

ARCHAEOLOGICAL IMPACT ASSESSMENT

Proposed vineyard development on Farm 355 Tierkop, Kakamas North, near 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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**JUNE
2019**

Executive summary

1. Introduction

ACRM was appointed by Pieter Badenhorst Professional Services (PBPS) to conduct an Archaeological Heritage Impact Assessment (AIA) for a proposed new agricultural development on Farm 355 Tierkop Kakamas North, near Augrabies in the Northern Cape Province.

The study site is located about 4.5kms north east of the town of Augrabies, across the Orange/Gariep River, alongside the gravel road to Riemvasmaak.

The proposed vineyard development will cover a footprint area of about 72ha. A small ± 1 Megawatt PV package plant is also envisaged. Water for the new vineyards will be supplied from a pump station located on the banks of the Orange River. The vineyards will be supplied with water via existing pipelines. Existing farm roads will be used, and no new access roads will need to be constructed.

PBPS is the appointed independent Environmental Assessment Practitioner (EAP) responsible for facilitating the EIA process.

A Palaeontological Impact Assessment (PIA) desktop study has been conducted by consulting palaeontologist Dr John Almond of Natura Viva cc.

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 development is more than 5000m² in extent.

3. Aim of the AIA

The overall purpose of the AIA 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. Access to the site was easy and archaeological visibility was very good.

5. Findings

One or two marginal scatters (outside the proposed development footprint area), and a limited number of Later Stone Age and Middle Stone Age tools were recorded during a field assessment which took place in June 2019.

5.1 Grading

The very small numbers and transformed context in which they were found means that the archaeological resources have been graded as having *low* (Grade 3C) significance.

6. Built environment/historical structures

In terms of the built environment, no old buildings, historical structures or features, or any old equipment was found in the proposed footprint area.

7. Graves

No graves or typical grave features were encountered during the study.

8. Impact statement

Overall, the results of the study indicate that the proposed activity (i. e. a new vineyard development), including construction of a small PV package plant will not have an impact of great significance on the archaeological heritage.

9. Conclusion

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 archaeological heritage is assessed as LOW and therefore, there are no objections to the authorization of the proposed development.

10. Recommendations

1. No mitigation is required prior to proposed development activities commencing.
2. No archaeological monitoring is required.

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1. INTRODUCTION

ACRM was appointed by Pieter Badenhorst Professional Services (PBPS) on behalf of Rooipad Boerdery (Pty) Ltd to conduct an Archaeological Heritage Impact Assessment (AIA) for a proposed agricultural development on Farm 355 Tierkop Kakamas Noord, near Augrabies in the Northern Cape Province of South Africa (Figures 1 & 2).

The proposed new vineyard development will cover a footprint area of about 72ha. A small ± 1 Megawatt PV off site package plant is also envisaged. Water for the new vineyards will be supplied from a pump station located on the banks of the Gariiep/Orange River. The vineyards will be supplied with water via existing underground pipelines. Existing farm roads will be used, and no new access roads will need to be constructed.

PBPS is the appointed independent Environmental Assessment Practitioner (EAP) responsible for facilitating the Environmental Impact Assessment (EIA) process.

A Palaeontological Impact Assessment (PIA) desktop study has been conducted by consulting palaeontologist Dr John Almond of Natura Viva cc.

