

**ARCHAEOLOGICAL HERITAGE SCOPING ASSESSMENT  
THE PROPOSED SOLAR CAPE 100MW PHOTOVOLTAIC  
ENERGY GENERATION FACILITY NEAR KENHARDT  
NORTHERN CAPE PROVINCE**

Prepared for:

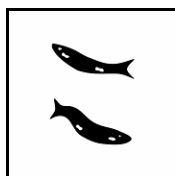
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**MARCH  
2011**

## Executive summary

The Agency for Cultural Resource Management was requested by Cape Lowlands Environmental Services cc to conduct an Archaeological Heritage Scoping Assessment for a proposed 100 MW Photovoltaic (PV) Energy Facility on a portion of the Farm Olyvenkolk 187/3 and 187/13, near Kenhardt in the Northern Cape Province. The proposed site is located next to the Eskom Aries substation, which is about 40 kms south west of Kenhardt.

The total area of Olyvenkolk Farm is about 2 200 ha. The proposed activity entails the construction of 34 blocks of photovoltaic solar panels covering an area of about 160 ha. The PV panels will be mounted on pedestals. Associated infrastructure includes single track internal access roads and underground cables. Extensive bedrock excavations are not envisaged. The electricity that will be generated from the project will be fed directly into the national grid at Aries substation. The proposed facility will use the old Sishen Saldanha railway line construction camp, as a construction camp site that will include operational buildings, guest house, self catering cottages, a visitor centre, a research centre, worker cottages and parking facilities.

The Archaeological Heritage Scoping Assessment forms part of the Environmental Impact Assessment (EIA) process that is being conducted by independent environmental consultants, Cape Lowlands Environmental Services cc.

A 2-day scoping assessment was undertaken by the archaeologist, in which 25 Scoping Location Sites were searched for archaeological remains.

The following observations were made:

- Low density scatters of Stone Age tools were documented at each of the 25 Scoping Locations.
- The majority of the finds are assigned to the Middle Stone Age, where most of the tools comprise blunted and pointed flakes, flaked chunks, radial and prepared cores. Several retouched and utilised parallel sided flake blades, and retouched points were also found, while several end and convex scrapers were counted. While the majority of the lithics found are in quartzite, relatively large numbers are in weathered indurated shale.
- A rare, hollow-based point in indurated shale was also found, indicating a date of a least about 40 000 years old. This is a surprising find, as to date hollow-based points have only been recorded from two caves in KwaZulu Natal.
- Early Stone Age tools were documented, including three handaxes and one cleaver.
- Later Stone Age tools including a few small round cores, flakes and chunks in chalcedony and opaline were documented.
- No organic remains such as bone, pottery or ostrich eggshell was found

- MSA tools were found on a large patch of gravel and compact brown sands near the drainage line in the south eastern boundary of the proposed footprint area. The site, known as knh14 comprises a medium-high, density scatter of pointed and blunted flakes, blades tools, points, cores, hammerstones and chunks and possibly represents a settlement site, with activity areas. The range of tool types, the context of the site and the fact that the tools appear to be in-situ has meant that knh14 has been rated as having high significance.

It is maintained that the archaeological heritage scoping assessment has captured good information on the archaeological heritage present that is representative of the proposed footprint area and surrounding areas.

Scoping results indicate that the proposed development of a 100 MW photovoltaic power generation facility on the Farm Olyvenkolk 187/3 and 187/13 near Kenhardt will not have an impact of great significance on these and potentially other archaeological remains, but that knh14 is an important site that will require further investigation before development activities proceed.

Indications are that in terms of the archaeological heritage, the proposed construction of the Solar Cape PV facility near Kenhardt is viable, and impacts are expected to be limited. Overall the numbers of tools found are quite small and the PV panels will be mounted on pedestals that are built above ground. Extensive bedrock excavations are not envisaged.

In archaeological terms, no fatal flaws have been identified.

The following recommendations are made:

1. The project is deemed to be viable
2. A Phase 1 Archaeological Impact Assessment is not required
3. The site known as knh14 must be mapped in detail and the material collected for analysis. Alternatively, a buffer of at least 75 m must be established around this important archaeological site and declared a 'No-Go' development area.

While it is not supported by this archaeologist, the site could also be fenced off. However, any fencing must be done in consultation, and under the supervision of the archaeologist. A gate must also be provided in case any future research is required.

