

HERITAGE SCOPING STUDY FOR SOL INVICTUS SOLAR PV DEVELOPMENT ON OU TAAIBOSMOND 66/5, NAMAKWALAND MAGISTERIAL DISTRICT, NORTHERN CAPE

Report for:

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EXECUTIVE SUMMARY

ASHA Consulting (Pty) Ltd was appointed by Savannah Environmental (Pty) Ltd to conduct a heritage scoping study for the Sol Invictus 1, Sol Invictus 2, Sol Invictus 3 and Sol Invictus 4 PV facilities on Portion 5 of the farm Ou Taaibosmond 66, near Aggeneys. The scoping assessment considers the full extent of Portion 5 of the farm Ou Taaibosmond 66. Due to the nature of the site, the assessment provided below is relevant to the Sol Invictus 1, Sol Invictus 2, Sol Invictus 3 and Sol Invictus 4 PV project development areas. For the purpose of this report the aforementioned PV Facilities will be referred to as the Sol Invictus Solar PV Development. The project will also have a power line that will run from the facility to the Aggeneys Substation some 18 km to the east. The study area lies in the Koa River Valley at the far northern end of Bushmanland. The site lies on level ground some 3.5 km north of the N14.

Archaeological material is likely to be present but the most important sites would very likely be clustered around exposures of bedrock, particularly any that trap water after rain. Likely areas for this would be in the south-western part of the study area. Palaeontological resources are likely to be very sparse in the surface sands, while the igneous and metamorphic bedrock deposits are unfossiliferous. The site lies more than 3 km from the N14, which is considered a scenic route. This distance will result in a generally limited visibility of the facility from the road.

It is recommended that the assessment of the proposed projects proceed to the EIA phase. The developers should take cognisance of any rocky areas on the site and avoid these when designing the PV layout so as to minimise archaeological impacts. A full ground survey of the development area should be carried out for the purposes of identifying any archaeological resources that may still fall within the development footprint and which may require some sort of mitigation prior to construction. The results will need to be presented in a heritage impact assessment report which should be submitted to SAHRA for comment. No further detailed study of the palaeontological aspects is required.

Glossary

Background scatter: Artefacts whose spatial position is conditioned more by natural forces than by human agency

Early Stone Age: Period of the Stone Age extending approximately between 2 million and 20 000 years ago.

Later Stone Age: Period of the Stone Age extending over the last approximately 20 000 years.

Middle Stone Age: Period of the Stone Age extending approximately between 200 000 and 20 000 years ago.

Abbreviations

ASAPA: Association of Southern African Professional Archaeologists

CRM: Cultural Resources Management

ESA: Early Stone Age

HIA: Heritage Impact Assessment

LSA: Later Stone Age

MSA: Middle Stone Age

NHRA: National Heritage Resources Act (No. 25) of 1999

SAHRA: South African Heritage Resources Agency

SAHRIS: South African Heritage Resources Information System

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1. INTRODUCTION

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The project site lies in the Koa River Valley at the far northern end of Bushmanland. The project will also have a power line that will run from the facility to the Aggeneys Substation some 18 km to the east. The site lies on level ground some 3.5 km north of the N14 (Figure 2).