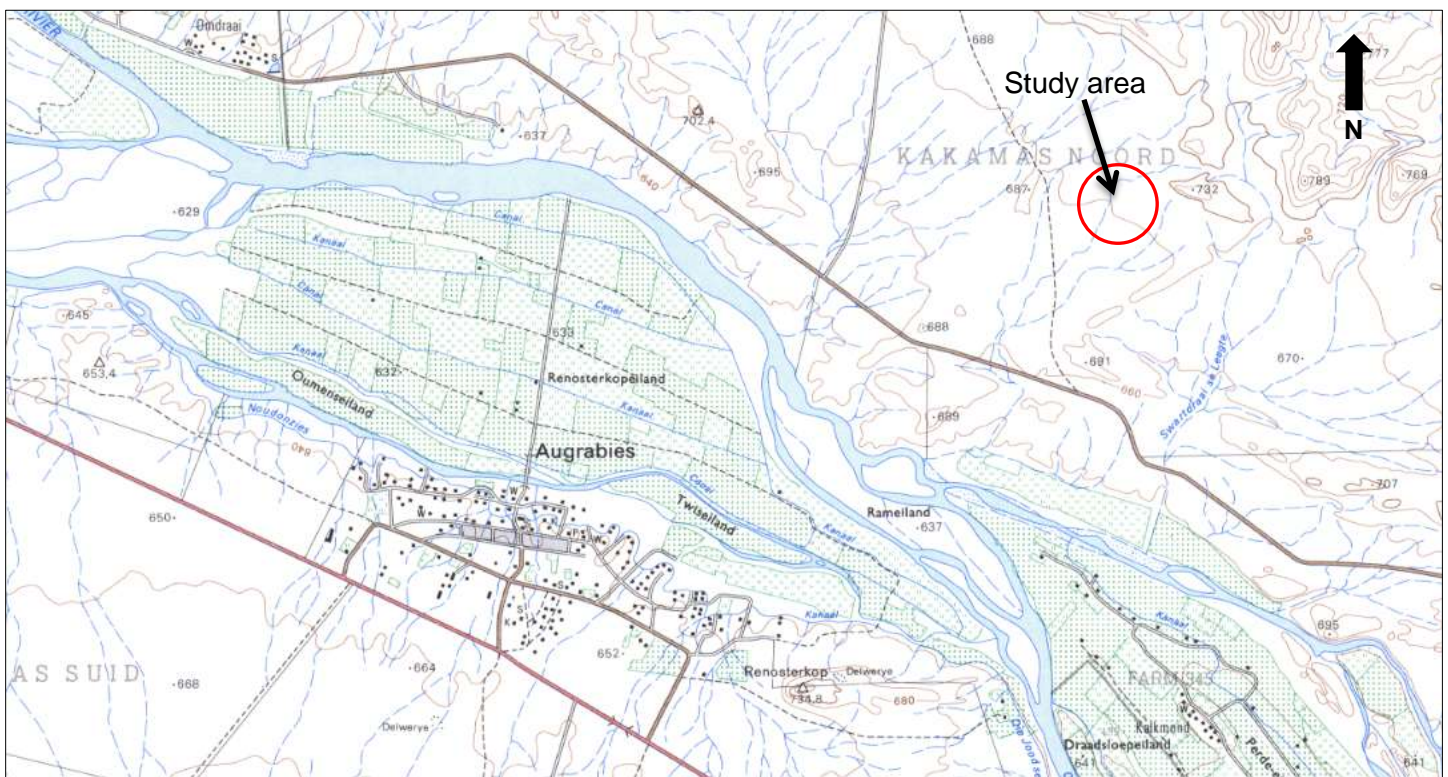


Figure 1. Locality Map (2820CB Augrabies). Red polygon illustrates the location of the study area



Figure 2. Google satellite map illustrating the location of the proposed development site (red polygon) in relation to the towns of Augrabies and Kakamas.

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 activities;
- Indicate any constraints that would need to be taken into account in considering the development proposal;
- Identify potentially sensitive archaeological areas, and
- Recommend any mitigation action.

4. THE STUDY SITE

Tierkop is located about 4.5kms north east of Augrabies (across the Gariep River), and about 14kms north west of Kakamas on the gravel road to Riemvasmaak, with the turnoff to the farm on the right hand side of the road (Figure 3). An agricultural potential survey of the study area has identified \pm 72ha of land that is suitable for new vineyard production (Area A, B & C). The receiving environment comprises mostly level lands, sloping slightly to the south, on a substrate of soft, weathered gravelly sands. There is barely any surface stone covering the potential agricultural lands, save for a few isolated pieces of vein and pink quartz. The affected lands are mostly bare, covered in small tufts of yellow grass, with a few sporadic trees and bushes occurring in places (Figures 4-11). Dense vegetation is associated with several dry drainage channels that intersect the site, particularly along the western and south eastern boundary of the proposed development site. There are no significant landscape features on the proposed site. Hard dorbank surfaces of gravel, and outcroppings of quartz occur, but these areas are not suitable for vineyard production. Surrounding land use is agriculture (mostly vineyards/table grapes), grazing (eland, kudu, and wildebeest), mountain biking and Wilderness.

