

ARCHAEOLOGICAL IMPACT ASSESSMENT

Proposed development of agricultural land on Portion 13 of Orange Falls Farm No. 16, Augrabies Northern Cape

Prepared for:

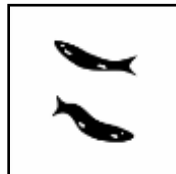
ENVIROAFRICA

Att: Mr Bernard de Witt
PO Box 5367, Helderberg, 7135
E-mail: Bernard@enviroafrica.co.za

Applicant:

KOBUS VAN ZYL FAMILY TRUST

By



ACRM

5 Stuart Road, Rondebosch, 7700
Ph/Fax: 021 685 7589
Mobile: 082 321 0172
E-mail: acrm@wcaccess.co.za

**OCTOBER
2018**

Executive summary

1. Introduction

ACRM was appointed by EnviroAfrica to conduct an Archaeological Impact Assessment (AIA) for a proposed vineyard development on Portion 13 of the farm Orange Falls No. 16, near the small town of Augrabies in the Northern Cape Province.

The site for the proposed agricultural development is located \pm 1km south east of Augrabies. The development will cover a footprint area of about 19.5ha. Water for the vines will be supplied from an existing pump station. Existing gravel farm roads will be used, and no new roads will need to be constructed. The property is currently zoned Agriculture. The proposed site has been heavily grazed in the past, and sheet wash and erosion is quite extensive. The subject property is therefore fairly severely degraded.

EnviroAfrica is the appointed independent Environmental Assessment Practitioner (EAP) responsible for managing the environmental Basic Assessment (BA) process.

2. Legal requirements

In terms of Section 38 (1) (c) (iii) of the National Heritage Resources Act 1999 (Act 25 of 1999), a Heritage Impact Assessment (HIA) is required if the footprint area of the proposed development is more than 5000m² in extent.

3. Aim of the study

The overall purpose of the AIA is to assess the sensitivity of archaeological resources in the proposed development site, to determine the potential impacts on such resources, and to avoid and/or minimize such impacts by means of management and/or mitigation measures

The significance of archaeological resources was assessed in terms of their content and context. Attributes considered in determining significance include artefact and/or ecofact types, rarity of finds, exceptional items, organic preservation, potential for future research, density of finds and the context in which archaeological traces occur

4. Results of the study

A field assessment took place on 11 May, 2017 in which the following observations were made:

Overall, a relatively large number of archaeological resources (i.e. stone tools) were recorded during the study, but these are spread very thinly and unevenly over the surrounding landscape. Apart from one small, fairly discreet, scatter of *in-situ* implements located on washed gravels between two small drainage channels, most of the findings comprise single, isolated occurrences in a disturbed and secondary context.

The cultural landscape is dominated by a mix of both Later Stone Age (LSA) and Middle Stone Age (MSA) tools, comprising mostly modified flakes, chunks and cores. Only a few formal tools were found, including the broken tip of a MSA unifacial point, a step,

flaked adze, two scrapers and a hammerstone. No organic remains such as pottery, bone or ostrich eggshell were encountered. No Early Stone Age (ESA) tools were found.

An interesting observation is the number of cortex flakes ($n = 18$) that were recorded, while seven MSA blade tools were also found, including a quartz crystal bladelet core. The reason for the large number of cortex flakes may be related to widespread flaking and possibly other domestic activities that took place around drainage channels during wetter periods, when game may have been plentiful.

More than 90% of the lithics documented are made on fine grained banded ironstone/jasperlite, which is a favoured raw material on many sites in the Northern Cape because of its superior flaking qualities. The remainder are in quartz, quartzite, silcrete, CCS and hornfels. The source of the exotic raw materials (silcrete & CCS) is unknown but these were clearly introduced onto the site from some distance away.

As archaeological sites are concerned, however, the occurrences are lacking in context. Apart from the small activity area (Site 459a), no evidence of any factory or workshop site, or the result of any human settlement was identified within the proposed development site.

It is maintained that most of the archaeological remains recorded during the study comprise discarded flakes and flake debris (i. e. chunks & cores) of *low* (Grade IIIC) significance.