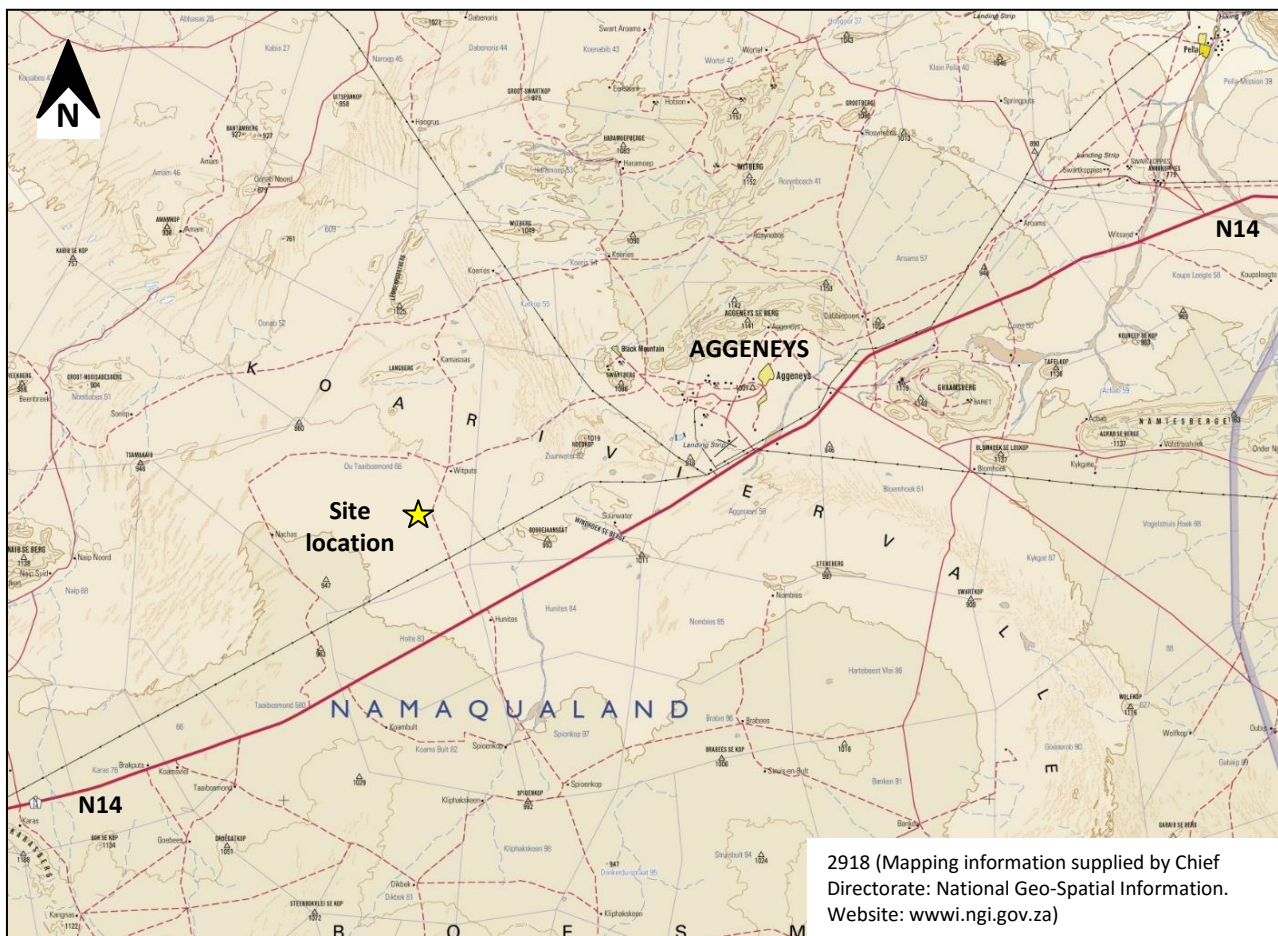


Figure 1: Map showing the location of the site.

1.1. Project description

Each PV facility will include the following infrastructure:

- » Arrays of PV panels with a capacity of up to 150 MW;
- » Mounting structures to support the PV panels;
- » Cabling between the project components, to be laid underground where practical;

- » On-site inverters to convert the power from a direct current (DC) to an alternating current (AC) and an on-site substation to facilitate the connection between the solar energy facility and the Eskom electricity grid;
- » Battery storage mechanism with a storage capacity of 300 MWh;
- » Direct connection to the grid via a 132 kV overhead line to the Aggeneis Substation;
- » Internal access roads, offices and workshop areas for maintenance and storage; and
- » Temporary laydown areas.

1.2. Terms of reference

ASHA Consulting was asked to produce a heritage scoping study to identify any potential heritage issues that should be considered during planning of the proposed facilities. Note that the palaeontological impacts are being assessed by a separate specialist but all other aspects of heritage are considered here.

