

**HERITAGE IMPACT ASSESSMENT:
PROPOSED PROSPECTING ON PLOT 226 VIOOLSDRIFT
SETTLEMENT, NAMAKWALAND MAGISTERIAL DISTRICT,
NORTHERN CAPE PROVINCE**

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

SAHRA Case ID: TBC

Report for:

N.J. van Zyl
P.O. Box 255
Springbok
8240

Email: klaaskraalbos@gmail.com

On behalf of:

Northern Cape Lithium and Tungsten (Pty) Ltd



Dr Jayson Orton
ASHA Consulting (Pty) Ltd
40 Brassie Street, Lakeside, 7945
Tel: (021) 788 1025 | 083 272 3225
Email: jayson@asha-consulting.co.za

21 April 2023

SUMMARY

ASHA Consulting (Pty) Ltd was appointed by N.J. van Zyl to assess the potential impacts to heritage resources that might occur through proposed prospecting activities on Plot 226 of the Vioolsdrif Settlement, Namakwaland Magisterial District, Northern Cape. The site straddles the N7 road and its mid-point lies about 12 km south of the Orange River and 36 km north of Steinkopf at S28° 56' 50" E17° 42' 30". The study area is an inverted T-shape and extends some 11 km north-south and 30 km west-east.

It is a dry landscape characterised by sandy plains and rocky hills. Vegetation is scarce. Old mining traces appear to be quite common and post-date the 1930s.

The desktop review notes that Stone Age sites tend to be very rare in this landscape. Occupation sites and rock art could possibly occur, but most archaeology is expected to take the form of isolated stone artefacts. More recent traces include the remains of stock posts. Mining-related heritage resources are not expected to occur. The landscape has cultural significance for its aesthetic value and the N7 is regarded as a locally significant scenic route.

Due to the nature of the proposed activity and the expected distribution of heritage resources, significant impacts are highly unlikely, but could still occur. These would be to fossils, archaeology and/or graves, but the probability of negative impacts is very small.

It is recommended that the proposed prospecting be authorised, but subject to the following recommendations which should be included as conditions of authorisation:

- Once the drilling locations are known, a map should be provided to an archaeologist for desktop analysis. If any potentially sensitive areas cannot be avoided then a brief site visit should be carried out to confirm sensitivity and, in consultation with the prospecting geologists, propose alternative nearby drill sites. An opinion should then be expressed in a letter that should be submitted to SAHRA confirming whether or not drilling may proceed;
- Regardless of the above archaeological opinion, all drill sites should be carefully inspected by project staff to ensure that no heritage features are present;
- A fossil Chance Finds Procedure must be included in the project EMPr and implemented in the event of any chance finds of fossils, and
- 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 200 000 years ago.

Holocene: The geological period spanning the last approximately 10-12 000 years.

Hominid: a group consisting of all modern and extinct great apes (i.e., gorillas, chimpanzees, orangutans and humans) and their ancestors.

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.

Pleistocene: The geological period beginning approximately 2.5 million years ago and preceding the Holocene.

Abbreviations

APHP: Association of Professional Heritage Practitioners

ASAPA: Association of Southern African Professional Archaeologists

BA: Basic Assessment

CRM: Cultural Resources Management

DMRE: Department of Mineral Resources and Energy

EA: Environmental Authorisation

EMPr: Environmental Management Program

ESA: Early Stone Age

GP: General Protection

GPS: global positioning system

HIA: Heritage Impact Assessment

LSA: Later Stone Age

MSA: Middle Stone Age

NBKB: Ngwao-Boswa Ya Kapa Bokoni

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

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

PPP: Public Participation Process

REDZ: Renewable Energy Development Zone

SAHRA: South African Heritage Resources Agency

SAHRIS: South African Heritage Resources Information System

Contents

Glossary.....	iii
Abbreviations	iii
1. INTRODUCTION	6
1.1. The proposed project	7
1.1.1. Project description	7
1.1.2. Identification of alternatives.....	8
1.1.3. Aspects of the project relevant to the heritage study.....	8
1.2. Terms of reference	8
1.3. Scope and purpose of the report	8
1.4. The author	9
1.5. Declaration of independence	9
2. LEGISLATIVE CONTEXT	9
2.1. National Heritage Resources Act (NHRA) No. 25 of 1999	9
2.2. Approvals and permits.....	10
2.2.1. Assessment Phase	10
2.2.2. Construction Phase	10
2.3. Guidelines	11
3. METHODS.....	11
3.1. Literature survey and information sources	11
3.2. Specialist studies.....	12
3.3. Grading	12
3.4. Consultation.....	12
3.5. Assumptions and limitations	12
4. PHYSICAL ENVIRONMENTAL CONTEXT	12
4.1. Site context	12
4.2. Site description	13
5. FINDINGS OF THE HERITAGE STUDY	14
5.1. Palaeontology	14
5.2. Archaeology	14
5.3. Graves	15
5.4. Historical aspects and the built environment	16
5.5. Living heritage	17
5.6. Cultural landscapes and scenic routes	18
5.7. Statement of significance and provisional grading	18
6. ASSESSMENT OF IMPACTS	19
6.1. Impacts to archaeological resources and graves	19
6.2. Cumulative impacts	20
6.3. Evaluation of impacts relative to sustainable social and economic benefits.....	20
6.4. Existing impacts to heritage resources.....	20
6.5. The No-Go alternative	20
6.6. Levels of acceptable change	20

