

ARCHAEOLOGICAL IMPACT ASSESSMENT

Proposed citrus development, Renosterkop Extension (Kakamas South Settlement No. 2185 & 2193) Augrabies, Northern Cape

Assessment conducted under Section 38 (3) of the National Heritage
Resource Act (No. 25 of 1999)

Prepared for:

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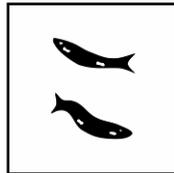
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Executive summary

1. Introduction

ACRM was appointed to conduct a Phase 1 Archaeological Impact Assessment (AIA) for a proposed citrus development near the small town of Augrabies in the Northern Cape Province.

The proposed development site (Kakamas South Settlement No. 2185 & 2193) is located \pm 2.5kms south east of Augrabies and will cover a footprint area of about 32ha. Water for the new citrus trees will be supplied from pump stations located on the banks of the Orange River. The trees will be supplied with water via buried pipelines placed alongside existing gravel farm roads. Existing access roads will be used, and no new access roads will need to be constructed. The property is currently zoned Agriculture.

The proposed site, which is situated south of the R64 as one enters the town, has been heavily grazed in the past, but has not yet been physically developed. Existing infrastructure include a powerline, servitude, old farm roads and twee spoor gravel tracks. The site is therefore already partially transformed and degraded.

The proposed activity is an extension of a recently approved vineyard development on the Farm Renosterkop situated directly adjacent to the subject property, and north of the R64 as one enters the town.

Pieter Badenhorst Professional Services is the appointed independent Environmental Assessment Practitioner (EAP) responsible for facilitating the EIA process.

A Palaeontological Impact Assessment has been commissioned as part of a wider Heritage Impact Assessment (or HIA) for the proposed development. Indications, however, are that the subject property and surrounding area, are of low palaeontological sensitivity.

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) of the proposed project 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 study 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

4. Limitations

There were no limitations associated with the study. Ground visibility was excellent.

5. Findings

A 2-day foot survey of the proposed development site was undertaken by ACRM in December 2017, in which the following observations were made:

Despite the relatively large (32ha) footprint area, only small traces of archaeological resources (i.e. stone tools) were recorded during the field study, which, are spread very thinly and unevenly over the surrounding landscape. The majority of the implements comprise single, isolated finds which constitutes an extremely low density scatter of pre-colonial resources. More than 80% of the tools encountered are assigned to the Later Stone Age (LSA), while a small number of Middle Stone Age (MSA) flakes and retouched blade tools were also noted. No Early Stone Age (ESA) tools were noted.

More than 95% of the lithics documented are made on locally available, fine grained banded ironstones, which is a favoured raw material on many sites in the Northern Cape because of its superior flaking qualities. The remainder are in quartz and quartzite. Quartz outcrops locally, and large patches were encountered during the field assessment. No pebbles of banded ironstone were noted, which likely explains the very ephemeral scatter of tools across the landscape.

The majority of the implements recorded comprise utilised and retouched flakes, and chunks, while 13 cores were also counted. These included a vein quartz bipolar core and a high backed banded ironstone bladelet core. At least a dozen chunks with one or two flake scars were also identified, which might constitute residual cores.

With regard to formally retouched tools, three possible scrapers were found, although many of the flakes display secondary (scraper) retouch, and are best described as unstandardized utilitarian tools. One step-flaked piece on an older MSA flake was also noted. An anvil and a broken/split hammerstone were found, possibly indicating low levels of stone tool knapping across the affected landscape. No organic remains such as pottery, bone or ostrich eggshell were encountered during the field assessment.

As archaeological sites are concerned, the occurrences are lacking in context. No evidence of any factory or workshop site, or the result of any human settlement was identified within the proposed development site. No significant landscape features such as rocky outcrops, caves or shelters occur within the proposed site, or were noted in the surrounding landscape, which, apart from the imposing Renosterkop Peak north of the R64, is generally flat and featureless. It is maintained that most of the archaeological resources recorded during the study therefore comprise discarded flakes and flake debris (i. e. chunks & cores).

It is noted that large numbers of lithics were recorded north of the R64, on the Farm Renosterkop during the 2016 assessment, while pebbles of banded ironstone, derived from an older gravel/Dwyka tillite flushed from an area on top of Renosterkop, cover much of the development site, which most likely explains the large number of tools documented during the study.

6. Grading

Overall, the relatively small numbers, isolated and disturbed context in which they were found, means that the archaeological resources recorded on Kakamas South Settlement No. 2185 and 2193, have been rated as having *low* (Grade 3C) significance.

7. Built environment/historical structures

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

8. Graves

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

9. Palaeontology

According to the South Africa Heritage Resources Information System (SAHRIS) fossil-sensitivity map, the proposed development site is of insignificant/zero palaeontological importance. Almond's 2017 PIA desktop study of the proposed Renosterkop vineyard development confirms the 'very low palaeontological sensitivity of the study region'.

10. Impact statement

Overall, the results of the study indicate that the proposed activity (i. e. a citrus field development) will not have an impact of great significance on pre-colonial archaeological heritage, as these are expected to be limited. Only a small number of tools were documented during the study which, occur in an isolated, and transformed context.

11. Conclusion

The study has captured a good record of the archaeological heritage present on the proposed development site.

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

The impact significance of the proposed development on important archaeological heritage is assessed as LOW.

Therefore, there are no objections to the authorization of the proposed Renosterkop extension, development.

12. Recommendations

1. No archaeological mitigation is required prior to proposed 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

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South African Heritage Resources Agency (Ms Natasha Higgit 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

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1. INTRODUCTION

ACRM was appointed by Oseiland Eiendom (Pty) Ltd to conduct a Phase 1 Archaeological Impact Assessment (AIA) for a proposed citrus development near the small Northern Cape town of Augrabies (Kai! Garib Municipality) in the Northern Cape Province (Figures 1-3).