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## 1. INTRODUCTION

Cape Lowlands Environmental Services cc, on behalf of Solar Land cc requested that the Agency for Cultural Resource Management conduct an Archaeological Heritage Scoping Assessment for a proposed Photovoltaic (PV) Energy Facility near Kenhardt in the Northern Cape Province (Figure 1). The proposed development is situated within the KAI!GARIB Municipality. The Northern Cape has the highest levels of Solar Irradiance in South Africa, which makes the location of the proposed development ideal for solar energy generation.

The renewable energy industry is currently experiencing an explosive growth worldwide. In South Africa, while such energy sources are not expected to replace the country's traditional reliance and dependency on coal-generated power, the National Energy Regulator of South Africa (NERSA) has published a favourable feed-in tariff structure for renewable energy that allows for independent clean energy producers to invest in renewable energy resources. The growing wind farm and solar energy industry is considered to be of national importance in anticipation of its contribution to electricity supply and reduced reliance of non-renewable energy sources.

It is in this context that the applicant proposes to construct a 100 Mega Watt (MW) PV energy facility near Kenhardt. The proposed activity entails the construction of 34 blocks of photovoltaic solar panels covering an area of about 160 ha. Each block will generate approximately 3 MW with a total of 100MW being produced and consists of panels mounted on pedestals, with a 5 m wide single track gravel road around each block. A group station will be constructed in the middle of each solar block. Electricity generated from the solar panels will be transported via underground cables to a main station. From the main station the electricity will be transported to the existing 22 Kv Eskom overhead powerline that is located on the site. An on-site generator transformer will facilitate the connection between the solar energy facility and the Eskom electricity grid. The facility will link into the existing 22 KV Eskom line immediately north of the proposed site which feeds directly into the Aries Eskom Substation bordering the site in the east.

The proposed facility will use the old Sishen Saldanha railway line construction camp on the farm (refer to Figure 2), as a construction camp site, that will include operational buildings, guest House, self catering cottages, a visitor's centre, a research centre, worker cottages and parking.

The Archaeological Heritage Scoping Assessment forms part of the Environmental Impact Assessment (EIA) process that is being conducted by independent environmental consultants, Cape Lowlands Environmental Services.

Dr Joh Almond of Nature viva cc has completed a Paleontological Impact Assessment (PIA) desk top study of the proposed project (Almond 2011).

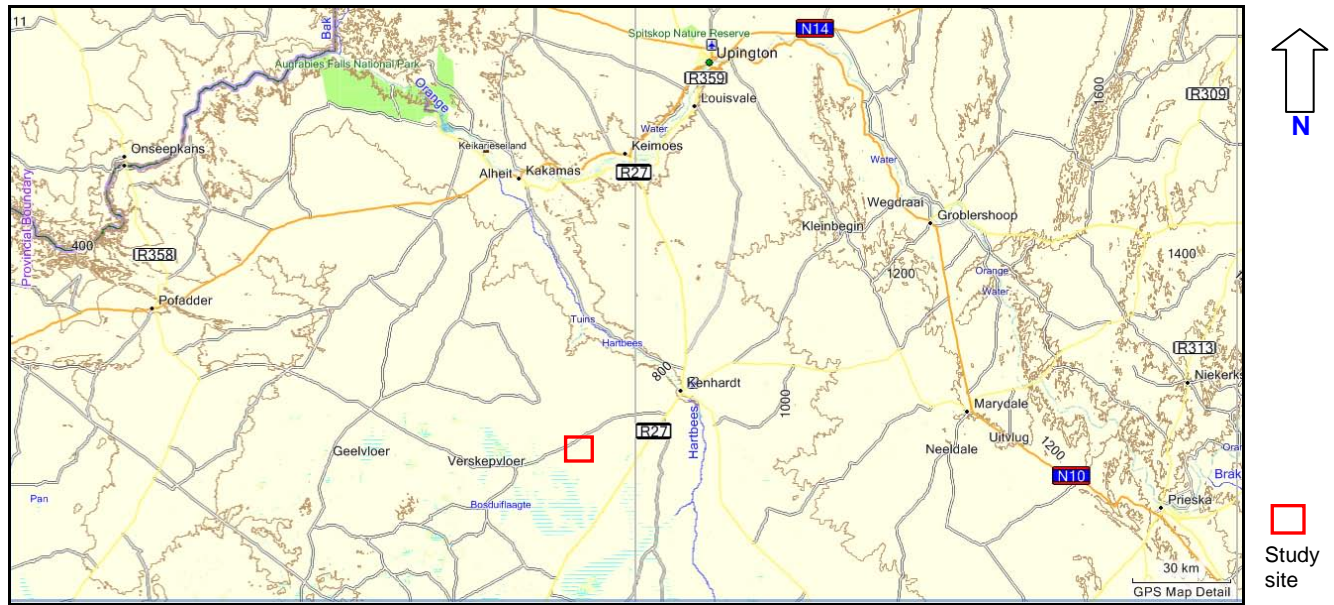


Figure 1. Locality map

## 2. HERITAGE LEGISLATION

The National Heritage Resources Act (Act No. 25 of 1999) makes provision for a compulsory Heritage Impact Assessment (HIA) when an area exceeding 5000 m<sup>2</sup> is being developed. This is to determine if the area contains heritage sites and to take the necessary steps to ensure that they are not damaged or destroyed during development.

