

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED CULTIVATION OF NEW LANDS AT KLEIN PELLA, NAMAKWALAND MAGISTERIAL DISTRICT, WESTERN CAPE

Required under Section 38 (8) of the National Heritage Resources Act (No. 25 of 1999).

Report for:

Pieter Badenhorst Professional Services

P.O. Box 1058, Wellington, 7654

Tel: 076 584 0822

Email: elaniem@iafrica.com

On behalf of:

The Karsten Group



Dr Jayson Orton

ASHA Consulting (Pty) Ltd

6A Scarborough Road, Muizenberg, 7945

Tel: (021) 788 8425 | 083 272 3225

Email: jayson@asha-consulting.co.za

20 June 2015

EXECUTIVE SUMMARY

ASHA Consulting (Pty) Ltd was appointed by Pieter Badenhorst Professional Services to conduct an assessment of the potential impacts to heritage resources that might occur through the proposed development of new agricultural lands close to Pella in the Northern Cape. The lands would be situated on the farms Klein Pella 40 and Kambreek and Zandfontein 38.

The study area was generally composed of relatively flat sandy areas with an abundance of fine gravel clasts from the surrounding granitic environment. The bedrock geology tends to be poor quality metamorphosed granite which does not seem to have been conducive to the formation of rock shelters. Vegetation was minimal and surface visibility was excellent. Some of the areas proposed for cultivation had been cultivated in the past but have lain fallow for many years.

The only heritage indicators present are occasional archaeological stone artefacts and the cultural landscape. The former is insignificant and the latter tends to be largely modern. No significant impacts to heritage resources are expected.

Because no significant impacts are expected, it is recommended that the proposed new lands be authorised with no further heritage studies required. However, if any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

Glossary

Background scatter: Artefacts whose spatial position is conditioned more by natural forces than by human agency

Early Stone Age: Period of the Stone Age extending approximately between 2 million and 20 000 years ago.

Later Stone Age: Period of the Stone Age extending over the last approximately 20 000 years.

Middle Stone Age: Period of the Stone Age extending approximately between 200 000 and 20 000 years ago.

Abbreviations

ASAPA: Association of Southern African Professional Archaeologists

BAR: Basic Assessment Report

CRM: Cultural Resources Management

ESA: Early Stone Age

GPS: global positioning system

HIA: Heritage Impact Assessment

LSA: Later Stone Age

MSA: Middle Stone Age

NEMA: National Environmental Management Act (No. 107 of 1998)

NHRA: National Heritage Resources Act (No. 25) of 1999

SAHRA: South African Heritage Resources Agency

SAHRIS: South African Heritage Resources Information System

Contents

1. INTRODUCTION	5
1.1. Project description	5
1.2. Terms of reference	6
1.3. Scope and purpose of the report	6
1.4. The author	7
1.5. Declaration of independence	7
2. HERITAGE LEGISLATION	7
3. METHODS	8
3.1. Literature survey	8
3.2. Field survey	8
3.3. Grading	9
3.4. Assumptions and limitations	9
4. PHYSICAL ENVIRONMENTAL CONTEXT	9
4.1. Site context	9
4.2. Site description	9
5. CULTURAL HERITAGE CONTEXT	12
5.1. Archaeological aspects	12
5.2. Historical aspects	13
6. FINDINGS OF THE HERITAGE STUDY	13
6.1. Archaeology	19
6.1.1. Area 1	19
6.1.2. Area 2	19
6.1.3. Area 3	20
6.1.4. Area 4	20
6.1.5. Area 5	22
6.2. History and the cultural landscape	22
6.3. Statement of significance	23
6.4. Summary of heritage indicators and provisional grading	23
7. ASSESSMENT OF IMPACTS	24
7.1. Archaeology	24
7.2. Cultural landscape	24
8. CONCLUSIONS	25
9. RECOMMENDATIONS	25
10. REFERENCES	25

1. INTRODUCTION

ASHA Consulting (Pty) Ltd was appointed by Pieter Badenhorst Professional Services to conduct an assessment of the potential impacts to heritage resources that might occur through the proposed development of new agricultural lands close to Pella in the Northern Cape (Figure 1). The lands would be situated on the farms Klein Pella 40 and Kambreek and Zandfontein 38.