The proposed development (Kakamas South Settlement No. 2185 & 2193), will cover a footprint area of about 32ha. Water for the new citrus trees will be supplied from a pump station located on the banks of the Orange River about 3kms to the north of the R64. The trees will be supplied with water via buried pipelines placed alongside existing gravel farm roads. Existing access roads will be used, and no new access roads will need to be constructed. The property is currently zoned Agriculture, but has not yet been physically developed.

The proposed activity is an extension of a recently approved vineyard development on the Farm Renosterkop directly adjacent to the subject property, for which an AIA has already been conducted (Kaplan 2016).

A PIA desktop study has been commissioned as part of the wider Heritage Impact Assessment (or HIA) for the proposed development. Indications are, however, that the region is of 'very low palaeontological sensitivity' (Almond 2017:1).

Pieter Badenhorst Professional Services is the appointed independent Environmental Assessment Practitioner (EAP) responsible for facilitating the EIA process.

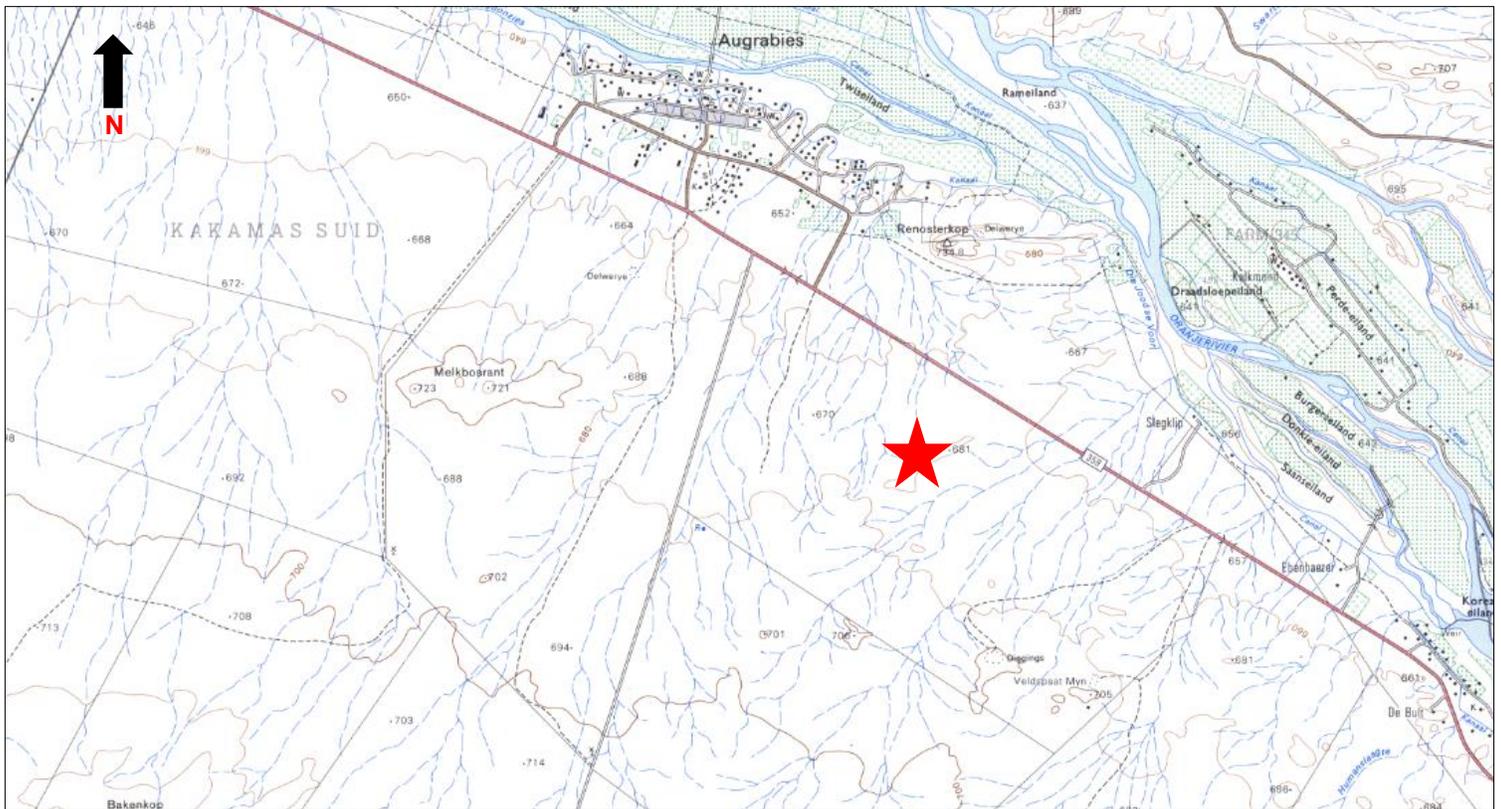


Figure 1. 1:50 000 Locality Map (2820 CB Augrabies). Star illustrates the location of the study area

