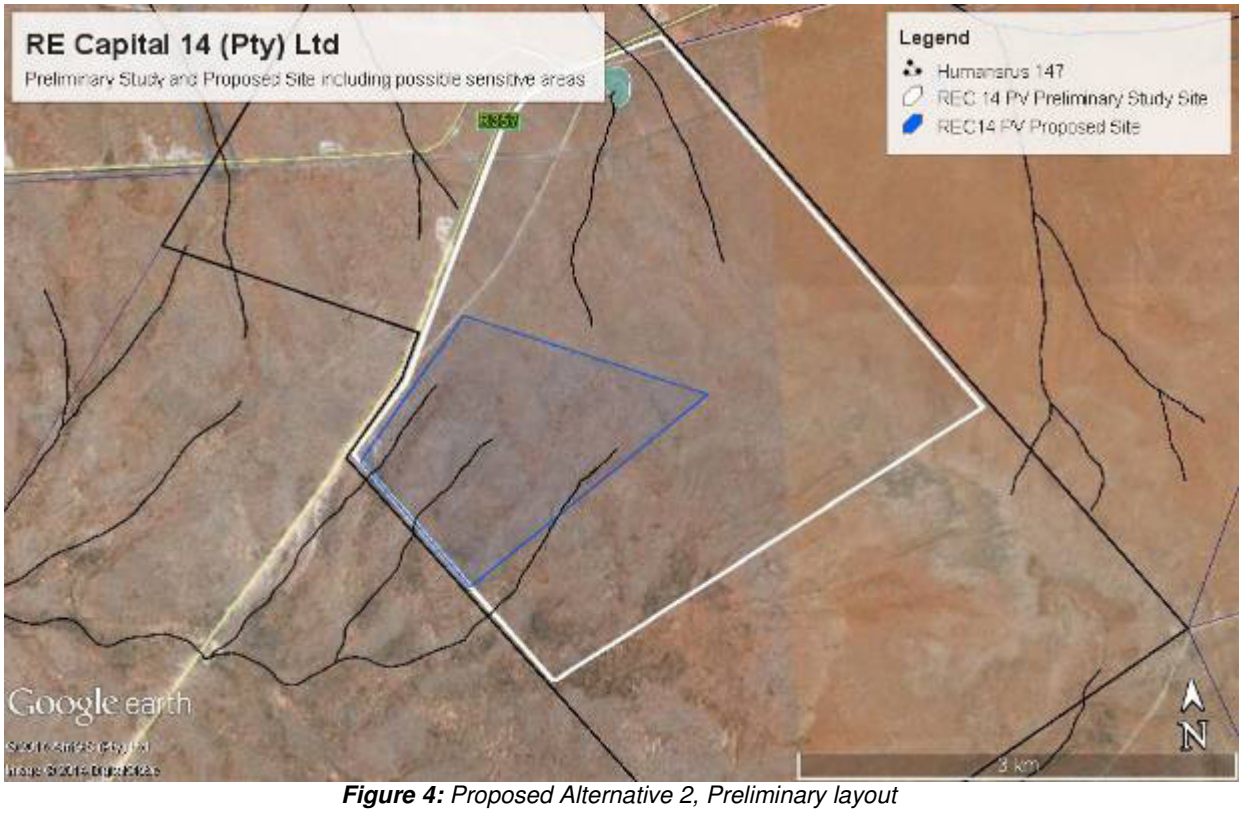

Figure 4: *Proposed Alternative 2, Preliminary layout*

Although Alternative 2 has considered preliminary site constraints, it has not yet incorporated site

specific constraints / significant environmental sensitive areas which are to be identified by the various specialists during the remainder of this scoping phase and the environmental impact assessment phase to follow. It is thus likely that this preliminary layout will be further refined and adjusted to develop another Alternative, which considers the sensitivity and/or significance of the identified features and the appropriate avoidance / mitigation / management measures recommended in relation to them.