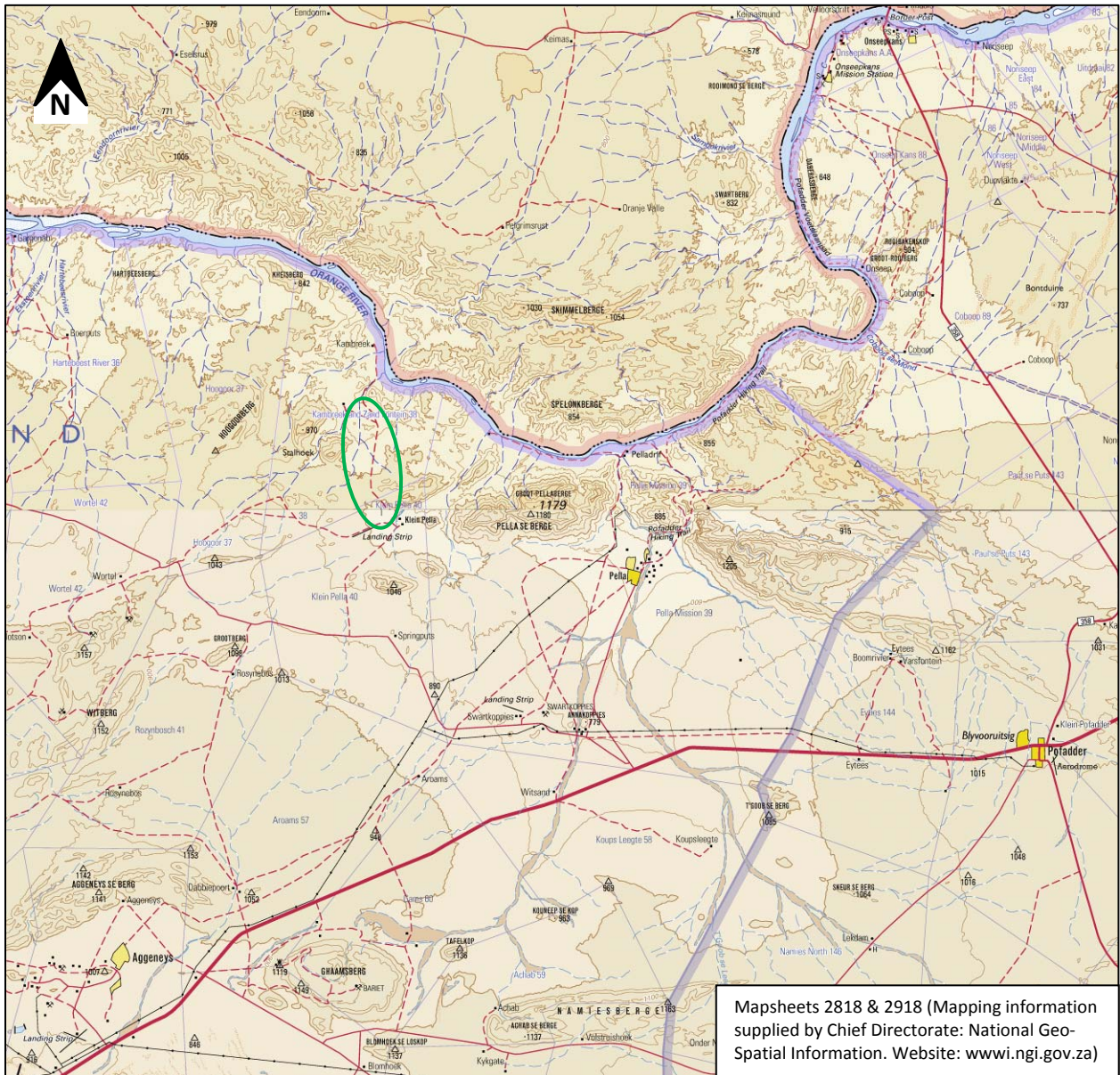


Figure 1: Map showing the location of the site (green oval). The towns of Aggeneys (lower left), Pofadder (right) and Pella (centre) are visible (yellow colouring on the map), while the Orange River winds across the upper half of the map separating South Africa and Namibia.

1.1. Project description

It is intended to develop new agricultural lands for the cultivation of vineyards and dates. These lands will serve as an expansion to the existing cultivated lands on the farm. Some of the proposed

blocks are new lands, while others have been cultivated in the past, but having been fallow for more than ten years they require assessment. The new areas under assessment have the following extents: 31.73 ha, 25.97 ha, 2.62 ha, 10.71 ha, 12.69 ha, 14.38 ha, 18.52 ha, 6.81 ha, 60.2 ha, 4.82 ha and 7.68 ha.



Figure 2: Aerial view of the Pella area showing the position of the study area (red polygons) relative to Pella and the Orange River.

1.2. Terms of reference

ASHA Consulting was asked to conduct a heritage impact assessment (HIA) that would meet the requirements of the relevant heritage authorities.

1.3. Scope and purpose of the report

A heritage impact assessment (HIA) is a means of identifying any significant heritage resources before development begins so that these can be managed in such a way as to allow the development to proceed (if appropriate) without undue impacts to the fragile heritage of South Africa. This HIA report aims to fulfil the requirements of the heritage authorities such that a

comment can be issued for consideration by the Northern Cape Department of Environment and Nature Conservation who will review the Scoping/EIA Report and grant or withhold authorisation. The HIA report will outline any mitigation requirements that will need to be complied with from a heritage point of view and that should be included in the conditions of authorisation should this be granted.

1.4. The author

Dr Jayson Orton has an MA (UCT, 2004) and a D.Phil (Oxford, UK, 2013), both in archaeology, and has been conducting Heritage Impact Assessments and archaeological specialist studies in the Western Cape and Northern Cape provinces of South Africa since 2004. He has also conducted research on aspects of the Later Stone Age in these provinces and published widely on the topic. He is accredited with the Association of Southern African Professional Archaeologists (ASAPA) CRM section (Member #233) as follows:

- Principal Investigator: Stone Age, Shell Middens & Grave Relocation; and
- Field Director: Colonial Period & Rock Art.

1.5. Declaration of independence

ASHA Consulting (Pty) Ltd and its consultants have no financial or other interest in the proposed development and will derive no benefits other than fair remuneration for consulting services provided.

2. HERITAGE LEGISLATION

The National Heritage Resources Act (NHRA) No. 25 of 1999 protects a variety of heritage resources as follows:

- Section 34: structures older than 60 years;
- Section 35: palaeontological, prehistoric and historical material (including ruins) more than 100 years old;
- Section 36: graves and human remains older than 60 years and located outside of a formal cemetery administered by a local authority; and
- Section 37: public monuments and memorials.

Following Section 2, the definitions applicable to the above protections are as follows:

- Structures: “any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith”;
- Palaeontological material: “any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace”;
- Archaeological material: a) “material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures”; b) “rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation”; c) “wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on

land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation”; and d) “features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found”;

- Grave: “means a place of interment and includes the contents, headstone or other marker of such a place and any other structure on or associated with such place”; and
- Public monuments and memorials: “all monuments and memorials a) “erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government”; or b) “which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.”

While landscapes with cultural significance do not have a dedicated Section in the NHRA, they are protected under the definition of the National Estate (Section 3). Section 3(2)(c) and (d) list “historical settlements and townscapes” and “landscapes and natural features of cultural significance” as part of the National Estate. Furthermore, Section 3(3) describes the reasons a place or object may have cultural heritage value.

Section 38 (2a) states that if there is reason to believe that heritage resources will be affected then an impact assessment report must be submitted. This report fulfils that requirement.

Under the National Environmental Management Act (No. 107 of 1998; NEMA), as amended, the project is subject to an EIA. Ngwao-Boswa Ya Kapa Bokoni (Heritage Northern Cape; for built environment and cultural landscapes) and the South African Heritage Resources Agency (SAHRA for archaeology and palaeontology) are required to provide comment on the proposed project in order to facilitate final decision making by the Northern Cape Department of Environment and Nature Conservation.

3. METHODS

3.1. Literature survey

A survey of available literature was carried out to assess the general heritage context into which the development would be set. This literature included published material, unpublished commercial reports and online material, including reports sourced from the South African Heritage Resources Information System (SAHRIS).

3.2. Field survey

The proposed areas for the new vineyards and date plantations were provided by the environmental consultant. Most of the site was subjected to a detailed foot survey on 5th and 6th June 2015 by two archaeologists (Dr Jayson Orton & Chester Kaplan). Two areas, however, were only traversed by vehicle because it turned out that they had been relatively recently cultivated and it was clear that they were heavily disturbed. During the survey the positions of finds were

recorded on a hand-held GPS receiver set to the WGS84 datum. Photographs were taken at times in order to capture representative samples of both the affected heritage and the landscape setting of the proposed agricultural development.