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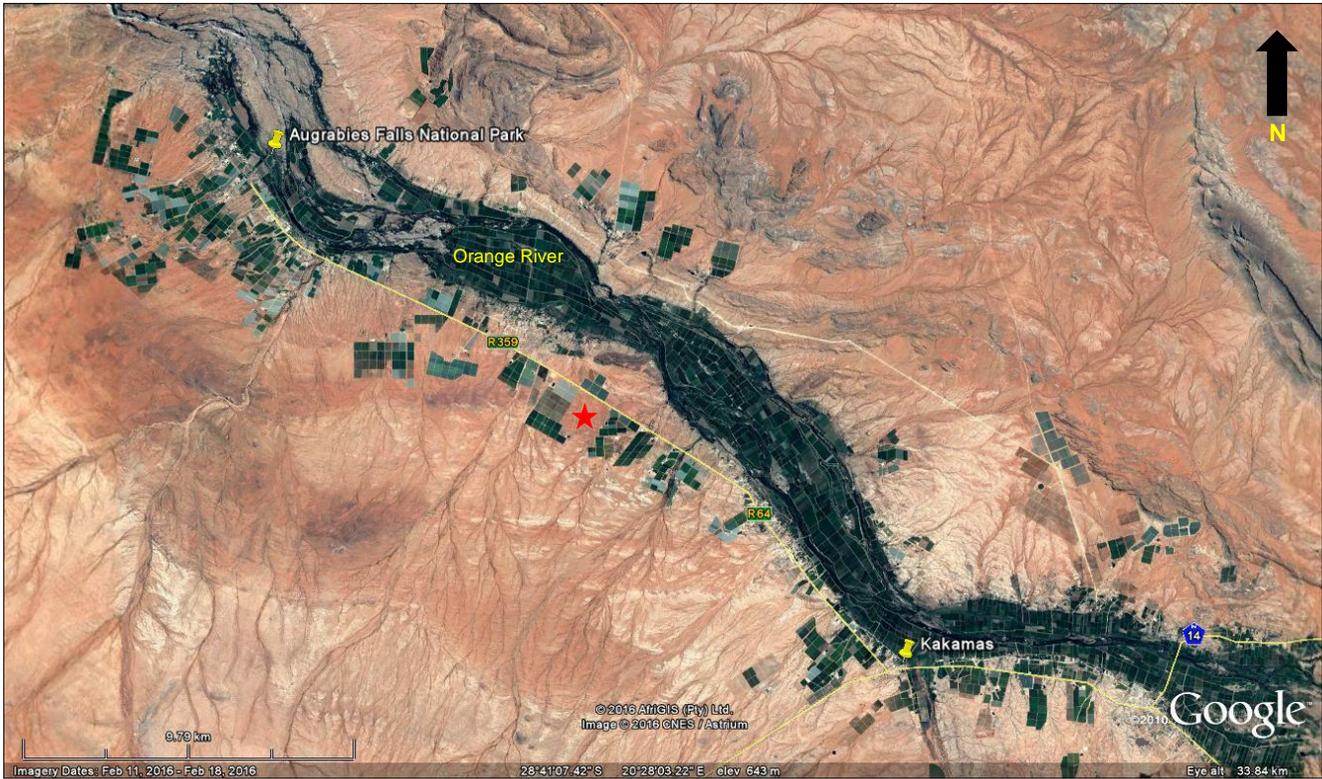


Figure 2. Google satellite map indicating the location of the proposed development site (red star) in relation to Augrabies Falls National Park and Kakamas.

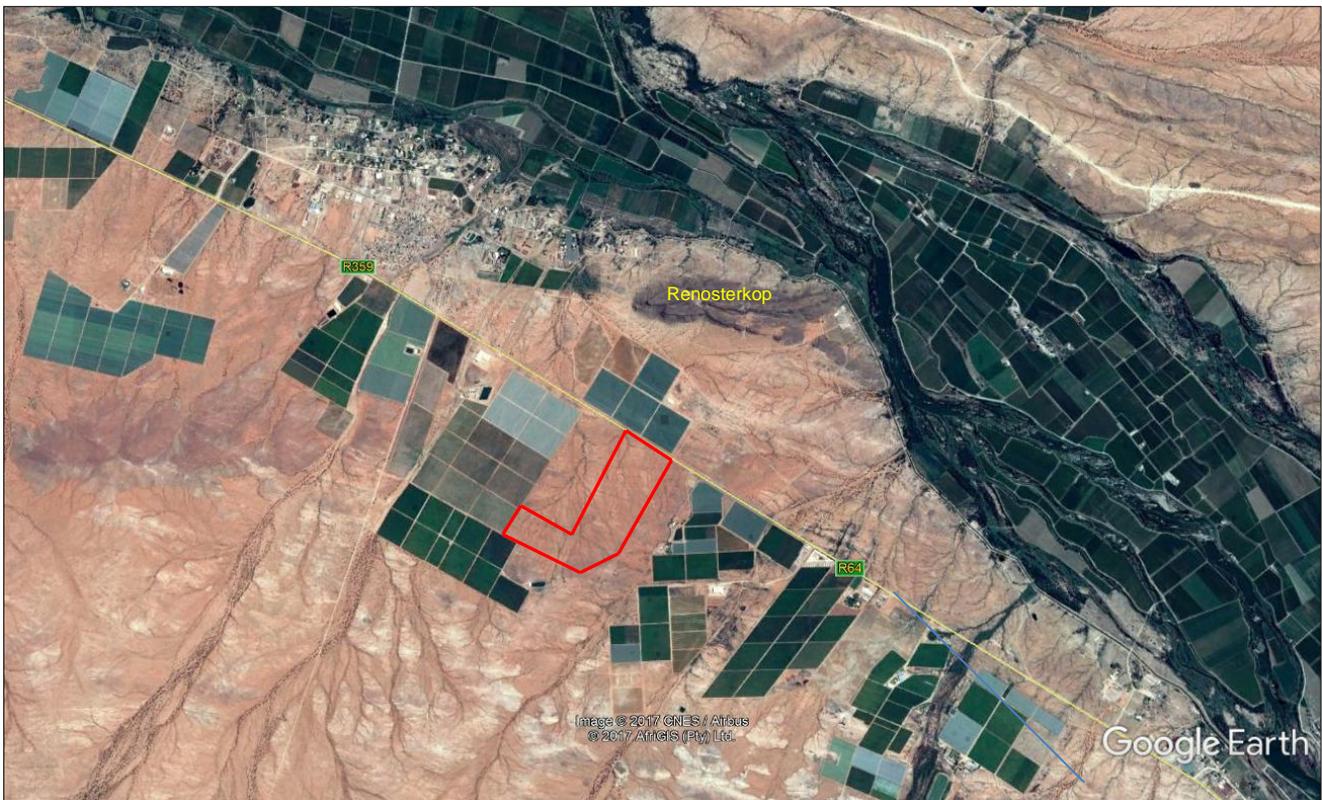


Figure 3. Google satellite map of the proposed development site (red polygon), south of the R64.

