Agency for Cultural Resource Management
Specialists in Archaeological Studies and Heritage Resource Management

09 March, 2017

Att: Mr Bernard de Wit
EnviroAfrica cc
PO Box 5367
Somerset West
7135

Dear Mr de Wit,

ARCHAEOLOGICAL IMPACT ASSESSMENT, KEREN ENERGY KEIMOES SOLAR ENERGY FARM ON ERF 666 KEIMOES, NORTHERN CAPE

An Archaeological Impact Assessment (AIA) for the Keren Energy Keimoes Solar Energy Farm (SEF) on Erf 666 Keimoes (Kai! Garib Municipality) in the Northern Cape was undertaken by ACRM in 2012[1] (Figures 1 & 2).

The following heritage resources were recorded:

➢ More than 100 mostly single, isolated stone artefacts were recorded during the study. The majority of the remains are assigned to the Later Stone Age (LSA), but tools belonging to the Middle Stone Age (MSA) were also recorded. An Early Stone Age (ESA) biface and handaxe was found. More than 90% of the implements are in locally available banded ironstone, with the remainder in indurated shale, quartzite, silcrete and quartz. Most of the tools are spread thinly and unevenly over the surrounding landscape, but a dispersed scatter of LSA, ESA and MSA implements was recorded on eroded gravels (i. e. below the topsoils) close to the Eskom Oasis substation. Eighteen cores/minimal cores were counted over the footprint area, indicating some level of stone fabrication on the site. The ratio of cores to flakes indicated that many of the final retouched or flaked tools were removed from the site by the ancient toolmakers. Frequencies of formal retouched tools are very low, and only three scrapers were found.

No graves or typical grave markers were found during the 2012 field assessment.

Grading of the archaeological remains

Overall, the relatively small numbers and isolated context in which they were found, means that the archaeological remains were graded as having *low* (3C) significance.

The following recommendations were made:

1. No mitigation is required.

2. Should any unmarked human burials/remains or ostrich eggshell water flask caches be uncovered, or exposed during construction activities, these must immediately be reported to the contracted archaeologist (Jonathan Kaplan 082 321 0172), or the South African Heritage Resources Agency (Ms Natasha Higgit (021 462 4509).

[1] Kaplan, J. 2012. Archaeological Impact Assessment, proposed Keren Energy Keimoes Solar Energy Farm on Erf 666 Keimoes, Northern Cape. Report prepared for EnviroAfrica. ACRM, Cape Town