3.3. Grading

Section 7 of the NHRA provides for the grading of heritage resources into those of National (Grade 1), Provincial (Grade 2) and Local (Grade 3) significance. Grading is intended to allow for the identification of the appropriate level of management for any given heritage resource. Grade 1 and 2 resources are intended to be managed by the national and provincial heritage resources authorities, while Grade 3 resources would be managed by the relevant local planning authority. These bodies are responsible for grading, but anyone may make recommendations for grading – something that is, at times, required in HIAs.

It is intended that the various provincial authorities formulate a system for the further detailed grading of heritage resources of local significance but this is generally yet to happen. Heritage Western Cape (2012), however, uses a system in which resources of local significance are divided into Grade 3A, 3B and 3C. These approximately equate to high, medium and medium-low local significance, while sites of low or very low significance (and generally not requiring mitigation or other interventions) are referred to as ungradeable.

3.4. Assumptions and limitations

The study is carried out at the surface only and hence any completely buried archaeological sites will not be readily located. Similarly, it is not always possible to determine the depth of archaeological material visible at the surface.

4. PHYSICAL ENVIRONMENTAL CONTEXT

4.1. Site context

The study area is very remote and located among mountains and hills close to the Orange River. There are several other vineyards and date plantations already present on the farm.

4.2. Site description

The study area was divided into five areas from north to south (Figure 3) and these are described separately here.



Figure 3: Aerial view of the broader study area showing the five smaller areas into which it was divided.

Area 1

This area consisted of two agricultural blocks. The south-western half of this area had been cultivated in the recent past (Figure 4). There were still plough lines visible and irrigation pipes protruded from the ground in many places. The north-eastern section was uncultivated and had small bushes lightly scattered across the surface. Both blocks sloped gently downhill towards the northwest. Along the north-eastern side of this area was a long pile of rocks that had been removed from the agricultural lands.



Figure 4: View towards the northeast across Area 1 with the recently cultivated lands being in mid-picture.

Area 2

This area consisted of two agricultural blocks (Figure 5). Both had been cultivated, the smaller block more recently than the larger one. The ground surface in this area was flat with almost no vegetation cover at all and sloped gently downhill towards the northeast.



Figure 5: View over Area 2 from the hill immediately to its north. The smaller block is in mid-picture (white polygon), while the larger block is to the left (black polygon).

Area 3

This area consisted of two large blocks. They have never been cultivated before and small plants are commonly encountered (Figure 6) along with occasional trees, particularly in the southern part. The surface is flat but gently sloping downhill towards a non-perennial stream bed just to the east of the study area.



Figure 6: View towards the south across the northern part of Area 3. The mountain rises to the right of the picture.

Area 4

This large area consists of one very long block to the east of a gravel farm road and two smaller ones to its west. Although the northern section is virgin ground (Figure 7), the southern section has been cultivated in the past (Figure 8). This area slopes gently downhill towards the south and a non-perennial stream runs along its southern margin. Plant cover is generally very light, although some larger bushes occur in the north and the south-eastern corner has experienced a fair bit of vegetation regrowth. This area is also quite disturbed by many small excavations and a number of young date palms have been planted in some of the excavations – this must have been some time ago and they have not been maintained.



Figure 7: View towards the north across the northern half of Area 4.



Figure 8: View to the southeast across the southern part of Area 4.

Area 5

This area consisted of two proposed plantation blocks lying alongside existing date palm plantations. Both are fenced and appear to have been cultivated in the past. Vegetation regrowth has resulted in small bushes scattered over the surface of both blocks (Figure 9).



Figure 9: View towards the north showing the surface of the larger of the two blocks in Area 5 as well as the existing date plantations to the northeast and northwest of this block.

5. CULTURAL HERITAGE CONTEXT

This section of the report establishes what is already known about heritage resources in the vicinity of the study area. What is found during the field survey may then be compared with what is already known in order to gain an improved understanding of the significance of the newly reported resources.

5.1. Archaeological aspects

Little archaeological work has been conducted in the area. However, Beaumont (2008) conducted a very brief study of a 200 ha area of Kambreek and reported no archaeological resources whatsoever. The SAHRIS system does not contain any reports produced for developments close to the present study area. However, other work in the broader region suggests that archaeological material is commonly encountered but sites are usually very ephemeral. It appears from the

present author's experience that archaeological resources are focused more in areas with unaltered granite where the rock is more conducive to the formation of habitable shelters and for the production of bedrock grinding grooves which are regularly encountered close to pans (e.g. Morris 2013; Orton & Webley 2012b, 2013). Some sites in the northern Bushmanland area where the rock surfaces are compact and solid also have painted rock art (e.g. Morris 2011; Orton 2014; Orton & Webley 2012a). Stone artefacts tend to be found more frequently in gravel areas than in sandy area, although sand dunes were sometimes occupied in the past and one may find archaeological material associated with them. These finds are all related to the LSA, although earlier material pertaining to the Middle (MSA) and Early Stone Ages (ESA) can also be found in association with gravel areas.

5.2. Historical aspects

Pella, a mission station lying just east of Klein Pella, was founded by the London Missionary Society (LMS) in 1814 after the first LMS mission (at Warmbad in Namibia) was sacked by Jager Afrikaner. Pella was named after the eponymous town east of the River Jordan to which the Christians withdrew in 70 AD when Jerusalem was destroyed by the Romans. After the LMS minister and his family were murdered while trying to escape a Bushman attack, Pella found itself abandoned within a decade of its founding. It was subsequently taken over by the Rhenish Mission, who in turn abandoned it in 1869. In 1874 the Roman Catholics took over Pella but only formally obtained occupation from the government on 9 June 1881 (Eksteen 2014; Frescura, n.d.; Thünemann 1992).

In 1901, during the Anglo-Boer War, Pella was invaded and raided by about 60 Boers, but no fighting ever took place there (Thünemann 1992).

In 1907 the missionaries started a fruit and vegetable garden along the banks of the Orange River directly north of Pella on land that was referred to as "Rooi-Pad, a property that belongs to Pella" (Simon 1959:214). It is in fact on the same farm (Pella Mission 38). They successfully cultivated wheat, lentils, peas, string beans, sweet potatoes, corn and water melons. After the initial success, they also obtained fruit trees from the Cape. Rooi-Pad also served as a mission and was referred to as Pella-Orange by the missionaries.

No direct link between Pella and Klein Pella was found. According to Raper (n.d.), Klein Pella was initially known as Jabiesiefontein, a name derived from the Khoekhoe word '*tsawi*' which refers to the black ebony tree (*Euclea pseudebenus*) and the Afrikaans 'fontein' (a spring). After the establishment of Pella, the farm's name was changed to Klein Pella but the reason for this change could not be traced. The farm has a long history for this area. Prior to the regular occupation of northern Bushmanland by Europeans, very few whites were present. However the original Jabiesiefontein farm was given by the Dutch East India Company to Jacobus Bierman in 1776 (Van der Merwe 1945).