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 m² 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 study were to:

- Determine whether there are likely to be any important archaeological resources that may potentially be impacted by the proposed 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. DEVELOPMENT SITE

The proposed development site is situated on the left hand side (i. e. south) of the R64, ± 2.5kms before one enters the small town of Augrabies (Figure 4). The site lies immediately south east of the town and south west of the settlement known as Marchand. The terrain is generally flat and featureless sloping gently from the south alongside the tar road. Soils consist of shallow red sandy top soils, with large patches of wind eroded gravels (Figures 5-10). Several small outcrops of rocks are present in places, but no significant landscape features occur. Historically, the farm was used mainly for grazing, but has not been physically developed in the past. A, powerline servitude cut across the northern portion of the site alongside the R64, while numerous gravel farm roads and tracks intersect the property. Several drainage channels are also present, but are more visible in the south, where the soils are a little deeper. Twenty-five deep profile soil test pits have also been excavated across the property. Surrounding land use is agriculture (vineyards & citrus), social housing and large tracts of vacant

agricultural land. The Orange River is located \pm 3kms north of the R64. The proposed site is located directly adjacent the farm Renosterkop which was subjected to an AIA in 2016 (Kaplan 2016).

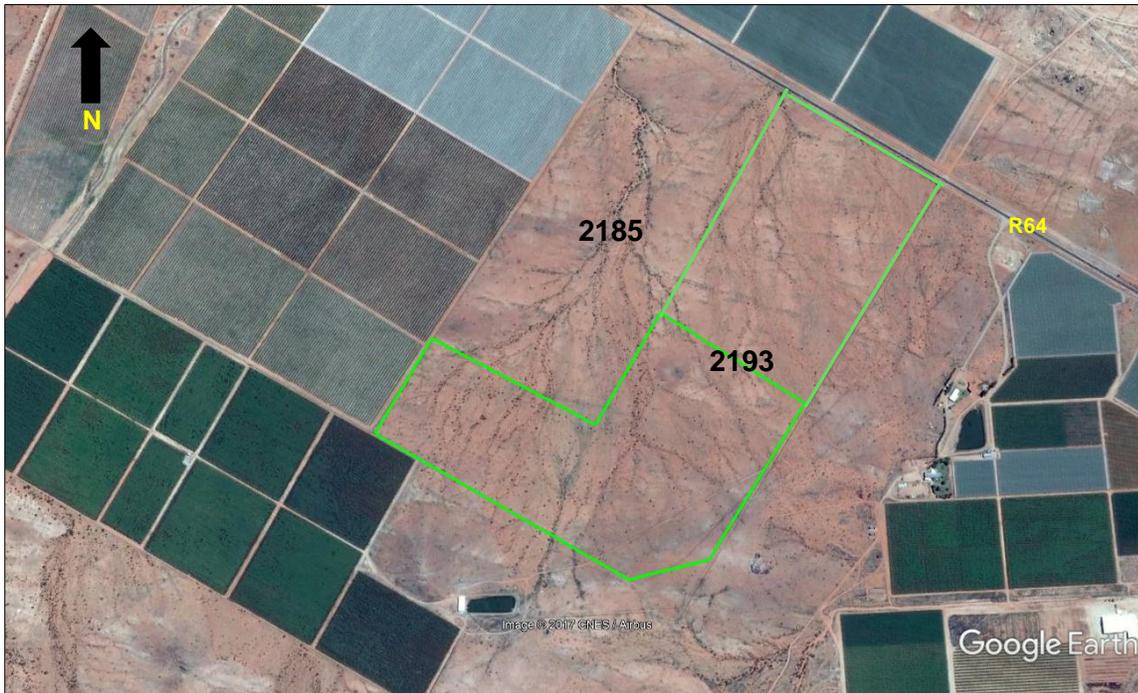


Figure 4. Google satellite map of the proposed development site (green polygon)



Figure 5. View of the proposed development site facing north. Renosterkop Peak is located in the background of the plate

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Figure 6. View of the proposed development site facing north west



Figure 7. View of the site facing east. Renosterkop is in the far distance to the left of the plate



Figure 8. View of the site facing northwest



Figure 9. View of the site facing west with the R354 to the right of the plate



Figure 10. View of the site facing south west

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.

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 associated with the study. Access to the site via a farm gate alongside R64 was easy, and archaeological visibility was very good.

5.3 Identification of potential risks

The results of the study indicate that there are no potential archaeological risks associated with the proposed vineyard development. Archaeological density across the 32ha footprint area is overall very low.

5.4 Results of the desk top study

Some archaeological work has been done in the Augrabies area. 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).

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 Pelser (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

A 2-day foot survey of the proposed development site undertaken in December 2017.

Survey track paths and the position of archaeological occurrences recorded during the field study are illustrated in Figures 11-13.

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

Overall, despite the relatively large (32ha) footprint area, small numbers of archaeological resources (i.e. stone tools) were recorded during the study, which, are spread very thinly and unevenly over the surrounding landscape. Almost all of the implements comprise single, isolated finds, which constitute an extremely low density scatter of pre-colonial archaeological resources.

More than 80% of the tools encountered are assigned to the Later Stone Age (LSA), while a small number of Middle Stone Age (MSA) flakes, and retouched blade tools (e.g. Sites 6781 & 6811) were also noted. A pointed retouched flake (Site 6711) was also found. No Early Stone Age (ESA) tools were encountered.

More than 95% of the lithics documented are made on fine grained banded ironstone, which is a favoured raw material on many sites in the Northern Cape because of its superior flaking qualities. The remainder are in quartz and quartzite. Quartz outcrops locally, and large patches were encountered during the field assessment. No pebbles, or scatters, of banded ironstone were noted, which probably explains the low density scatter of tools across the affected landscape.

The majority of the tools comprise utilised and retouched flakes and chunks, while 13 cores were also found. These included a vein quartz bipolar core (Site 7421) and a high backed banded ironstone bladelet core (Site 7311). At least a dozen chunks with one or two flake scars were identified, which might constitute residual cores.

With regard to formally retouched tools, three scrapers (Site 6961 & 7051) were found, including a lovely round disc scraper (Site 7471), although many of the flakes display secondary (scraper) retouch, and are best described as unstandardized utilitarian tools. One step flaked piece on an older MSA flake (Site 7241) was also noted.