7. INPUT TO THE ENVIRONMENTAL MANAGEMENT PROGRAMME	21
8. CONCLUSIONS	21
8.1. Reasoned opinion of the specialist.....	22
9. RECOMMENDATIONS	22
10. REFERENCES	22
APPENDIX 1 – Curriculum Vitae	24

1. INTRODUCTION

ASHA Consulting (Pty) Ltd was appointed by N.J. van Zyl to conduct an assessment of the potential impacts to heritage resources that might occur through proposed prospecting activities on Plot 226 of the Vioolsdrif Settlement, Namakwaland Magisterial District, Northern Cape. The site straddles the N7 road and its mid-point lies about 12 km south of the Orange River and 36 km north of Steinkopf at S28° 56' 50" E17° 42' 30" (Figures 1 & 2). The study area is an inverted T-shape and extends some 11 km north-south and 30 km west-east.

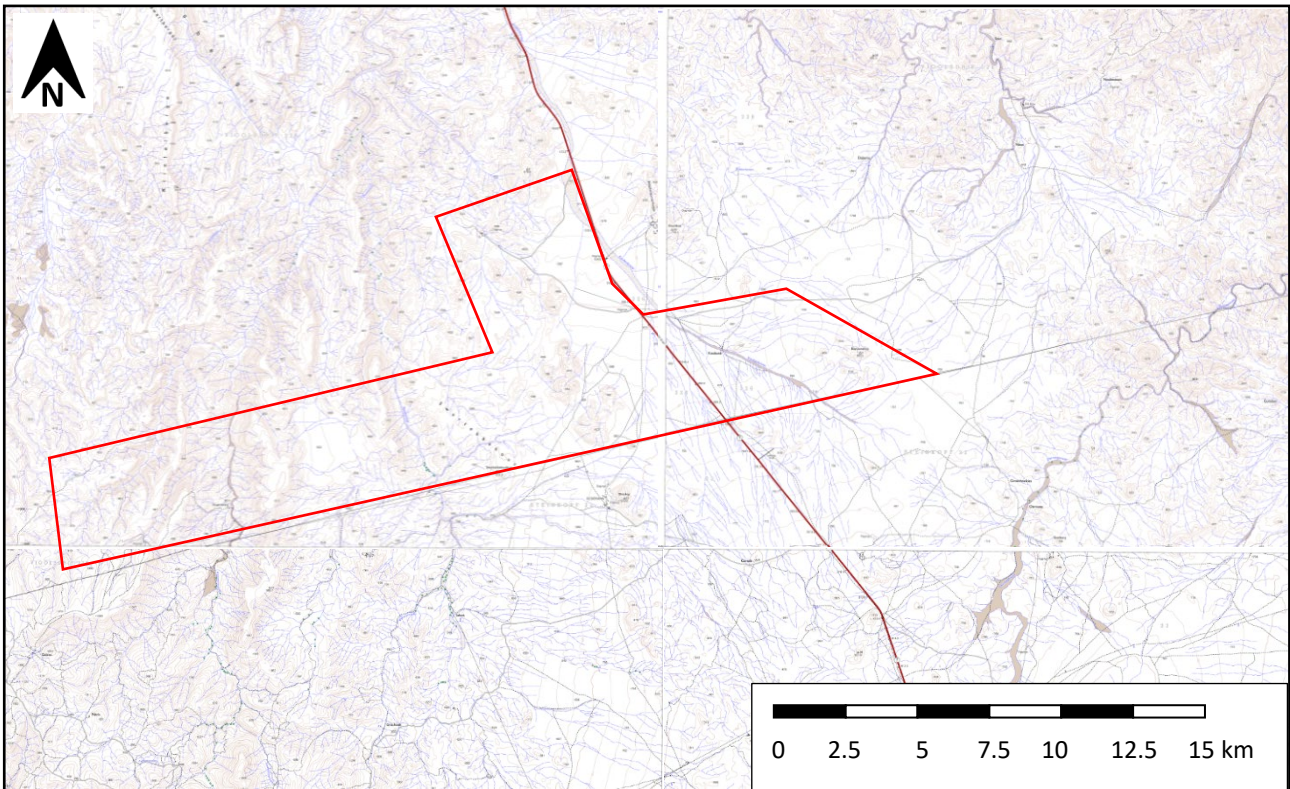


Figure 1: Extract from 1:50 000 topographic maps 2817DC, 2817DD, 2917CA & 2917CB showing the location of the site (red polygon). The N7 road passes from south to north through the centre of the map. Source of basemap: Chief Directorate: National Geo-Spatial Information. Website: www.ngi.gov.za.