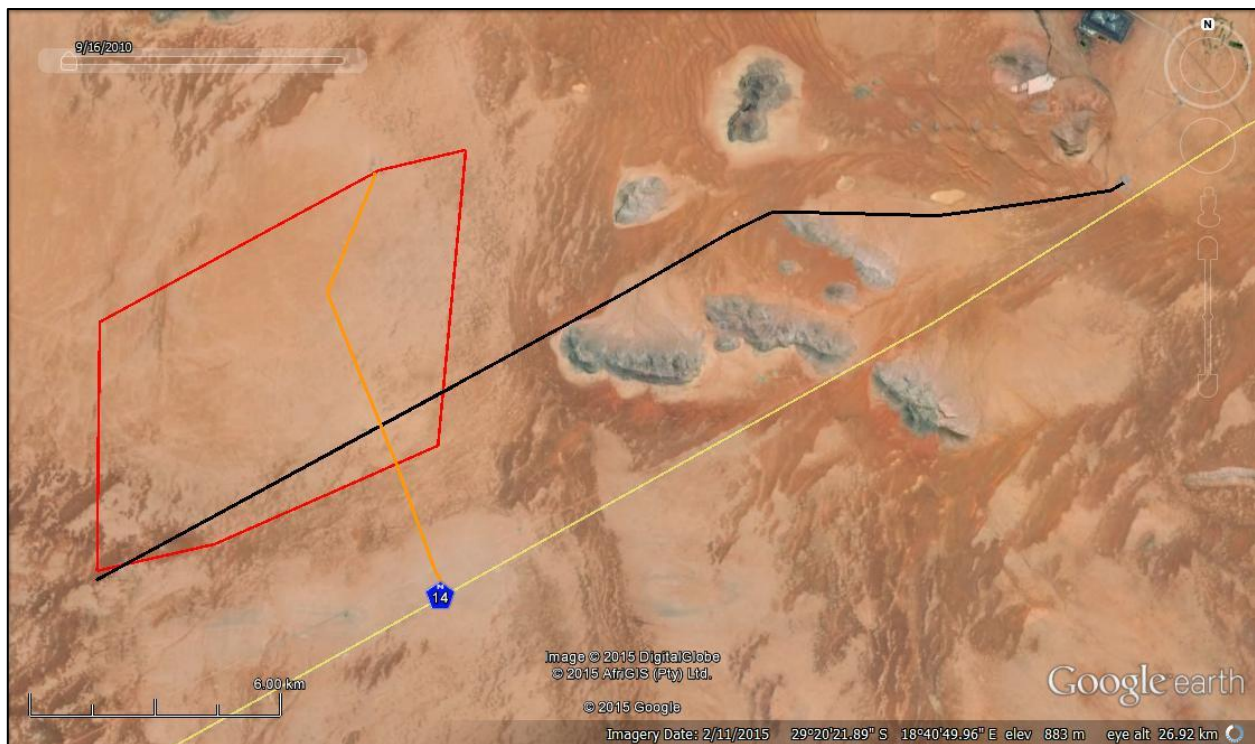


Figure 2: Aerial view of the study area showing the site considered for the proposed developments (red polygon), the proposed transmission lines to the Aggeneis Substation in the east (black line), and the existing access road (orange line). The N14 runs past the site some 3.5 km to the southeast.

1.3. The author

Dr Jayson Orton has an MA (UCT, 2004) and a D.Phil (Oxford, UK, 2013), both in archaeology, and has been conducting Heritage Impact Assessments (HIAs) and archaeological specialist studies in the Western Cape and Northern Cape provinces of South Africa since 2004. He has also conducted research on aspects of the Later Stone Age in these provinces and published widely on the topic. He is accredited with the Association of Southern African Professional Archaeologists (ASAPA) CRM section (Member #233) as follows:

- » Principal Investigator: Stone Age, Shell Middens & Grave Relocation; and
- » Field Director: Colonial Period & Rock Art.

1.4. Declaration of independence

ASHA Consulting (Pty) Ltd and its consultants have no financial or other interest in the proposed development and will derive no benefits other than fair remuneration for consulting services provided.

2. HERITAGE LEGISLATION

The National Heritage Resources Act (NHRA) No. 25 of 1999 protects a variety of heritage resources as follows:

- » Section 34: structures older than 60 years;
- » Section 35: palaeontological, prehistoric and historical material (including ruins) more than 100 years old;
- » Section 36: graves and human remains older than 60 years and located outside of a formal cemetery administered by a local authority; and
- » Section 37: public monuments and memorials.

Only archaeological resources, and possibly graves, are relevant to the present project and these are defined in Section 2 as follows:

Following Section 2, the definitions applicable to the above protections are as follows:

- » Structures: "any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith";
- » Palaeontological material: "any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace";
- » Archaeological material: a) "material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures"; b) "rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation"; c) "wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation"; and d) "features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found";
- » Grave: "means a place of interment and includes the contents, headstone or other marker of such a place and any other structure on or associated with such place"; and
- » Public monuments and memorials: "all monuments and memorials a) "erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government"; or b) "which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual."

While landscapes with cultural significance do not have a dedicated Section in the NHRA, they are protected under the definition of the National Estate (Section 3). Section 3(2)(c) and (d) list "historical settlements and townscapes" and "landscapes and natural features of cultural significance" as part of the National Estate. Furthermore, Section 3(3) describes the reasons a place or object may have cultural heritage value; some of these speak directly to cultural landscapes.

All of these resources are considered by the present scoping assessment and would need to be assessed during the impact assessment phase if it was determined that they would be affected by the proposed development.

3. METHODS

A survey of available literature was carried out to assess the general heritage context into which the development would be set. This literature included published material, unpublished commercial reports and online material, including reports sourced from the South African Heritage Resources Information System (SAHRIS).

4. HERITAGE CONTEXT

This section of the report establishes what is already known about heritage resources in the vicinity of the study area. The principle concern in this area is archaeology, but palaeontology is also relevant. What is found during the field survey may then be compared with what is already known in order to gain an improved understanding of the significance of the newly reported resources.

