

**Heritage Impact Assessment and Palaeontological Impact Assessment (Desktop) for a Prospecting Right Application Remaining on Portion 3 (a Portion of Portion 2 - Asbestos Hills) of the Farm Rietfontein 11; Portion 13 (a Portion of Portion 9) of the Farm Rietfontein 11 and the Remaining Extent of the Farm Nauga 17; Portion 1 of the Farm Nauga 17; Remaining Extent of Portion 2 (Nauga A) of the Farm Nauga 17; Portion 3 (a Portion of Portion 2 - Nauga East) of the Farm Nauga 17; and Portion 4 of the Farm Nauga in the Siyathemba Local Municipality, Northern Cape Province**

Prepared by

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10 March 2023



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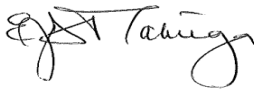
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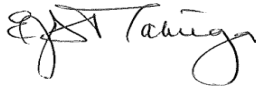
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AHSA Pty Ltd is an independent consultancy: We hereby declare that I have no interest, be it business, financial, personal, or other vested interest in the undertaking of the proposed activity, other than remuneration for work performed, in terms of the National Heritage Resources Act (No 25 of 1999).




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## EXECUTIVE SUMMARY

1. This Heritage Impact Assessment (HIA) report has been prepared in support of a mine prospecting right application on several portions of the farms Ritefontein 11 and Nauga 17 (as referenced in the title of this Report), 17 678.7 Ha in extent, situated in the Siyathemba Local Municipality, Northern Cape Province. The report is based on a search in the existing literature to obtain data on the potential heritage sensitivity of the property.

### 2. *General observations*

Stone Age material is widely distributed on the plains, ridges and valleys of the upper Karroo area north and south of the Orange-Vaal basin. The material comprises scrapers, blades, cores, and flakes typologically dating to the Middle Stone Age/Late Stone Age period. Early Stone Age material has been encountered in places with occasional occurrences of hand-axes and cleavers. Significantly, in these studies, Later Stone Age material has been recorded in the vicinity of pans and along ephemeral streams. A few places were identified as stone tool quarries or manufacturing sites. The scattered distribution pattern seems to suggest general hunter-gatherer activity in the region called Bushmanland. Rarely have the findings warranted further action such as professional excavations or the issue of a destruction permit from SAHRA. Findings from the twelve studies which have been cited in this report, fit within this picture of the archaeological sensitivity of the broader area. Our conclusion is that on the properties under study, we are not likely to encounter a fundamental deviation from the above scenario.

### 3. *Findings from Portion 9 of the Farm Rietfontein 11*

4. In 2019 this author carried out a ground survey on Portion 9 of the Farm Rietfontein 11 which is in the footprint of the proposed prospecting. The findings of the survey are instructive and are therefore described in detail in this report:

5. *The Stone Age*

6. Twelve (12) sites were recorded on Portion 9 of Rietfontein 11 with varying densities of lithics. The assemblages comprise mainly scrapers, points and flakes while a few blades and cores also occur. They are spread along the base of the ridge along the eastern boundary of the property. No significant concentrations were found to suggest a settlement or regular activity.

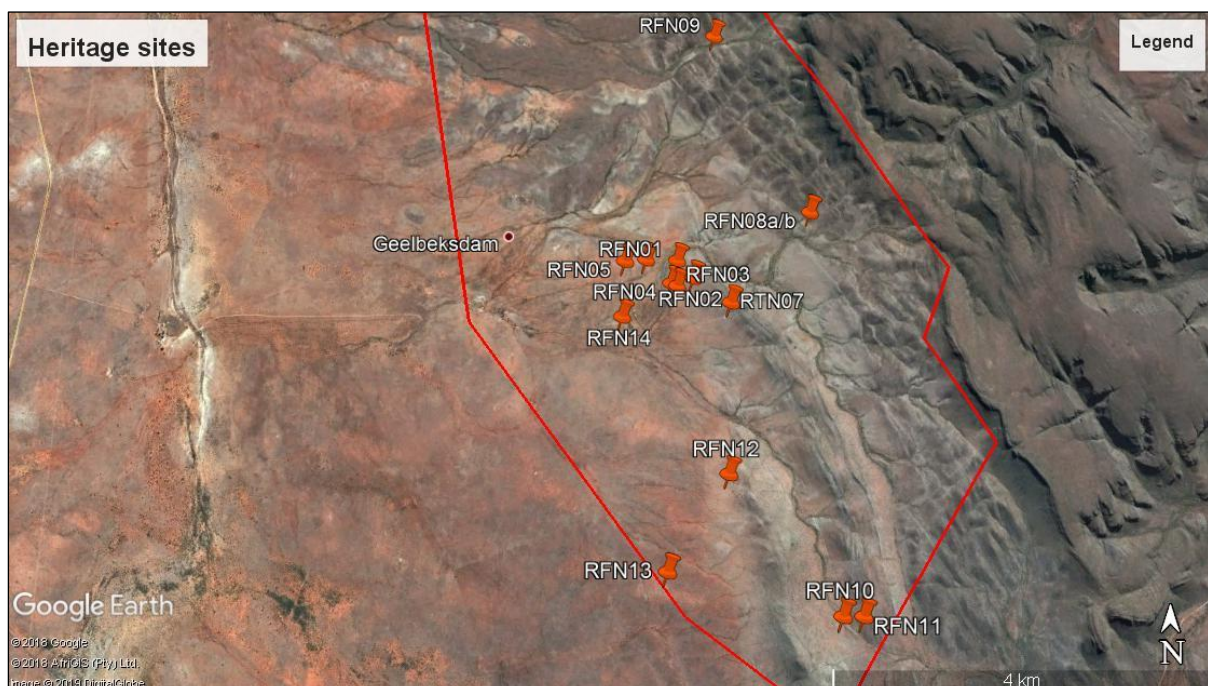
7. The occurrence of a crude pear-shaped hand-axe on Portion of Rietfontein 11 is of particular interest as it seems to confirm the presence of Acheulean material in the area dating between 2 million- and 250 000-years BP (Site RFN04).

8. *The Iron Age*

No Iron Age relics were found on the property.

9. *Early mining and commercial farming*

On Portion 9 of Rietfontein 11, an asbestos ore crushing and loading site was recorded (the block of a heavy steel machine and structures of stonework and concrete) (Site RFN07). A small rectangular structure is built of dressed dolomite blocks apparently locally sourced (Site RFN08a). These structures must be protected.



10. *Burial grounds*

No graves or burial grounds were reported on Portion 9 of Rietfontein 11.

11. Site inventory, Portion 9 of the Farm Rietfontein 11

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING
RFN01	29°25'14.10"S	22°19'10.20"E	MSA/LSA	Open flat area, Kalahali sand overburden. 3 lithics, chert waste material.	Medium B
RFN02	29°25'20.80"S	22°19'16.90"E	MSA/LSA	Open flat area, gritty with shrubs and few acacias. 6 lithics, 1 quartzite blade/scrapper, 2 scrapers and waste material	Medium B
RFN03	29°25'23.80"S	22°19'10.10"E	MSA/LSA	Open flat area with shrubs. Kalahali sand overburden. 5 lithics including a point, broken blade, and scrapper.	Medium B
RFN04	29°25'22.80"S	22°19'7.60"E	ESA	Open flat area with shrubs. 3 lithic including, pear-shaped quartzite tool.	Medium B
RFN05	29°25'14.30"S	22°18'48.10"E	MSA/LSA	Open flat area. 5 lithics, including a small scrapper and core.	Medium B
RFN06	29°25'13.70"S	22°18'57.00"E	MSA/LSA	Open flat area with shrubs, and scattered acacia. 6 lithics, flake/waste material.	Medium B
RFN07	29°25'30.36"S	22°19'32.46"E	19th 20th C	On the western slope of the ridge, derelict asbestos ore crushing/process and the loading bay of stonework and concrete.	Medium B
RFN08a	29°24'55.70"S	22°20'7.10"E	19th 20th C	A saddle on the western slope of the ridge. A small rectangular structure of dressed dolomite blocks, low rough walling to the south.	Medium B
RFN08b	29°24'55.70"S	22°20'7.10"E	MSA/LSA	Saddle on the western slope of the ridge, exposures of dolomite. Quiver aloes. 4 lithics – flakes/points and scrapers.	Medium B
RFN09	29°23'44.00"S	22°19'27.70"E	MSA/LSA	Near the northwest boundary of the farm, foot of the ridge, exposures of dolomite bedrock. 3 lithics including a blade and scrapper.	Medium B
RFN10	29°27'21.50"S	22°20'13.30"E	MSA/LSA	Near the south-eastern end of the farm, gritty surface. 6 lithics, waste material.	Medium B
RFN11	29°27'21.50"S	22°20'21.40"E	MSA/LSA	Near the southern end of the farm, gritty surface with calcretic waste. 5 lithics, flake waste.	Medium B
RFN12	29°26'32.90"S	22°19'30.00"E	MSA/LSA	Near the southern end of the farm. Gritty surface predominantly quartzite. 2 lithics, chert and quartzite flakes.	Medium B

RFN13	29°27'6.70"S	22°19'4.80"E	MSA/LSA	Western boundary of property near the southern end. Elevated stony area surrounded by Kalahali sand overburden. 3 lithics including 2 scrapers and possible backed flake tool.	Medium B
RFN14	29°25'35.45"S	22°18'46.79"E	20th C	Farmstead. The main house has a hipped roof, two chimneys, red-brown face brick. A minor building was dated 31/5/1968 in wet cement.	Medium B

12. *Other heritage resources that might occur in the footprint of the prospecting area*

The following site types/objects have been encountered in the broader region and are therefore flagged:

- Rock engravings (petroglyphs) from the Middle Stone Age to Later Stone Age periods
- Rock Paintings from the Middle Stone Age to Later Stone Age periods
- Buildings and objects associated with modern commercial farming from the 19<sup>th</sup> century
- Graves, burial grounds and human bones.