Figure 1: Aerial view of Plot 226 (green polygon) bordering on the orange river in the north and showing the study area (red polygon) along its southern edge.

1.1. The proposed project

1.1.1. Project description

The proposed prospecting will be undertaken over a five-year period as follows:

<u>Phase</u>	<u>Activity</u>	<u>Duration</u>
1	Investigation & surface surveys	2 years
2	Drilling & assay	2 years
3	Compilation & reporting	1 year

Phases 1 and 3 will not result in any invasive/destructive activities (other than obtaining small rock samples by hand during Phase 1). Phase 2, however, involves drilling on site and will have the potential to impact heritage resources. This phase is directly relevant to this assessment.

Phase 2 may include both reverse circulation (RC) drilling as well as diamond/core drilling. Both methods make use of a truck-mounted drill rig as shown in Figure 3. The areas of most interest identified during the Phase 1 work would be the targets of the drilling program. RC drill holes would be spaced about 200 m apart with the locations informed by the results of Phase 1. Where further information is required, core drilling will be undertaken in between the RC holes. Drill depth in all cases is expected to be about 100 m to 120 m.



Figure 3: Example of a truck-mounted drill rig similar to that which would be used for this project.

1.1.2. Identification of alternatives

There are no alternatives for this project. The project location, technology and layouts are all suited to the prospecting as proposed and no feasible alternatives exist. As such, this assessment proceeds on the basis of a preferred alternative and the No-Go alternative only.

1.1.3. Aspects of the project relevant to the heritage study

The only aspect of concern to this study is the drilling stage (Phase 2). Other samples taken in Phase 1) will be too small to be of concern and will not result in significant impacts. However, the drilling will require bringing a drilling rig onto the site and this could result in damage to heritage resources, especially archaeological resources that are not readily identifiable by lay people.

1.2. Terms of reference

ASHA Consulting was asked to compile a heritage impact assessment (HIA) that assessed all relevant heritage resources and made recommendations to minimise impacts to such resources during implementation of the project. Because physical intervention sites for drilling cannot be identified until after the project has commenced, the work was to be done from the desktop.

1.3. Scope and purpose of the report

An 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 by them for consideration by the Department of Mineral Resources and Energy (DMRE) who will review the Basic Assessment (BA) and grant or refuse authorisation. The HIA report will outline any management and/or 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 South Africa (primarily in the Western Cape and Northern Cape provinces) since 2004 (please see curriculum vitae included as Appendix 1). He has also conducted research on aspects of the Later Stone Age in these provinces and published widely on the topic. He is an accredited heritage practitioner with the Association of Professional Heritage Practitioners (APHP; Member #43) and also holds archaeological accreditation 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. LEGISLATIVE CONTEXT

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

The NHRA protects a variety of heritage resources as follows:

- Section 34: structures older than 60 years;
- Section 35: prehistoric and historical material (including ruins) more than 100 years old as well as military remains more than 75 years old, palaeontological material and meteorites;
- 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.”

Section 3(3) describes the types of cultural significance that a place or object might have in order to be considered part of the national estate. These are as follows:

- a) its importance in the community, or pattern of South Africa’s history;
- b) its possession of uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage;
- c) its potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage;
- d) its importance in demonstrating the principal characteristics of a particular class of South Africa’s natural or cultural places or objects;
- e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- i) sites of significance relating to the history of slavery in South Africa.

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, some of the points in Section 3(3) speak directly to cultural landscapes.

2.2. Approvals and permits

2.2.1. Assessment Phase

Section 38(8) of the NHRA states that if an impact assessment is required under any legislation other than the NHRA then it must include a heritage component that satisfies the requirements of S.38(3). Furthermore, the comments of the relevant heritage authority must be sought and considered by the consenting authority prior to the issuing of a decision. Under the National Environmental Management Act (No. 107 of 1998; NEMA), as amended, the project is subject to a BA. The present report provides the heritage component. The Development Applications Unit of the South African Heritage Resources Agency (SAHRA) is required to provide comment on the proposed project in order to facilitate final decision making by the DMRE.

2.2.2. Construction Phase

If archaeological or palaeontological mitigation is required prior to construction, then the appointed archaeologist or palaeontologist would need to obtain a permit from SAHRA. This would be issued in their name. This is so that the heritage authority can ensure that the appointed practitioner has proposed an appropriate methodology that will result in the mitigation being undertaken properly. A built environment permit, if required, would need to be obtained from the PHRA.