Additional, contiguous, smaller landholdings (Areas D-H), measuring about 10-12ha in extent, have also been identified for potential future vineyard production, but according to the farm manager Mr Daniel Nel (pers. comm.), these are unlikely to be developed due to a constrained water rights supply. The proposed vineyards sites are located directly adjacent to existing, established vineyards, below rocky gravelly slopes, and have already been cleared of natural vegetation (Figures 12-19). About 80% of the proposed lands have also been ripped, and therefore constitute a transformed landscape. Thick patches of Euphorbia (Areas D & F & G) and dense stands of Acacia (Site H) occur in places, while sporadic Acacias, Euphorbias and bushes also occur. Numerous deep pits have been excavated in Area F, while small drainage channels in Area G have been filled with rocks. Apart from a few isolated scatters of pink and white vein quartz, and some gravelly patches mainly alongside drainage channels, there is

barely any surface stone covering these areas. A mountain bike trail has been built across the upper portions of the proposed vineyard sites.

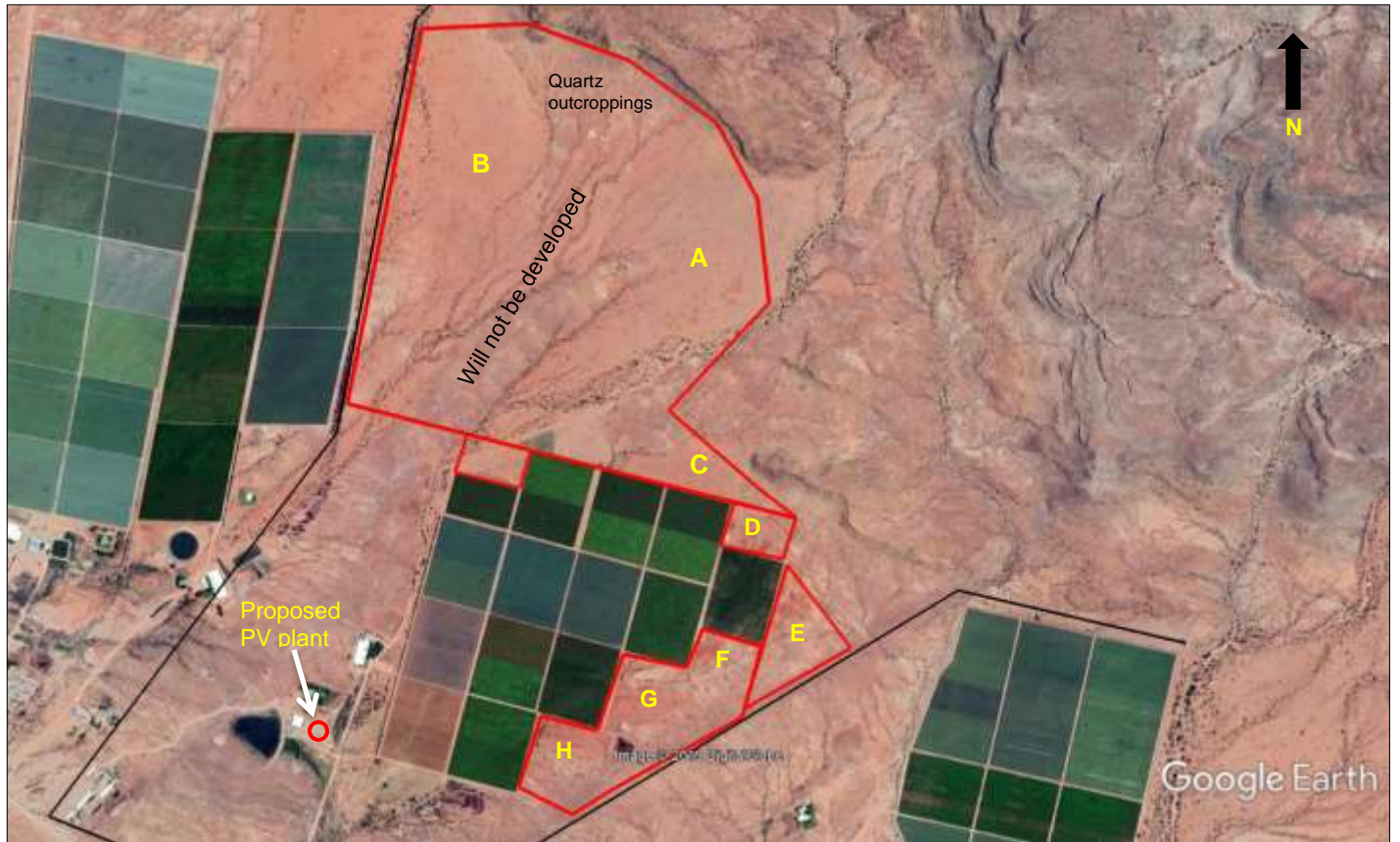


Figure 3. Google satellite map of the proposed study area, including the location of the proposed PV package plant



Figure 4. Area A. View facing south west

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Figure 5. Area A. View facing south/south west



Figure 6. Area A. View facing south east



Figure 7. Area A. View facing north



Figure 8. Area A. View facing north



Figure 9. Area B. View facing south



Figure 10. Area B. View facing north.



Figure 11. Area C. View facing south/south west



Figure 12. Area D. View facing south east



Figure 13. Area E. View facing north



Figure 14. Area F. View facing north east



Figure 15. Area F. View facing south west



Figure 16. Area G. View facing north east



Figure 17. Area G. View facing south west



Figure 18. Area H. View facing north east.



Figure 19. Area H. View facing north west

4.1 PV package plant

The proposed 1.0 Mega Watt PV package plant, previously located about 250m south west of the packing shed, will now be located in a severely degraded, level patch of scraped ground about 50m south of the packing shed, in front of the dam (Figure 20). The proposed PV development site is about 0.3ha in extent.



Figure 20. Google image indicating the proposed new location site for the PV plant (red polygon)

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 or limitations associated with the study. Access to the site 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 or heritage risks associated with the proposed vineyard development on Tierkop near Augrabies.

5.4 Results of the desk top study