The NHRA provides protection for the following categories of heritage resources:

- Landscapes, cultural or natural (Section 3 (3))
- Buildings or structures older than 60 years (Section 34);
- Archaeological sites, palaeontological material and meteorites (Section 35);
- Burial grounds and graves (Section 36);
- Public monuments and memorials (Section 37);
- Living heritage (defined in the Act as including cultural tradition, oral history, performance, ritual, popular memory, skills and techniques, indigenous knowledge systems and the holistic approach to nature, society and social relationships) (Section 2 (d) (xxi)).

## 3. TERMS OF REFERENCE

The terms of reference for the Archaeological Impact Assessment are as follows:

- Determine whether there are likely to be any important archaeological resources that may potentially be impacted by the proposed project, including the erection of the PV solar panels, internal roads, underground cables and associated infrastructure;
- Indicate any constraints that would need to be taken into account in considering the development proposal;

- Identify sensitive archaeological areas, and
- Recommend any further mitigation action.

#### **4. DESCRIPTION OF THE AFFECTED ENVIRONMENT**

An aerial photograph indicating the location of the proposed Solar Cape PV Energy Facility is illustrated in Figure 2.

The proposed site (a portion of the remainder of the Farm Olyvenkolk 187/3 and 187/13) is situated approximately 40 kms south west of Kenhardt, on the gravel road (P2988) to Pofadder. The gravel road is located about 5 kms south of Kenhardt, on the R27. Kenhardt is located about 715 kms from Cape Town, and about 115 kms south west of Upington. The proposed site is situated directly east of the Aries Eskom substation and south of the gravel road to Pofadder. The Sishen Saldanha railway line runs across the southern portion of the study site. The total area of Olyvenkolk Farm is about 2 200 ha.

Existing infrastructure on the farm includes a gravel landing strip, farm yard houses and stores and the partly decommissioned Sishen-Saldanha construction yard (the proposed construction camp site). Apart from a 2-track farm road that borders the proposed footprint area and the existing 22 Kv overhead Eskom powerline that cuts across the property, there is no other existing infrastructure on the proposed development site.

The site is fairly level, but does slope from west to east, and is mostly covered in low scrub, bush and some grasses, although there are large patches of open ground that are covered in stone (Figures 3-10). Several drainage lines occur across the property in the north and south east. There are no significant landscape features such as rocky outcrops, kopjes or even large isolated dolerite boulders on the proposed site. The surrounding land use is agriculture (grazing).





Figure 2. Aerial photograph of the study site, as well as the location site for a proposed smaller 10 MW PV facility



Figure 3. View of the proposed footprint area facing south east





Figure 4. View of the proposed footprint area facing south

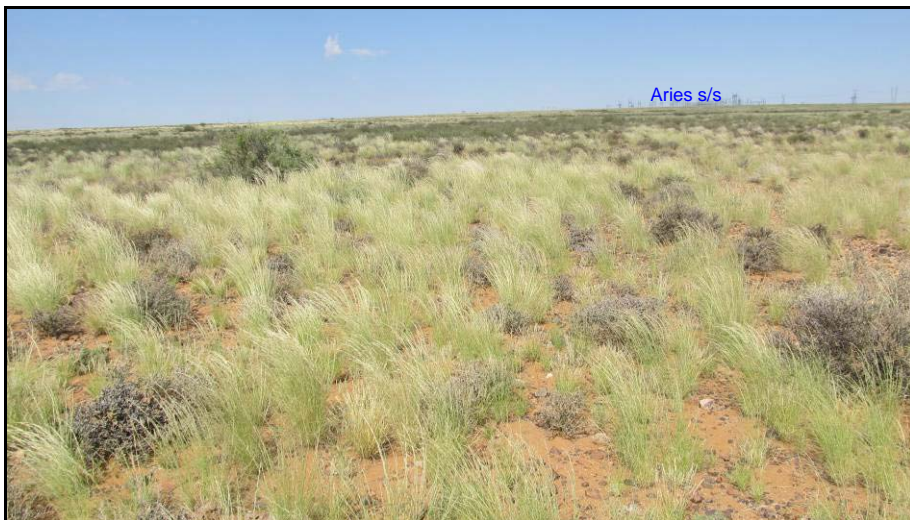


Figure 5. View of the proposed footprint area facing south west.