5. Built environment

In terms of the built environment, no old buildings, structures or features, or any old equipment was found on the proposed development site.

6. Graves

No graves or typical grave markers were encountered during the field study.

7. Impact statement

Overall, the results of the field assessment indicate that the proposed activity (i. e. a vineyard development) will not have an impact of great significance on pre-colonial archaeological heritage. A relatively small number of mixed MSA and LSA tools were documented during the study which, occur mostly in an isolated, and degraded context.

8. Conclusion

The study has captured a good record of the archaeological heritage present on the proposed development site. No settlement sites or evidence of human occupation was noted, although a small activity area was noted in the north eastern portion of the proposed development site, on sheet washed gravels between two drainage channels.

Indications are that, in terms of archaeological heritage, the receiving environment is not a sensitive or threatened landscape.

The impact significance of the proposed vineyard development on important archaeological heritage is assessed as LOW and therefore, there are no objections to the authorization of the proposed development.

9. Recommendations

1. No mitigation is required prior to agricultural activities commencing.
2. Should any unmarked human burials/remains or ostrich eggshell water flask caches be uncovered, or exposed during preparation of the lands for cultivation, these must immediately be reported to the archaeologist (Jonathan Kaplan 082 321 0172), or the South African Heritage Resources Agency (Ms Natasha Higgitt 021 462 4502). Burials, etc. must not be removed or disturbed until inspected by the archaeologist.
3. The above recommendations must be incorporated into the Environmental Management Plan (EMP) for the proposed development

Table of Contents

	Page
Executive summary	1
1. INTRODUCTION	5
2. HERITAGE LEGISLATION	7
3. TERMS OF REFERENCE	7
4. DESCRIPTION OF THE RECEIVING ENVIRONMENT	7
5. STUDY APPROACH	8
5.1 Method of survey	8
5.2 Constraints and limitations	9
5.3 Identification of potential risks	9
5.4 Results of the desk top study	9
6. FINDINGS	10
6.1 Significance of the archaeological remains	10
7. IMPACTS STATEMENT	17
8. CONCLUSIONS	17
9. RECOMMENDATIONS	17
10. REFERENCES	18

1. INTRODUCTION

ACRM was appointed by EnviroAfrica, on behalf of Kobus van Zyl Family Trust to conduct an Archaeological Impact Assessment (or AIA) for a proposed vineyard development on Portion 13 of the farm Orange Falls Farm No. 16 in the small town of Augrabies (Kai Garib Municipality) in the Northern Cape Province of South Africa (Figures 1 & 2).

The site for the proposed agricultural development is located \pm 1km south east of Augrabies. The development will cover a footprint area of about 19.5ha. Water for the vines will be supplied from an existing pump station. Existing gravel farm roads will be used, and no new roads will need to be constructed. The property is currently zoned Agriculture.

EnviroAfrica is the independent EAP responsible for managing the Environmental Basic Assessment Process.