More and more contract archaeological surveys are being conducted in the Augrabies and Kakamas area. One of the earliest studies was done by Morris and Beaumont (1991) who undertook a combined impact assessment, and mitigation of sites on Renosterkop Peak, known historically to pre-colonial local Namneiqua pastoralists as INawabdanas. Several, low-density surface scatters of Middle Stone Age (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.

Morris and Beaumont (1991) also note that many indigenous 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 Renosterkop Hill, during an HIA for a proposed new vineyard development on the farm (Kaplan 2016).

More recently, large numbers of LSA, MSA and some older Early Stone Age (ESA) implements were recorded on the flatlands below the prominent Koppie on the farm Renosterkop during an archaeological impact assessment for a proposed new vineyard development (Kaplan 2016), while limited numbers of tools were recorded on the farm Renosterkop extension, south of the R359 near the entrance to the town (Kaplan 2017).

Orton (2012) also 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 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) also documented relatively large numbers of LSA and MSA lithics, including activity areas, on the farm Orange Falls, just outside the urban edge of the town. 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 (2014) 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, and would no longer be archaeologically visible in the landscape.

6. FINDINGS

A detailed foot survey of the proposed new vineyard development site, including an assessment of the footprint area for the (then) proposed 1.0 MW PV package plant was undertaken on 4th & 5th June 2019. A track path of the survey was created (Figure 21). A spreadsheet of waypoints and a description of archaeological finds are presented in Table 1.

A small number of isolated, MSA and LSA lithics were recorded during the study. These comprised mostly a few round quartz cores, flakes and chunks in quartz, quartzite, indurated shale, silcrete, and banded ironstone. Several weathered flake tools were also noted. No formal tools such as scrapers or adzes were found, and no organic remains such as pottery or ostrich eggshell were encountered. A very small number of tools were recorded in Areas A, B and C. Ironically, most of the lithics were recorded in Area E on washed gravels above the ripped lands, while a small handful of tools were recorded in Area H. A, low density scatter of tools, comprising a few weathered indurated shale flakes and chunks were recorded on an extensive scatter of quartz pebbles and washed gravels in the south western portion of Area B (Points 034-037), alongside the drainage channel, *outside* the proposed development site. A, low density scatter of lithics including a lump of silcrete and a weathered quartz MSA flake were also recorded on an extensive scatter of quartz gravels in the northern boundary of Area A (Points 091-011).