Figure 6. View of the proposed footprint area facing south





Figure 7. View of the proposed footprint area facing south west

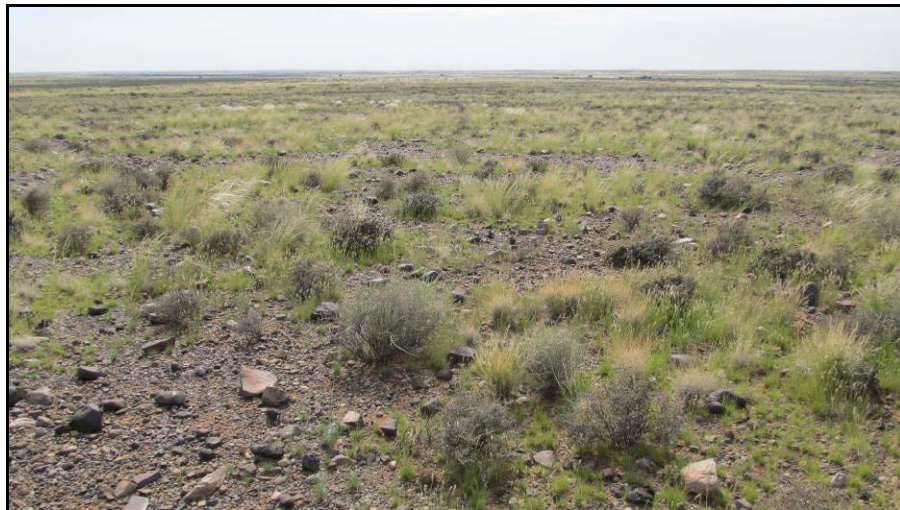


Figure 8. View of the proposed footprint area facing north east

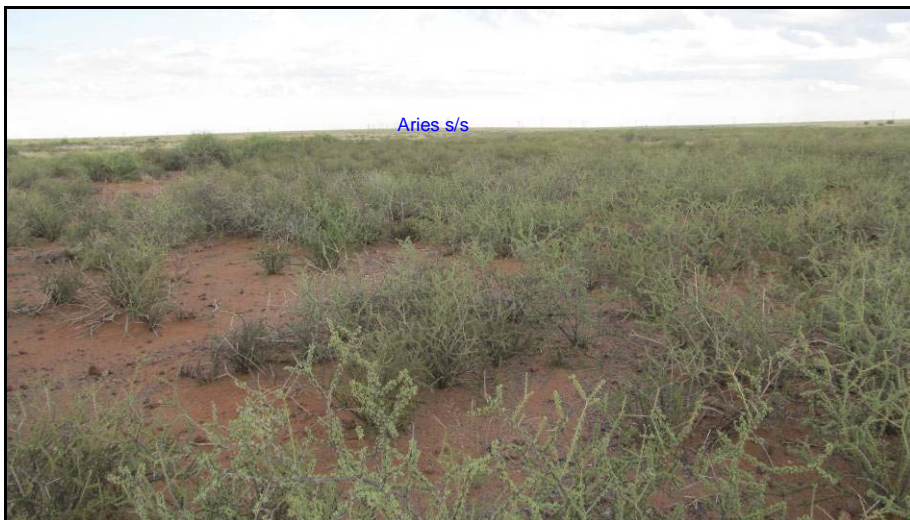


Figure 9. View of the proposed footprint area facing west



Figure 10. View of the footprint area facing south east

## 5. STUDY APPROACH

### 5.1 Method of survey

A 2-day site visit was undertaken, that was designed to assess the archaeological sensitivity of a proposed 100 MW solar power site. The results of the scoping assessment would inform whether a more detailed, Phase 1 Archaeological Impact Assessment (AIA) would be required as well as any mitigation and management action that would need to be undertaken.

The archaeological scoping study is therefore an attempt to assess and possibly predict the archaeological impacts of a proposed PV facility on a large (160 ha), undeveloped portion of land.

Only the approximate footprint area of the proposed development site was examined. This entailed the physical inspection of 25 Scoping Location sites within the proposed area. Each location site was recorded using a hand held GPS unit set to map datum WGS84.