13. *Postulated heritage sensitivity of the study area*

The ground survey on Portion 9 of Rietfontein 11 coupled with the desktop studies cited above provide a good theoretical foundation for extrapolating a likely scenarios on the rest of the prospecting area.

14. *A summary of the probability of occurrence of different the typologies of heritage and a confidence rating of the predictions*

	<b>HERITAGE TYPOLOGY</b>	<b>PROBABILITY OF OCCURRENCE</b>	<b>CONFIDENCE RATING</b>
1	MSA/LSA	99.99%	High
2	Rock engravings	30%	High
3	Rock paintings	5%	High
4	Early Iron Age / Later Iron Age	1%	High
5	Burial grounds	60%	Medium
6	Farm buildings and structures	75%	High

15. The ranking system in the Table below relates to the national grading of heritage sites adapted from Guidelines for Involving Heritage Specialists in EIA processes by Winter S and & N. Baumann (2005, p19). The probability of occurrence for different grades of sites confirms the view that no finds in the study area are likely to warrant further action after they have been documented.



16. Postulated heritage sensitivity of the study area

GRADE	RANKING	SIGNIFICANCE	PROBABILITY OF OCCURRENCE	CONFIDENCE RATING
1a	National	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources,	0%	High
1b	Burial grounds	Graves are sacred and their treatment is a sensitive issue.	60%	High
2	Provincial	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential 2 heritage resources	0%	High
3A	Local	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 3A heritage resources	10%	Medium
3B	Local	Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources	10%	High
3C	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources	99,99%	High

### *17. Chance Finds Procedure*

A Chance Finds Procedure has been prepared to curate heritage resources that may be found during the prospecting activities.

### *18. Conclusion and Recommendations*

In light of the findings of the desk assessment, the mine prospecting can go ahead. The study is mindful that some important discoveries may be made during prospecting. If this happens operations should be halted, and the provincial heritage resources authority or SAHRA notified in order for an investigation and evaluation of the finds to take place.

# TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>3</b>
<b>ABBREVIATIONS .....</b>	<b>13</b>
<b>1. INTRODUCTION .....</b>	<b>14</b>
<b>2. DESCRIPTION OF THE RECEIVING ENVIRONMENT .....</b>	<b>14</b>
<b>4. APPROACH AND METHODOLOGY.....</b>	<b>22</b>
<b>4.1. Literature study.....</b>	<b>22</b>
<b>4.2. Other Heritage Impact Assessment Studies .....</b>	<b>25</b>
<b>5. ARCHAEOLOGICAL AND HISTORICAL CONTEXT.....</b>	<b>28</b>
<b>5.1. Cultural sequence summary .....</b>	<b>29</b>
<b>5.2. Appearance of hominids .....</b>	<b>29</b>
<b>5.3. The Early Stone Age.....</b>	<b>30</b>
<b>5.4. The Iron Age Culture [ca. 2000 years BP] .....</b>	<b>31</b>
<b>5.5. Early Contact with the Boers.....</b>	<b>31</b>
<b>6. FINDINGS FROM HERITAGE IMPACT ASSESSMENT STUDIES CARRIED OUT IN THE BROADER AREA .....</b>	<b>32</b>
<b>6.1. General observations .....</b>	<b>32</b>
<b>6.2. Findings from Portion 9 of the Farm Rietfontein 11 .....</b>	<b>33</b>
<b>6.2.1. The Stone Age.....</b>	<b>33</b>
<b>6.2.2. The Iron Age.....</b>	<b>33</b>
<b>6.2.3. Early mining and commercial farming.....</b>	<b>33</b>
<b>6.2.4. Burial grounds .....</b>	<b>36</b>
<b>6.3. Other heritage resources that might occur in the footprint of the prospecting area .....</b>	<b>39</b>
<b>6.4. Postulated heritage sensitivity of the study area .....</b>	<b>39</b>
<b>6.5. Assessment of Impacts Using the Heritage Impact Assessment Statutory Framework ....</b>	<b>41</b>
<b>6.6. Risk Assessment of the findings.....</b>	<b>42</b>
<b>7. CHANCE FINDS PROCEDURE.....</b>	<b>43</b>
<b>8. CONCLUSION AND RECOMMENDATIONS .....</b>	<b>43</b>

<b>9. REFERENCES.....</b>	<b>43</b>
<b>10. CATALOGUE OF HERITAGE SITES PORTION 9 OF RIETFONTEIN 11 .....</b>	<b>47</b>
<b>GLOSSARY .....</b>	<b>62</b>
<b>DETAILS OF SPECIALIST .....</b>	<b>64</b>

## ABBREVIATIONS

CPF	Chance Finds Procedure
EIA	Environmental Impact Assessment
ESA	Early Stone Age
HIA	Heritage Impact Assessment
LSA	Late Stone Age
LIA	Later Iron Age
PHRA	Provincial Heritage Resources Authority
MSA	Middle Stone Age
NEMA	National Environmental Management Act.
NHRA	National Heritage Resources Act
SAHRA	South African Heritage Resources Agency

## **1. INTRODUCTION**

This Heritage Impact Assessment (HIA) report has been prepared in support of a mine prospecting right application on several portions of the farms Ritefontein 11 and Nauga 17 (as referenced in the title of this Report), situated in the Siyathemba Local Municipality, Northern Cape Province (Figures 1-2). The report fulfils a statutory requirement in terms of Section 38(8) of the National Heritage Resources Act (No 25/1999). The report is based on a search in existing literature to obtain data on the potential heritage sensitivity of the property.

Prospecting for minerals entail the following activities:

- Open excavations and trenches;
- Test pits;
- Drilling;
- Opening of temporary service roads; and
- Location of processing plant.

These activities have potential detrimental impacts on heritage resources if they exist in the footprint of the proposed exploration.

## **2. DESCRIPTION OF THE RECEIVING ENVIRONMENT**

The area under study consists of several subdivisions of the farm Nauga 17 and Rietfontein 11, 17 678.7 Ha in extent, situated 17 km east of Marydale (Figure 1). Two portions of the property are set against the west bank of the Orange River, and between them there is a land parcel bordering on the river which is excluded from the application. The property partly straddles the hills and ridges flanking the Orange River Valley and the Karoo plain extending west from the hills. Field observations made on Portion 9 of the farm Rietfontein 11 in 2019 provide crucial reference data on the present study, e.g., the typology of heritage sites that can be expected to be found, as well as the superficial geology and terrain features. As has been mentioned above, the hills and ridges trending north-south form an eastern backdrop to the properties and lying to the west is a vast plain occasionally interrupted by isolated hills and covered in many places by the windblown Kalahali sands (Figures 3 – 8). From the Google Map overview, a number of streams drain the western

slopes of the ridges converging at different points eventually forming a stream which takes a course south before it breaks through the ridges east into the Orange River. We observed on the Farm Rietfontein 11 that these ephemeral wet season channels transport hill-wash. There are exposures of solid calcrete and on the slopes of the ridge, and dolomite bedrock occurs in some places.

Vegetation is sparse karoo scrub with acacia dominating. In places there is a significant presence of the short hooked thorn *Acacia mellifera subsp. Detinens* (*haakbos* in Afrikaans). On the slope of the hills stand the giant multi-branched aloe (*Aloe dichotoma* – Quiver Aloe) (Figures 1-5).