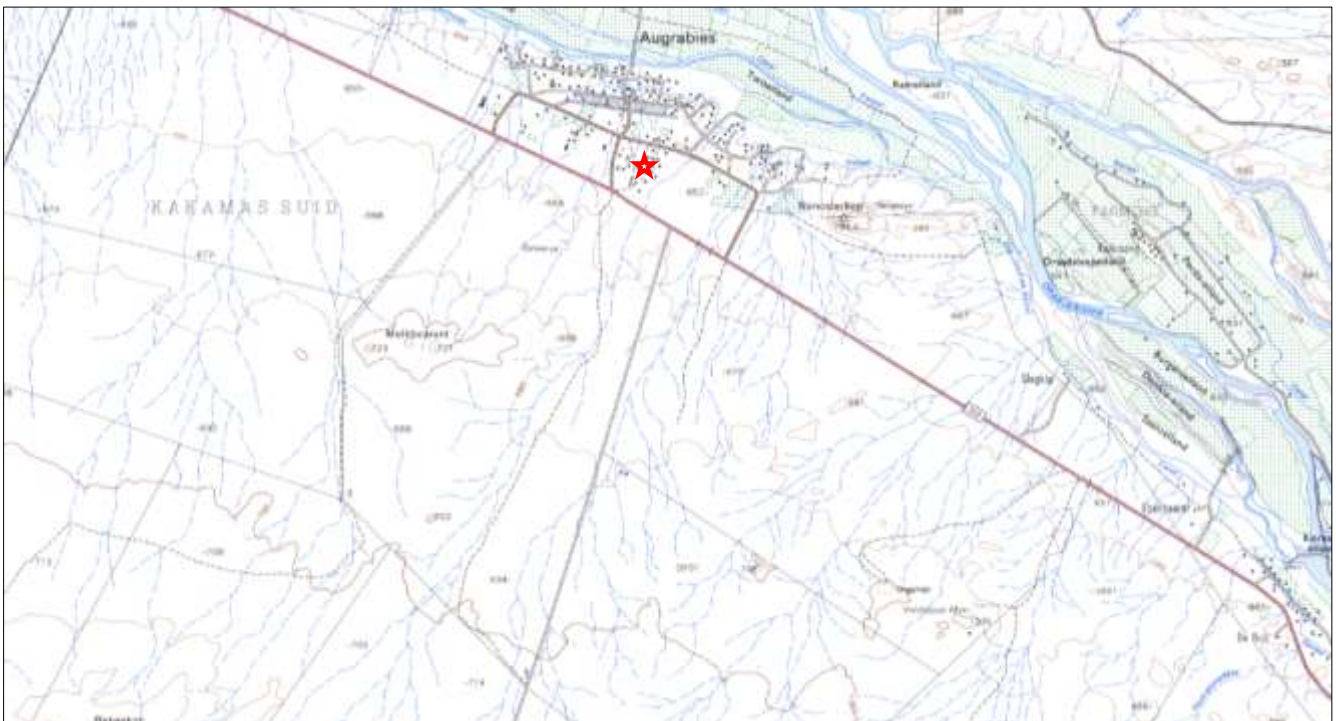


Figure 1. 1:50 000 Locality Map (2820 CB Augrabies). Star illustrates the location of the study site

Archaeological Impact Assessment, proposed agricultural development on Orange Falls Farm
No. 16/13 Augrabies, Northern Cape



Figure 2. Google satellite map indicating the location of the proposed development site (red polygon)



Figure 3. Close up Google satellite map indicating the approximate boundary of the proposed development site (red polygon). Note the extensive series of drainage channels on the site and in the surrounding area

2. HERITAGE LEGISLATION

The National Heritage Resources Act (NHRA No. 25 of 1999) protects archaeological and palaeontological sites and materials, as well as graves/cemeteries, battlefield sites and buildings, structures and features over 60 years old. The South African Heritage Resources Agency (SAHRA) administers this legislation nationally, with Heritage Resources Agencies acting at provincial level. According to the Act (Sect. 35), it is an offence to destroy, damage, excavate, alter or remove from its original place, or collect, any archaeological, palaeontological and historical material or object, without a permit issued by the SAHRA or applicable Provincial Heritage Resources Agency.

Notification of SAHRA is required for proposed developments exceeding certain dimensions (Sect. 38), upon which they will decide whether or not the development must be assessed for heritage impacts (an HIA) that may include an assessment of archaeological (a AIA) or palaeontological heritage (a PIA).

3. TERMS OF REFERENCE

The terms of reference for the archaeological study were to:

- Determine whether there are likely to be any important archaeological resources that may potentially be impacted by the proposed vineyard development;
- Indicate any constraints that would need to be taken into account in considering the development proposal;
- Identify potentially sensitive archaeological areas, and
- Recommend any further mitigation action.