An average of about 30 minutes was spent at each location site. While some locations sites were very close to the vehicle (not more than a few minutes walk), other location sites (for example knh9, knh11, knh13 and knh17-15) entailed walking for up to 20 minutes, in order to get there, and these areas were also searched along the way.

Although the project is currently only at the Environmental Scoping Phase of the EIA process, an extensive survey could not be carried out in the time available. However, considering the relatively large area covered by the archaeologist, it is maintained that the survey has captured good information on the archaeological heritage present.

The site visit and assessment took place on the 9<sup>th</sup> and 10<sup>th</sup> March, 2011 and a number of archaeological observations were made.

A brief literature review was also conducted.

## 5.2 Constraints and limitations

The size (about 160 ha) of the proposed footprint area did limit the extent of the area that could be covered (by the archaeologist) in the time set aside for scoping. In addition, where drainage lines occur, the surrounding areas are quite heavily vegetated, resulting in low archaeological visibility (refer to Figure 9 for example). Despite the above constraints and limitations, it is felt that the scoping study has provided an adequate reflection of heritage resources present in the footprint area.

## 5.3 Identification of potential risks

Based on the results of the scoping assessment, there do not appear to be any significant archaeological risks associated with the proposed project. While Stone Age implements do occur, these are spread quite thinly and unevenly over the surrounding landscape.

However, the site known as knh14 which is situated near the drainage line in the south eastern portion of the proposed site has been rated as having high significance. This site will either have to be fully mitigated, or management actions must be put in place that will protect the integrity of this important site during the Construction and Operational Phase of the proposed project.

It should also be remembered that the PV panels will be mounted on pedestals, so that limited bedrock excavation will take place. Underground cables will, however connect to an existing powerline and small, single track service roads will need to be built, and these will likely have an impact on the archaeological heritage.

## 5.4 Results of the desk top study

The archaeology of the Northern Cape is rich and varied covering long spans of human history. Work done by Kiberd (2002, 2006) near Copperton (in eastern Bushmanland) recovered archaeological material that included large numbers of Later Stone Age tools, Middle Stone Age lithics with fauna and Early Stone Age tools and fauna in a stratigraphic context, including a possible hearth, which may be older than 300 000 years. The northern Karoo (or Bushmanland) was one of the last regions of the Cape Province to be settled by early European farmers, partly because it is so dry and partly because it was so far from Cape Town and produce markets. The result was that it became a last outpost of the /Xam Bushman who still hunted and gathered there in the last decades of the 19<sup>th</sup> Century (Deacon 1986; Morris 1989). Research undertaken by Janette Deacon (1996) suggests that the Grass Bushmen may have lived between Kenhardt and Brandvlei, while the Flat Bushmen lived between Vanwyksvlei and Kenhardt. Many archaeological sites have been documented in this vast, seemingly featureless region, close to pans, springs, and among sand dunes near dry river beds, while the round dolerite boulders scattered over the flat landscape and on mountain tops and kopjes contain many different types of rock engravings. Most of the sites with stone tools, pottery and ostrich eggshell appear to belong to the Wilton Complex of the Later Stone Age, dating to around 2000 or 3000 years ago (Deacon 1986). A survey of a proposed water supply pipeline between Keimoes and Kenhardt did recover relatively large numbers of Later Stone Age implements in the road reserve, while smaller numbers of Middle and Early Stone Age tools were also recovered (Kaplan 2008). A few



quartz chunks were found during a survey of a proposed electrical substation between Kenhardt and Groblershoop (Webley & Halkett 2010).

## 6. FINDINGS

25 Scoping Location sites (knh1-knh25) were randomly selected and searched for archaeological remains. The drainage line in the lower-lying south eastern portion of the footprint area was consciously targeted, as it was felt that this area would potentially be the most productive. The results of the inspection appear to vindicate this decision.

A spreadsheet of the waypoints and a description of the archaeological finds are indicated in Table 1. Location sites were mapped with a hand held GPS unit (refer to Figure A in Appendix), but individual tools were not point plotted. Notes were taken of the finds made. A collection of tools were photographed, including the context in which some of the remains were found.

The findings of the archaeological scoping assessment indicate that while (overall) relatively large numbers of tools were documented over the proposed footprint area; in most cases, on average, less than one stone flake was found p/m<sup>2</sup> searched, thus qualifying as a low density scatter. By far the majority of the tools documented are assigned to the Middle Stone Age (MSA) and are dominated by both pointed and blunted quartzite flakes with convergent dorsal scars, parallel sided flake blades (for cutting), points (presumably hafted onto spears for hunting), chunks, flaked chunks (or minimal cores) and radial and prepared cores. The flakes are both thin, as well as chunky, while many of them have prepared (or faceted) platforms, characteristic of the MSA tool making technology. Most of the flakes are unmodified (i.e. unworked), but a relatively large number are utilised, as well as side and end retouched.