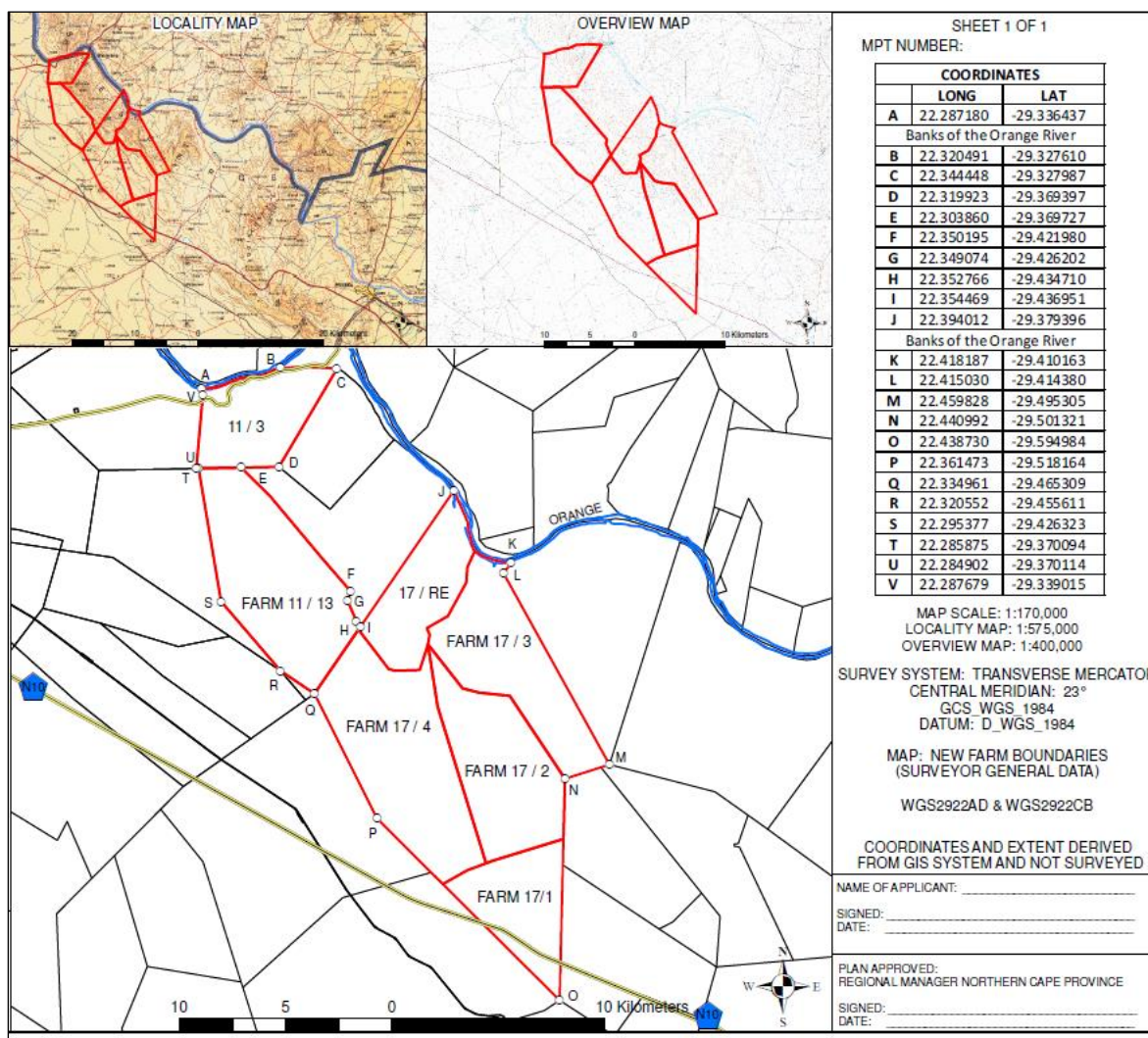


Figure 1: Map showing the location of the subdivisions and cadastral boundaries

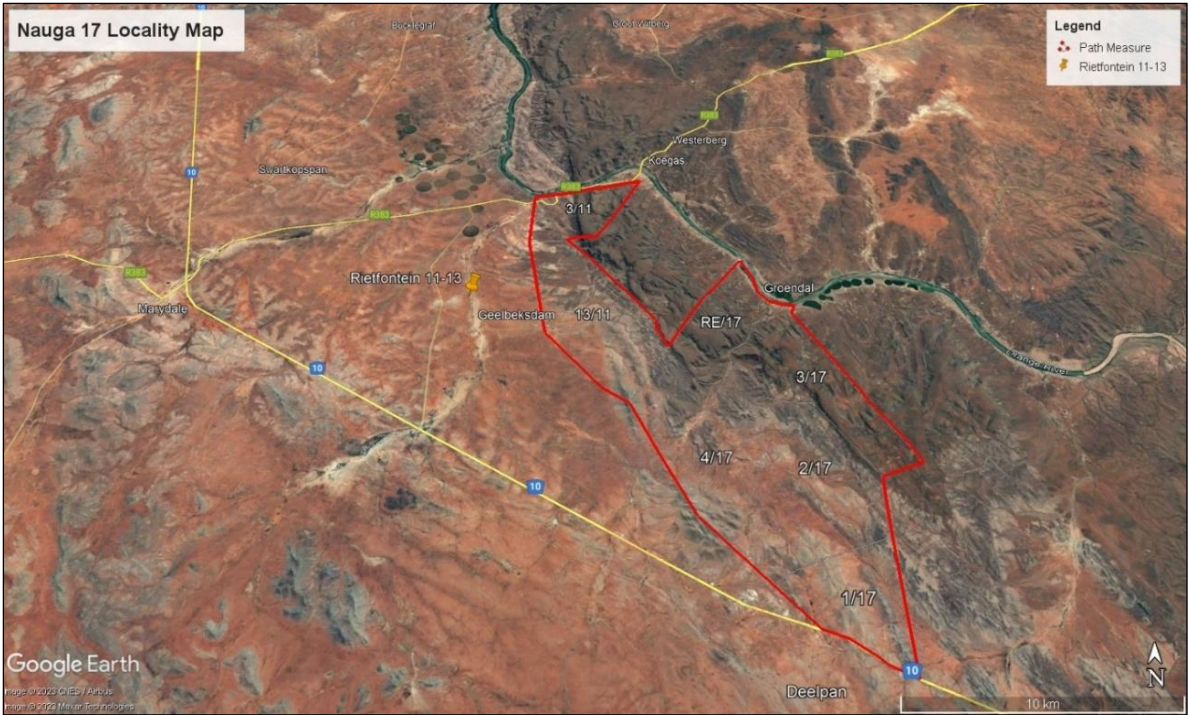


Figure 2: Google Earth map shows the location of the farms Nauga 17 and Ritefontein 11, and the boundaries of the prospecting right



Fig 3. Google-Earth map shows the location the Portion 9 of the Farm Rietfontein 11 which was surveyed in 2019





Figure 4: Landscape view on the Farm Rietfontein 11 shows the sedimentary hills that form the western flank of the Orange River valley, flat terrain in the foreground, hooked thorn bushes (*Acacia mellifera subsp. Detinens*) (Matenga 2019)



Figure 5: On the Farm Rietfontein 11, graceful *Aloe dichotoma* (Quiver Aloe) on the western slope of the ridge (Matenga 2019).



Figure 6: On the farm Rietfontein, calcrete bedrock exposed on the bed of a channel in the central area of the farm (Matenga 2019).



Figure 6: Stone hill wash forms the bed of a dry stream descending from the ridge (Matenga 2019)



Figures 7a & b: Stones and grit covering the surface along the base of the ridge.



Figures 8a & b: View from the ridge west to the portion covered by Kalahali sands.

### 3. LEGAL FRAMEWORK

This study fulfils an onus on developers to safeguard heritage resources. This obligation is legislated with Sections 34, 35, 36 and 38 of the National Heritage Resources Act (No 25 of 1999) forming the legal framework in which this HIA report has been prepared.

#### 3.1. Section 38 of National Heritage Resources Act on Heritage Impact Assessments

Section 38 of the NHRA states the nature and scale of development which triggers a HIA:

**38. (1)** *Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—*

*(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*

*(b) the construction of a bridge or similar structure exceeding 50 m in length;*

*(c) any development or other activity which will change the character of a site—*

*(i) exceeding 5 000 m<sup>2</sup> in extent<sup>1</sup>; or*

*(ii) involving three or more existing erven or subdivisions thereof; or*

*(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or*

*(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;*

*(d) the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent; or*

*(e) any other category of development provided for in the regulations by SAHRA or a provincial heritage resources authority,*

*must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.*

### **3.2. Definition of heritage (National Estate)**

Section 3 lists a wide range of cultural phenomena which could be defined as heritage, or the *National Estate* (3(2)). Section 3(3) outlines criteria upon which heritage value is ascribed. This Section is useful as a field checklist for the identification of heritage resources.

### **3.3. Protection of buildings and structures older than 60 years**

Section 34 provides automatic protection for buildings and structures more than 60 years old until it can be proven that they do not have heritage value:

*(1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.*

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<sup>1</sup> Areal extent of the proposed development triggers the HIA.

### **3.4. Protection of archaeological sites**

Section 35 (4) of the NHRA prohibits the destruction of archaeological, palaeontological and meteorite sites:

*No person may, without a permit issued by the responsible heritage resources authority—*

*(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*

*(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*

*(c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*

*(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.*

### **3.5. Graves and burial grounds**

Section 36 of the NHRA provides for the protection of certain graves and burial grounds.

Graves are generally classified under the following categories:

- Graves younger than 60 years;
- Graves older than 60 years, but younger than 100 years;
- Graves older than 100 years; and
- Graves of victims of conflict
- Graves of individuals of royal descent
- Graves that have been specified as important by the Ministers of Arts and Culture.

Further to the legal prescripts, we are mindful of the fact that graves and burial grounds are held sacred whether they are protected by the law or not.

### **3.6. The National Environmental Management Act (No 107 of 1998)**

The Act regards heritage as being a component of the environment. It states that a survey and evaluation of cultural resources must be done in areas where development projects that will affect the environment will be undertaken. The impact of the development on

these resources should be determined and proposals for the mitigation thereof are made. Environmental management is a much broader undertaking to cater for cultural and social needs of people. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

### **3.7. The Burra Charter on Conservation of Places of Cultural Significance**

Generic principles and standards for the protection of heritage resources in South Africa are drawn from international charters and conventions. In particular South Africa has adopted the **ICOMOS Australia Charter for the Conservation of Places of Cultural Significance (the Burra Charter 1999)** as a benchmark for best practice in heritage management.