4. DESCRIPTION OF THE RECEIVING ENVIRONMENT

The proposed development site, which is zoned Agriculture, is located about 1km south east of the small town of Augrabies. Access to Orange Farm is via the main tarred road (R64), just before one enters the town. The site is a fairly level, vacant piece of old agricultural land that abuts existing vineyards and citrus orchards. Infrastructure on the subject property comprises old abandoned, irrigation equipment, concrete drinking, fencing and some wooden fence poles. Extensive drainage channels cross the site and the surrounding area (refer to Figure 3), which has also been heavily grazed in the past. Sheet wash and erosion is quite extensive across the proposed 19.5ha footprint area. The subject property is therefore quite fairly severely disturbed and degraded (Figures 4-7). Surrounding land use is agriculture, including large tracts of vacant agricultural land.



Figure 4. View of the proposed site facing south east



Figure 5. View of the proposed site facing east



Figure 6. View of the site facing south east



Figure 7. View of the proposed site facing south east

5. STUDY APPROACH

5.1 Method of survey

The overall purpose of the HIA is to assess the sensitivity of archaeological resources in the affected area, to determine the potential impacts on such resources and to avoid and/or minimize such impacts by means of management and/or mitigation measures.

The significance of archaeological resources was assessed in terms of their content and context. Attributes considered in determining significance include artefact and/or ecofact types, rarity of finds, exceptional items, organic preservation, potential for future research, density of finds and the context in which archaeological traces occur.

The field assessment took place on 11 May, 2017. Survey track paths were captured and the position of identified archaeological occurrences was fixed by a hand held GPS unit set on the map datum WGS 84.

A literature survey was also carried out to assess the archaeological context surrounding the proposed development site.

5.2 Constraints and limitations

There were no constraints or limitations associated with the study. Archaeological visibility was very good.

5.3 Identification of potential risks

Archaeological heritage will be impacted by the proposed development, but apart from one small possible, activity area no evidence of any settlement site or human occupation was encountered during the study.

5.4 Heritage context

Morris and Beaumont (1991) undertook a combined impact assessment and mitigation of sites on Renosterkop Peak, also known (historically), to pre-colonial local Namneiqua pastoralists as !Nawabdanas. Several, low-density surface scatters of Middle (MSA) and Later Stone Age (LSA) material were identified on and around the hill, which is also the site of the historic Renosterkop Tin Mine (circa 1940). Archaeological investigation of a Ceramic LSA surface scatter (Renosterkop 1) and a small LSA rock shelter (Renosterkop 2) were undertaken by Morris and Beaumont (1991), who showed that the two sites likely pre-date the late 18th Century. Morris and Beaumont (1991) were also able to show, based on extensive historical research, a rapidly changing cultural and linguistic landscape from as early as the mid 1700's, up until the violent Northern Border (frontier) War of 1869/9.

Large numbers of LSA and MSA implements were also recorded on the farm Renosterkop during an impact assessment for a proposed vineyard development (Kaplan 2016), while smaller numbers of similar types of tools were recorded during a later survey of the same farm south of the main road as one enters the town of Augrabies (Kaplan 2017).

In the wider region, Orton (2012) recorded low density scatters of LSA, MSA and ESA tools during a survey for a proposed solar energy farm near the Augrabies Falls National Park about 12kms from Renosterkop. Orton (2012) also describes a Stone Age sequence in the Augrabies Falls area where much of the information has been generated by excavations of open scatters containing stone tools, pottery and ostrich eggshell, as well as excavations of several small shelters near the falls, and the town of Augrabies (Morris & Beaumont 1991).

Small numbers of MSA tools were also documented by Van Schalkwyk (2013) during a HIA for a township development near Augrabies, while Pelsler (2012) recorded small numbers of LSA as well as ESA implements during an AIA for a solar energy farm near the National Park. Kaplan (2018 in prep) also documented relatively large numbers of LSA and MSA lithics, including activity areas, on the farm Orange Falls, a few kilometres

south of Augrabies. Several other impact assessment reports were not available on the SAHRIS website at the time of writing (e.g. Van Schalkwyk 2011, & Beaumont 2008).

Morris and Beaumont (1991) also note that many skeletons, most dating to the 18th and 19th Centuries were exhumed from the area, along the banks of the Orange River near Augrabies in the late 1930s. A pre-colonial grave was also recorded at the base of the hill, outside the development site during the Renosterkop vineyard survey (Kaplan 2016).