These adjustments will aim to achieve the least possible environmental impact, while maintaining the economic viability of the project. The potential impacts (negative and positive) associated with this layout, as well as any further alternatives, will be assessed as part of the Environmental Impact Reporting phase (EIR) of the on-going environmental process. Recommendations / measures focused on the construction, operation and decommissioning phases of the development, will also be provided in impact assessment phase to follow (and be described in the Environmental Management Programme to be compiled).

No-Go / Status-Quo Alternative, which proposes that the *Humansrus Solar PV Energy Facility 2* not go ahead and that the farm remain undeveloped as it is currently. This alternative will be used as a baseline from which to determine the level and significance of potential impacts associated with the proposed solar development during the Impact Assessment phase of the on-going environmental process.

6. PLANNING CONTEXT

A Town and Regional Planner will be appointed to facilitate the necessary Planning Application process for the proposed *Humansrus Solar PV Energy Facility 2*, which will include a land use application for the rezoning of approximately 220ha, from Agricultural Zone I to Special Zone, will be lodged at the Siyathemba Local Municipality, in accordance with the Northern Cape Planning and Development Act (Act 7 of 1998), to allow for the development of the proposed *Humansrus Solar PV Energy Facility 2*.

Parallel to the rezoning application, a long term lease application will be lodged at the National Department of Agriculture, in accordance with the Subdivision of Agricultural Land Act (Act 70 of 1970) to allow for the development of the proposed *Humansrus Solar PV Energy Facility 2*.

7. HISTORICAL BACKGROUND[2]

Smith (1995b) notes that c. 1880/1890 white farmers were making extensive use of Bushmanland for summer grazing and that this led to the extermination of the massive springbok herds on which the indigenous population subsisted. This in turn led to the descendants of indigenous groups turning to the farmers for food (and employment), effectively ending the span of prehistory in the region.

The farm houses of Humansrus and Platsambok lie outside the study area. The farm Humansrus comprises portions of the early farms Vogelstruis Bult 104 and Platsjambok 102 as depicted through early mapping shown in Figure 3. The farm Vogelstruis Bult 104 was surveyed during 1880[3] and transferred on 24th October 1882 (transferee not legible) while the farm Platsjambok 102 was also surveyed during the same year[4] and transferred to GF Rens on 26th October 1892.

Early mapping (1906-1914) shows the location of former farmsteads on early farms Vogels Bult, Nelspoortje, Platsjambok and others in relation to the proposed site boundary. This also shows the historic road alignment passing just north of the proposed site boundary and describes soil conditions on and within the proximity of the site as, “fairly hard”. At the time, grazing conditions at Nelspoortje were described as poor with only a limited water source during wet periods.

The nearby town of Copperton was established in 1972 to provide housing for the nearby copper mine, but after the mine closed down in 1992 the town was sold and some of the housing has been demolished. Basic historic background research did not identify or highlight any significant historic or other heritage-related themes, which may be negatively impacted through the proposed development.

[2] *Partly transposed from AIA, ACO Associates, November 2014*
[3] *SG Diagram 1733/1880*
[4] *SG Diagram 1750/1880*