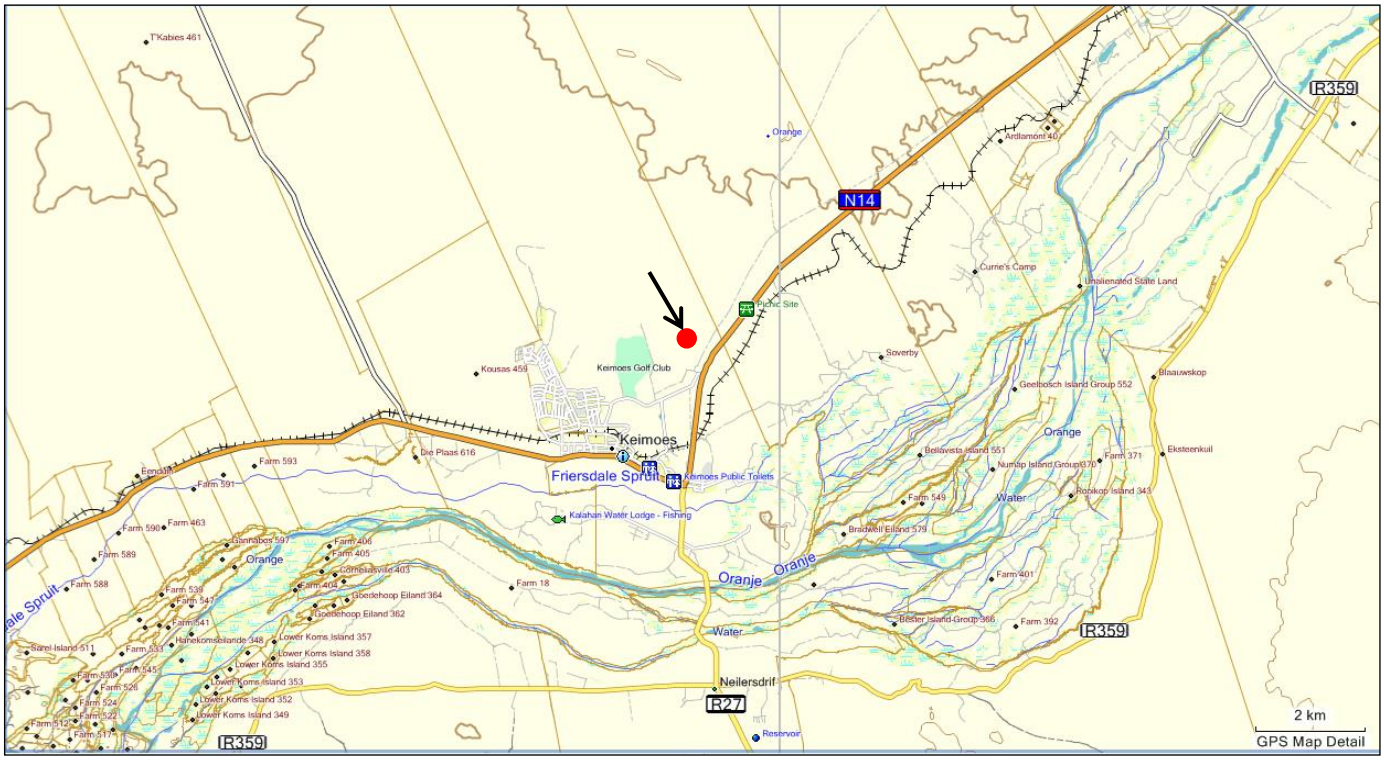

Figure 1. Locality Map. Arrow indicates the location of the study site (red polygon)