A collection of tools recorded during the study, and the context in which they were found are illustrated in Figures 22-30.

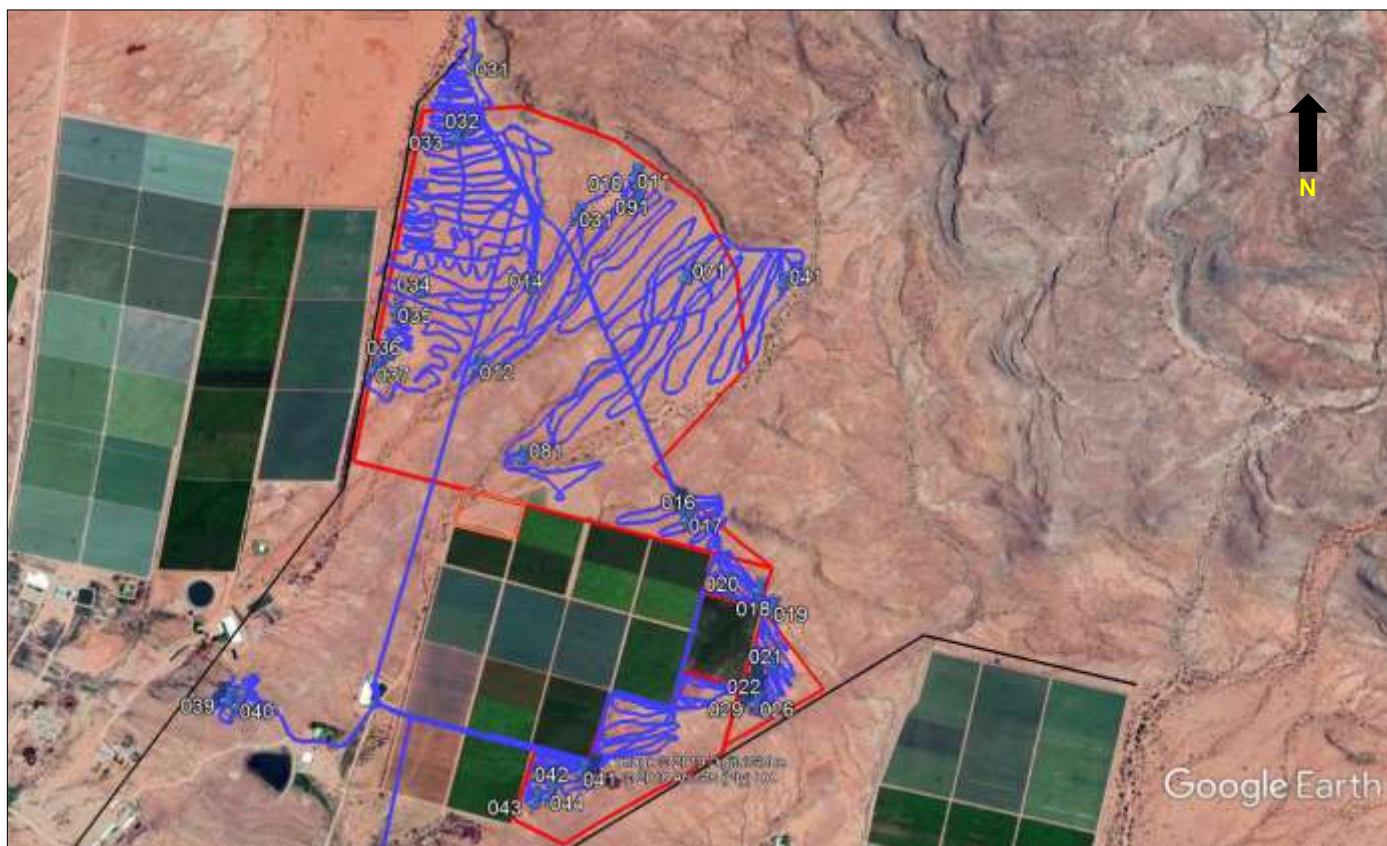


Figure 21. Trackpaths in blue and waypoints of archaeological finds

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Figure 22. Area A. Site 916. Context in which the remains were found