2.3. Guidelines

SAHRA has issued minimum standards documents for archaeological and palaeontological specialist studies. There is also a Western Cape Provincial guideline for heritage specialists working in an EIA context and which is generally useful. The reporting has been prepared in accordance with these guidelines. The relevant documents are as follows:

- SAHRA. 2007. Minimum Standards: archaeological and palaeontological components of impact assessment reports. Document produced by the South African Heritage Resources Agency, May 2007.
- Winter, S. & Baumann, N. 2005. Guideline for involving heritage specialists in EIA processes: Edition 1. CSIR Report No ENV-S-C 2005 053 E. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town.

3. METHODS

3.1. Literature survey and information sources

A survey of available literature was carried out to assess the general heritage context into which the development would be set. The information sources used in this report are presented in Table 1 with relevant dates of each source referenced in the text as needed. Because drilling locations are not yet known, no field survey was undertaken with the entire assessment done from the desktop. The data quality is suitable for the purpose of informing this report.

Table 1: Information sources used in this assessment.

Data / Information	Source	Date	Type	Description
Maps	Chief Directorate: National Geo- Spatial Information	Various	Spatial	Historical and current 1:50 000 topographic maps of the study area and immediate surrounds
Aerial photographs		Various	Spatial	Historical aerial photography of the study area and immediate surrounds
Aerial photographs	Google Earth	Various	Spatial	Recent and historical aerial photography of the study area and immediate surrounds
Cadastral data	Chief Directorate: National Geo- Spatial Information	Various	Survey diagrams	Historical and current survey diagrams, property survey and registration dates
Background data	South African Heritage Resources Information System (SAHRIS)	Various	Reports	Previous impact assessments for any developments in the vicinity of the study area
Palaeontological sensitivity		Current	Spatial	Map showing palaeontological sensitivity and required actions based on the sensitivity.
Background data	Books, journals, websites	Various	Books, journals, websites	Historical and current literature describing the study area and any relevant aspects of cultural heritage.

3.2. Specialist studies

Due to the area of unknown palaeontological sensitivity in the west, a specialist palaeontological assessment was commissioned. This was undertaken by Prof. Marion Bamford and is submitted separately along with this HIA.

3.3. Grading

S.7(1) of the NHRA provides for the grading of heritage resources into those of National (Grade I), Provincial (Grade II) and Local (Grade III) significance. Grading is intended to allow for the identification of the appropriate level of management for any given heritage resource. Grade I and II resources are intended to be managed by the national and provincial heritage resources authorities respectively, while Grade III resources would be managed by the relevant local planning authority. These bodies are responsible for grading, but anyone may make recommendations for grading.

It is intended under S.7(2) 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. SAHRA (2007) has formulated its own system¹ for use in provinces where it has commenting authority. In this system sites of high local significance are given Grade IIIA (with the implication that the site should be preserved in its entirety) and Grade IIIB (with the implication that part of the site could be mitigated and part preserved as appropriate) while sites of lesser significance are referred to as having 'General Protection' (GP) and rated as GP A (high/medium significance, requires mitigation), GP B (medium significance, requires recording) or GP C (low significance, requires no further action).

3.4. Consultation

The NHRA requires consultation as part of an HIA but, since the present study falls within the context of an EIA which includes a public participation process (PPP), no dedicated consultation was undertaken as part of the HIA. Interested and affected parties would have the opportunity to provide comment on the heritage aspects of the project during the PPP.

3.5. Assumptions and limitations

The study was carried out from the desktop. This was because the locations of drill sites have yet to be determined which means that a ground survey cannot yet be planned. While this is a restriction in terms of the locations of actual heritage resources that might be present, enough work has been done in the general area to allow an appraisal of the types of heritage to be expected on site, to understand their likely distribution, and allow for appropriate recommendations to be formulated. Cumulative impacts are difficult to assess due to the variable site conditions that would have been experienced in different areas and in different seasons. Survey quality is thus likely to be variable. As such, some assumptions need to be made in terms of what and how much heritage might be impacted by other developments in the broader area.

4. PHYSICAL ENVIRONMENTAL CONTEXT

4.1. Site context

The site is located in a generally undeveloped area which is predominantly a natural environment. Mining and prospecting are common activities in the area as is evident from the mining symbols on the geological maps (Figure 4). Tungsten (W) has been the most commonly mined commodity. The site is bisected by the N7 National Road but other access in the area is limited to small gravel and sand tracks.

¹ The system is intended for use on archaeological and palaeontological sites only.