At least 31 parallel sided flake blades in both quartzite and indurated shale were also found, with a few of these utilised and retouched along one or both edges. Quite a few of these blade tools have prepared platforms. While most of the cores documented were medium-sized round radial and flatter (prepared) cores (in quartzite), several larger round cores were also noted. Where chunks have two or more flake scars these are also referred to as minimal cores (Wadley 2005).

While the majority of the lithics documented are in fine grained white and grey quartzite, many flakes are also in (highly weathered) indurated shale, including a number of large, utilised and partially retouched side-struck flakes.

Only a few formally retouched MSA tools were found. These include four scrapers, including one large end scraper (knh5) in chalcedony, two convex scrapers (knh9 & knh17) and one side/end scraper (knh15), in quartzite and indurated shale. At least 11 points were also found; either retouched along one or along both edges, including one bifacial point (knh13). A hollow-based bifacial point (knh23) in indurated shale was also found. Such a find is considered to be extremely rare, as so far these types of points have only been documented from two cave sites in KwaZulu Natal (Kaplan 1998, Wadley 2005) and have been dated to about 40 000 years ago. Microscopic analysis and the morphology of the tools suggest that they were cutting implements, but that some may also have been hafted with plant twine and mastic and used as spear points (Wadley 2005). While the Kenhardt hollow based point does seem to be much narrower than the KwaZulu Natal points, the characteristic notched base is unmistakable.

As indicated above, an extensive scatter of MSA tools were documented near the south eastern corner of the footprint area. This site is known as knh14. The site comprises relatively large numbers of pointed and blunted MSA flakes, retouched and unmodified parallel-sided blades, chunks, radial and prepared cores, flaked chunks and several points, in quartzite and indurated shale. Two hammerstones were also found, while several pieces of red opaline (flakes and chunks) were noted scattered about. No organic remains such as bone, or ostrich eggshell were found. The scatter of tools occurs on wide sheets of exposed gravel and compact brown sands alongside the large drainage line, just inside the footprint area of the proposed PV site (Figures 11 & 12). Some of the patches are surrounded by thick bush. The scatter is quite variable, however. By far the largest concentration of tools which is indicated on Figure A (in the Appendix), occurs in the south eastern portion of the site, while the numbers thin out considerably further to the north alongside the drainage line. The relatively large number of flake tools located on either side of the gravel road (knh15) may be part of knh14, but these remains occur in a degraded and disturbed context. Given its context, range of tools types and the fact that the finds appear to occur in-situ, knh14 has been rated as having high significance. The site may be a settlement site, with possible activity areas, but requires more detailed investigation in order to confirm this.

While the majority of the tools documented during the scoping assessment have been assigned to the Middle Stone Age, traces of Early Stone Age remains were also found. Two unifacial handaxes (knh1 & knh2), one bifacial handaxe (knh6) and one bifacial flaked cleaver (knh25), all in quartzite, were counted. One beautifully crafted bifacial handaxe was also found during the AIA of the proposed 10MW PV facility (Kaplan 2011).

Later Stone Age lithics were also found on the footprint area. At least three small round cores (knh1, knh5 & knh17) in fine grained chalcedony and (red) opaline were counted, including a few utilised and retouched flakes, and chunks.

A collection tools located during the assessment is illustrated in Figures 13-24.