Figure 23. Flake tools from Area A. Scale is in cm

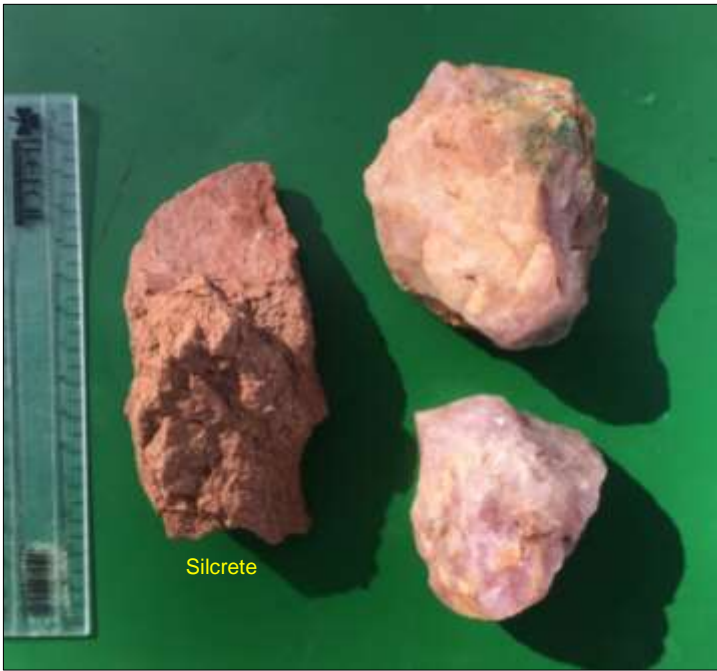


Figure 24. Lithics from Site 916. Scale is in cm



Figure 25. Flake tools from Area C & D. Scale is in cm



Figure 26. Area B. Site 034-037. Context in which the remains were found. View facing south west



Figure 27. Building foundations (Site 017) in Area C.



Figure 28. Lithics from Area C & D. Scale is in cm



Figure 29. Tools from Area E. Scale is in cm



Figure 30. Tools from Area E & H. Scale is in cm

6.1 PV Package plant

The proposed new site for the PV package plant (refer to Figure 20) was not searched for archaeological resources, but it is clear from the Google image that the preferred site constitutes a severely transformed landscape. Three implements (Points 038-040) were found in the original proposed site (refer to trackpaths in Figure 21), including a combined hammerstone/grindstone/anvil (Figure 31).



Figure 31. Tools from original proposed PV site. Scale in cm

6.2 Grading of archaeological resources

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

Site	Farm name	Lat/long	Description of finds	Grading	Mitigation
	Farm No. 355 Tierkop			NCW = not conservation worthy	
Site A					
041		S28° 38.106' E20° 28.632'	Weathered quartzite MSA flake	NCW	None required
071		S28° 38.084' E20° 28.501'	Vein quartz flake	NCW	None required
081		S28° 38.400' E20° 28.170'	Possible quartz core/chunk	NCW	None required
091		S28° 37.924' E20° 28.419'	Low density scatter of a few flake tools, chunks, core, outcropping of quartz and large scatter of quartz pebbles & gravels	NCW	None required
010		S28° 37.884' E20° 28.413'	Lump of silcrete on quartz gravels	NCW	None required
011		S28° 37.880' E20° 28.414'	Weathered MSA quartz flake/MRP on quartz gravels	NCW	None required
012		S28° 38.219' E20° 28.097'	Silcrete chunk/flake on gravel patch	NCW	None required
013		S28° 37.949' E20° 28.297'	Pink quartz core on gravel patch	NCW	None required
014		S28° 38.079' E20° 28.205'	Pink quartz core	NCW	None required