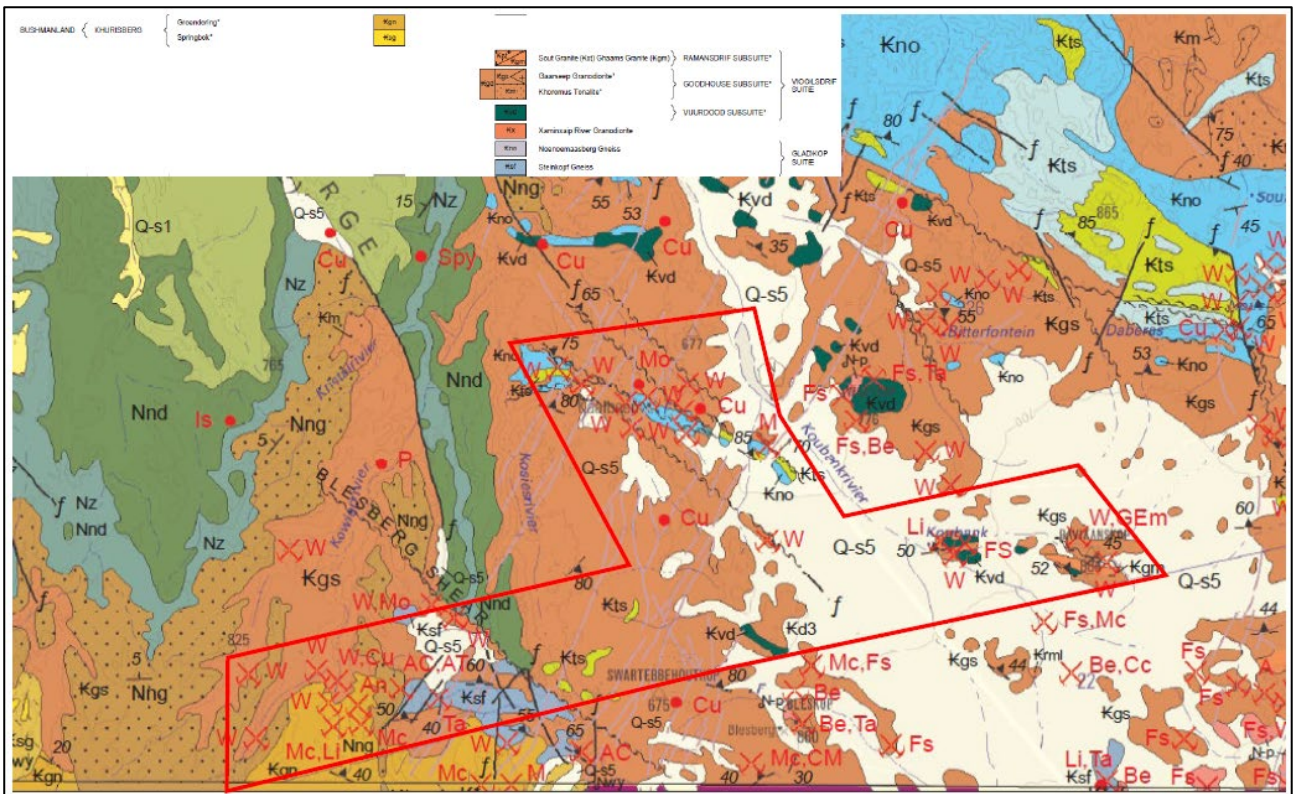


Figure 4: Geological map of the study area showing the extent of existing mining (red symbols). Source: Section 4.3 of the Prospecting Work Plan.

4.2. Site description

The study area has flat sandy plains in the east, punctuated by small rocky hills. The western part is dominated by granite/gneiss hills. Both areas have minimal vegetation. Figure 5 shows the area as seen in satellite photography.