Finally, Morris (2014; Morris & Beaumont 1991) notes that there are substantial herder encampments along the floodplain of the Orange River, but these tend to be short duration visits by small groups of hunter-gatherers. Most of these camps have, however, been destroyed by intensive farming alongside the river.

6. FINDINGS

Survey track paths and the position of archaeological occurrences recorded during the field study are illustrated in Figure 8.

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

Overall, a relatively large number of archaeological remains (i.e. stone tools) were recorded during the study, but these are spread very thinly and unevenly over the surrounding landscape. Apart from one small, fairly discreet, scatter of possibly *in-situ* tool (Site 4591) located on washed gravels between two small drainage channels most of the findings comprise single, isolated occurrences in a disturbed and secondary (*ex-situ*) context, on extensive sheet washed and eroded red stony gravels.

The cultural landscape is dominated by a mix of both Later Stone Age (LSA) and Middle Stone Age (MSA) tools, comprising mostly modified (i. e. utilized & retouched) flakes, chunks and cores. Few formal tools were found, including the broken tip of a MSA unifacial point (Point 4013), a step flaked possible wood-working adze (Point 4251), a convex scraper (Point 4581), a MRP/end scraper (Point 4611), and a hammerstone (Point 4501). No Early Stone Age (ESA) remains were found, which are quite rare over the surrounding landscape (Kaplan 2016, 2017). No organic remains such as pottery, bone or ostrich eggshell were encountered during the study.

An interesting observation is the number of cortex flakes (n = 18) that were counted, while, while seven MSA blade tools were also found (refer to Table 1), including a quartz crystal bladelet core (Point 4271). The reason for the large number of cortex flakes may be related to widespread primary flaking and possibly other domestic activities that took place around drainage channels during wetter periods when game may have been available.

More than 90% of the lithics documented are made on fine grained banded ironstone/jasperlite, which is a favoured raw material on many sites in the Northern Cape because of its superior flaking qualities (Kaplan 2016). The remainder are in quartz, quartzite, silcrete, CCS and hornfels. The source of exotic raw materials such as CCS

and silcrete is unknown, and these raw materials must have been introduced onto the site from further afield.

As archaeological sites are concerned, however, the occurrences are lacking in context. Apart from Site 4591, no evidence of any factory or workshop site, or the result of any human settlement was identified within the proposed development site. It is maintained that most of the archaeological remains recorded during the study comprise discarded flakes, and flake debris (i. e. chunks & cores).

A collection of implements recorded during the study, and the context in which they were found are illustrated in Figures 9-20.

6.1 Significance of the archaeological remains

The disturbed context in which they were found mean that the archaeological remains have been graded as having *low* (Grade IIIC) significance.



Figure 8. Trackpaths in red and spreadsheet of waypoints

Site	Name of Farm	Lat/long	Description of finds	Grading	Mitigation
	Orange Falls No. 16/13		All in banded ironstone/jasperlite unless otherwise stated		
4001		S28° 39.626' E20° 20.245'	Utilized/misc. retouched flake, broken utilized / retouched pointed flake, chunk/core on large gravel patch	Low IIIC	None required
4013		S28° 39.631' E20° 20.268'	Broken tip of unifacial MSA	Low IIIC	None

Archaeological Impact Assessment, proposed agricultural development on Orange Falls Farm
No. 16/13 Augrabies, Northern Cape