An anvil (Site 7181) and one broken/split hammerstone (Site 7021) were found, indicating low levels of stone tool knapping across the footprint area.

No organic remains such as pottery, bone or ostrich eggshell were encountered.

As archaeological sites are concerned, the occurrences are lacking in context. No evidence of any factory or workshop site, or the result of any human settlement was identified within the proposed development site. No significant landscape features such as rocky outcrops, caves or shelters occur within the proposed site, or were noted in the surrounding landscape, which, apart from the imposing Renosterkop Peak north of the R64, is generally flat and featureless. It is maintained that most of the archaeological remains recorded during the study comprise discarded flakes, and flake debris (i. e. chunks & cores).

It is noted that large numbers of lithics were recorded north of the R64, on the Farm Renosterkop during the 2016 assessment (Kaplan 2016), while pebbles of banded ironstone, derived from an older gravel/Dwyka tillite flushed from an area on top of Renosterkop, cover much of the vineyard development site. This most likely explains the relatively high density of tools documented during the study.

A collection of implements recorded during the study, and the context in which they were found are illustrated in Figures 14-21.

6.1 Grading of archaeological resources

Overall, the very small numbers, isolated and disturbed context in which they were found, means that the archaeological remains have been rated as having *low* (Grade 3C) significance.

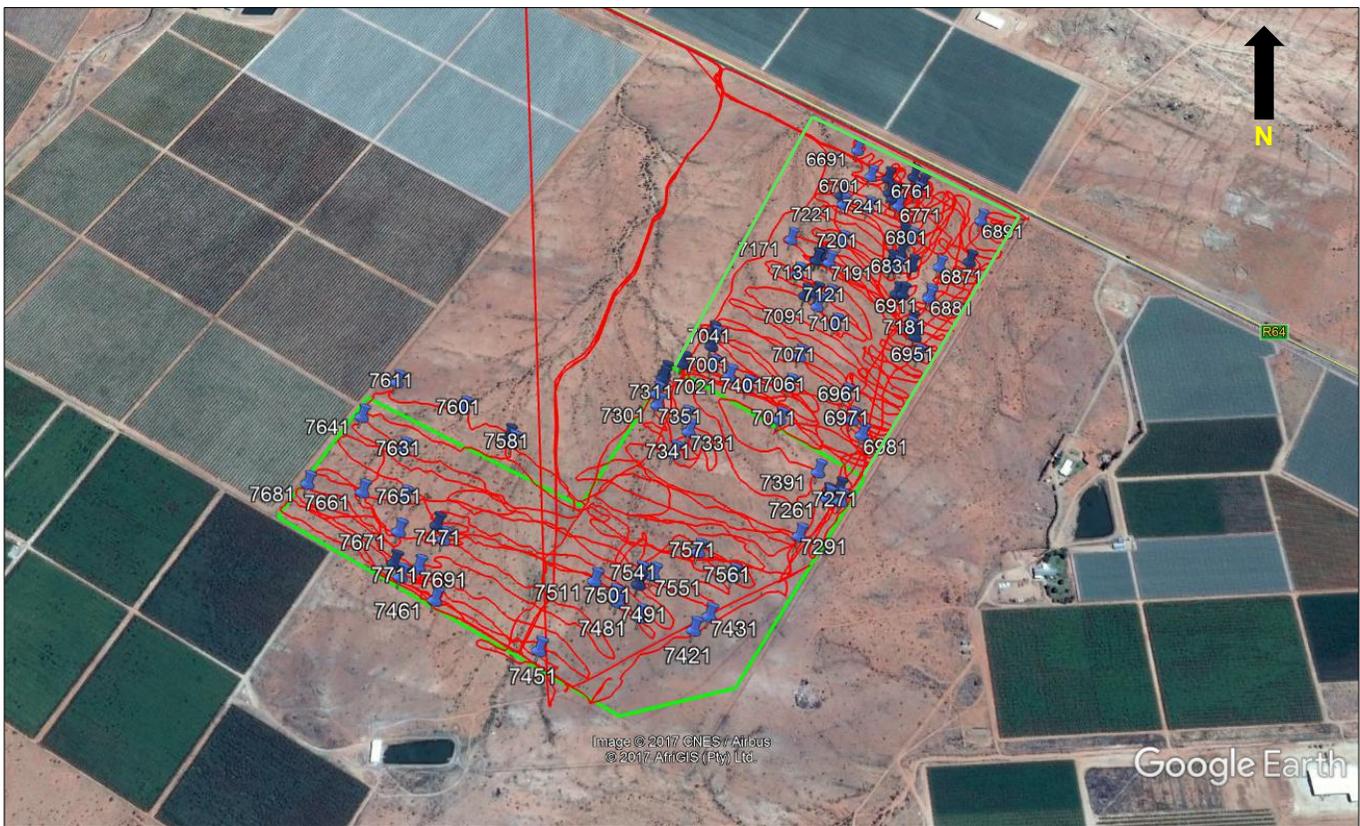


Figure 11. Google satellite map of the proposed development site, including waypoints of archaeological finds and survey track paths (in red)