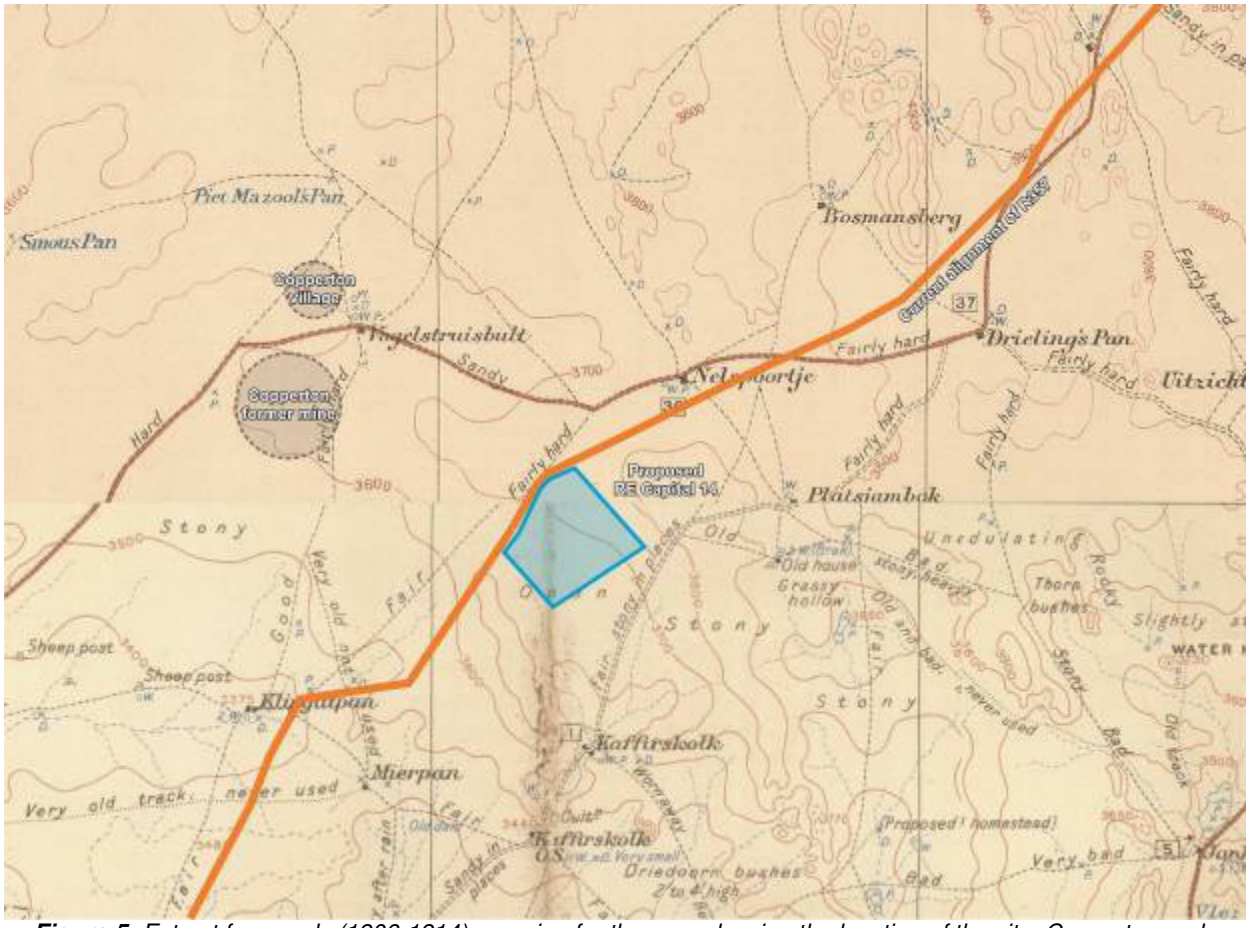

Figure 5: *Extract from early (1906-1914) mapping for the area showing the location of the site, Copperton and current alignment of R357 (Source: CDSM)*

8. HERITAGE RESOURCES AND ISSUES

8.1 Landscape Character

8.1.1 *Cultural landscape context*

The term "*cultural landscape*" refers to the imprint created on a natural landscape through human habitation and cultivation over an extended period of time. While the Cape has been inhabited for many hundreds of thousands of years (pre-colonial history) prior to Western settlement (colonial history), the nomadic lifestyles of early inhabitants are not always as evident within the landscape as the significant imprints made by humans during the last two – three hundred years and more. Unlike ancient landscapes in parts of the world where environmental conditions allowed more intensive cultivation over periods much longer than locally have allowed natural and cultural components of the landscape to become interwoven, landscape components Northern Cape have not yet developed in such a manner. The fact that natural and cultural landscape components in the region is therefore more distinguished means that the cultural landscape is likely to be very vulnerable to the cumulative impact of inappropriate large-scale development.