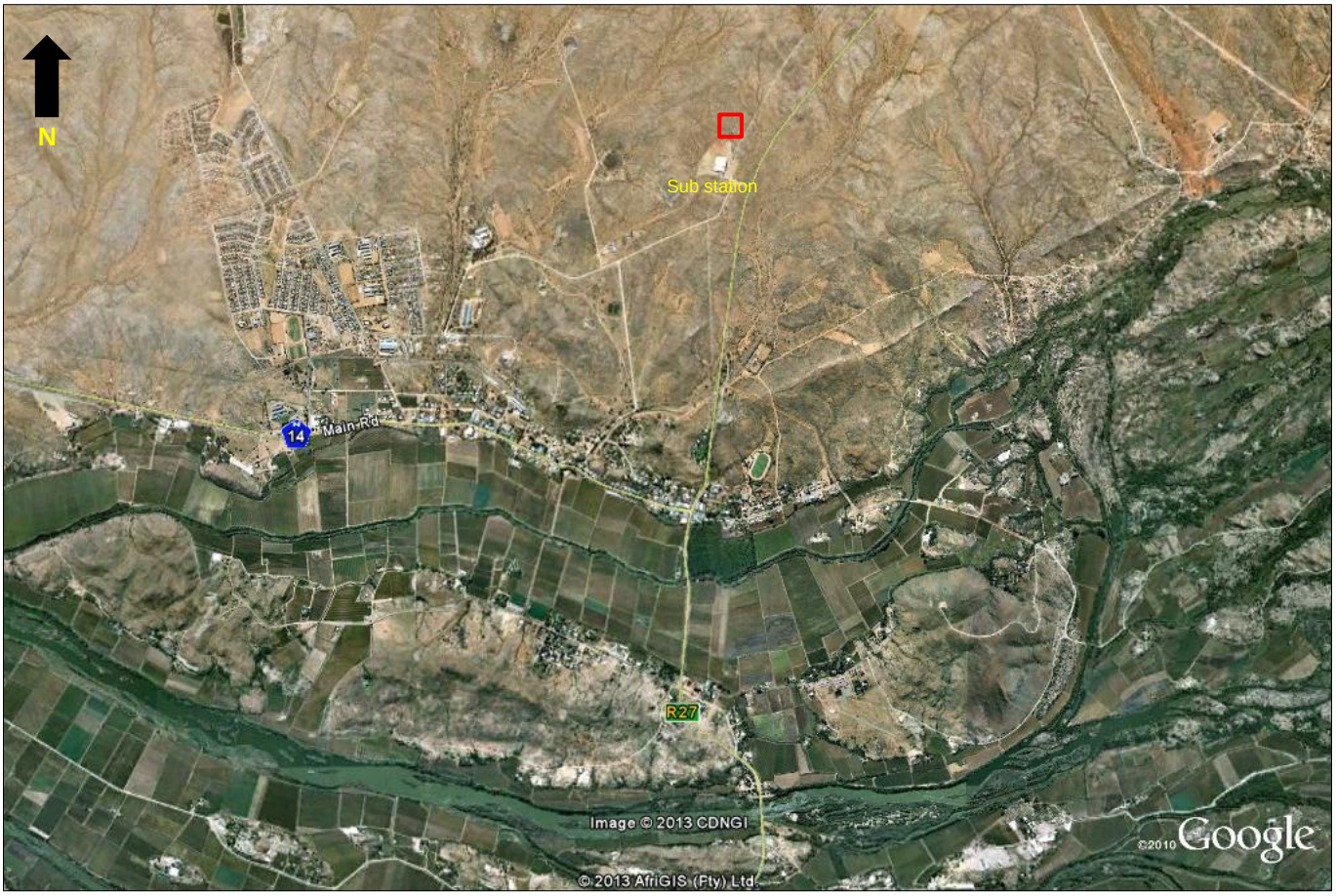

Figure 2. Google satellite map indicating the location of the proposed Keimoes PV facility (red polygon)

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E-mail: acrm@wcaccess.co.za Mobile: 082 321 0172

SAHRA reviewed the archaeologists report (File No. 9/2/032/0004) on the 28 June, 2012 and supported the recommendations made by the contracted archaeologist.

The AIA report was submitted to the Department of Environment Affairs as part of the Environmental Impact Assessment process undertaken by EnviroAfrica cc.

However, the project did not proceed and the environmental authorization lapsed, necessitating a new Basic Assessment process, and re-submission of the specialist archaeological report.

2. TERMS OF REFERENCE

ACRM has been instructed to:

1. Undertake a field assessment;
2. Confirm or re-evaluate the findings of the original study, and
3. Address cumulative impacts

3. FINDINGS

The proposed development site was visited on 21st February 2017 (Figures 3 & 4), where three hours was spent walking the identified footprint area.

A track path of the survey was created (Figure 5).

A spreadsheet of waypoints and description of archaeological finds is presented in Table 1.

A collection of heritage resources recorded during the 2017 field assessment is illustrated in Figures 6-14.

Figure 3. View of the proposed site facing west. The white building is the Sun Food dried fruit and nut packing factory

Figure 4. View of the site facing north east, with the Eskom powerline servitude to the right of the plate.