## **4. APPROACH AND METHODOLOGY**

### **4.1. Literature study**

This study is based on an intensive search through existing literature for data on the heritage sensitivity of the broader area around Nauga 17 and Rietfontein 11. The resort to a desktop assessment was in consideration of the imperative to meet set deadlines, whilst arrangements for access to the properties are being made. Heritage Impact Assessment studies conducted in the broader area are the principal source of information. These reports have been carefully selected considering factors such as distance from the target of the present study. Using this information the potential yield of the targeted area could be reasonably predicted by extrapolation. Extrapolation is a scientific method of building a hypothesis by estimating or predicting results by assuming that what is known and has been established about a particular situation is likely to apply more or less for a neighbouring area/quantity that is unknown.

Six HIA studies from other researchers have provided reference data for this report; their locations are shown in the Google Earth Map below (Figure 4).

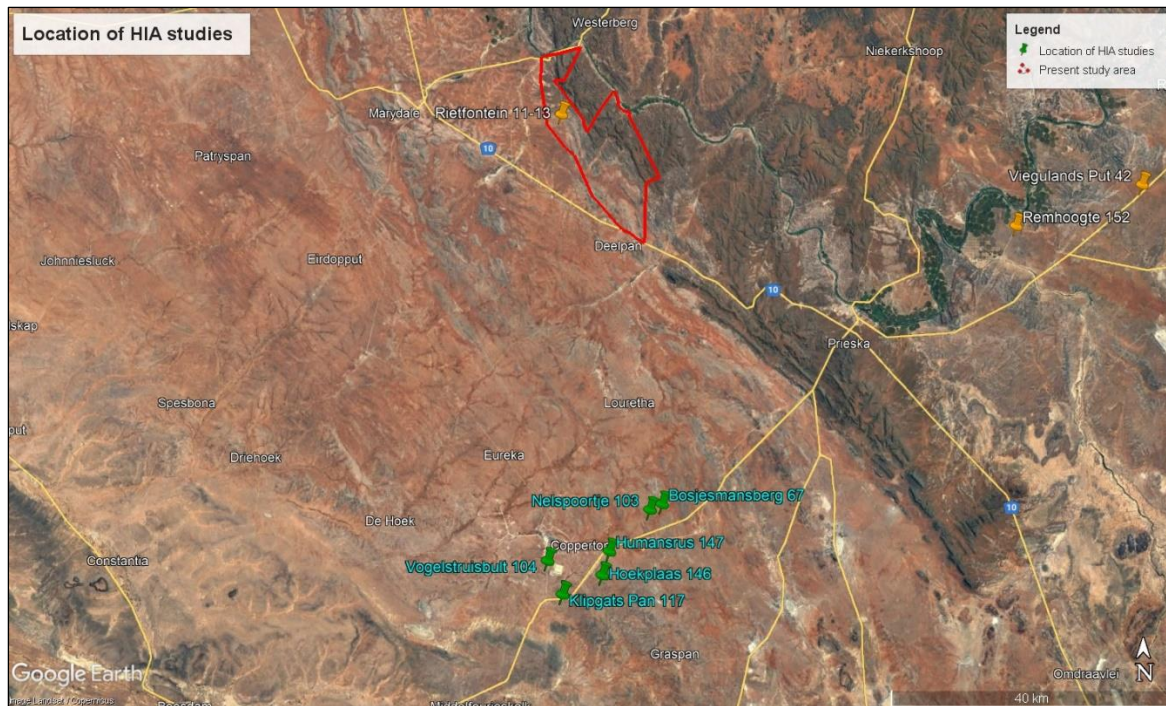


Figure 9: Location of farms where the Heritage Impact Assessment studies have been conducted

- (i) **Webley, L. 2016.** *Archaeological Impact Assessment: Proposed Construction of Humansrus Solar 3 on a Portion of the Farm Humansrus 147 near Copperton, Northern Cape.*

The farm Humansrus 147 is situated 44 km south of Nauga 17.

Findings: Occasional scatters of Early Stone Age (ESA) material and widespread, but dispersed scatters of Middle Stone Age (MSA) artefacts across the property. No later Stone Age (LSA) artefacts were found (page 13). No buildings or graves were found (pages 2, 13)

- (ii) **Van Der Walt, J. 2014.** *Archaeological Impact Assessment for the proposed Bosjesmansberg PV Center Solar Energy Facility, Located Close to Copperton in the Northern Cape. Prepared for Savannah Environmental (Pty) Ltd*

The farm Bosjesmansberg 67 lies 36 km south of Nauga 17.

Findings: Low density of artefacts dating to the MSA especially around pans. They comprised large flakes, radial and bipolar cores, points, end scrapers, large utilized and retouched blade tools, and utilized and retouched flakes. MSA quarries (manufacturing sites) exploiting quartz outcrops, quartzite ridges, bedrock and boulders were also found. LSA tools (scrapers, retouched and utilised flakes, blades and small round cores) were found in comparatively low density. Several isolated hand-axes were recorded suggesting an ESA date (pages 21-22).

**(iii) Orton, J. 2013.** *Heritage Impact Assessment for Multiple Proposed Solar Energy Facilities on Farm Hoekplaas 146, Copperton, Northern Cape*

The farm Hoekplaas is situated 48 km south of Nauga 17.

Findings: Material dates to all three Stone Age epochs, ESA, MSA and LSA, with the first two being represented more by “background scatters” of artefacts commonly found in gravel areas. Most LSA scatters were found to be located around pans occurring throughout the landscape. Manufacturing sites were found on quartzite outcrops with evidence of flaking (pages 11-12).

**(iv) Van Der Walt J. 2012.** *Archaeological Impact Assessment for the Revised Garob Wind Energy Facility Project [on the Farm Nelspoortje 103] Located Close to Copperton, Northern Cape.*

Garob is located on the farm Nelspoortje 5/103, 40 km south Nauga 17.

Findings: Low densities of ESA, MSA, LSA scatters were found throughout the study area. MSA material consisted of large flakes, radial and bipolar, points and end scrapers, large utilised and retouched blade tools, and utilised and retouched flakes. LSA tools (scrapers, retouched and utilised flakes, blades and small round cores) were found in comparatively low density (page 3).



- (v) **Orton, J. 2016.** *Heritage Impact Assessment for Four Proposed Borrow Pits on Remainder of Farm Vogelstruisbult 104/1, Prieska Magisterial District, Northern Cape.*

The Farm Vogelstruisbult 104/1 lies 40 km to the SW of Nauga 17.

Findings: Stone Age quarries (stone tool manufacturing sites), a knapping site (where stone tools were made) and artefact scatters from ESA, MSA, and found in the same context suggests downward deflation (page 66). Stone kraals for penning sheep are in current usage (page 66).

- (vi) **Orton, J & Parsons. 2018.** *Looking Beneath the Surface: Later Stone Age Remains at Klipgats Pan, Bushmanland, South Africa.*

The farm Klipgats is situated 53 km south of Nauga 17.

Findings: Background-scatter artefacts date to the MSA, but are mixed with Early Stone Age (ESA) handaxes. Excavations revealed a higher density of LSA artefacts (page 194). Engraved ostrich egg sherds (page 187).

#### **4.2. Other Heritage Impact Assessment Studies**

Over the last seven years this author has conducted many heritage impact assessment studies on the upper Karoo and the Orange – Vaal basin. Six of these studies close to the properties under study as referenced below (see also Figure 10 for the location of these studies):



Figure 10: Location of farms surveyed by the author, 2016 – 2022

- (i) **Matenga, E. 2017.** *Phase I Heritage Impact Assessment (including Palaeontological Assessment) in terms of Section 38 of the National Heritage Resources Act (No 25/1999) for the proposed Mine Prospecting on the Remaining Extent of Portion 1 of the Farm Viegulands Put 42, Prieska District, Northern Cape Province.*

The Farm Viegulands Put is located on the south bank of the Orange River 70 km east of Nauga 17. One of the highlights of the survey was an ESA hand-axe among the finds predominated by chert scrapers, blades and flakes.

- (ii) **Matenga, E. 2018.** *Phase I Heritage Impact Assessment (including Palaeontological Assessment) in terms of Section 38 of the National Heritage Resources Act No 25/1999 for the proposed mine prospecting and application for mining right on a portion of the remaining extent of the Farm Kransfontein 19 & portion 2 (de rust) of the Farm Kransfontein 19, Prieska District, northern cape province*

Kransfontein 19 is on the south bank of the Orange River 94 km east of Nauga 17. MSA/LSA lithics were found to be widely distributed indicating general hunter-gatherer foraging

activities. There were buildings and a burial ground on the property both associated with pioneer commercial farmers.

**(iii) Matenga, E. 2019.** *Phase I Heritage impact assessment (including palaeontological assessment) requested in terms of Section 38 of the National Heritage Resources Act No 25/1999 for the proposed Mine Prospecting on a Portion of the Remaining Extent of the Farm Remhoogte 152 Prieska, Northern Cape.*

On the farm Remhoogte 152 located on the south bank of the Orang River 55 km SE of Nauga 17, MSA/LSA lithics were found to be widely distributed indicating general hunter-gatherer foraging activities.

**(iv) Matenga E. 2019.** *Phase I Heritage Impact Assessment (including Palaeontological Assessment) in terms of section 38 of the National Heritage Resources Act (No 25/1999) for the proposed Mine Prospecting on the Remaining extent of Portions 13 and 9 of the of the Farm Rietfontein 11, Prieska District, Northern Cape Province.*

In 2019 this author conducted a survey on Portion 9 of the Rietfontein 11 which is in the footprint of the present application. The study therefore provided crucial empirical data and the findings are described in detail in this report. Suffices it here to give an overview. Stone tools and associated waste material in varying densities were recorded. The stone tools comprise mainly scrapers, points and flakes while a few blades and cores also occur. A pear-shaped hand-axe confirmed the presence of ESA material.