Figure 11. knh14 view facing south





Figure 12. knh14 view facing south west



Figure 13. knh1. Scale is in cm



Figure 15. knh3. Scale is in cm



Figure 14. knh2. Scale is in cm



Figure 16. knh4. Scale is in cm





Figure 17. knh5. Scale is in cm

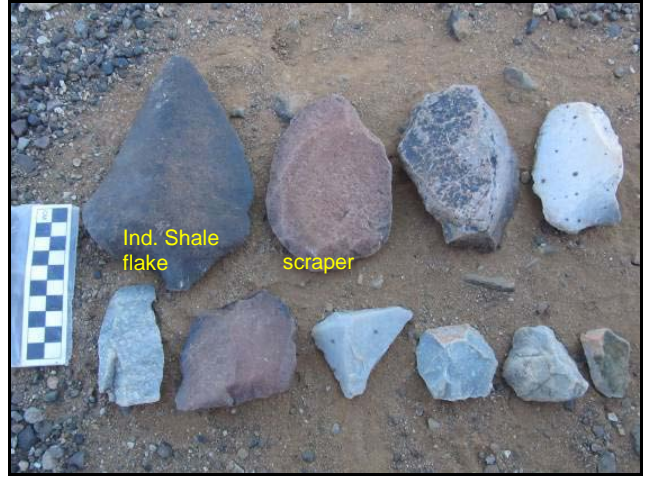


Figure 20. knh9. Scale is in cm



Figure 18. knh6. Scale is in cm



Figure 21. knh10. Scale is in cm



Figure 19. knh8. Scale is in cm



Figure 22. knh11. Scale is in cm





Figure 23. knh15. Scale is in cm



Figure 24. knh17-25. Scale is in cm

### 6.1 Significance of the archaeological remains

The majority of the tools documented during the scoping assessment are isolated occurrences, comprising mostly low-density, diffuse scatters that are spread very thinly and unevenly over the surrounding landscape. Apart from knh14, no evidence of any factory or workshop site, or the result of any human settlement was identified. Only a few formal tools were found, that include scrapers (n = 4) and points (n = 12), including a rare hollow-based point that has not been found outside of KwaZulu Natal before.

It is maintained that the archaeological study has captured good information on the archaeological heritage present. It is not unrealistic to assume that the same types of MSA forms (blunted and pointed flakes, points, scrapers and blade tools) would be found over the remainder of the Farm Olyvenkolk, as well as on surrounding farms in the area. Olyvenkolk is more than 2 200 ha in extent and the footprint area (160 ha) for the proposed PV facility represents only 7.3% of the total area.

It is interesting to note that a Phase 1 AIA of a proposed 10MW PV facility on a  $\pm$  20 ha footprint area (of the Farm Olyvenkolk) was also undertaken by this archaeologist where more than 300 MSA stone implements were point plotted with a hand held GPS unit. Many of the tools bear striking similarities to the finds described above, while several new forms were also found (Kaplan 2011).

Of all the occurrences described above, only knh14 has been rated as having high significance. The relatively high density of finds, the range of different types of tools, and the context (near a stream/river) in which they occur, suggest that knh14 represent the remains of a settlement site that is still undisturbed (in-situ).

## **7. PREDICTED IMPACTS**

In the case of the proposed Solar Plan Energy Facility near Kenhardt in the Northern Cape, it is expected that archaeological impacts will be limited. While the scoping assessment has shown that archaeological occurrences do occur on the proposed footprint area, the density of remains is very low, and the form and types of tools are fairly homogenous. Apart from khn14 no evidence of any factory or workshop site, or the result of any human settlement was identified. No organic remains such as bone, pottery or ostrich were found either. It should also be remembered that construction of the PV panels will be mounted on pedestals, so that limited bedrock excavation will take place.

## **8. CONCLUSION**

Indications are that in terms of the archaeological heritage, the proposed activity (i.e. the construction of a 100 MW photovoltaic power generation facility) is viable.

In archaeological terms, no fatal flaws have been identified.

## **9. RECOMMENDATIONS**

With regard to the proposed development of the Solar Cape 100MW PV facility on the Farm Olyvenkolk near Kenhardt, in the Northern Cape, the following recommendations are however made:

1. The project is deemed to be viable.
2. A Phase 1 Archaeological Impact Assessment is not required.
3. The site known as knh14 must be mapped in detail and the material collected for analysis. Alternatively, a buffer of at least 75 m must be established around this important archaeological site and be declared a 'No-Go' development area.

While it is not supported by this archaeologist, the site could also be fenced off. However, any fencing must be done in consultation, and under the supervision of the archaeologist. A gate must also be provided in case any future research is required.