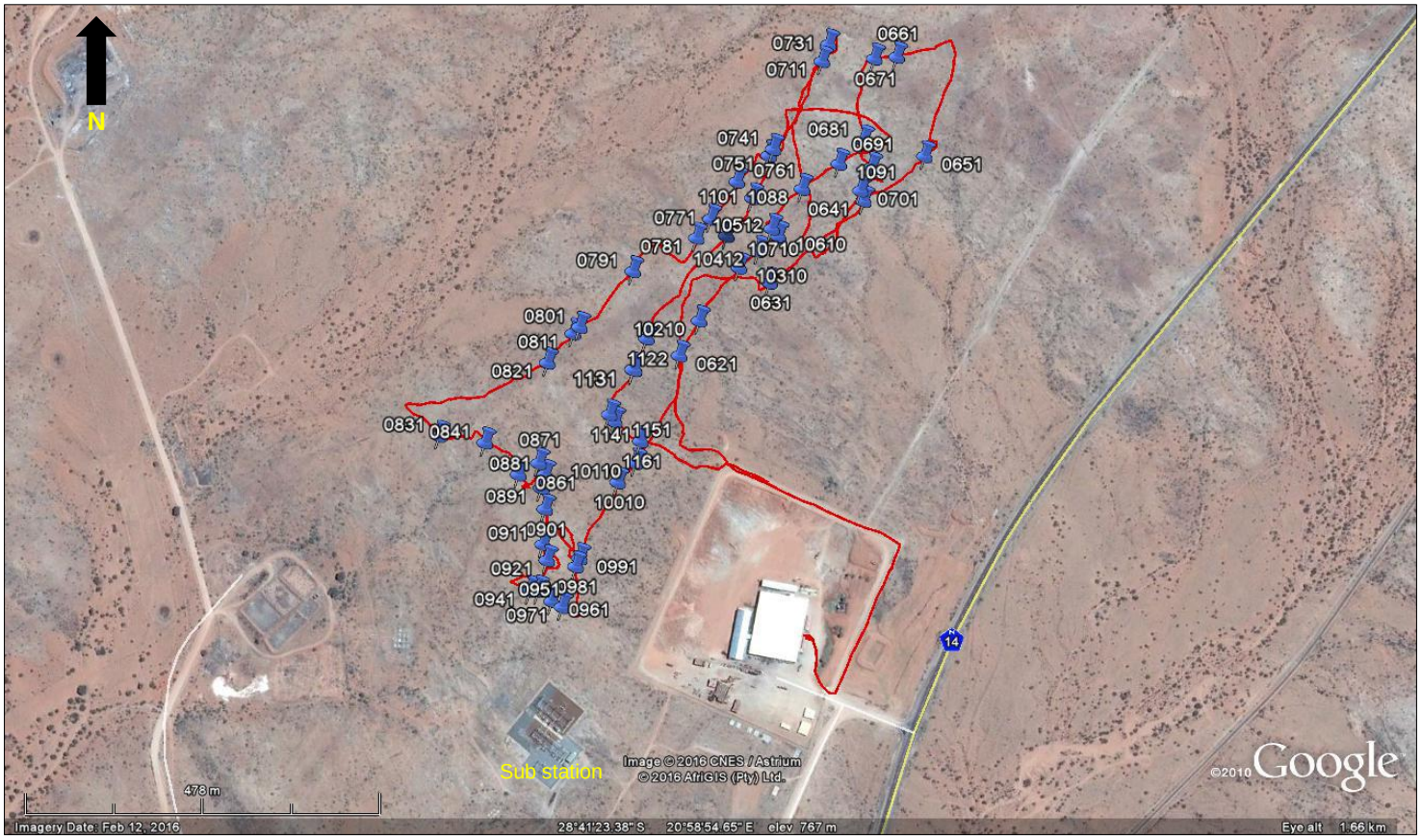

Figure 5. Track paths in red and waypoints of archaeological finds (refer to Table 1). Note the location of the Eskom Oasis substation. The white building is the Oasis dried fruit and nut packaging facility.