			`point', snapped MSA, utilized / retouched blade, broken silcrete cobble / chunk		required
4021		S28° 39.634' E20° 20.262'	Round core on gravel patch	Low IIIC	None required
4031		S28° 39.645' E20° 20.234'	Cortex flake / cobble / chunk, utilized / retouched flake	Low IIIC	None required
4041		S28° 39.646' E20° 20.250'	Chunk/core	Low IIIC	None required
4051		S28° 39.640' E20° 20.260'	Small CCS chunk	Low IIIC	None required
4061		S28° 39.648' E20° 20.268'	Large, pointed quartzite MSA flake	Low IIIC	None required
4071		S28° 39.649' E20° 20.281'	Broken cobble/core	Low IIIC	None required
4081		S28° 39.650' E20° 20.295'	Large silcrete MSA flake	Low IIIC	None required
4091		S28° 39.684' E20° 20.230'	Broken cobble/core	Low IIIC	None required
4101		S28° 39.684' E20° 20.218'	Broken cobble/chunk	Low IIIC	None required
4111		S28° 39.667' E20° 20.182'	Large, flat utilized / retouched flake	Low IIIC	None required
4121		S28° 39.668' E20° 20.237'	Utilized / retouched cortex flake	Low IIIC	None required
4131		S28° 39.680' E20° 20.263'	Core and flake on gravel patch	Low IIIC	None required
4141		S28° 39.646' E20° 20.332'	Large, chunky utilized / retouched MSA blade. Tip broken	Low IIIC	None required
4151		S28° 39.663' E20° 20.332'	Small, flat utilized / retouched cortex flake	Low IIIC	None required
4161		S28° 39.658' E20° 20.351'	Large chalcedony MSA flake, large utilized/MRP MSA flake	Low IIIC	None required
4171		S28° 39.693' E20° 20.319'	Cortex flake	Low IIIC	None required
4181		S28° 39.694' E20° 20.313'	Broken utilized, cortex flake	Low IIIC	None required
4191		S28° 39.696' E20° 20.294'	Utilized, thin MSA indurated shale flake	Low IIIC	None required
4201		S28° 39.712' E20° 20.265'	Large quartzite MSA utilized blade	Low IIIC	None required
4211		S28° 39.713' E20° 20.261'	Flake	Low IIIC	None required
4221		S28° 39.733' E20° 20.263'	Large core	Low IIIC	None required
4231		S28° 39.711' E20° 20.310'	Thin, hornfels utilized cortex flake	Low IIIC	None required
4241		S28° 39.698' E20° 20.344'	Large chunky MSA quartzite flake	Low IIIC	None required
4251		S28° 39.695' E20° 20.413'	Large cortex concave step flaked `adze'	Low IIIC	None required
4261		S28° 39.703' E20° 20.352'	Utilized/retouched MSA cortex flake / blade	Low IIIC	None required
4271		S28° 39.729' E20° 20.303'	Quartz crystal / ?core & utilized / retouched flake	Low IIIC	None required

Archaeological Impact Assessment, proposed agricultural development on Orange Falls Farm
No. 16/13 Augrabies, Northern Cape

4281		S28° 39.729' E20° 20.302'	Chunk	Low IIIC	None required
4291		S28° 39.747' E20° 20.276'	Chunk	Low IIIC	None required
4301		S28° 39.718' E20° 20.376'	Utilized chunk	Low IIIC	None required
4311		S28° 39.723' E20° 20.415'	Utilized chunk	Low IIIC	None required
4321		S28° 39.729' E20° 20.438'	Small, thin pressure flake	Low IIIC	None required
4331		S28° 39.735' E20° 20.424'	Broken MSA quartzite flake and cortex chunk/core	Low IIIC	None required
4341		S28° 39.736' E20° 20.427'	Large quartzite MSA flake	Low IIIC	None required
4351		S28° 39.731' E20° 20.352'	Cortex pebble chunk	Low IIIC	None required
4361		S28° 39.740' E20° 20.361'	Small utilized/retouched flake	Low IIIC	None required
4371		S28° 39.744' E20° 20.358'	Large round quartzite core & flake	Low IIIC	None required
4381		S28° 39.745' E20° 20.355'	2 utilized and retouched flakes	Low IIIC	None required
4391		S28° 39.773' E20° 20.296'	Retouched chunk/cortex cobble	Low IIIC	None required
4401		S28° 39.737' E20° 20.408'	Small flake	Low IIIC	None required
4411		S28° 39.736' E20° 20.423'	Utilized hornfels flake and ironstone flake	Low IIIC	None required
4421		S28° 39.738' E20° 20.429'	Flake	Low IIIC	None required
4431		S28° 39.734' E20° 20.477'	Chunk	Low IIIC	None required
4441		S28° 39.753' E20° 20.487'	Hornfels flake	Low IIIC	None required
4451		S28° 39.750' E20° 20.480'	Round core	Low IIIC	None required
4461		S28° 39.757' E20° 20.461'	Utilized/retouched cortex flake and chunk	Low IIIC	None required
4471		S28° 39.775' E20° 20.449'	Flake	Low IIIC	None required
4481		S28° 39.747' E20° 20.399'	MSA quartzite cortex flake	Low IIIC	None required
4491		S28° 39.747' E20° 20.379'	Quartzite pebble chunk	Low IIIC	None required
4501		S28° 39.749' E20° 20.377'	hammerstone	Low IIIC	None required
4511		S28° 39.766' E20° 20.379'	Utilized/retouched flake	Low IIIC	None required
4521		S28° 39.774' E20° 20.365'	Chunk	Low IIIC	None required
4531		S28° 39.766' E20° 20.338'	MSA blade/point	Low IIIC	None required
4541		S28° 39.765' E20° 20.326'	Round quartz core	Low IIIC	None required
4551		S28° 39.779' E20° 20.293'	Utilized/retouched flake	Low IIIC	None