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Appendix

<b>Scoping Locations</b>	<b>Lat/Long</b>	<b>Findings</b>
knh1	S29 29.254 E20 47.853	22 quartzite flakes, 11 quartzite chunks, 3 weathered indurated shale flakes, 1 flat core (quartzite), 1 radial core (quartzite), 12 large weathered indurated shale flakes, <b>1 point, 1 handaxe</b> (quartzite), 1 opaline core and 3 opaline chunks
knh2	S29 29.486 E20 47.873	19 quartzite flakes, 6 quartzite chunks, 10 large weathered flakes, four smaller weathered indurated shale flakes, 1 radial core (quartzite), 2 chalcedony chunks, <b>1 point, 1 handaxe</b>
knh3	S29 29.605 E20 47.911	42 quartzite flakes, 16 quartzite flakes, 1 radial core, 8 large weathered indurated shale flakes, 8 smaller indurated shale flakes, 2 blades, 3 chalcedony chunks
knh4	S29 29.737 E20 47.920	48 quartzite flakes, 16 quartzite chunks, 6 small weathered indurated shale flakes, 14 large weathered indurated shale flakes, 1 radial core (quartzite), 7 blades, 1 point, 2 opaline chunks.
knh5	S29 29.822 E20 47.892	19 Quartzite flakes, 16 quartzite chunks, 2 small indurated shale flakes, 10 large, weathered indurated shale flakes, 3 flake blades, 2 flat cores, 1 large end scraper, 1 round opaline core
knh6	S29 30.037 E20 48.141	Low density scatter of quartzite flakes, on extensive patch of gravel near the south west corner of the footprint area. Several blades, one bifacial point and 1 handaxe were found
knh7	S29 29.840 E20 48.036	8 quartzite flakes, 5 quartzite chunks, 3 weathered indurated shale flakes, 1 blade.
knh8	S29 29.806 E20 48.045	7 quartzite flakes, 5 quartzite chunks, 2 weathered indurated shale flakes, 1 radial core, 1 point, 1 chalcedony flake
knh9	S29 30.138 E20 48.382	Very low density scatter of tools between the fence and GPS point (about 900 m in a straight line), that includes 10 quartzite flakes, 9 quartzite chunks, 2 blades, 2 side/end scraper, 2 large round cores, 12 weathered indurated shale flakes and 1 opaline chunk
knh10	S29 29.757 E20 48.379	5 quartzite flakes, 4 quartzite chunks, 6 weathered indurated shale flakes, 2 blades, 1 point
knh11	S29 30.039 E20 48.519	Very low density scatter of tools between the fence and GPS point (about 700 m in a straight line), that includes 5 quartzite flakes, 7 quartzite chunks, 7 weathered indurated shale flakes, and 1 point.
knh12	S29 29.717 E20 48.661	3 quartzite flakes, 2 quartzite chunks, 4 weathered indurated shale flakes, 1 radial core and 1 blade
knh13	S29 29.854 E20 48.846	5 quartzite flakes, 1 quartzite chunks, 3 weathered indurated shale flakes, 1 bifacial flake/point and 2 blades
<b>knh14</b>	S29 29.601 E20 49.120	Relatively large numbers of MSA flake and retouched and unmodified parallel-sided blade tools, chunks, cores, and several points, in quartzite and indurated shale, on an extensive sheet of exposed gravel and compact brown sands alongside a large drainage channel in the lower south eastern portion of the footprint area. Several hammerstones occur as well. Scatter is variable, with very small numbers (low density), but larger numbers (high density) occur in places. While densities are larger near the south eastern corner, smaller numbers do occur alongside the drainage channel on large open patches toward the gravel road, but then do thin out completely with the occasional isolated tool occurring. The site has been rated as having high significance.
knh15	S29 29.658 E20 49.029	19 quartzite flakes, 17 quartzite chunks, 11 weathered indurated shale flakes, 1 retouched indurated shale chunk, 1 blade, 5 radial cores, one possible scraper, on either side of the gravel road for about 400 m, in a clearly degraded context.

knh16	3/10/2011 09:31:49 AM	From the entrance gate alongside Aries s/s, for about 500 m east, alongside the road, 17 quartzite flakes, 14 quartzite chunks, 11 weathered indurated shale flakes, 1 radial core, 2 blades.
knh17	S29 29.227 E20 48.182	A large area of terrain was covered, that counted very low density scatters of lithic implements, between knh17 and 25 (refer to Figure A in the Appendix). These included 41 quartzite flakes, 33 quartzite chunks, 23 weathered indurated shale flakes, 5 quartzite radial cores, 1 opaline core, 8 retouched and utilised blades (in quartzite and indurated shale), 1 quartzite end scraper, 1 ESA quartzite bifacial cleaver, 1 hollow-based point.
knh18	S29 29.400 E20 48.267	Same as above
knh19	S29 29.402 E20 48.411	Same as above
knh20	S29 29.391 E20 48.609	Same as above
knh21	S29 29.387 E20 48.745	Same as above
knh22	S29 29.219 E20 48.730	Same as above
knh23	S29 29.180 E20 48.522	Same as above
knh24	S29 29.224 E20 48.406	Same as above
knh25	S29 29.135 E20 48.322	Same as above
	S29 29.193 E20 48.486	Hollow based point

Table 1. Proposed 100MW PV facility near Kenhardt. Spreadsheet of waypoints and description of archaeological occurrences



Figure A. Proposed 100kW PV facility near Kenhardt: Scoping Locations