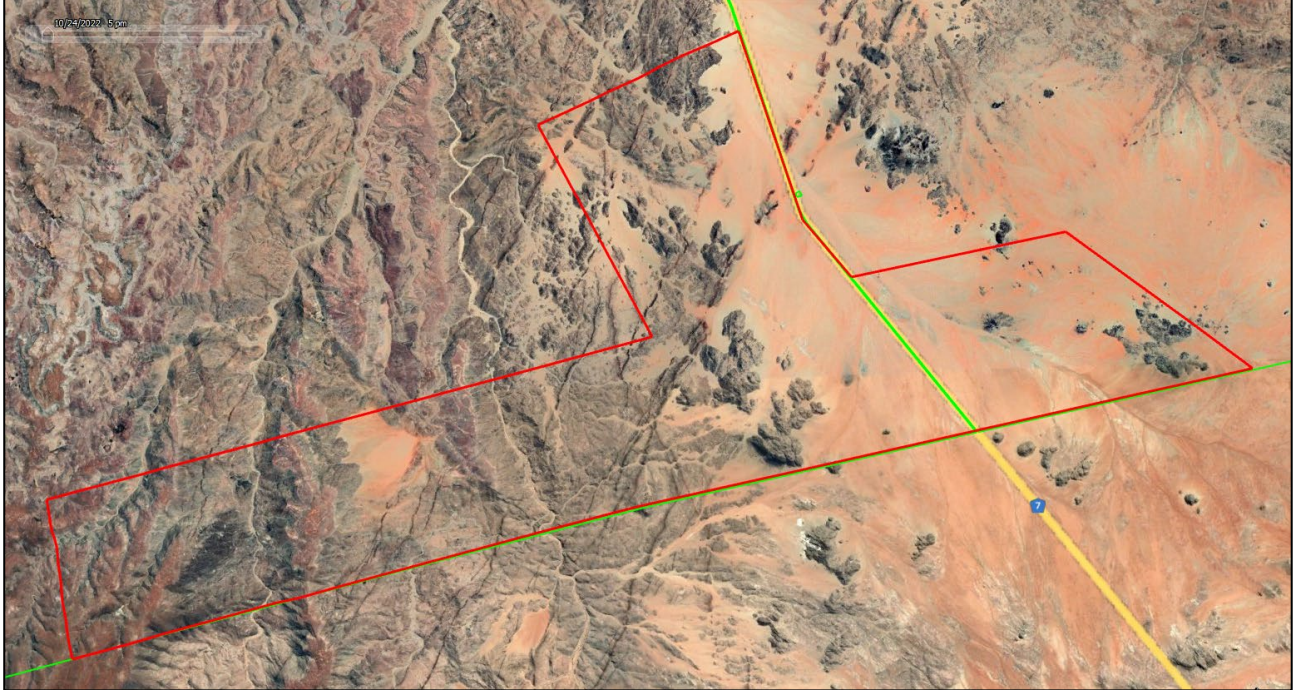


Figure 5: Aerial view of the study area (red polygon) showing the rocky nature of the western part and sandier nature of the eastern part.

5. FINDINGS OF THE HERITAGE STUDY

This section describes the heritage resources recorded in the study area during the course of the project.

5.1. Palaeontology

The SAHRIS Palaeosensitivity Map shows the site to be of variable sensitivity. Parts are zero and low sensitivity, but the western area is unknown (Figure 6). Bamford's (2023) report summarises the fossil potential and indicates that the entire area should be considered as of low to zero sensitivity. There is, nonetheless, a small chance of finding fossils in unconsolidated deposits.

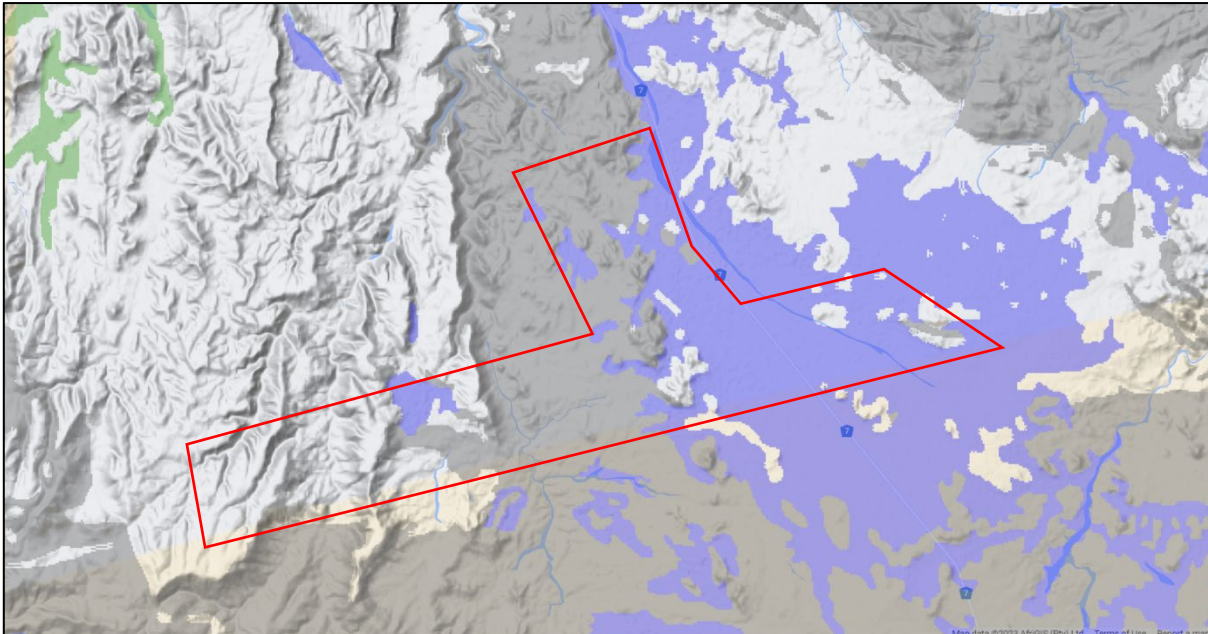


Figure 6: Extract from the SAHRIS Palaeosensitivity Map showing the site to be of zero (grey shading), low (blue shading) and unknown (clear) sensitivity.