6. FINDINGS OF THE HERITAGE STUDY

This section describes the heritage resources recorded in the study area during the course of the project. Table 1 lists the observations made during the survey and Figures 10 to 14 map them and show the walk and drive paths recorded during the survey.

Table 1: List of archaeological observation made during the field survey.

Waypoint (Area)	Co-ordinates	Description	Archaeological significance
625 (3)	S28 57 54.7 E18 59 03.2	Line of stones representing an old fence line. The line is substantially longer than the distance between these two points.	Low
626 (3)	S28 57 57.4 E18 59 01.6		
627 (4)	S28 59 44.2 E18 59 39.5	A small rocky outcrop that has been quarried historically, either for building stone or else for rocks to lay along fences.	Low
628 (4)	S28 59 42.4 E18 59 40.8	A small cleared track leads from the edge of the sandy plain to the rocky outcrop at 627.	Low
629 (4)	S28 59 53.4 E18 59 55.6	Line of stones representing an old fence line. The line is substantially longer than the distance between these two points.	Low
632 (4)	S28 59 49.2 E19 00 04.4		
630 (4)	S28 59 45.8 E18 59 56.4	Three fragments of blue bottle glass. Two of them appear to be part of a break that has been rounded off, presumably to allow continued use of the bottle.	Low
631 (4)	S28 59 43.9 E19 00 03.7	A light scatter of quartz was noted in this area.	Low
633 (4)	S29 00 10.8 E19 00 32.9	Half a small bored stone found in a disturbed context. No other associated artefacts. The bored stone had a maximum diameter of about 10 cm, a thickness of about 5 cm and an aperture diameter of about 3.5 cm.	Low
634	S28 58 27.0 E18 59 22.0	A small quartz outcrop that had been quarried as a source of flakes. (Note that this site does not fall into any of the proposed agricultural blocks - it was 700 m southeast of Area 3.)	Low

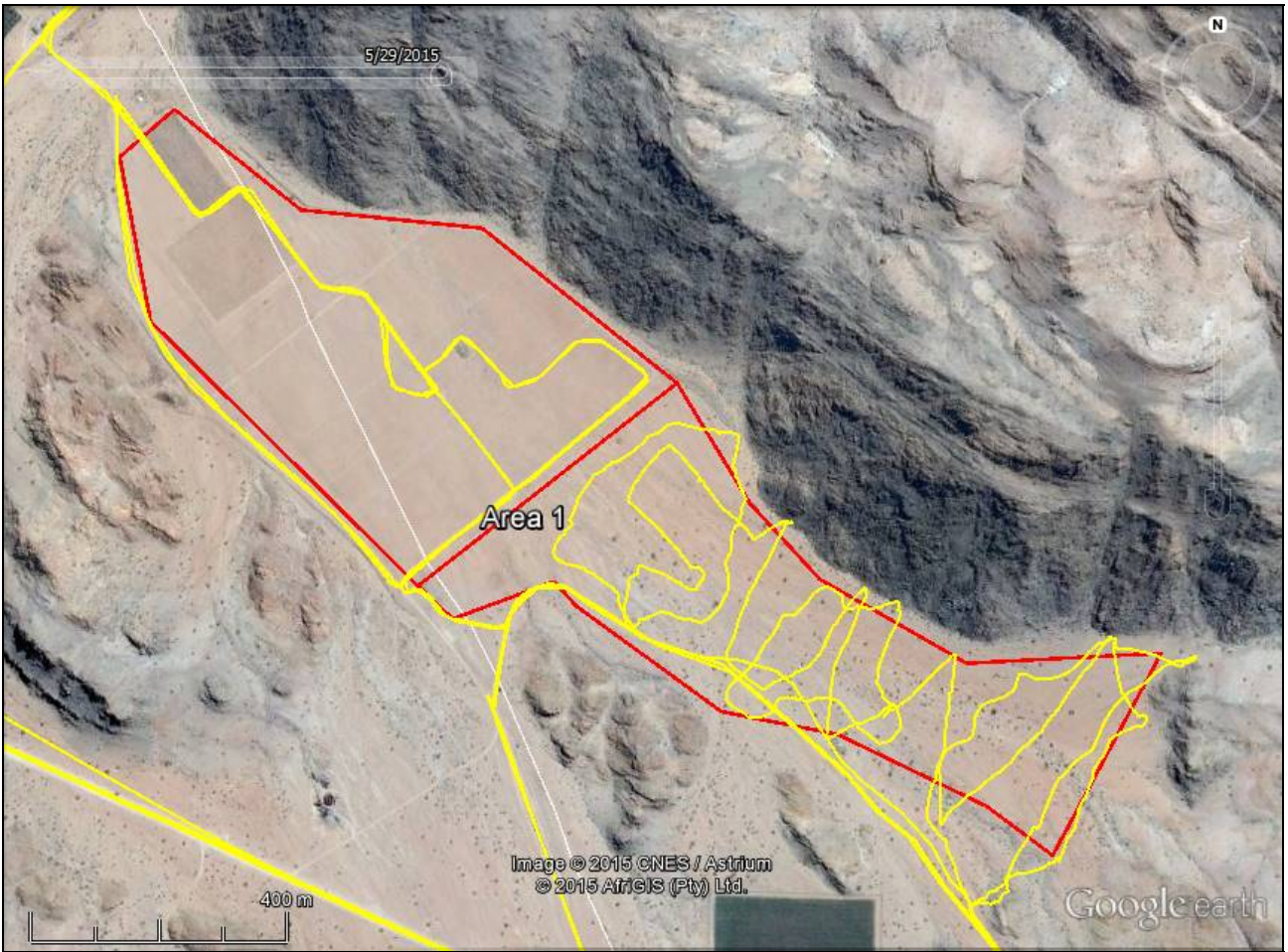


Figure 10: Aerial view of Area 1 showing the walk and drive paths (yellow lines).