Site	Name of farm	Lat/long	Description of finds	Grading	Suggested mitigation
	Erf 666 Keimoes				
0621		S28° 41.342' E20° 58.884'	MSA quartzite core	3C (low)	None required
0631		S28° 41.289' E20° 58.959'	Vein quartz chunk	3C (low)	None required
0641		S28° 41.229' E20° 59.037'	ESA handaxe	3C (low)	None required
0651		S28° 41.196' E20° 59.087'	Small banded ironstone flake/chunk	3C (low)	None required
0661		S28° 41.124' E20° 59.063'	MSA banded ironstone retouched/utilized flake	3C (low)	None required
0671		S28° 41.126' E20° 59.045'	Large indurated shale cortex cobble chunk	3C (low)	None required
0681		S28° 41.185' E20° 59.036'	Large banded ironstone irregular core	3C (low)	None required
0691		S28° 41.205' E20° 59.043'	Banded ironstone chunk	3C (low)	None required
0701		S28° 41.222' E20° 59.034'S	Snapped, retouched banded ironstone flake	3C (low)	None required
0711		S28° 41.128' E20° 59.002	Chunky banded ironstone MSA misc. retouched flake	3C (low)	None required
0721		S28° 41.122' E20° 59.009'	Minimal retouched banded ironstone flake	3C (low)	None required
0731		S28° 41.115' E20° 59.007'	Banded ironstone ?MSA weathered flake	3C (low)	None required
0741		S28° 41.192' E20° 58.962'	Large quartzite ESA flake	3C (low)	None required
0751		S28° 41.196' E20° 58.958'	Irregular quartzite core & banded ironstone flake/MRP	3C (low)	None required
0761		S28° 41.215' E20° 58.931'	Small quart flake	3C (low)	None required
0771		S28° 41.243' E20° 58.910'	Misc. retouched banded ironstone flake		
0781		S28° 41.256' E20° 58.898'	Chunky banded ironstone MRP ?MSA	3C (low)	None required
0791		S28° 41.281' E20° 58.846'	Small, retouched banded ironstone flake	3C (low)	None required
0801		S28° 41.322' E20° 58.802'	Banded ironstone chunk	3C (low)	None required
0811		S28° 41.326' E20° 58.796'	Indurated shale unifacial point (tip)	3C (low)	None required
0821		S28° 41.348' E20° 58.775'	Weathered banded ironstone flake	3C (low)	None required
0831		S28° 41.401' E20° 58.686'	Banded ironstone chunk	3C (low)	None required
0841		S28° 41.406' E20° 58.724'	Retouched banded ironstone chunk	3C (low)	None required
0861		S28° 41.429' E20° 58.752'	Vein quartz flake	3C (low)	None required
0871		S28° 41.420' E20° 58.768'	Low level **activity area**. Extensive eroded gravels, with dispersed tools including incomplete ESA biface, large flake; banded ironstone modified and unmodified flakes, chunks, indurated shale.	3C (low)	None required
0881		S28° 41.429' E20° 58.773'	Banded ironstone core on exposed gravel	3C (low)	None required
0891		S28° 41.439' E20° 58.771'	Banded ironstone chunk	3C (low)	None required
0901		S28° 41.454' E20° 58.774'	MSA pointed flake	3C (low)	None required

0911		S28° 41.479' E20° 58.772'	MRP/?convex scraper in exposed gravels alongside Oasis substation	3C (low)	None required
0921		S28° 41.491' E20° 58.776'	Banded ironstone flake & chunk	3C (low)	None required
0941		S28° 41.513' E20° 58.761'	Banded ironstone MRP – large eroded gravels alongside substation	3C (low)	None required
0951		S28° 41.513' E20° 58.768'	Retouched flake/blade	3C (low)	None required
0961		S28° 41.521' E20° 58.780'	Utilized/retouched flake	3C (low)	None required
0971		S28° 41.525' E20° 58.788'	MSA flake	3C (low)	None required
0981		S28° 41.496' E20° 58.799'	Several banded ironstone flakes on large patch of ground – same as above	3C (low)	None required
10010		S28° 41.434' E20° 58.834'	Banded ironstone cortex core, flake & chunk alongside powerline servitude	3C (low)	None required
10110		S28° 41.420' E20° 58.848'	Round quartzite MSA core	3C (low)	None required
10210		S28° 41.317' E20° 58.901'	Weathered banded iron-stone MSA flake	3C (low)	None required
10310		S28° 41.278' E20° 58.934'	Round banded ironstone core	3C (low)	None required
10410		S28° 41.266' E20° 58.950'	Quartzite hammerstone cobble, 2 banded iron-stone flakes & chunk	3C (low)	None required
10510		S28° 41.255' E20° 58.966'	ESA core	3C (low)	None required
10610		S28° 41.255' E20° 58.966'	Thin, weathered banded ironstone flake	3C (low)	None required
10710		S28° 41.249' E20° 58.961'	Banded ironstone chunk	3C (low)	None required
1088		S28° 41.220' E20° 58.986'	Banded ironstone flake	3C (low)	None required
1091		S28° 41.202' E20° 59.016'	Large quartzite ESA flake	3C (low)	None required
1011		S28° 41.227' E20° 58.945'	Round, banded ironstone cobble/chunk	3C (low)	None required
1112		S28° 41.255' E20° 58.923'	Retouched banded iron-stone flake, quartzite core/cobble	3C (low)	None required
1122		S28° 41.330' E20° 58.857'	Banded ironstone core, retouched flake & chunk	3C (low)	None required
1131		S28° 41.352' E20° 58.847'	Banded ironstone flake	3C (low)	None required
1141		S28° 41.385' E20° 58.827'	Banded ironstone flake	3C (low)	None required
1161		S28° 41.404' E20° 58.853'	2 banded ironstone utilized/retouched flake	3C (low)	None required