**(v) Matenga, E. 2022.** *Heritage Impact Assessment (including Palaeontological Desk Assessment) for a Mining Right Application on the Remaining Extent of Portion 1 (Paals Werf) of the farm Saxendrift 20, near Prieska, Northern Cape.*

Saxendrift 20 is located on the south bank of the Orange River 87 km NE of Nauga 17.

Stone Age tools occurred in all but four of the 24 recorded instances. The finds were dominated by scrapers, while there were a few blades. The handaxes (2) encountered were recognised as a type tool of the Early Stone Age period.

**(vi) Matenga, E. 2022.** *Heritage Impact Assessment (including Palaeontological Desktop Assessment) for a Prospecting Right Application on the Remaining Extent of the Farm Brakfontein 276 near Prieska in the Siyathemba Local Municipality, Northern Cape Province.*

Brakfontein is located south of the Orange River 165 km east of Nauga 17.

Eight (8) out of 12 occurrences recorded were lithics in a rare find of a fine hand-axe probably dating to the transition from the Early Stone Age to the Middle Stone Age.

#### **4.3. General observations**

The studies show that Stone Age material is widely distributed on the plains, ridges and valleys of the upper Karoo area north and south of the Orange-Vaal basin. The scattered distribution pattern seems to suggest general hunter-gatherer activity in the region. Rarely have the findings warranted further action such as professional rescue excavations or the issue of a destruction permit from SAHRA.

### **5. ARCHAEOLOGICAL AND HISTORICAL CONTEXT**

An outline of the cultural sequence in South Africa provides a theoretical framework for the identification of features / structures and objects of archaeological, historical and cultural interest. As summary of the reconstructed cultural sequence is given below:

## 5.1. Cultural sequence summary

Table 1: Cultural sequence summary<sup>2</sup>

PERIOD	EPOCH	ASSOCIATED CULTURAL GROUPS	TYPICAL MATERIAL EXPRESSIONS
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominids: <i>Australopithecines</i> <i>Homo habilis</i> <i>Homo erectus</i>	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First <i>Homo sapiens</i> species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	<i>Homo sapiens</i> including San people	Typically small to minute stone tools such as arrow heads, points and bladelets.
Early Iron Age / Early Farmer Period c300 – 900 AD (or earlier)	Holocene	Iron Age Farmers	Typically distinct ceramics, bead ware, iron objects, grinding stones.
Later Iron Age 900ADff	Holocene	Iron Age Farmers, emergence of complex state systems	Typically distinct ceramics, evidence of long distance trade and contacts
(ii) Mapungubwe (K2)	1350AD		Metals including gold, long distance exchanges
(ii) Historical period	Tswana / Sotho, Nguni people	Iron Age Farmers	Stone walls Mfecance / Difaqane
(iii) Colonial period	19 <sup>th</sup> Century	European settlers / farmers / missionaries/ industrialisation	Buildings, Missions, Mines, metals, glass, ceramics

## 5.2. Appearance of hominids

South Africa has yielded a very good record of fossil hominids, proto-humans which appeared in South Africa more than 3 million years ago. Three famous sites in Gauteng, Limpopo and Northwest Provinces have been collectively named the Cradle of Humankind

<sup>2</sup> Adapted from Exigo Consultancy. 2015. Frances Baard District Municipality: Proposed Nkandla Extension 2 Township Establishment, Erf 258 Nkandla, Hartswater, Northern Cape Province.

and inscribed as a serial UNESCO World Heritage Site.<sup>3</sup> No hominid sites have been reported in the vicinity of the study area.

### **5.3. The Early Stone Age**

The Early Stone Age may date back more than 2 million years. Much of the Karoo in the Northern Cape is covered by gravels from which ESA artefacts have been found. These artefacts are generally very well weathered and have been described as background scatters in that their distribution is conditioned more by geological actions than human actions (Orton 2013, p7). A good profile of the Stone Age in the Northern Cape has been reconstructed from many heritage impact assessments that have been conducted in recent years. Locales along and adjacent to the Orange – Vaal River systems have yielded evidence of great interest.<sup>4</sup> Further north the Wonderwerk Cave has become a benchmark for the characterisation of the Stone Age. Excavations reveal a long sequence of occupation spanning the Early (ESA), Middle (MSA) and Later Stone Ages.<sup>5</sup>

#### **5.3.1. Middle Stone Age (MSA) [250 000 yrs – 30 000 yrs BP]**

The Middle Stone Age (MSA), dates from 250 000 years to 40 000 years ago, marked by the introduction of a new tool kit which included prepared cores, parallel-sided blades and triangular points hafted to make spears. A number of field surveys have been carried out on the Ghaap Plateau and the Orange-Vaal River basin confirming significant hunter gatherer activity in the area from the MSA onwards.

#### **5.3.2. Later Stone Age (LSA)[40 000 yrs to ca2000 yrs BP]**

LSA technology is characterised by microlithic scrapers and segments made from very fine-grained rock. The ephemeral pans in the Northern Cape, also present in the locality of the present study hosted hunter gatherer communities as evidenced by a comparatively high density of LSA lithics found on the edges of these pans.

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<sup>3</sup> Deacon, J. and N. Lancaster. 1986. *Later Quaternary Palaeo-environments of Southern Africa*. Oxford: Oxford University Press.

<sup>4</sup> Morris, D. 2009. Phase 1 Archaeological Impact Assessment at Bucklands Settlement near Douglas, Northern Cape, p3.

<sup>5</sup> <http://www.southafrica.net/za/en/articles/entry/article-southafrica.net-the-wonderwerk-cave>.

Rock art, in the form of engravings (petroglyphs), is widely known from the Karoo (Orton 2013, p10) with examples nearest to the study area on the farm Springbokoog 80km to the south, Driekopseiland 180km to the ENE), and the farm Katlani 236 (150km ENE). Various subjects are depicted in both stylized and naturalistic motifs including humans and animals.

The upper Karoo region of the Northern Cape is now referred to as Bushmansland in recognition of the strong archaeological and historical footprint of hunter-gatherer communities identified to the San and the Khoikhoi, with a cultural distinction being made between the two as hunter-gatherers and hunter-gatherer pastoralists respectively.

#### **5.4. The Iron Age Culture [ca. 2000 years BP]**

The Iron Age culture supplanted the Stone Age at least 2000 years ago, associated with the earliest farming communities keeping domestic animals such as cattle, sheep, goat and chickens, and using several metals and pottery (Huffman 2007). The transition to the Iron Age appears to coincide with the spread of Bantu speakers from the north into Southern Africa. Around the beginning of the 2<sup>nd</sup> millennium, radical changes in the Iron Age culture occurred signifying the transition to the Later Iron Age. Subsequently the Iron Age people built stonewalled settlements present in a large swathe of territory straddling the Northern Cape, Northwest Province, Limpopo Province and the Free State. One such site is Dithakong near Kuruman.

#### **5.5. Early Contact with the Boers**

In the early 19<sup>th</sup> century, a number of traders, hunters, explorers and missionaries transited the area. A few can be named here - PJ Truter's and William Somerville (arriving in 1801), Donovan, Burchell and Campbell, and James Read (arriving around 1870). Subsequently, a large number of Great Trek Boers from the Cape Colony and established commercial farms in the area. They came into contact with local people who included the Khoisan, Korana, Tswana and Griqua (Van der Walt 2012).

**Prieska** was established in 1878. It developed from a place to which farmers migrated when the pans were full, after rains. It was administered by a village management board from 1882 and attained municipal status in 1892. Situated on the south bank of the Orange River at the foot of the Doringberg, it was originally named Prieschap, a Khoisan word meaning "place of the lost she-goat". It is 130 km north-west of Britstown and 75 km south-east of Marydale.<sup>6</sup>

Marydale lies 76 km NW of Prieska on the N10 road to Upington. It was established in 1903 by the Dutch Reformed Church, and named after Mary Snyman, the wife of Mr GP Snyman, the owner of the farm on which the town was laid out.<sup>7</sup>

The above forms the archaeological and historical context for the identification of heritage resources in the study area.

## **6. FINDINGS FROM HERITAGE IMPACT ASSESSMENT STUDIES CARRIED OUT IN THE BROADER AREA**

### **6.1. General observations**

It is now established that Stone Age material is widely distributed on the plains, ridges and valleys of the upper Karoo area north and south of the Orange-Vaal basin. The material comprises scrapers, blades, cores and flakes typologically dating to the Middle Stone Age/Late Stone Age period. Early Stone Age material has been encountered in places with occasional occurrences of hand-axes and cleavers. Significantly in these studies Later Stone Age material has been recorded in the vicinity of pans and along ephemeral streams. A few places were identified as stone tool quarry or manufacturing sites. The scattered distribution pattern seems to suggest general hunter-gatherer activity in the region now known in archaeological literature as Bushmanland. Rarely have the findings warranted further action such as professional excavations or the issue of a destruction permit from

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<sup>6</sup> Prieska. Found at: <https://www.karoo-information.co.za/routes/town/506/prieska#:~:text=Prieska%20was%20established%20in%201878,the%20lost%20she%20goat%22>.