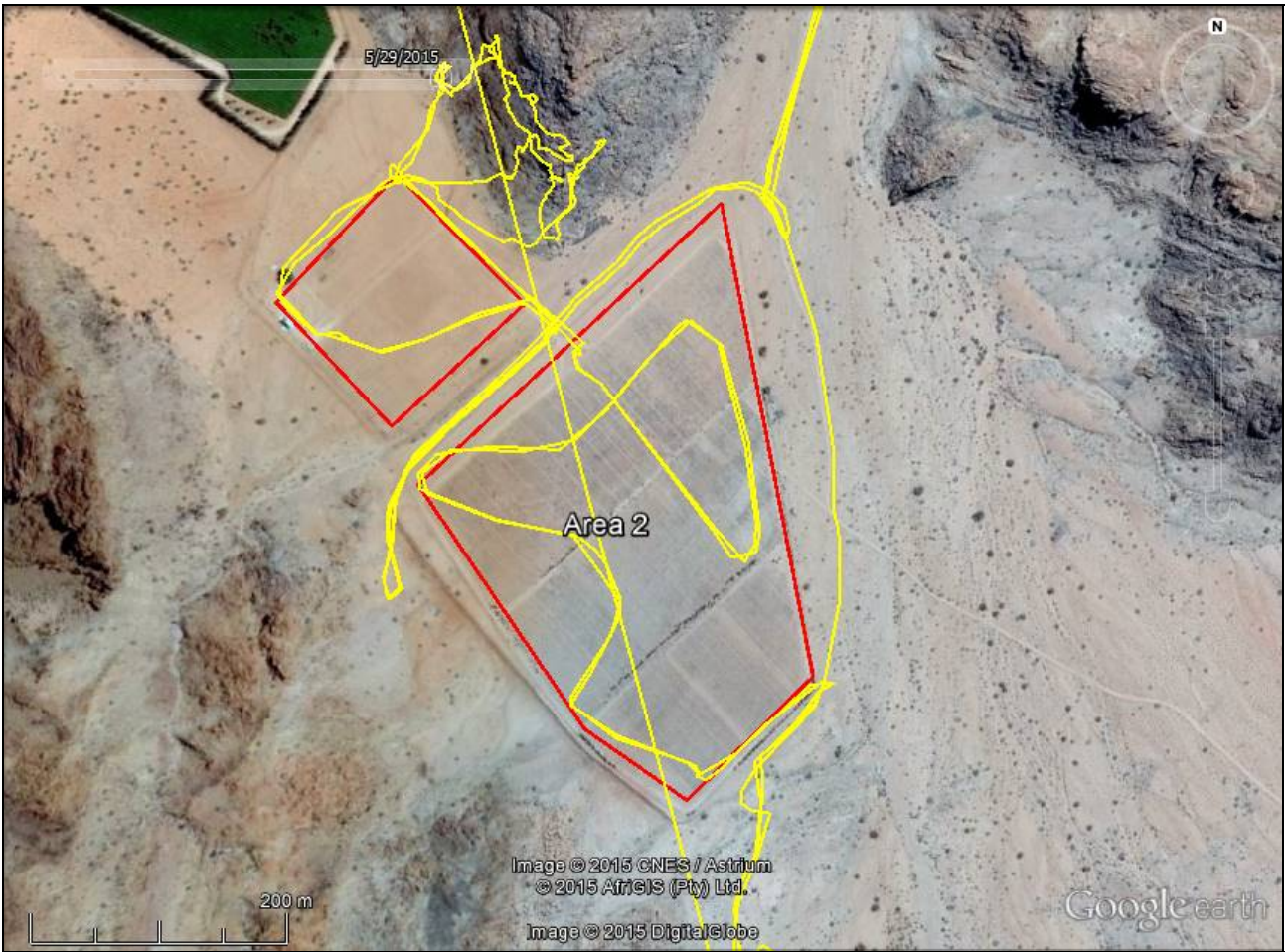


Figure 11: Aerial view of Area 2 showing the walk and drive paths (yellow lines).

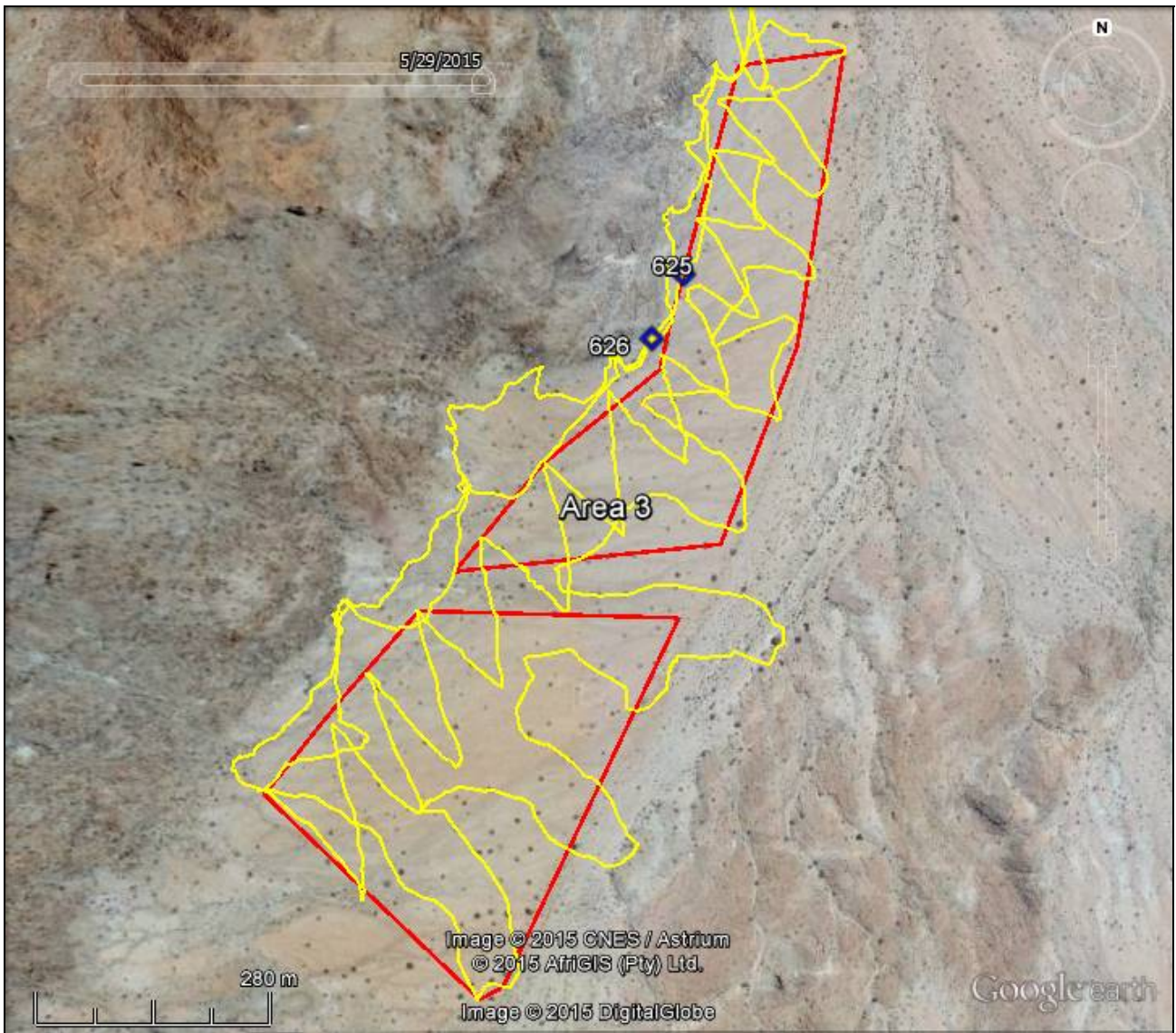


Figure 12: Aerial view of Area 3 showing the walk and drive paths (yellow lines) and finds (blue numbered symbols).