Ultimately, definition of a cultural landscape can be informed by the following elements, weighed through professional opinion, public values and statutory (legal) framework:

- Natural Landscape
- Public Memory
- Social History
- Historical Architecture
- Palaeontology
- Archaeology

The site may be described as forming part of a typical Karoo landscape and defined by flat and wide open spaces overgrown by sparse, low-growing vegetation. From a Pre-Modern perspective, the site formed part of an area mostly used for small stock farming and so, modern man-made features noted on the site included e.g. shallow pans, fences, wind pumps and cement water reservoirs related to said land use. An abandoned railway line, numerous powerlines also traverses the site.

West-facing views across the landscape are however dominated by spoil heaps from the former Copperton mine and further impacts of mining activities have materially and permanently altered the adjoining landscape. From a cultural landscape perspective, the site is therefore considered to be of no local cultural significance. No ruins or significant structures were noted on or within the direct proximity of the site.

8.2 Visual Statement

The Visual Statement considers the anticipated visual impacts related to the proposal and assesses the implications of the possible site alternatives as transposed from said report below (with permission from author). Note that findings and recommendations made with relation to transmission lines associated with the proposal are not reflected below. This report is attached as Annexure 3.

"A viewshed analysis was undertaken for the photovoltaic technology options. Due to the flat terrain and the location of the southern extent of the proposed site on a shallow watershed, the visibility would cover most of the Foreground distance areas (up to 6km from site). The only receptor identified within the viewshed with high exposure was the R357 which is located adjacent to the proposed site.

A broad brush regional landscape survey was undertaken to identify key features that define the landscape context within the project approximate viewshed area. The following landmarks were identified as significant in defining the surrounding areas characteristic landscape:

- *Copperton mine and tailing storage facility (TSF)*
- *Eskom substation and powerlines*
- *Solar energy context*
- *R357 road*
- *Old railway line*
- *Isolated farmsteads (in distance)*

It was found that the proposed alternatives would not constitute a significant visual impact to the characteristic landscape and further detailed visual assessment is not necessary for the following reasons:

- *The proposed project's close proximity to the Copperton mine and TSF.*
- *The old railway line and borrow pits degrade the landscape in the immediate vicinity.*
- *The area is an unofficial node for Solar Energy development with adjacent sites already having authorization.*
- *The alignment of the proposed project with municipal planning.*

To assist in reducing the massing and crowing effects of the proposed PV structures the following is recommended:

- *That a 75m No-Go buffer from the main roads (and Copperton access road) is implemented.*
- *The lay down should be located away from the main roads*
- *The island of land between the R357 road and the Copperton access road should not be developed.*
- *The lay down should be located away from the main roads.*
- *Dust control measures should be implemented.*
- *Lights at night have the potential to significantly increase the visual exposure of the proposed project. It is recommended that mitigations are implemented to reduce light spillage (refer to Addendum for general guidelines).*
- *From a cumulative perspective, power lines should not be route on either side of the road i.e. one side of the road should be kept open with a preference for keeping eastern views away from the mine open."*

8.3 Archaeology

A copy of the Archaeological Impact Assessment (AIA), compiled by *ACO Associates*, is attached as Annexure 4/ Figure 6, the findings of which are summarised below with permission from the authors. Kindly refer to specialist's full report and findings.

"The area was surveyed by Lita Webley and David Halkett on 22 October 2014. The property was accessed by the local farm roads and transects were walked across the study area. We drove along sections of the access roads and powerline options where this was possible. The field assessment identified:

- *A large but diffuse spread of ESA and MSA stone artefacts across most of the study area.*