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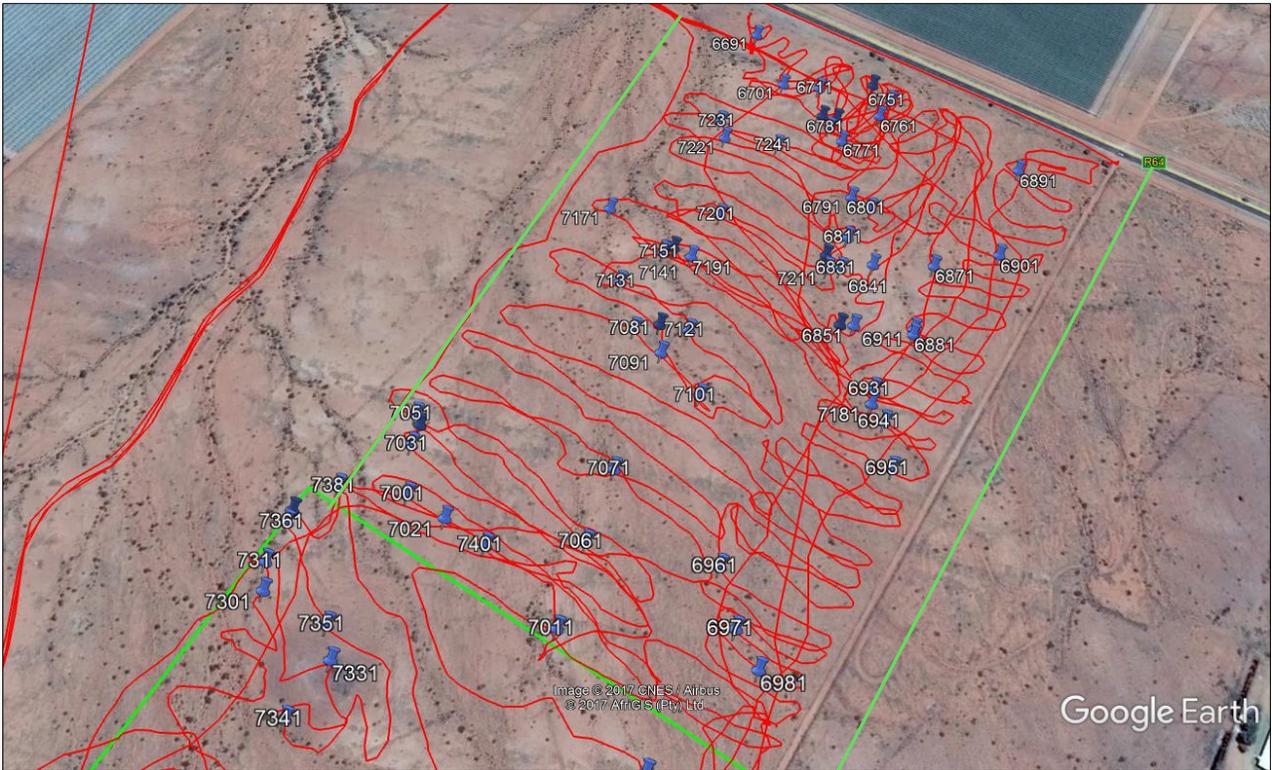


Figure 12. Close-up Google satellite map of the proposed development site, including waypoints of archaeological finds and survey track paths (in red)

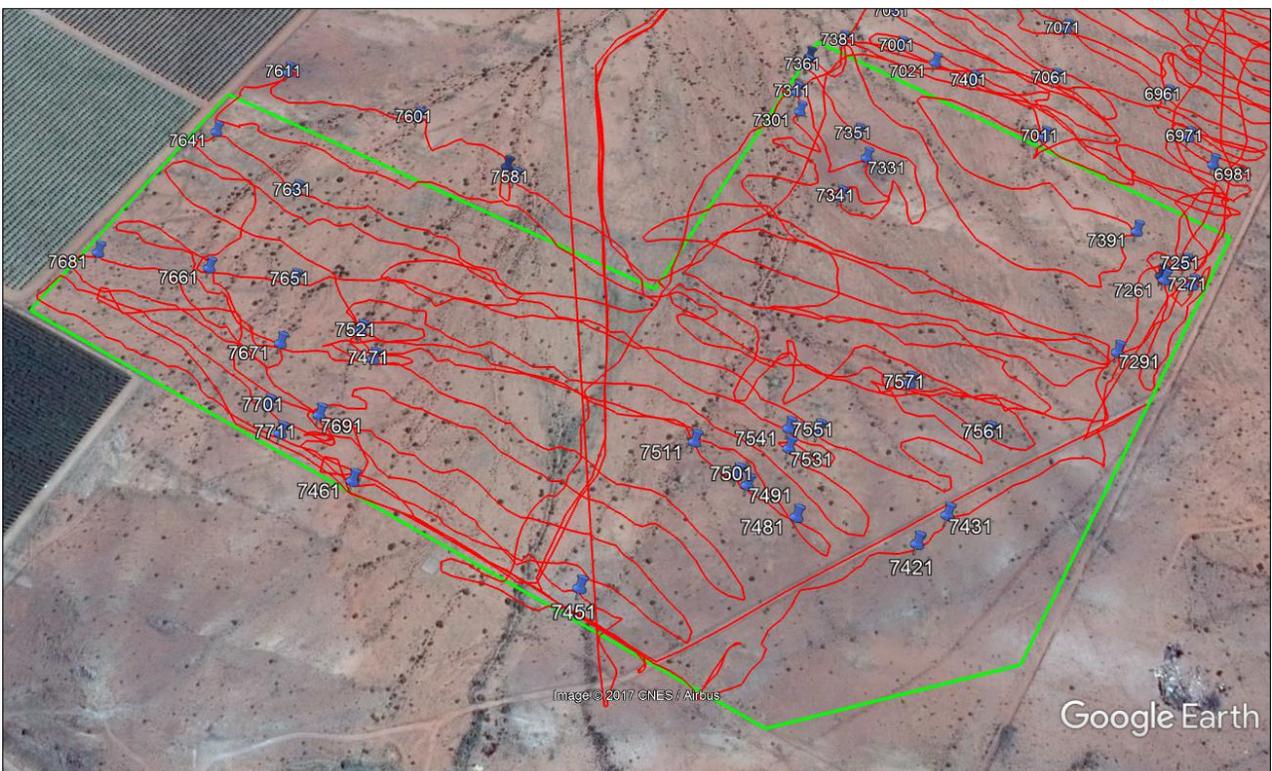


Figure 13. Close-up Google satellite map of the proposed development site, including waypoints of archaeological finds and survey track paths (in red)