<sup>7</sup> Marydale. Found at: <https://en.wikipedia.org/wiki/Marydale#:~:text=Marydale%20is%20a%20town%20in,near%20the%20N10%20national%20road>.



SAHRA. The findings from the twelve studies which have been cited above, fit within this picture of the archaeological sensitivity of the broader area.

## **6.2. Findings from Portion 9 of the Farm Rietfontein 11**

As mentioned earlier, in 2019 this author carried out a ground survey on Portion 9 of the Farm Rietfontein 11. Fifteen (15) sites were recorded (Table 2).

### **6.2.1. The Stone Age**

Twelve (12) sites were recorded with varying densities of lithics. The assemblages comprise mainly scrapers, points and flakes while a few blades and cores also occur. They are spread along the base of the ridge along the eastern boundary of the property. No significant concentrations were found to suggest a settlement or regular activity.

The occurrence of a pear-shaped hand-axe is of particular interest as it seems to confirm the presence of Acheulean material in the area dating between 2 million- and 250 000-years BP (Site RFN04).

### **6.2.2. The Iron Age**

No Iron Age relics were found on the property.

### **6.2.3. Early mining and commercial farming**

An asbestos ore crushing and loading site was recorded evidence by a block of a heavy steel machine and stonework and concrete structures) (Site RFN07, Figures 12-13). A short distance to the north, there was a small rectangular structure built of dressed dolomite blocks apparently locally sourced (Site RFN08a, Figure 14). These structures must be protected.

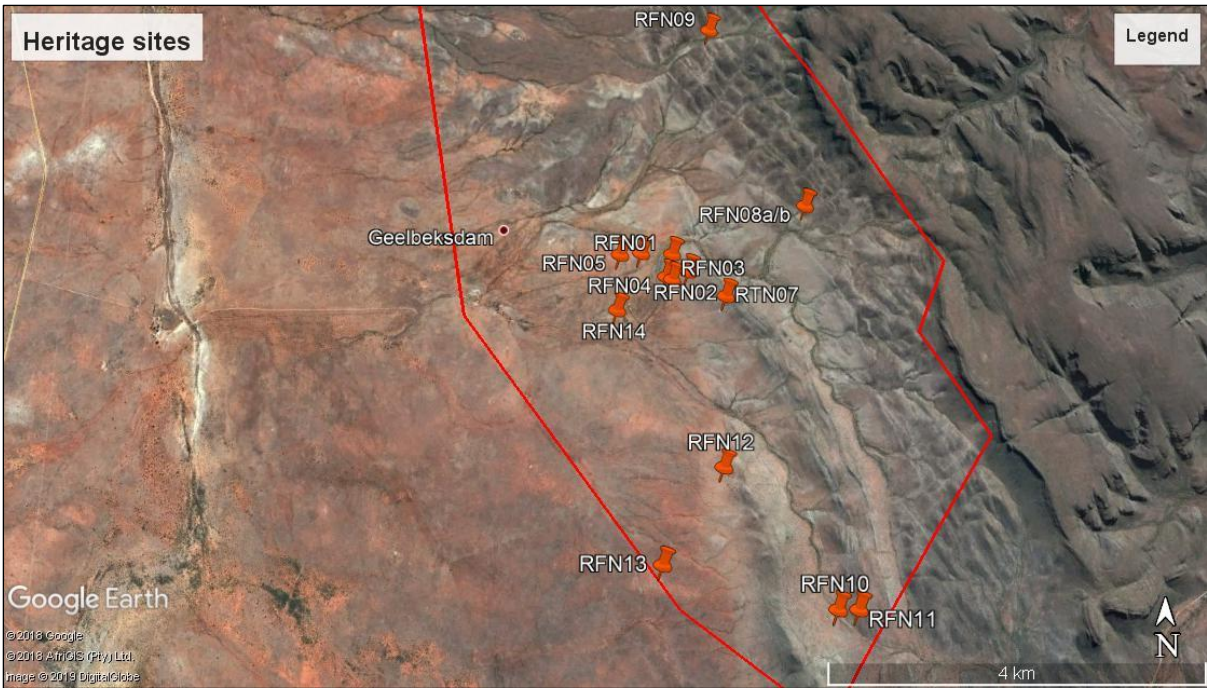


Fig 11. Google-Earth map shows location the location of heritage sites on Portion 9 of the Rietfontein 11



Figure 12: Remains of an asbestos processing plant



Figure 13: Component of a crushing/processing machine



Figure 14: A small rectangular structure of dressed dolomite blocks, an a low rough walling to the south.

#### **6.2.4. Burial grounds**

No graves or burial grounds were reported on the property.

Table 2: Site inventory, Portion 9 of the Farm Rietfontein 11

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING
RFN01	29°25'14.10"S	22°19'10.20"E	MSA/LSA	Open flat area, Kalahali sands. 3 lithics, chert waste material.	Medium B
RFN02	29°25'20.80"S	22°19'16.90"E	MSA/LSA	Open flat area, gritty with shrubs and few acacias. 6 lithics, 1 quartzite blade/scrapper, 2 scrapers and waste material	Medium B
RFN03	29°25'23.80"S	22°19'10.10"E	MSA/LSA	Open flat area with shrubs. Kalahali sands overburden. 5 lithics including a point, broken blade, and scraper.	Medium B
RFN04	29°25'22.80"S	22°19'7.60"E	ESA	Open flat area with shrubs. 3 lithic including, quartzite tool roughly pear-shaped.	Medium B
RFN05	29°25'14.30"S	22°18'48.10"E	MSA/LSA	Open flat area. 5 lithics, including a small scraper and core.	Medium B
RFN06	29°25'13.70"S	22°18'57.00"E	MSA/LSA	Open flat area with shrubs, scattered acacia. 6 lithics, flake/waste material.	Medium B
RFN07	29°25'30.36"S	22°19'32.46"E	19th 20th C	Western slope of ridge, derelict asbestos ore crushing/process and the loading bay of stonework and concrete.	Medium B
RFN08a	29°24'55.70"S	22°20'7.10"E	19th 20th C	A saddle on the western slope of the ridge. A small rectangular structure of dressed dolomite blocks, low rough walling to the south.	Medium B
RFN08b	29°24'55.70"S	22°20'7.10"E	MSA/LSA	Saddle on the western slope of the ridge, exposures of dolomite. Quiver aloes. 4 lithics – flakes/points and scrapers.	Medium B
RFN09	29°23'44.00"S	22°19'27.70"E	MSA/LSA	Near the northwest boundary of the farm, foot of the ridge, exposures of dolomite bedrock. 3 lithics including a blade and scraper.	Medium B
RFN10	29°27'21.50"S	22°20'13.30"E	MSA/LSA	Near the south-eastern end of the farm, gritty surface. 6 lithics, waste material.	Medium B
RFN11	29°27'21.50"S	22°20'21.40"E	MSA/LSA	Near the southern end of the farm, gritty surface with calcretic waste. 5 lithics, flake waste.	Medium B
RFN12	29°26'32.90"S	22°19'30.00"E	MSA/LSA	Near the southern end of the farm. Gritty surface predominantly quartzite. 2 lithics, chert and quartzite flakes.	Medium B

RFN13	29°27'6.70"S	22°19'4.80"E	MSA/LSA	Western boundary of property near the southern end. Elevated stony area surrounded by Kalahali sands. 3 lithics including 2 scrapers and possible backed flake tool.	Medium B
RFN14	29°25'35.45"S	22°18'46.79"E	20th C	Farmstead. The main house has a hipped roof, two chimneys, red-brown face brick. A minor building was dated 31/5/1968 in wet cement.	Medium B

### 6.3. Other heritage resources that might occur in the footprint of the prospecting area

The following site types have been encountered in the broader region and are therefore flagged:

- Rock engravings (petroglyphs) from the Middle Stone Age to Later Stone Age periods
- Rock Paintings from the Middle Stone Age to Later Stone Age periods
- Buildings and objects associated with modern commercial farming from the 19<sup>th</sup> century
- Graves, burial grounds and human bones.

### 6.4. Postulated heritage sensitivity of the study area

The ground survey on Portion 9 of Rietfontein 11 coupled with the desktop studies provide a good theoretical foundation from which to extrapolate the more likely scenarios on the rest of the prospecting area. The Table below is a summary of the probability of occurrence of different typologies of heritage and a confidence rating of the predictions:

	HERITAGE TYPOLOGY	PROBABILITY OF OCCURRENCE	CONFIDENCE RATING
1	MSA/LSA	99.99%	High
2	Rock engravings	30%	High
3	Rock paintings	5%	High
4	Early Iron Age / Later Iron Age	1%	High
5	Burial grounds	60%	Medium
6	Farm buildings and structures	75%	High

The ranking system in the Table below is adapted with minor modifications from Guidelines for Involving Heritage Specialists in EIA processes by Winter S and & N. Baumann (2005, p19). Graves are given a high priority because of growing public concern about the treatment of graves located in areas planned for modern development.