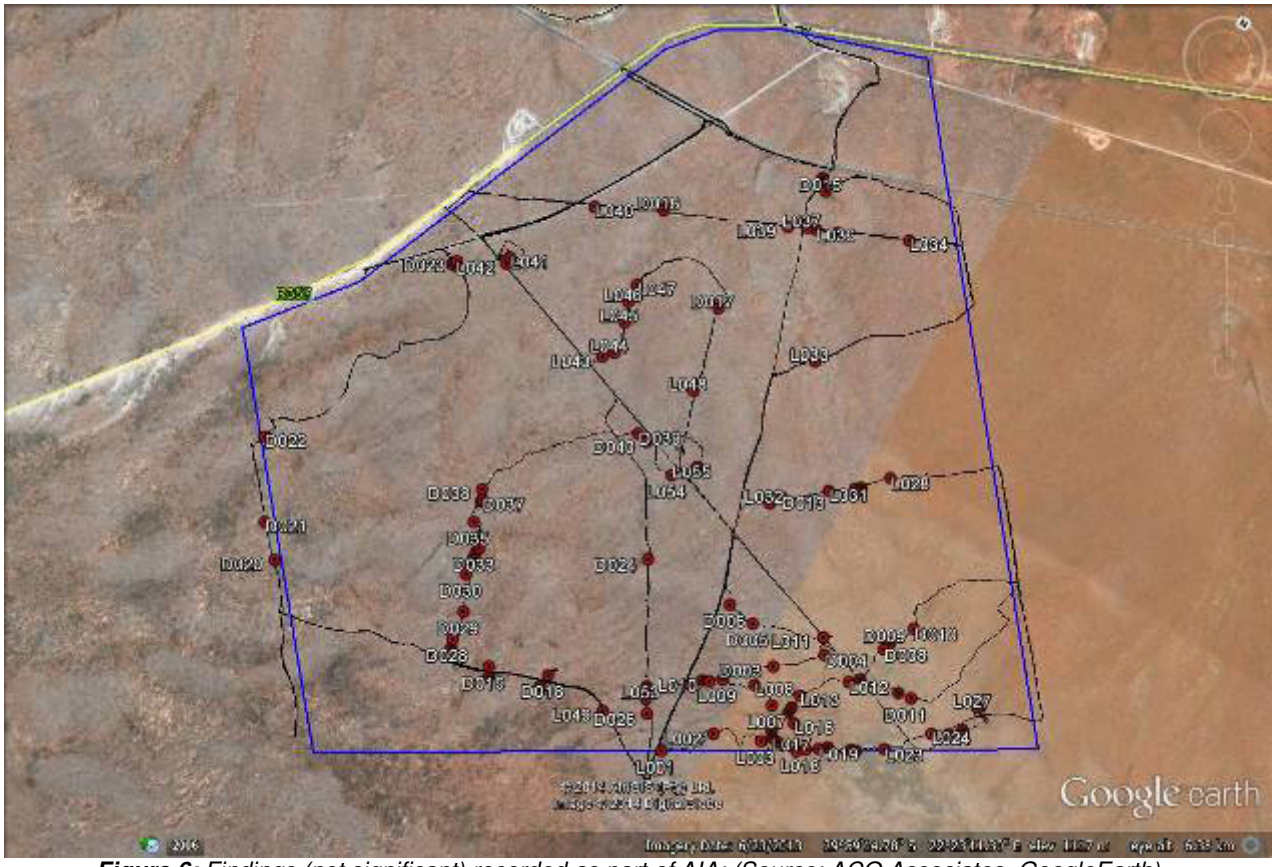

Figure 6: *Findings (not significant) recorded as part of AIA: (Source: ACO Associates, GoogleEarth)*