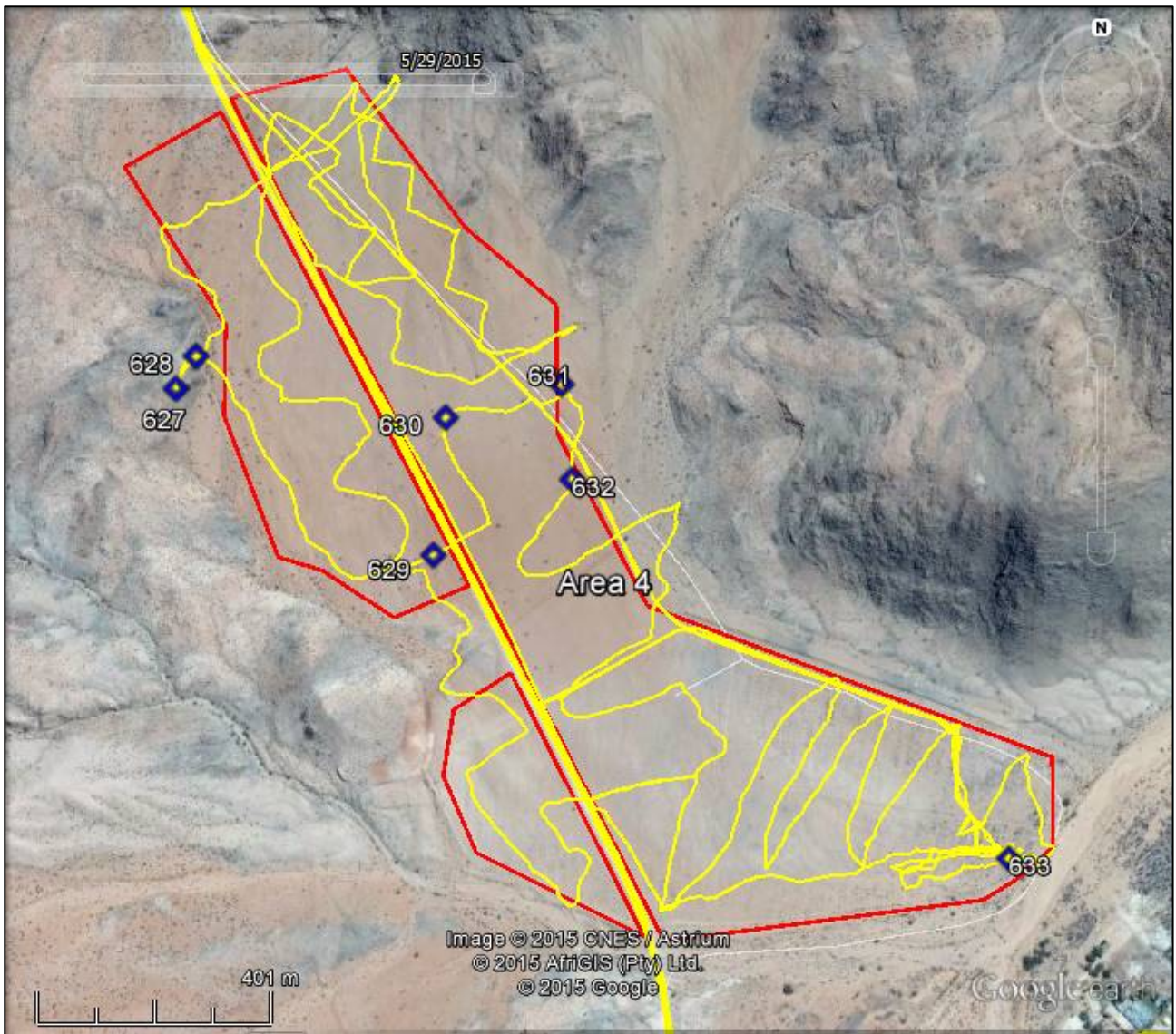


Figure 13: Aerial view of Area 4 showing the walk and drive paths (yellow lines) and finds (blue numbered symbols).