Table 3: Postulated heritage sensitivity of the study area

GRADE	RANKING	SIGNIFICANCE	PROBABILITY OF OCCURRENCE	CONFIDENCE RATING
1a	National	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources,	0%	High
1b	Burial grounds	Graves are sacred and their treatment is a sensitive issue.	60%	High
2	Provincial	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential 2 heritage resources	0%	High
3A	Local	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 3A heritage resources	10%	Medium
3B	Local	Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources	10%	High
3C	Local	Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources	99,99%	High



## 6.5. Assessment of Impacts Using the Heritage Impact Assessment Statutory Framework

### Section 38 of the NHRA

Section 38 (Subsection 3) of the National Heritage Resources Act also provides a schedule of tasks to be undertaken in an HIA process:

*Section 38(3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:*

***(a) The identification and mapping of all heritage resources in the area affected***

N/A

***(b) An assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7***

There are no Grade I or Grade II sites.

***(c) An assessment of the impact of the development on such heritage resources***

The risk ranking is an index of potential risks based on perceived value of the heritage and potential threats posed by the proposed development. Any sites found during the exploration and are deemed to be significant will be dealt with in accordance with the mitigation procedures in the Heritage Chance Finds Procedure.

***(i) An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development***

There are high prospects of mining in the Northern Cape Province making a significant contribution to the growth of the South African economy. Mining is labour intensive and can contribute immensely to alleviate the current high rate of unemployment. It can stimulate activities in other facets of the economy. General improvement in the quality of livelihoods in local communities and the country at large is expected.

***(e) The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources***

N/A

***(f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives***

A Chance Finds Procedure will be used to deal with any sites or objects of interest found during the mine exploration and actual mining commences.

***(g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.***

In the event of the discovery of heritage resources deemed of significance during exploration or mining, the Provincial Heritage Resources Authority or SAHRA will be informed immediately and an archaeologist or heritage expert called to attend.

#### **6.6. Risk Assessment of the findings**

<b>EVALUATION CRITERIA</b>	<b>RISK ASSESSMENT</b>
Description of potential impact	Negative impacts range from partial to total destruction of surface and under-surface movable/immovable relics.
Nature of Impact	Negative impacts can both be direct or indirect.
Legal Requirements	Sections 34, 35, 36, 38 of National Heritage Resources Act No. 25 (1999).
Stage/Phase	Prospecting for minerals (test pits, drilling); Mining Phase
Extent of Impact	Test pits, excavations and ground clearing can result in damage and destruction of archaeological resources above and below the surface not seen during the survey.
Duration of Impact	Any accidental destruction of surface or subsurface relics is not reversible, but can be mitigated.
Intensity	Uncertain.
Probability of occurrence	Medium.
Confidence of assessment	High.
Level of significance of impacts before mitigation	Medium.

Mitigation measures	If archaeological or other heritage relics deemed of high significance are found during the exploration phase, heritage authorities will be advised immediately and a heritage specialist will be called to attend.
Level of significance of impacts after mitigation	Low.
Cumulative Impacts	None.
Comments or Discussion	None.

## 7. CHANCE FINDS PROCEDURE

A Chance Finds Procedure (PF) will be used to curate heritage resources found during the prospecting activities.

## 8. CONCLUSION AND RECOMMENDATIONS

In light of the findings of the desk assessment, the mine prospecting can go ahead. The study is mindful that some important discoveries may be made during prospecting. If this happens operations should be halted, and the provincial heritage resources authority or SAHRA notified in order for an investigation and evaluation of the finds to take place.

## 9. REFERENCES

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**Matenga, E. 2022.** Heritage Impact Assessment (including Palaeontological Desktop Assessment) for a Prospecting Right Application on the Remaining Extent of the Farm Brakfontein 276 near Prieska in the Siyathemba Local Municipality, Northern Cape Province

**Morris. D. 2017.** Heritage Impact Assessment for Proposed Lodge at Springbokoog, north-west of Vanwyksvlei, Northern Cape.

**Morris, D. 2009.** Phase 1 Archaeological Impact Assessment at Bucklands Settlement near Douglas, Northern Cape.

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**Orton, J. 2016.** *Heritage Impact Assessment For Four Proposed Borrow Pits On Remainder Of Farm Vogelstruisbult 104/1, Prieska Magisterial District, Northern Cape.*

**Orton, J. 2018.** Heritage Impact Assessment: Scoping and Environmental Impact Assessment for the proposed development of the Skeerhok PV1 Solar Energy Facility on Smutshoek 395/Remainder, Kenhardt Magisterial District, Northern Cape Province. Unpublished report prepared for CSIR – Environmental Management Services. Lakeside: ASHA Consulting (Pty) Ltd.

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**10. CATALOGUE OF HERITAGE SITES PORTION 9 OF RIETFONTEIN 11**

SITE NO	COORDINATES		PERIOD
RFN01	29°25'14.10"S	22°19'10.20"E	MSA/LSA
			
<b>OBSERVATIONS:</b> Open flat area, Kalahali sand overburn. 3 lithics, chert waste material.			
<b>HERITAGE STATUS</b>	Evidence of stone tool manufacture and use during the MSA/LSA		
<b>POTENTIAL IMPACTS &amp; PROPOSED MITIGATION</b>	-		

SITE NO	COORDINATES		PERIOD
RFN02	29°25'20.80"S	22°19'16.90"E	MSA/LSA



**OBSERVATIONS:** Open flat area, gritty with shrubs and few acacias. 6 lithics, 1 quartzite blade/scrapper, 2 scrapers and waste material

**HERITAGE STATUS** Evidence of stone tool manufacture and use during the MSA/LSA

**POTENTIAL IMPACTS & PROPOSED MITIGATION** -



SITE NO	COORDINATES		PERIOD
RTN03	29°25'23.80"S	22°19'10.10"E	MSA/LSA



**OBSERVATIONS:** Open flat area with shrubs. 5 lithics including a point, broken blade, and scraper.

<b>HERITAGE STATUS</b>	Evidence of stone tool manufacture and use during the MSA/LSA	
<b>POTENTIAL IMPACTS &amp; PROPOSED MITIGATION</b>	-	

SITE NO	COORDINATES		PERIOD
RTN04	29°25'22.80"S	22°19'7.60"E	MSA/LSA



**OBSERVATIONS:** Open flat area with shrubs. 3 lithic including, pear-shaped quartzite tool.

<b>HERITAGE STATUS</b>	Evidence of stone tool manufacture possibly dating from the Early Stone Age (ESA).
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<b>POTENTIAL IMPACTS &amp; PROPOSED MITIGATION</b>	-
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SITE NO	COORDINATES		PERIOD
RFN05	29°25'14.30"S	22°18'48.10"E	MSA/LSA



**OBSERVATIONS:** Open flat area. 5 lithics, including a small scraper and core (in the middle).

**HERITAGE STATUS** Evidence of stone tool manufacture and use during the MSA/LSA

**POTENTIAL IMPACTS & PROPOSED MITIGATION** -

SITE NO	COORDINATES		PERIOD
RTN06	29°25'13.70"S	22°18'57.00"E	MSA/LSA



**OBSERVATIONS:** Open flat area with shrubs, scattered acacia. 6 lithics, flake/waste material.

**HERITAGE STATUS** Evidence of stone tool manufacture and use during the MSA/LSA

**POTENTIAL IMPACTS & PROPOSED MITIGATION** -

SITE NO	COORDINATES		PERIOD
RTN07	29°25'30.36"S	22°19'32.46"E	19 <sup>th</sup> 20 <sup>th</sup> C



**OBSERVATIONS:** Western slope of ridge, derelict asbestos ore crushing/process and the loading bay of stonework and concrete.

<b>HERITAGE STATUS</b>	Early modern mining
<b>POTENTIAL IMPACTS &amp; PROPOSED MITIGATION</b>	Structure worthy of protection

SITE NO	COORDINATES		PERIOD
RTN08a	29°24'55.70"S	22°20'7.10"E	MSA/LSA



**OBSERVATIONS:** A saddle on the western slope of the ridge. A small rectangular structure of dressed dolomite blocks, low rough walling to the south.

<b>HERITAGE STATUS</b>	Remains of a cattle post, or mining camp
<b>POTENTIAL IMPACTS &amp; PROPOSED MITIGATION</b>	Worthy of protection

SITE NO	COORDINATES		PERIOD
RTN08b	29°24'55.70"S	22°20'7.10"E	MSA/LSA

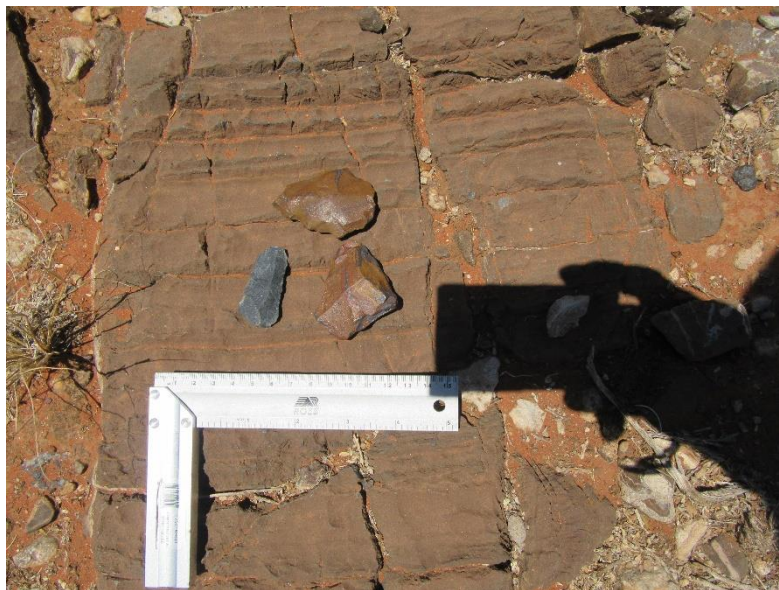


**OBSERVATIONS:** Saddle on the western slope of the ridge, exposures of dolomite. Quiver aloes. 4 lithics – flakes/points and scrapers.