Archaeological Impact Assessment, proposed agricultural development on Orange Falls Farm
No. 16/13 Augrabies, Northern Cape

					required
4561		S28° 39.794' E20° 20.300'	Utilized/retouched flake	Low IIIC	None required
4571		S28° 39.741' E20° 20.466'	Indurated shale flat cobble	Low IIIC	None required
4581		S28° 39.769' E20° 20.467'	MSA quartzite cortex blade & flake	Low IIIC	None required
4591		S28° 39.786' E20° 20.365'	Small, possibly 'in-situ' scatter of lithics, comprising 2 MSA quartzite flakes, core, 2 small chunk, silcrete chunk on level patch of sandy gravel, either side of 2 small dry streams/drainage channels.	Low IIIC	None required
4601		S28° 39.812' E20° 20.324'	Chunk	Low IIIC	None required
4611		S28° 39.811' E20° 20.333'	MRP/end scraper	Low IIIC	None required
4621		S28° 39.806' E20° 20.377'	Cortex flake	Low IIIC	None required
4631		S28° 39.809' E20° 20.388'	Chunk	Low IIIC	None required
4641		S28° 39.810' E20° 20.394'	Large cortex chunk/core/cobble	Low IIIC	None required
4651		S28° 39.790' E20° 20.413'	2 flakes, 1 MSA quartzite utilized / retouched flake	Low IIIC	None required
4661		S28° 39.756' E20° 20.461'	2 flakes	Low IIIC	None required
4671		S28° 39.750' E20° 20.485'	Chunk	Low IIIC	None required
4681		S28° 39.746' E20° 20.520'	Thin, weathered indurated shale/hornfels MSA blade	Low IIIC	None required
4691		S28° 39.754' E20° 20.494'	Core and flake	Low IIIC	None required
4701		S28° 39.776' E20° 20.488'	Chunky MSA quartzite flake	Low IIIC	None required
4711		S28° 39.780' E20° 20.505'	Large MSA quartzite flake	Low IIIC	None required
4721		S28° 39.789' E20° 20.481'	Utilized flake/chunk	Low IIIC	None required
4731		S28° 39.786' E20° 20.472'	Chunk	Low IIIC	None required
4741		S28° 39.807' E20° 20.421'	Chunk/core	Low IIIC	None required
4751		S28° 39.829' E20° 20.446'	Chunk/core	Low IIIC	None required
4761		S28° 39.718' E20° 20.270'	Chunk	Low IIIC	None required
4771		S28° 39.712' E20° 20.263'	Retouched flake	Low IIIC	None required
4781		S28° 39.629' E20° 20.244'	Flake and chunk		