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Site	Farm name	Lat/long	Description of finds	Grading	Suggested mitigation
	Kakamas South Settlement Nos 2185 & 2193		All in banded ironstone unless otherwise stated		
6691		S28° 41.238' E20° 26.768'	A few flakes, including utilized/modified cobble flakes, chunks, and a quartz chunk/flake.	3C	None required
6701		S28° 41.271' E20° 26.781'	x 2 utilized cortex flakes, 1 utilized chunk, on a large patch of coarse sandy gravel	3C	None required
6711		S28° 41.274' E20° 26.802'	Utilized chunk and pointed retouched flake	3C	None required
6721		S28° 41.272' E20° 26.832'	Snapped blade/bladelet	3C	None required
6731		S28° 41.293' E20° 26.810'	Chunk	3C	None required
6741		S28° 41.292' E20° 26.802'	Chunk and chunky MSA flake on large patch of coarse gravel/sand	3C	None required
6751		S28° 41.282' E20° 26.841'	Utilized flake alongside powerline servitude	3C	None required
6761		S28° 41.292' E20° 26.834'	Chunky cortex utilized/retouched flake	3C	None required
6771		S28° 41.307' E20° 26.811'	Vein quartz MSA flake	3C	None required
6781		S28° 41.299' E20° 26.805'	Utilized & retouched MSA blade	3C	None required
6791		S28° 41.341' E20° 26.813'	?Round hammer stone	3C	None required
6801		S28° 41.347' E20° 26.823'	Pressure flaked, snapped utilized flake on rocky patch of ground – large patch of surrounding surface quartz	3C	None required
6811		S28° 41.364' E20° 26.809'	Large utilized, partially retouched MSA blade	3C	None required
6821		S28° 41.374' E20° 26.797'	Blade on cobble chunk	3C	None required
6831		S28° 41.381' E20° 26.803'	Large round core	3C	None required
6841		S28° 41.379' E20° 26.820'	Thin, utilized blade/flake	3C	None required
6851		S28° 41.411' E20° 26.807'	Large utilized rounded blade (cortex)	3C	None required
6861		S28° 41.410' E20° 26.800'	Small chunk	3C	None required
6871		S28° 41.380' E20° 26.852'	Large, utilized/retouched cortex flake	3C	None required
6881		S28° 41.416' E20° 26.837'	Large utilized/retouched cortex flake	3C	None required
6891		S28° 41.325' E20° 26.906'	Cortex flake	3C	None required
6901		S28° 41.374' E20° 26.887'	Weathered chunk with some retouch	3C	None required
6911		S28° 41.413' E20° 26.837'	Retouched chunky quartz flake	3C	None required
6921		S28° 41.445' E20° 26.856'	Chunk	3C	None required
6931		S28° 41.442' E20° 26.814'	Chunk	3C	None required
6941		S28° 41.458' E20° 26.817'	Quartzite chunk	3C	None required
6951		S28° 41.479' E20° 26.818'	Broken quartz flake	3C	None required
6961		S28° 41.521' E20° 26.736'	Small weathered flake ?MRP/convex scraper	3C	None required
6971		S28° 41.546' E20° 26.742'	Round quartz core on large coarse sand gravel patch	3C	None required

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6981		S28° 41.562' E20° 26.751'	Small, weathered core	3C	None required
6991		S28° 41.580' E20° 26.756'	Thin snapped, retouched flake	3C	None required
7001		S28° 41.491' E20° 26.591'	Large cortex chunk	3C	None required
7011		S28° 41.546' E20° 26.663'	Large quartzite MSA flake on large gravel patch	3C	None required
7021		S28° 41.501' E20° 26.610'	Split/broken quartzite cobble hammer stone	3C	None required
7031		S28° 41.468' E20° 26.591'	Large, flat, smooth broken cobble chunk/flaked	3C	None required
7041		S28° 41.459' E20° 26.594'	Chunk	3C	None required
7051		S28° 41.454' E20° 26.592'	MRP/scrapper	3C	None required
7061		S28° 41.511' E20° 26.675'	A few isolated flakes/chunks on large patch of quartz	3C	None required
7071		S28° 41.479' E20° 26.687'	Chunk/?core	3C	None required
7081		S28° 41.412' E20° 26.697'	Broken utilized, snapped blade, & chunk on edge of gravel patch	3C	None required
7091		S28° 41.425' E20° 26.710'	Cortex/cobble chunk	3C	None required
7101		S28° 41.445' E20° 26.729'	Cortex core	3C	None required
7111		S28° 41.410' E20° 26.710'	Chunk	3C	None required
7121		S28° 41.413' E20° 26.724'	Utilized/misc. retouched flake	3C	None required
7131		S28° 41.388' E20° 26.690'	Chunk	3C	None required
7141		S28° 41.371' E20° 26.712'	Large cortex chunk	3C	None required
7151		S28° 41.372' E20° 26.712'	Chunk/core	3C	None required
7161		S28° 41.369' E20° 26.717'	Quartzite chunk and large flat MSA flake	3C	None required
7171		S28° 41.347' E20° 26.684'	Quartzite core	3C	None required
7181		S28° 41.449' E20° 26.812'	Anvil	3C	None required
7191		S28° 41.374' E20° 26.726'	Wide, flat MSA utilized/retouched flake	3C	None required
7201		S28° 41.351' E20° 26.742'	MSA quartz flake and utilized & misc. retouched cortex flake	3C	None required
7211		S28° 41.381' E20° 26.797'	MSA flake	3C	None required
7221		S28° 41.305' E20° 26.747'	?Quartz core	3C	None required
7231		S28° 41.295' E20° 26.745'	Small, weathered MSA retouched flake on gravel patch	3C	None required
7241		S28° 41.310' E20° 26.776'	LSA step retouch on weathered older, chunky MSA flake,	3C	None required
7251		S28° 41.617' E20° 26.723'	Quartz flake on large patch of quartz gravel	3C	None required
7261		S28° 41.625' E20° 26.710'	Quartz flake	3C	None required
7271		S28° 41.628' E20° 26.724'	Large, white fine grained misc. retouched quartzite flake	3C	None required
7281		S28° 41.623' E20° 26.709'	Round, smooth, lump of pitted pink quartz	3C	None required
7291		S28° 41.661' E20° 26.679'	Large patch of quartz	3C	None required
7301		S28° 41.531' E20° 26.531'	Weathered, retouched MSA flake	3C	None required
7311		S28° 41.519' E20° 26.530'	High blade/let core	3C	None required