<b>HERITAGE STATUS</b>	Evidence of stone tool manufacture and use during the MSA/LSA
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<b>POTENTIAL IMPACTS &amp; PROPOSED MITIGATION</b>	-
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SITE NO	COORDINATES		PERIOD
RTN09	29°23'44.00"S	22°19'27.70"E	MSA/LSA



**OBSERVATIONS:** Near the northwest boundary of the farm, foot of the ridge, exposures of dolomite bedrock. 3 lithics including a blade and scraper.

<b>HERITAGE STATUS</b>	Evidence of stone tool manufacture and use during the MSA/LSA		
<b>POTENTIAL IMPACTS &amp; PROPOSED MITIGATION</b>	-		



SITE NO	COORDINATES		PERIOD
RTN10	29°27'21.50"S	22°20'13.30"E	MSA/LSA



**OBSERVATIONS:** Near the south-eastern end of the farm, gritty surface. 6 lithics, waste material.

<b>HERITAGE STATUS</b>	Evidence of stone tool manufacture and use during the MSA/LSA
<b>POTENTIAL IMPACTS &amp; PROPOSED MITIGATION</b>	-

SITE NO	COORDINATES		PERIOD
RTN11	29°27'21.50"S	22°20'21.40"E	MSA/LSA



**OBSERVATIONS:** Near the southern end of the farm, gritty surface with calcretic waste. 5 lithics, flake waste.

<b>HERITAGE STATUS</b>	Evidence of stone tool manufacture and use during the MSA/LSA	
<b>POTENTIAL IMPACTS &amp; PROPOSED MITIGATION</b>	-	

SITE NO	COORDINATES		PERIOD
RFN12	29°26'32.90"S	22°19'30.00"E	MSA/LSA



**OBSERVATIONS:** Near the southern end of the farm. Gritty surface predominantly quartzite. 2 lithics, chert and quartzite flakes.

<b>HERITAGE STATUS</b>	Evidence of stone tool manufacture and use during the MSA/LSA
<b>POTENTIAL IMPACTS &amp; PROPOSED MITIGATION</b>	-

SITE NO	COORDINATES		PERIOD
RFN13	29°27'6.70"S	22°19'4.80"E	MSA/LSA



**OBSERVATIONS:** Western boundary of property near the southern end. Elevated stony area surrounded by Kalahali sands. 3 lithics including 2 scrapers and possible backed flake tool.

**HERITAGE STATUS** Evidence of stone tool manufacture and use during the MSA/LSA

**POTENTIAL IMPACTS & PROPOSED MITIGATION** -

SITE NO	COORDINATES		PERIOD
RFN14	29°25'35.45"S	22°18'46.79"E	MSA/LSA



**OBSERVATIONS:** Farmstead. The main house has a hipped roof, two chimneys, red-brown face brick. A minor building was dated 31/5/1968 in wet cement.

**HERITAGE STATUS** Structures exemplify farmsteads in the broader area.

**POTENTIAL IMPACTS & PROPOSED MITIGATION** -

## GLOSSARY

**Archaeological material:** remains older than 100 years, resulting from human activities left as evidence of their presence, which are in the form of structure, artefacts, food remains and other traces such as rock paintings or engravings, burials, fireplaces etc.

**Artefact:** Any movable object that has been used modified or manufactured by humans.

**Catalogue:** An inventory or register of artefacts and / or sites.

**Conservation:** All the processes of looking after a site or place including maintenance, preservation, restoration, reconstruction and adaptation.

**Cultural Heritage Resources:** refers to physical cultural properties such as archaeological sites, palaeontological sites, historic and prehistoric places, buildings, structures and material remains, cultural sites such as places of rituals, burial sites or graves and their associated materials, geological or natural features of cultural importance or scientific significance. These include intangible resources such as religious practices, ritual ceremonies, oral histories, memories, indigenous knowledge.

**Cultural landscape:** a stretch of land that reflects “the combined works of nature and man” and demonstrates “the evolution of human society and settlement over time, under the influence of the physical constraints and / or opportunities presented by their natural environment and of successive social, economic and cultural forces, both internal and external”.<sup>8</sup>

**Cultural Resources Management (CRM):** the conservation of cultural heritage resources, management and sustainable utilization for present and future generations.

**Cultural Significance:** is the aesthetic, historical, scientific and social value for past, present and future generations.

**Early Iron Age:** refers to cultural remains dating to the first millennium AD associated with the introduction of metallurgy and agriculture.

**Early Stone Age:** a long and broad period of stone tool cultures with chronology ranging from around 3 million years ago up to the transition to the Middle Stone Age around 250 000 years ago.

**Excavation:** a method in which archaeological materials are extracted from the ground, which involves systematic recovery of archaeological remains and their context by removing soil and any other material covering them.

**Historic material:** means remains resulting from human activities, which are younger than 100 years and no longer in use; that include artefacts, human remains and artificial features and structures.

**Historical:** means belonging to the past, but often specifically the more recent past, and often used to refer to the period beginning with the appearance of written texts.

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<sup>8</sup> This definition is taken from current terminology as listed on the World Heritage Convention website, URL: <http://whc.unesco.org/en/culturallandscape/#1> accessed 17 March 2016.

**Intangible heritage:** something of cultural value that is not primarily expressed in material form e.g. rituals, knowledge systems, oral traditions or memories, transmitted between people and within communities.

**In situ material:** means material culture and surrounding deposits in their original location and context, for instance archaeological remains that have not been disturbed.

**Later Iron Age:** The period from the beginning of the 2<sup>nd</sup> millennium AD marked by the emergence of complex state society and long-distance trade contacts.

**Late Stone Age:** The period from  $\pm$  30 000 years ago up until the introduction of metals and farming technology around 2000 years ago, but overlapping with the Iron Age in many areas up until the historical period.

**Middle Stone Age:** a period of stone tool cultures with complex chronologies marked by a shift towards lighter, more mobile toolkit, following the Early Stone Age and preceding the Late Stone Age; the transition from the Early Stone Age was a long process rather than a specific event, and the Middle Stone Age is considered to have begun around 250 000 years ago, seeing the emergence of anatomically modern humans from about 150 000 years ago, and lasting until around 30 000 years ago.

**Monuments:** architectural works, buildings, sites, sculpture, elements, structures, inscriptions or cave dwellings of an archaeological nature, which are outstanding from the point of view of history, art and science.

**Place:** means site, area, building or other work, group of buildings or other works, together with pertinent contents, surroundings and historical and archaeological deposits.

**Preservation:** means the protecting and maintaining of the fabric of a place in its existing state and retarding deterioration or change, and may include stabilization where necessary.

**Rock Art:** various patterned practices of placing markings on rock surfaces, ranging in Southern Africa from engravings to finger paintings to brush-painted imagery.

**Sherds:** ceramic fragments.

**Significance grading:** Grading of sites or artefacts according to their historical, cultural or scientific value.

**Site:** a spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

**Site Recording Template:** a standard document format for site recording.

## DETAILS OF SPECIALIST

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First names : Edward  
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### (i) Academic qualifications

2011: Ph.D. in Archaeology & Heritage (Uppsala University, Sweden) with a published Thesis  
1993: MPhil in Archaeology (Uppsala University, Sweden) with a published Thesis  
2002. Certificate in the Integrated Conservation of Territories and Landscapes of Heritage Value (ICCROM, Rome)

### (ii) Professional experience

1988-1993: Curator of Archaeology, Museum of Human Sciences, Harare  
1994-1997: Senior Curator / Conservator, Great Zimbabwe World Heritage Site  
1997-2004: Director, Great Zimbabwe World Heritage Site  
2005 – 2016: Heritage Management Consultant (associateship with various other specialists), South Africa  
2016 – present. Director & Principal Researcher, AHSA Archaeological and Heritage Services Africa (Pty) Ltd

### (iii) Membership in professional bodies/associations

ASAPA – Association of Southern African Professional Archaeologists  
ICOMOS – International Council of Monuments and Sites  
WAC – World Archaeological Congress

### (iv) Heritage Impact Assessments

Edward Matenga has undertaken more than 100 heritage impact assessments and written as many reports. The reports were to enable various development projects including mining, public infrastructure development (e.g. agriculture, water reticulation) and power



distribution. In this regard Matenga has a significant footprint in the Northern Cape, Northwest and Limpopo Provinces, and he has also undertaken similar work in Mauritius.

Matenga has also been involved in the preparation of Heritage Management Plans otherwise known as Conservation Management Plans for high-profile sites, e.g. the ten sites in the World Heritage Nomination Dossier for the Nelson Mandela Legacy sites, which was submitted to UNESCO.

Matenga has undertaken exhumations and relocations of graves and has gained considerable experience in handling community issues relating to the treatment of human remains.

Matenga is a former Director of a World Heritage Site. Over the last 2 decades, UNESCO and its affiliated bodies (ICOMOS and ICCROM) sent him on World Heritage advisory missions to Cameroon (2002), Kenya (2006), Mauritius (2007), Ghana (2008) and Ethiopia (2010).