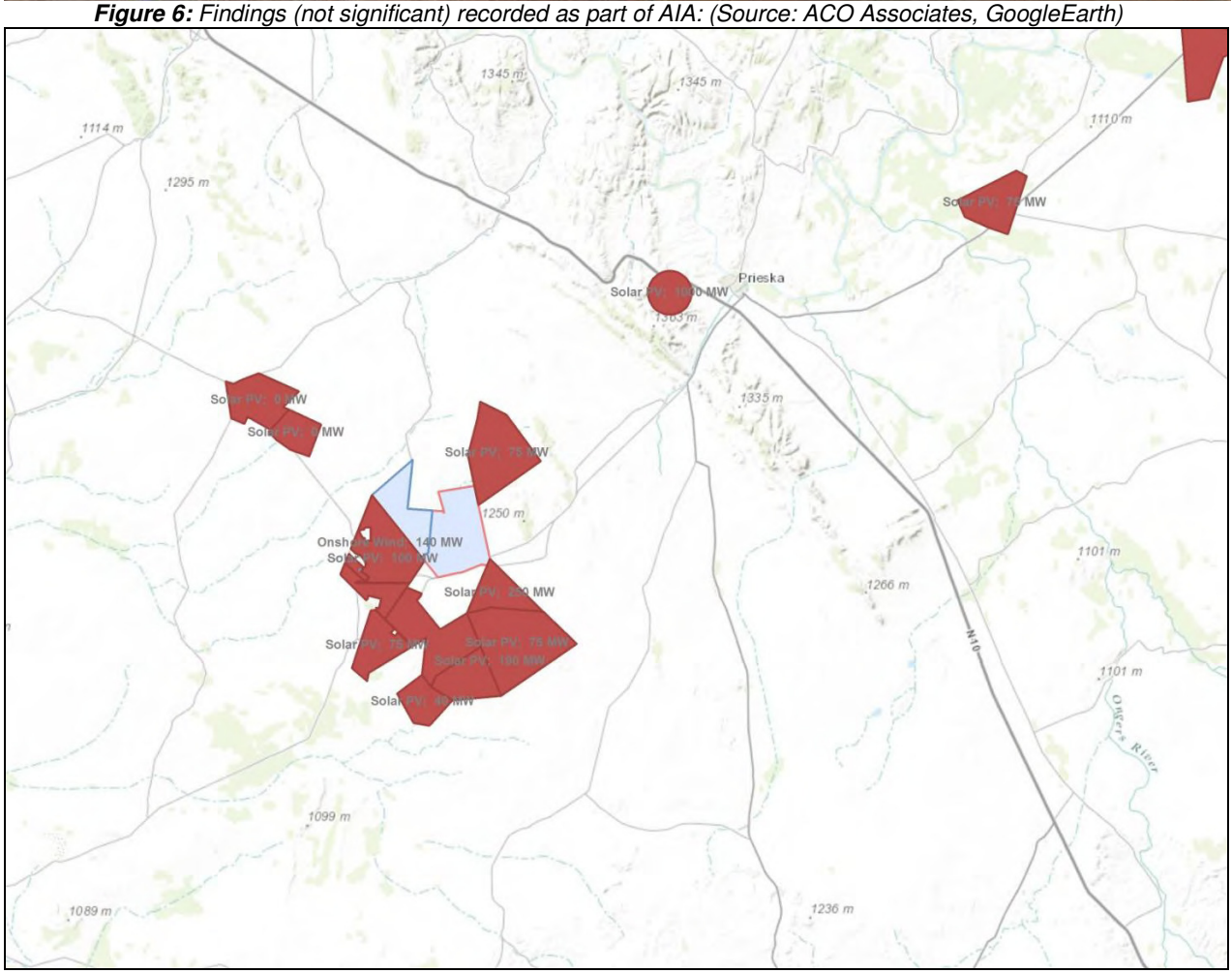

Figure 7: *Highlighting the location of several proposed renewable energy facilities and applications within the Copperton/ Humansrus area. Note this map is subject to change (Source: DEA Application maps, 2014)*

Indications are that in terms of archaeological heritage the proposed activity is viable; impacts are expected to be limited and controllable. Construction of the proposed solar facility may proceed according to the layout assessed in this report. The following recommendations should be enforced:

- *Detailed measurements and recording of stone artefacts, such as handaxes, may provide an indirect form of dating through comparison with similar industries documented elsewhere (to be included in EMP and undertaken prior to the commencement of the development);*
- *Due to potential cumulative impacts in the area, some limited sampling of artefactual material should occur prior to construction;*
- *If any human remains are uncovered during construction, the ECO should have the area fenced off and contact SAHRA (Tel: 021 462 4502) immediately.*
- *If there are any significant changes to the layout of the facility, the new design should be assessed by a heritage practitioner.*

8.3.1 Cumulative impacts

Of concern, is the increasing number of solar facilities in this area (Figure 7). The cumulative impacts of the developments will result in widespread destruction of surface distributions of ESA and MSA material. Although many of these distributions/sites have, individually, been rated as having low significance, the cumulative impact of the removal of all archaeological material will result in the destruction of large areas of archaeology.