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7321		S28° 41.564' E20° 26.545'	Utilized/retouched, classic triangular shaped MSA flake with convergent dorsal scar	3C	None required
7331		S28° 41.558' E20° 26.565'	Round quartz core	3C	None required
7341		S28° 41.580' E20° 26.549'	Weathered retouched MSA flake	3C	None required
7351		S28° 41.545' E20° 26.562	Side/end retouched weathered MSA flake	3C	None required
7361		S28° 41.503' E20° 26.537'	Broken cobble	3C	None required
7371		S28° 41.497' E20° 26.539'	White quartz core	3C	None required
7381		S28° 41.487' E20° 26.559'	Pebble chunk with single flake scar	3C	None required
7391		S28° 41.599' E20° 26.702'	Broken weathered retouched MSA flake	3C	None required
7401		S28° 41.512' E20° 26.629'	Embedded chunk	3C	None required
7411		S28° 41.805' E20° 26.467'	Misc. retouch cortex flake	3C	None required
7421		S28° 41.747' E20° 26.570'	Vein quartz bladelet core	3C	None required
7431		S28° 41.735' E20° 26.585'	Cobble/chunk cortex core	3C	None required
7441		S28° 41.710' E20° 26.661'	Cobble chunk with flake scar	3C	None required
7451		S28° 41.765' E20° 26.416'	Cobble chunk with flake scar	3C	None required
7461		S28° 41.720' E20° 26.309'	Large round core	3C	None required
7471		S28° 41.664' E20° 26.312'	Round disc scraper	3C	None required
7481		S28° 41.736' E20° 26.516'	Weathered chunk	3C	None required
7491		S28° 41.722' E20° 26.494'	Large MSA quartzite flake	3C	None required
7501		S28° 41.718' E20° 26.489'	Utilized pebble flake	3C	None required
7511		S28° 41.703' E20° 26.469'	Quartz core	3C	None required
7521		S28° 41.651' E20° 26.304'	MSA flake	3C	None required
7531		S28° 41.706' E20° 26.514'	Small chunk	3C	None required
7541		S28° 41.697' E20° 26.515'	Round milky white quartz core	3C	None required
7551		S28° 41.698' E20° 26.528'	Weathered chunk with single flake scar	3C	None required
7561		S28° 41.699' E20° 26.610'	Weathered chunk	3C	None required
7571		S28° 41.676' E20° 26.575'	Weathered retouched flake	3C	None required
75781		S28° 41.570' E20° 26.377'	Embedded chunk	3C	None required
7591		S28° 41.563' E20° 26.372'	Cortex core/chunk	3C	None required
7601		S28° 41.535' E20° 26.322'	Broken milky white quartz core	3C	None required
7611		S28° 41.507' E20° 26.246'	Chunk	3C	None required
7621		S28° 41.514' E20° 26.223'	Utilized flake	3C	None required
7631		S28° 41.577' E20° 26.262'	Retouched broken flake	3C	None required
7641		S28° 41.543' E20° 26.213'	Weathered utilized/misc. retouched flake	3C	None required
7651		S28° 41.625' E20° 26.268'	x 2 quartz chunk/residual cores	3C	None required
7661		S28° 41.619' E20° 26.223'	Chunk	3C	None required
7671		S28° 41.657' E20° 26.265'	Broken flake/chunk	3C	None required
7681		S28° 41.610' E20° 26.164'	Chunk	3C	None required
7691		S28° 41.691' E20° 26.289'	Retouched & utilized flake/chunk	3C	None required
7701		S28° 41.686' E20° 26.264'	Chunk	3C	None required
7711		S28° 41.699' E20° 26.272'	Chunk	3C	None required

Table 1. Spreadsheet of waypoints and description of archaeological finds

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Figure 14. Collection of cores. Scale is in cm



Figure 17. Collection of tools. Scale is in cm



Figure 15. Collection of flake tools. Scale is in cm



Figure 18. Collection of tools. Scale is in cm



Figure 16. Collection of flake tools and cores. Scale is in cm



Figure 19. Collection of tools. Scale is in cm



Figure 20. Context in which some of the tools were found



Figure 21. Context in which some of the tools were found. Renosterkop Peak is in the distance

6.2 Built environment/historical structures

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

6.3 Graves

No graves, or typical grave features were recorded during the study.

7. ASSESSMENT OF IMPACTS

In the case of the proposed citrus development (Renosterkop Extension) on Kakamas South Settlement No. 2185 & 2193, it is expected that some archaeological impacts will occur during the Construction Phase, but that the overall impact on archaeological resources will be *LOW* (Table 2).

Potential impacts on archaeological heritage	
Extent of impact:	Site specific
Duration of impact;	Permanent
Intensity	Low
Probability of occurrence:	Probable
Significance without mitigation	Low
Significance with mitigation	Negative
Confidence:	High

Table 2. Assessment of archaeological impacts.

8. CONCLUSION

The baseline study has captured a good record of the archaeological heritage present on the proposed development site.

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

The impact significance of the proposed development on important archaeological heritage is assessed as LOW.

Therefore, there are no objections to the authorization of the proposed development.

9. RECOMMENDATIONS

With regard to the proposed development (Renosterkop Extension) on Kakamas South Settlement No. 2185 and 2193, the following recommendations are made:

1. No mitigation is required prior to proposed development activities commencing.
2. Should any unmarked human burials/remains or ostrich eggshell water flask caches be uncovered, or exposed during proposed activities, these must immediately be reported to the archaeologist (Jonathan Kaplan 0823210172), or the South African Heritage Resources Agency (Ms Natasha Higgitt 021 4624502). Burials, particularly, must not be removed or disturbed until inspected by a professional archaeologist.
3. The above recommendations must be incorporated into the Environmental Management Plan (EMP) for the proposed development.

10. REFERENCES

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