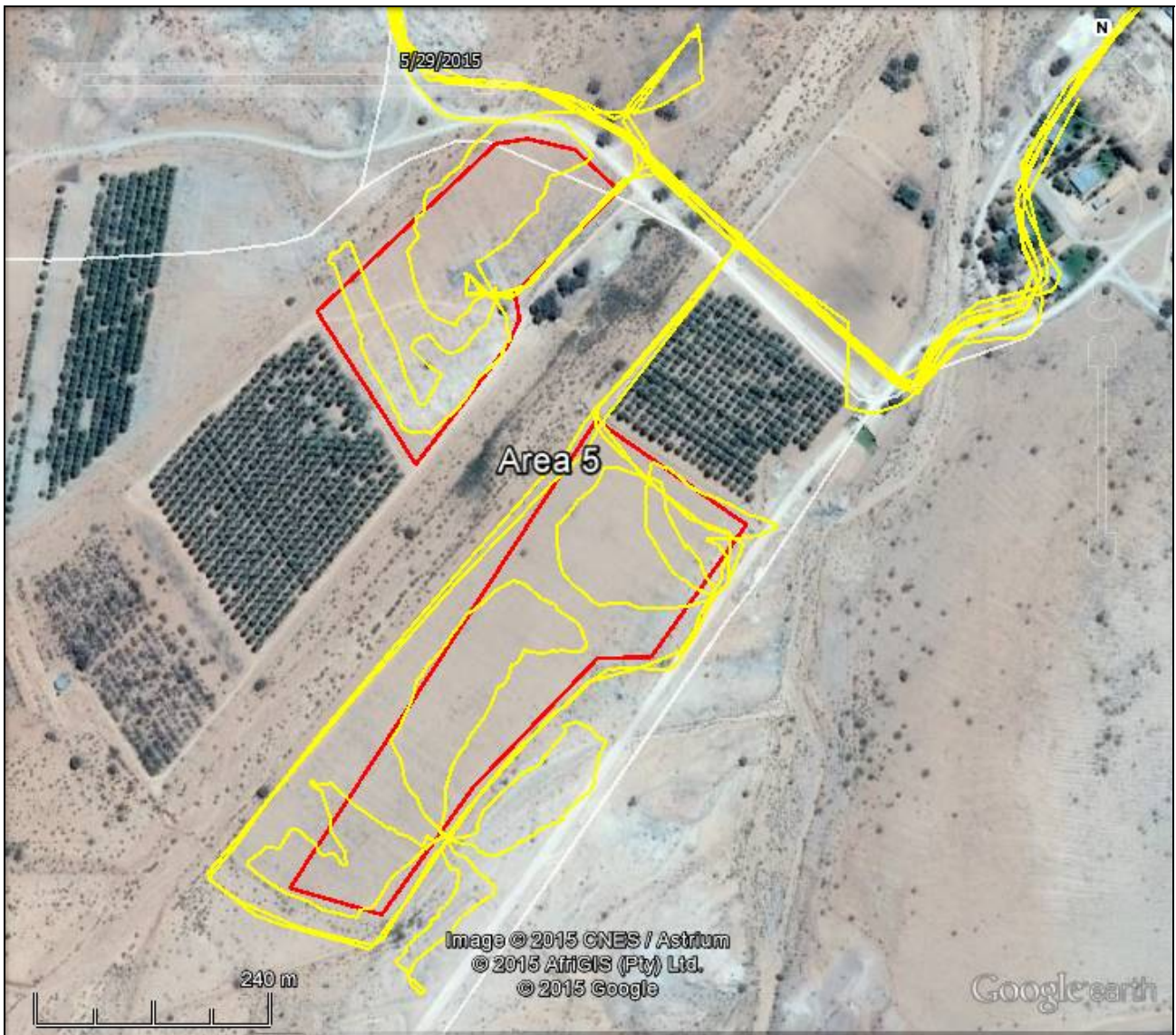


Figure 14: Aerial view of Area 5 showing the walk and drive paths (yellow lines).

6.1. Archaeology

6.1.1. Area 1

An isolated igneous cobble was noted on the surface in the middle of the area. It looked as though it might have been used as an upper grindstone but this was by no means certain. Nevertheless, the cobble must have been brought from a river (presumably from the Orange River given its size) by people. Also in this area we noted a small slab of quartz that had been flaked as a single platform core. It was alongside a boulder at the foot of the hill. Both finds were in the south-eastern block of Area 1.

6.1.2. Area 2

No heritage resources were noted in either of the two blocks in Area 2.

6.1.3. Area 3

Along the western edge of this area there was an old fence line represented only by a long line of stones that had once been packed along the base of the fence (waypoints 625 and 626; Figure 15). The only archaeological artefact noted was a lump of quartz that appeared to have had a few flakes removed from it. It was in the far south of Area 3.

6.1.4. Area 4

One scatter of eight Stone Age artefacts was found in Area 4 (waypoint 631). Although there may have been more artefacts, the scatter was clearly not dense. All the artefacts were made from quartz (Figure 16). A few other isolated quartz flakes were also noted across Area 4. The most interesting find from the survey was half a bored stone found in the south-eastern corner of Area 4 (waypoint 633). Bored stones have been documented in use as digging stick weights (e.g. Burchell 1824; Cornell 1920), although the wide range in size and weight surely suggests that other uses for the smaller ones must also have existed (Wilson 1985). The present example was fairly small with a maximum external diameter of approximately 9 cm (Figure 17). It was about 4 cm thick at its thickest point.



Figure 15: Stones marking a fence line in Area 3.



Figure 16: Quartz stone artefacts from Area 4. The scale bar is in 10 mm intervals.



Figure 17: The bored stone fragment from Area 4. The scale is in 10 mm intervals.

In Area 4 we also located another old fence line marked only by the stones that were once packed along its base (waypoints 629 and 632). A small rocky outcrop that had been quarried, either for building stone or perhaps for slabs to lay along fence lines, was located just outside of Area 4, to its west (waypoint 627). A track had been cleared through the gravel leading to the base of the outcrop (waypoint 628; Figure 18). Although not noted on the ground, this track appears from aerial photography to go around the rocks and back onto the flat sandy plain (Figure 19). The earliest available aerial photography dates back to 1941 and is too grainy to allow any indication of whether this feature was present at that time. Other historical finds include a Royal Baking Powder tin and three fragments of blue bottle glass (Figure 20). Two of the glass fragments had breaks that had been chipped and ground smooth, presumably to facilitate the further use of the bottle after part of it had broken. One small fragment of sponge-printed historical ceramic was also noted (Figure 21).



Figure 18: View of the quarried rocky outcrop alongside Area 4 and the cleared track leading up to it. The land proposed for cultivation is the light-coloured area in the background.



Figure 19: Aerial view of the historical quarry showing the outcrop (waypoint 627) and the northern end of the track (waypoint 628).

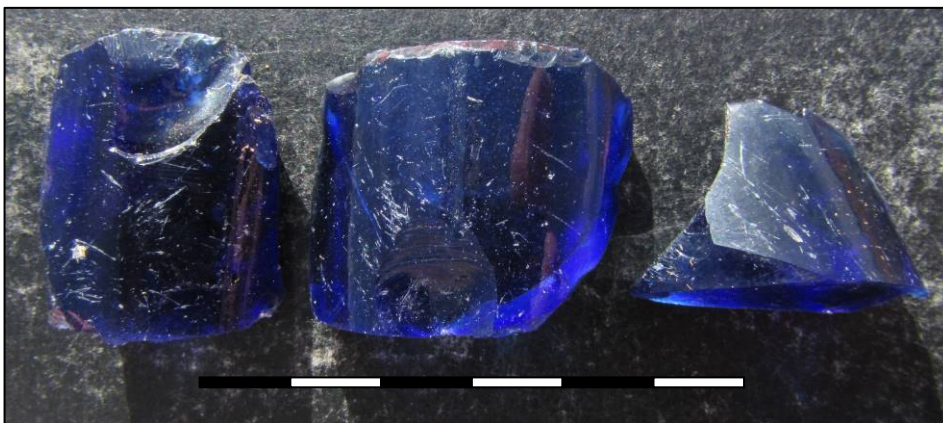


Figure 20: The three fragments of blue bottle glass from Area 4. The upper edges of the left and central fragments have been smoothed. The scale bar is in 10 mm intervals.



Figure 21: The piece of historical ceramic from Area 4.

6.1.5. Area 5

No heritage resources were noted in either of the two blocks in Area 5.