8.4 Palaeontology

The findings and recommendations from a desktop palaeontological study (summarised below), compiled by *Natura Viva* (Dr. John Almond) conclude that no further related studies or mitigation would be required. Kindly refer to specialist's full report and recommendations, attached to this report as Annexure 4.

"The igneous and metamorphic Precambrian basement rocks underlying the Humansrus study area at depth are entirely unfossiliferous. The overlying Permo-Carboniferous glacially-related sediments of the Dwyka Group (Karoo Supergroup) are, at most, sparsely fossiliferous, with occasional transported stromatolitic carbonate erratics. Kalahari Group sediments (calcretes and aeolian sands) mantling the older bedrocks, especially in the northern portion of the study area, are generally of low palaeontological sensitivity. Mammalian bones and teeth have been recorded from similar rocks elsewhere in Bushmanland but are very scarce.

It is concluded that both the proposed Humansrus Solar PV Energy Facility 2 near Copperton, and the associated short transmission lines, are unlikely to have significant impacts on local palaeontological heritage resources.

It is therefore recommended that, pending the discovery of significant new fossils remains before or during construction, exemption from further specialist palaeontological studies and mitigation be granted for the proposed Humansrus Solar PV Energy Facility 2 on Farm Humansrus 147 near Copperton.

Should any substantial fossil remains (e.g. well-preserved stromatolites, mammalian bones and teeth) be encountered during excavation, however, these should be safeguarded, preferably in situ, and reported by the ECO to SAHRA, i.e. The South African Heritage Resources Authority, as soon as possible (Contact details: Mrs Colette Scheermeyer, P.O. Box 4637, Cape Town 8000. Tel: 021 462 4502. Email: cscheermeyer@sahra.org.za) so that appropriate action can be taken by a professional palaeontologist, at the developer's expense. Mitigation would normally involve the scientific recording and judicious sampling or collection of fossil material as well as associated geological data (e.g. stratigraphy, sedimentology, taphonomy) by a professional palaeontologist."

8.5 Eco-tourism[5]

One of the goals of ecotourism is to offer tourists insight into the impact of human beings on the environment, and to foster a greater appreciation of our natural habitats and from an economic perspective, heritage resources may prove to be valuable resources when used in sustainable manner through eco-tourism. This may for example include investment in adaptive reuse of historic buildings so as to conserve and enhance the unique character and historic themes pertinent to this area. Heritage tourism can therefore serve as a driver for economic development, including infrastructure development and poverty alleviation through job creation. The broader region's rich archaeological, palaeontological,

[5] *Section included in accordance with requirements set by National Department of Environmental Affairs*

historical and natural heritage has the potential to provide unique tourism opportunities when developed and used in responsible and sustainable ways.

Given the location as well as pattern of existing land use within the proximity of the site and furthermore, the relative low density of heritage resources considered of cultural significance noted as part of this assessment, we do not consider that the proposed development would offer significant heritage-related eco-tourism opportunities associated with the development site.

9. HERITAGE INFORMANTS AND INDICATORS

According to the requirements of Section 38(3) of the NHRA, land use planning and EIA processes must be informed by and incorporate heritage informants and indicators (as done through the mapping and grading of relevant heritage resources in Section 8 of this report). It is the purpose of this Section to define heritage informants and indicators pertaining to the way in which heritage resources must be incorporated into the overall layout and design of the proposed development as read in conjunction with preceding Sections.