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Site C					
015		S28° 38.455' E20° 28.500'	Indurated shale flake	NCW	None required
016		S28° 38.472' E20° 28.512'	Indurated shale chunk	NCW	None required
017		S28° 38.491' E20° 28.519'	Concrete building foundations	NCW	None required
Site D					
018		S28° 38.614' E20° 28.664'	Quartz core	NCW	None required
019		S28° 38.646' E20° 28.691'	Banded ironstone chunk/core	NCW	None required
020		S28° 38.616' E20° 28.600'	Indurated shale broken cobble.	NCW	None required
Site E					
021		S28° 38.745' E20° 28.689'	Silcrete core on gravel patch	NCW	None required
022		S28° 38.798' E20° 28.645'	Banded ironstone retouched/utilised flake on gravels	NCW	None required
023		S28° 38.767' E20° 28.652'	Weathered quartz flake on gravel	NCW	None required
024		S28° 38.771' E20° 28.655'	Quartzite chunk/core on gravels	NCW	None required
025		S28° 38.783' E20° 28.662'	Chunky quartzite MSA flake on gravels	NCW	None required
026		S28° 38.815' E20° 28.663'	Quartzite chunk on gravels	NCW	None required
027		S28° 38.815' E20° 28.663'	Banded ironstone cortex cobble flake/chunk on gravels	NCW	None required
028		S28° 38.812' E20° 28.651'	Quartz core/chunk on gravels	NCW	None required
029		S28° 38.817' E20° 28.657'	Weathered banded ironstone chunk/broken flake	NCW	None required
030		S28° 38.796' E20° 28.636'	Small banded ironstone flake	NCW	None required
Site B					
031		S28° 37.682' E20° 28.088'	Quartz flake on fence line	NCW	None required
032		S28° 37.795' E20° 28.075'	Pink quartz core	NCW	None required
033		S28° 37.812' E20° 28.051'	Indurated shale cortex flake/MRP	NCW	None required
034		S28° 38.085' E20° 27.978'	Low density scatter of tools on quartz pebbles and washed gravels alongside drainage channel & below	Low (Grade 3C)	None required
035		S28° 38.118' E20° 27.931'	Indurated shale cobble/flake	Low (Grade 3C)	None required
036		S28° 38.197' E20° 27.917'	Indurated shale cobble/chunk, quartzite chunk	Low (Grade 3C)	None required
037		S28° 38.224' E20° 27.887'	Broken quartzite MSA flake, weathered indurated shale chunk & weathered indurated shale flake	Low (Grade 3C).	None required
PV plant					
038		S28° 38.800' E20° 27.577'	Quartz flake	NCW	None required
039		S28° 38.810' E20° 27.589'	Banded ironstone cortex flake	NCW	None required
040		S28° 38.821' E20° 27.611'	Combined hammerstone/anvil/grindstone	NCW	None required
Site H					
041		S28° 38.939' E20° 28.305'	Broken quartzite cobble/chunk/core	NCW	None required
042		S28° 38.954' E20° 28.256'	Quartzite broken chunk	NCW	None required
043		S28° 38.991' E20° 28.210'	Weathered banded ironstone utilized/retouched flake	NCW	None required
044		S28° 38.981' E20° 28.239'	Banded ironstone utilized chunk	NCW	None required
045		S28° 38.928' E20° 28.327'	Banded ironstone core/chunk on the fence line	NCW	None required

Table 1. Spreadsheet of waypoints and description of archaeological finds

6.3 Built environment

No old buildings, structures, features or old equipment were recorded in the study area. The concrete foundations of a modern building, and a few isolated coarse concrete bricks, and some glass and rusted metal bits were recorded in Site C (Point 017 & Figure 27). A number of these bricks line the gravel farm road that crosses the site, leading to Sites A and B.

6.4 Graves

No graves or typical grave features were encountered during the study.

7. ASSESSMENT OF IMPACTS

In the case of a proposed Tierkop vineyard and PV development on Farm Tierkop 355, it is expected that impacts on pre-colonial archaeological heritage and historical heritage 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

Indications are that, in terms of archaeological heritage, the proposed development site (i. e. Areas A-C & Areas D-H), including the proposed new site for the PV package plant is not a sensitive or threatened landscape.

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

9. RECOMMENDATIONS

With regard to the proposed vineyard and PV development on Farm Tierkop 355 Kakamas North, the following recommendations are made:

1. No mitigation is required prior to proposed development activities commencing.
2. No archaeological monitoring is required

10. REFERENCES

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