5.2. Archaeology

Archaeological research in Namaqualand has been focussed on the coast (Dewar 2007; Orton 2012), the Kamiesberg mountains (Webley 1992) and the Richtersveld, especially along the Orange River (Orton & Halkett 2010; Robertshaw 1978; Webley 1992). Archaeological occurrences in some areas are rich and varied (Morris 2018) and range from the Early Stone Age to the Later Stone Age, the latter being more common. While some chronological frameworks have been developed for certain areas, as Kaplan (2016) points out, there have been no academic studies in the Springbok area and surrounds. There have, however, been a number of CRM studies which form the basis of the review below.

Isolated artefacts or very low-density background scatters from the Early (ESA), Middle (MSA) and Late Stone Ages (LSA) have been reported from various areas (e.g., Kaplan 2016; Morris 2018; Smith 2013). They tend to occur on the sandy sediments of the valleys and plains and not on the rocky hills which are largely devoid of Stone Age archaeological traces. LSA sites and occurrences are the most predominant significant pre-colonial heritage resources noted in surveys in the area, but they are still rare. They tend to be concentrated on water sources and where some possibilities of shelter occur. Pans, springs, rock shelters and in the lee of koppies are likely locations.

An important aspect of precolonial heritage is rock art. Although they occur on limestone along the Orange River, engravings would not occur in igneous geology and are not relevant here. Rare rock paintings are known on granite rock faces though. No painted sites are known from within the study area but geometric paintings are known from the Kamiesberg Mountains, close to and south of Springbok, as well as within isolated rocky hills to the east of Springbok. Geometric art has been linked by several authors to the Khoekhoen (Eastwood & Smith 2005; Smith & Ouzman 2004; Van Rijssen 1994).

Very few impact assessments have been done in this area with most of the cases lodged on SAHRIS having no heritage reports attached to them. Kaplan (2021) encountered the same lack of reports when he compiled a desktop study for a mine immediately northeast of the Kaalbeen study area. He describes findings from a number of projects around Springbok, however, and notes that archaeological traces are generally quite sparse. Orton (2019) conducted extensive fieldwork in the Concordia area and this work, in conjunction with Kaplan's (2021) review provide the basis for the notes that follow.

The remains of historical and/or recent stock posts are frequently encountered in the area with some still being seasonally occupied. They include the locations where huts were situated, cooking areas, an ash and rubbish dump and occasionally a threshing floor (these latter are also found on their own and would almost certainly all post-date the mid-19th century, since wheat was only cultivated after mission stations were established in the area). Some of the older stockposts and threshing floors could legally be archaeological if more than 100 years old and, no matter what the age, they are also regarded as places associated with living heritage (see Section 5.5 where stockposts are also described in more detail). Without fieldwork, it is not known whether such sites occur in the study area.

Stone Age archaeological sites seem to be rare, both in the granite hills and on the sandy plains, although isolated stone artefacts (usually quartz) are fairly regularly seen, with most being in areas suitable for occupation (i.e., sheltered locations, or places close to a water source). Faded rock art and some artefacts were reported from a boulder overhang close to Concordia (Kaplan 2010). This is the nearest known rock art to the study area. On revisiting this site it was found to be of high significance with several geometric images, a stone kraal, some lower grindstones and vast numbers of artefacts, including some historical ones (Orton, own data). Such sites are very rare. Traces of historical mining also occur, with tungsten known to have been mined in the area from the 1930s until the 1960s and then again briefly in about the late 1970s (P. Hibberd pers. comm. to N. van Zyl 2023). These mining traces are very light in terms of the larger landscape and are difficult to identify on historical aerial photography. Nonetheless, a review of historical aerial photography shows that some of these mining traces are recent and that associated infrastructure is rare. With mining unlikely to be older than 100 years, it is likely that none of these mining traces will be archaeological.

5.3. Graves

Most graves are likely to occur within formal graveyards. Because such graveyards always occur close to current/historical settlements (e.g., Orton 2019), none are expected to occur in the study area. However, there are two possible aspects of concern. The first is that historical graves from the last approximately 200 years can be present singly or in small clusters related to stockposts and farmsteads. These graves will almost always be identifiable at the surface through the presence of stone-packed mounds and/or head and footstones; an example of such an isolated grave was recorded by Kaplan (2010). The second aspect is the possibility of unmarked precolonial burials

being present. Such graves are not readily identified because grave markings such as lower grindstones are generally placed below the ground surface. Their locations can never be predicted and they can only be dealt with at the time of discovery. Such finds are expected to be extremely unlikely though.