9.1 Cultural landscape issues

From a regional and natural landscape perspective, the proposed development site forms part of a highly-transformed landscape altered through mining activities as well as high concentration of proposals for development of several renewable energy (solar) facilities. While the proposal would relate to a landscape modification, we do not consider that it would alter any natural or cultural landscape of cultural significance.

9.2 Visual-spatial issues

Recommendations reflected in the Visual Statement, as summarised in Section 8.2 of this HIA report shall be adhered to.

9.3 Archaeology

All recommendations contained in AIA, as summarised in Section 8.3 of this HIA report shall be adhered to.

9.4 Palaeontology

It is recommended that no further palaeontological studies or mitigation be undertaken in respect of the proposed development site. Should substantial fossil remains be exposed during construction, however, the ECO should safeguard these, preferably *in situ*, and alert SAHRA as soon as possible so that appropriate action (*e.g.* recording, sampling or collection) can be taken by a professional palaeontologist.

10. PUBLIC PARTICIPATION

Due to the fact that there are no known local heritage conservation bodies in the Humansrus area (registered as such with the relevant provincial heritage resources authority in terms of Section 25 of the National Heritage Resources Act, 1999 (Act 25 of 1999)), the Public Participation Process (PPP) for this HIA will be coordinated with that of the EIA Process facilitated by *Cape Environmental Assessment Practitioners (Pty) Ltd* (Cape EAPrac) in terms of the National Environmental Management Act, 1998 (Act 107 of 1998), so as to solicit possible heritage-related comments with relation to the proposed development.

11. LIMITATIONS AND ASSUMPTIONS

- This report is limited to the assessment of the potential impact of the proposed facility on heritage resources found on/ within the proximity of the development site as defined in this report;
- There is a limitation in terms of understanding the cumulative impacts of the project when taken in conjunction with other similar future development projects in the surrounding area.

12. RECOMMENDATION

Having regard to the above assessment, it is recommended that:

12.1 This report fulfils the requirements of an Integrated Heritage Impact Assessment (HIA);

12.2 That the recommendations below be incorporated into the proposed development and that the Department of Environmental Affairs be informed accordingly:

	Recommended Conditions of Approval
VS-1	*A 75m No-Go buffer from the main roads (and Copperton access road) must be implemented.*
	The island of land between the R357 road and the Copperton access road should not be developed.
VS-2	*The lay down should be located away from the main roads*
VS-3	*Dust control measures should be implemented.*
VS-4	*Lights at night have the potential to significantly increase the visual exposure of the proposed project. It is recommended that mitigations are implemented to reduce light spillage (refer to Addendum to Visual Statement for general guidelines).*
VS-5	*From a cumulative perspective, power lines should not be route on either side of the road i.e. one side of the road should be kept open with a preference for keeping eastern views away from the mine open.*
AIA-1	*Detailed measurements and recording of stone artefacts, such as handaxes, may provide an indirect form of dating through comparison with similar industries documented elsewhere (to be included in EMP and undertaken prior to the commencement of the development).*
AIA-2	*Due to potential cumulative impacts in the area, some limited sampling of artefactual material should occur prior to construction*
AIA-3	*If any human remains are uncovered during construction, the ECO should have the area fenced off and contact SAHRA (Tel: 021 462 4502) immediately*
AIA-4	*If there are any significant changes to the layout of the facility, the new design should be assessed by a heritage practitioner*
PIA-1	*Should any substantial fossil remains (e.g. mammalian bones and teeth) be encountered during excavation, however, these should be safeguarded, preferably in situ, and reported by the ECO to SAHRA, i.e. The South African Heritage Resources Authority, as soon as possible (Contact details: Mrs Colette Scheermeyer, P.O. Box 4637, Cape Town 8000. Tel: 021 462 4502 (Email: cscheermeyer@sahra.org.za), so that appropriate action can be taken by a professional palaeontologist, at the developer's expense. Mitigation would normally involve the scientific recording and judicious sampling or collection of fossil material as well as associated geological data (e.g. stratigraphy, sedimentology, taphonomy) by a professional palaeontologist.*

PERCEPTION Planning
27th November 2014

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