4.1. Palaeontology

The SAHRIS Palaeomap indicates that the project site lies in an area that is largely of 'moderate' palaeontological sensitivity (Figure 3). Almond (2015) notes in his desktop study that hard rocks – mainly gneisses, schists, quartzites and amphibolites – crop out at the surface only in the southwestern part of the study area. These are igneous and metamorphic rocks. The bulk of the study area, however, exhibits a range of unconsolidated to semi-consolidated superficial sediments. These are largely aeolian deposits of far more recent age than the underlying rocks.



Figure 3: Extract from the SAHRIS Palaeomap indicating the palaeontological sensitivity of the area.

No fossils are known to have been found within the study area. Although isolated examples of fossil sites are found in the broader region, for example at Bundu Pan near Copperton (Kibberd 2006), the fossil record of the Kalahari Group as a whole is sparse and limited in its diversity. While the basement rocks are unfossiliferous, the kinds of fossils that may be expected to

occur in the sand deposits are of very low significance and would be sparsely distributed. Overall, the palaeontological sensitivity of the study area is thus considered to be low.

4.2. Archaeology

A number of surveys have been carried out in the Aggeneys area and have reported a variety of finds. Morris (2011b) surveyed an area to the east of the present study area and, because of the sand cover, found only a small number of isolated quartz artefacts. He does, however, note the presence of a rock painting on a boulder at Aggeneys, 17 km east of the present PV study area. The painting is a finger painting likely associated with the Khoekhoen. Similar art is found on granite outcrops throughout Namaqualand but in very low densities (Orton 2013). Morris (2013) found bedrock grinding hollows with associated scatters of stone artefacts, pottery and ostrich eggshell on another farm further to the south, while Orton and Webley (2012a, 2012b) recorded similar sites at Kangnas some 33 km to the west of the current study area and also at a site to the southeast of Pofadder. To the northeast of Pofadder Orton (2015) located a number of LSA stone artefact scatters directly associated with very small rock outcrops. The outcrops had hollows in them that caught rainwater and attracted settlement. Bedrock grooves also occurred at some of these sites. Within the Ghaamsberg Inselberg 33 km to the east of the study area there are a variety of archaeological traces preserved. Scatters of Early Stone Age (ESA) artefacts occur in open, often eroding areas, while a small rock shelter preserves a c. 30 cm deep Later Stone Age (LSA) deposit and rock art is found in the kloof that drains the mountain (Orton 2014).

More generally, it can be noted that archaeological sites in the area tend to be more commonly encountered around the fringes of granite hills, on sand dunes or around pans (Beaumont *et al.* 1995). Other surveys in the region support this contention (Halkett 2010; Morris 2011a, 2013; Orton & Webley 2012).

4.3. Other heritage

There is always the small possibility of encountering unmarked graves in sandy substrates. However, because of the envisaged low density of occupation sites the chance of locating such graves is deemed to be very small.

Although the landscape itself does not carry any particular cultural significance, the N14 that runs to the south of the site can be deemed to be a scenic route because of the aesthetic qualities of the landscape through which it runs. However, the distance between the site and the road (> 3 km) suggests that the proposed development will be virtually invisible from the road and this aspect is of no further concern.

5. CONCLUSIONS

It is only archaeological resources that are likely to be of concern, but with mitigation through avoidance or excavation it is anticipated that the eventual impacts would be of low significance. Sites are most likely to be situated around rocky outcrops or low exposures of bedrock, particularly any which might trap rainwater. No fatal flaws are anticipated and archaeological resources will thus not impact on the decision to proceed with the proposed development.

It is difficult to predict where significant palaeontological resources may be found, but it is considered very unlikely that such material would be uncovered within the geological deposits of the study area. As such, this aspect does not affect the decision to proceed and Almond (2015) is of the opinion that no further studies are warranted for the Sol Invictus 1, Sol Invictus 2, Sol Invictus 3 and Sol Invictus 4 PV Facilities. Nevertheless, should anything significant be located during excavations for the development then it may be necessary to have the find examined and possibly collected by a qualified palaeontologist to ensure that important scientific data is not lost. Because there is no way to predict the locations of graves

this aspect also does not affect the decision to proceed. Any unmarked grave uncovered during implementation would simply need to be dealt with at the time.

6. RECOMMENDATIONS

It is recommended that the assessment of all four proposed projects proceed to the EIA phase. The developers should take cognisance of any rocky areas on the site and avoid these when designing the respective project development footprints so as to minimise archaeological impacts. A full ground survey of the development area should be carried out for the purposes of identifying any archaeological resources that may still fall within the development footprints and which may require some sort of mitigation prior to construction. The results will need to be presented in HIA reports which should be submitted to SAHRA for comment. No further detailed study of the palaeontological aspects is required for any of the four projects.

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