Table 1. Spreadsheet of waypoints and description of archaeological finds



Figure 9. Collection of tools. Scale is in cm



Figure 12. Collection of tools. Scale is in cm



Figure 10. Collection of tools. Scale is in cm



Figure 13. Collection of tools. Scale is in cm



Figure 11. Collection of tools. Scale is in cm



Figure 14. Collection of tools. Scale is in cm



Figure 15. Context in which the remains were found



Figure 18. Site 4591. Activity area



Figure 16. Context in which the remains were found



Figure 19. Context in which the remains were found



Figure 17. Context in which the remains were found



Figure 20. Context in which the remains were found

7. IMPACT STATEMENT

Overall, the results of the field assessment indicate that the proposed activity (i. e. a vineyard development) will not have an impact of great significance on pre-colonial archaeological heritage. Apart from one small in-situ scatter of lithics (Site 4591), a relatively small number of mixed MSA and LSA tools were documented which, occur mostly in an isolated, and degraded context.

8. CONCLUSION

The study has captured a good record of the archaeological heritage present on the proposed development site. No settlement sites or evidence of human occupation was noted, although a small activity area (Site 4591) was recorded in the north eastern portion of the proposed development site, on sheet washed gravels/sediments between two drainage channels.

Indications are that, in terms of archaeological heritage, the receiving environment is not a sensitive or threatened landscape. The impact significance of the proposed vineyard development on important archaeological heritage is assessed as LOW and therefore, there are no objections to the authorization of the proposed development.

9. RECOMMENDATIONS

The following recommendations are made with regard to a proposed vineyard development on Portion 13 of Orange Falls Farm No. 16, near Augrabies.

1. No archaeological mitigation is required prior to agricultural activities commencing.
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 archaeologist (Jonathan Kaplan 082 321 0172), or the South African Heritage Resources Agency (Att: Ms Natasha Higgitt (021 462 4502). Burials must not be removed or disturbed until inspected by the archaeologist.

10. REFERENCES

Beaumont, P.B. 2008. Phase 1 Archaeological Impact Assessment report on Kakamas South Farm 2092 near Augrabies, Siyanda District Municipality, Northern Cape Province.

Dreyer, C. 2012. First Phase archaeological and heritage assessment of the proposed new cemetery at Augrabies, Kakamas District, Northern Cape Province. Report prepared for MDA Environmental Consultants.

Dreyer, T. & Meiring A.J.D. 1937. A preliminary report on an expedition to collect old Hottentot skulls. *Soölogiese Navorsing van die Nasionale Museum* 1:81-88

Kaplan, J. 2017. Archaeological Impact Assessment, proposed citrus development, Renosterkop Extension (Kakamas South Settlement No. 2185 & 2193) Augrabies, Northern Cape. Report prepared for Pieter Badenhorst Professional Services. ACRM, Cape Town

Kaplan, J 2016 Archaeological Impact Assessment, Proposed vineyard development on Farm 1726 Renosterkop, Farm 1290 & Farm 1537 Augrabies Northern Cape. Report prepared for Pieter Badenhorst Professional Services. ACRM, Cape Town

Morris, D. 2014. Proposed development of the Upington Solar Thermal Plant Three within Portion 3 of the Farm McTaggarts Camp 435 west of Upington, Northern Cape. Archaeological Impact Assessment. Savannah Environmental. McGregor Museum, Kimberley.

Morris, D. & Beaumont, P. 1991. !Nawabdanas: Archaeological sites at Renosterkop Kakamas District, Northern Cape. *South African Archaeological Bulletin* 46:115-124.

Orton, J. 2012. Heritage Impact Assessment for the proposed Augrabies Solar Energy Facility, Kenhardt Magisterial District, Northern Cape. Report prepared for Rosenthal Environmental. Archaeology Contracts Office, University of Cape Town.

Pelser, A. J. 2012. A report on an archaeological impact assessment (AIA) for the proposed photo-voltaic solar power generation plant on the Farm Padrooi 13 near Augrabies Falls National Park, Northern Cape Province. Report prepared for Escience (Pty) Ltd. Archaeotnos, Groenkloof.

Van Schalkwyk, J. A. 2013. Cultural Heritage Impact Assessment for the proposed township development on a section of the Farm Kakamas Suid 28 Augrabies, Kai !Garib Municipality, Northern Cape Province. Report prepared for MEG Environmental Consultants.