6.2. History and the cultural landscape

These two elements have been linked here because the cultural landscape is tied to the history of the area. From the initial establishment of the Pella Mission agriculture has been a key activity. Some sort of agricultural activity no doubt took place since the granting of the farm in 1776, but this may well have been largely related to small stock and does not appear to have left much trace. The field survey did not reveal any important historic aspects to the landscape and its early

development (which may well have been very minimal). Aerial photography shows none of the present agricultural areas on Klein Pella or Kambreek to have been present in 1941, although by 1962 the majority of the cultivated lands close to the farm werf (most of which are no longer under cultivation) had already been ploughed. On Kambreek there were no ploughed lands away from the river but the alluvial soils along the banks of the Orange River were already under cultivation.

The present farm werf is located largely to the south of the historic one, although because of the resolution of the 1941 aerial photography it was not possible to determine the positions of buildings at that time (Figure 22).



Figure 22: Comparative aerial views dating to 1941 (left) and 2013 (right) showing the historically cultivated area to lie north of the present Klein Pella farm werf.

6.3. Statement of significance

Section 38(3)(b) of the NHRA requires an assessment of the significance of all heritage resources. In terms of Section 2(vi), “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

The Stone Age and historical archaeological resources are deemed to have low cultural significance for their scientific value because they can be ascribed to low density background scatter and little could be gained from any further study of them. The cultural landscape (date plantations and vineyards) is generally modern (post-mid-20th century) and no other heritage values can be ascribed to the study areas.

6.4. Summary of heritage indicators and provisional grading

The only heritage indicators present were sparse archaeological resources which, because of their very low archaeological significance, can be considered ungradeable.

7. ASSESSMENT OF IMPACTS

7.1. Archaeology

Direct impacts to archaeological resources will occur when the earthworks for the new plantations and vineyards are carried out. However, these impacts are of very low significance and should not inhibit the development in any way (Table 1). There are no fatal flaws and no mitigation or further management measures are suggested. No further archaeological material of any significance is expected to be found in the study areas and, because of the generally sparse nature of the archaeology present, cumulative impacts are not expected to be of any concern.

Table 1: Assessment of archaeological impacts.

	Before mitigation	After mitigation
Extent	Site	n/a
Intensity	Negligible	n/a
Duration	Permanent	n/a
Probability	Probable	n/a
Significance	Very low	n/a
Status	Negative	n/a
Reversible	No	
Cumulative impacts	The archaeological material present in the immediate vicinity is of very low significance and the loss of larger areas containing such material is not significant.	

7.2. Cultural landscape

There are no significant cultural landscape elements of concern and impacts are deemed to be neutral in status and of low significance. The proposed development is consistent with the present landuse and is not incompatible with the landscape. No impacts are expected, there are no fatal flaws and no further mitigation or management are required. The cumulative impact of further plantations and vineyards is neutral and of no concern.

Table 2: Assessment of cultural landscape impacts.

	Before mitigation	After mitigation
Extent	Site	n/a
Intensity	Negligible Low Medium High	n/a
Duration	Transient Short term Long term Permanent	n/a
Probability	Probable Improbable	n/a
Significance	Very low	n/a
Status	Neutral	n/a
Reversible	Yes	
Cumulative impacts	The impacts are considered to be neutral in status and wider development of plantations and vineyards will maintain the status quo and are therefore not significant.	

8. CONCLUSIONS

The only heritage indicators present are archaeological stone artefacts and the cultural landscape. The former is insignificant and the latter tends to be largely modern. No significant impacts to heritage resources are expected.

9. RECOMMENDATIONS

Because no significant impacts are expected, it is recommended that the proposed new lands be authorised with no further heritage studies required. However, if any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

10. REFERENCES

- Beaumont, P. 2008. Phase 1 heritage impact assessment report on a portion of the farm Kambreek 38, WNW of Pofadder, Siyanda District Municipality, Northern Cape Province. Unpublished report prepared for MEG Environmental Impact Studies. Kimberley: McGregor Museum.
- Burchell, W.J. 1824. Travels in the interior of southern Africa. Longman, Hurst, Rees, Orme, Brown & Green.
- Cornell, F.C. 1920. *The Glamour of Prospecting*. London: T. Fisher Unwin.
- Eksteen, B. 2014. *BB's van die Boesmanland*. Self-published.
- Frescura, F. No date. Pella. Accessed online on 2nd June 2015 at: <http://www.sahistory.org.za/places/pella>.
- Heritage Western Cape. 2012. A short guide to and policy statement on grading. Version 6, 30th May 2012.
- Morris, D. 2011. Black Mountain Concentrated Solar Power Facility development at Aggeneys, Northern Cape: Heritage Impact Assessment. Unpublished report. Kimberley: McGregor Museum.
- Morris, D. 2013. Heritage Impact Assessment: proposed Aggeneys Photovoltaic Solar Energy Facility at Bloemhoek near Aggeneys, Northern Cape Province. Unpublished report prepared for Solar Capital. Kimberley: McGregor Museum.
- Orton, J. 2014. Final archaeological mitigation report for the Gamsberg Zinc Mine, Aggeneys, Northern Cape. Unpublished report prepared for ERM Southern Africa (Pty) Ltd. Diep River: ACO Associates cc.

- Orton, J. & Webley, L. 2012. Heritage impact assessment for the proposed Kangnas Wind and Solar Energy Facilities, Namakwa Magisterial District, Northern Cape. Unpublished report prepared for Aurecon South Africa (Pty) Ltd. Diep River: ACO Associates cc.
- Orton, J. & Webley, L. 2012. Scoping heritage impact assessment for the Pofadder Wind and Solar Energy Facility, Kenhardt Magisterial District, Northern Cape. Unpublished report prepared for Savannah Environmental (Pty) Ltd. St James: ACO Associates cc.
- Orton, J. & Webley, L. 2013. Heritage impact assessment for proposed granite prospecting near Pofadder, Northern Cape. Unpublished report prepared for Sizisa Ukhanyo Trading 830 cc. Diep River: ACO Associates cc.
- Reference: Raper, P.E. n.d. *Dictionary of southern African place names*. Accessed online at https://archive.org/stream/DictionaryOfSouthernAfricanPlaceNames/SaPlaceNames_djvu.txt on 19 June 2015.
- Simon, J.M. 1959. *Bishop for the Hottentots: African memories 1882-1909*. New York: Benziger Brothers Incorporated.
- Thünemann, T-B. 1992. *Thirstland epic: heroic struggle of pioneer missionaries in Namaqualand*. Upington: Trans Oranje Drukkers.
- Van der Merwe, P.J. 1945. *Trek: studies oor die mobiliteit van de pioniersbevolking aan die Kaap*. Cape Town: Nasionale Pers.
- Wilson, M.L. 1985. Bored stones – first hand evidence on record. *The Digging Stick* 2(2):1.