Table 1. Spreadsheet of waypoints and description of archaeological finds (2017 study)

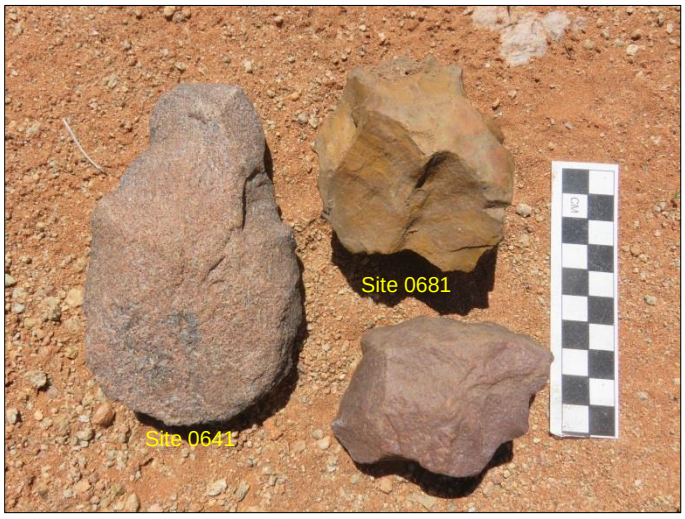

Figure 6. Collection of tools. Scale is in cm

Figure 7. Collection of tools. Scale is in cm

Figure 8. Collection of tools. Scale is in cm

Figure 9. Site 0871. Arrow indicates some of the tools.

Figure 10. Close up of Site 0871

Figure 11. Site 0981.The Oasis substation is in the back-ground

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Figure 11. Collection of tools. Scale is in cm

Figure 12. Collection of tools). Scale is in cm

4. CUMULATIVE IMPACTS ON ARCHAEOLOGICAL HERITAGE

According to the Department of Environmental Affairs (DEA) Renewable Energy EIA Application Database for renewable projects (new builds)[2], there are four other renewable energy (RE) projects planned within a 30km radius of Keimoes. However, despite the presence of these RE sites in the region, it will not impact on archaeological resources in the proposed Keren Energy PV facility.

It is also worth noting that since the contracted archaeologist last visited the proposed development site in 2012, light industrial development has mushroomed in rezoned land alongside the Eskom Oasis substation. The construction of the Keimoes PV facility will therefore not fundamentally change the character of the site, as it is keeping with the current land use of the surrounding area (i.e. an increasingly industrial landscape).

5. CONCLUSION

A re-assessment of the Keren Energy Keimoes Solar Energy Farm on Erf 666, confirms the observations made during the original study (Kaplan 2012), which found mostly isolated stone implements spread thinly and unevenly over the surrounding landscape.

Indications are that the study has captured good information on the archaeological heritage. Some of the resources recorded during 2017 field assessment were captured during the 2012 study; for example the low level activity area on eroded gravels close to the Eskom Oasis substation (Sites 0871-0981).

Apart from trenches for underground cabling, limited bedrock excavations are envisaged. The solar panels will be raised about 2m above ground and mounted on small footings drilled and set into the ground. The excavations for the footings are about 1.5m in diameter and so the actual ground disturbance will be quite limited.

2 https://dea.maps.arcgis.com/apps/webappviewer/index.html?id=b8452ef22aeb4522953f1fb10e6dc79e

As long as the recommendations made in the 2012 study are adhered too, there are no objections to the development, proceeding.

The recommendations must be included in the Environmental Management Plan (EMP) for the proposed project.

Yours sincerely

Jonathan Kaplan

No. 5 Stuart Road Rondebosch, 7700 Phone/Fax 021-6857589
E-mail: acrm@wcaccess.co.za Mobile: 082 321 0172