5.4. Historical aspects and the built environment

The vicinity of Springbok, Nababeep and Concordia has a long history of copper mining and several mining-related sites and structures in that area are declared Provincial Heritage Sites. After an initial foray by Simon van der Stel in 1685, it was only in the mid-19th century that commercial mining commenced. This mining all occurred well to the south of the current study area and the history has been documented elsewhere (Okiep Copper Company 1952; Smalberger 1975). Many small-scale mining ventures have been undertaken within the current study area but, as far as can be seen on aerial photography, they involve no or minimal infrastructure. The only buildings seen on aerial photography are associated with a recent mine to the northeast of the current study area. A possibly historical feature within the study area is situated on the crest of a hill in the southern part but is only readily identifiable on relatively recent aerial photography (Figure 7). Topographic maps – including the 1969 Edition 1 map (Figure 8) – indicate the name of the place as ‘Groendoring’ and show a structure. The nature of this structure cannot be determined. Similarly, it is impossible to confirm whether or not it is in ruin, but this seems likely. The site cannot be seen on the earliest (1937) aerial photography. Its hilltop location (Figure 9) suggests that it is more likely a mining-related feature (which suggests an age of less than 100 years) than a stock post. Aside from this, no obvious buildings are visible on aerial photography and the study area appears to be devoid of historical features.



Figure 7: Aerial views of a place indicated as ‘Groendoring’ on topographic maps. The three aerial views are dated July 2011, December 2011 and November 2018 respectively.

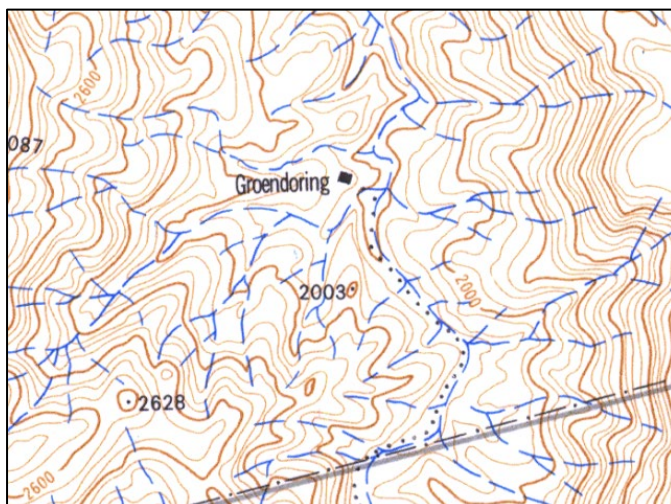


Figure 8: Extract from the 1969 topographic map showing ‘Groendoring’. Map heights are in feet.



Figure 9: Google Earth simulation showing Groendoring to be located on a hilltop within a very large valley (red arrow).

5.5. Living heritage

There is a direct historical link between the small stock farmers in the Steinkopf, Concordia and Richtersveld Communal Lands and the Namaqua Khoekhoen who were encountered by early travellers in the 17th century. Many of the residents of the Concordia, Steinkopf and Richtersveld Communal Reserves are descended from these Nama-speaking pastoralists who at one time practised a transhumant lifestyle across most of Namaqualand. The Trekboer encroachment into the region from the mid-18th century resulted in the Namaqua losing access to their traditional grazing lands and they eventually gravitated towards the mission stations that were established at Leliefontein, Steinkopf, Komaggas, Concordia and the Richtersveld during the 19th century. Residents were granted a “Ticket of Occupation” in the mid-19th century and the Mission Stations and Communal Reserves Act of 1909 placed the communal land under government control.

The mission stations provided a form of social support for the Namaqua, but the establishment of schools and churches in the reserves meant that the inhabitants started practicing a more limited transhumant cycle using the villages as one permanent point in their seasonal cycle. Steinkopf residents were still practicing a limited form of transhumance in 1986 (Webley 2009) but many of the old stockposts have now become semi-permanent settlements.

Stockpost locations are typically situated next to a rocky hill or koppie, where the rock provides some shelter from the elements. Such sites can be expected to occur within the Kaalbeen study area. Stockposts often have one or more kraals, nowadays often enclosed by wire fences, whereas historically they would have been constructed of stone, natural boulders and/or bushes. In the past the inhabitants would stay in Matjies houses made of a lathe framework covered in rush mats, an architectural tradition that dates back to at least the 17th century and was first documented in the

illustrations of early travellers to the Cape. However, these have now been supplanted with corrugated iron houses. Food is often cooked in a separate shelter near the Matjieshuis, known as a “kookskerm”. Other associated elements at the stockpost may include an outside oven made of stone and clay (and more recently incorporating 44-gallon drums), and a threshing floor (“trapvloer”) for threshing of wheat. There is a great deal of similarity between stockposts found in Steinkopf, Concordia and the Richtersveld. They are a tangible example of a rapidly disappearing pastoralist way of life in the communal lands of Namaqualand and a very good example of places associated with “living heritage” as defined in the NHRA. The continuation of traditional practices, for example the outdoor cooking shelters sometimes seen outside houses and the rock and earth ovens, shows that, although life has changed considerably for the local populations, their living heritage remains alive in the area.

Many features related to this living heritage, such as kraals, house floors, threshing floors and other related features have been recorded in the general area, though these are most frequently located in surveys closer to the historical mission stations (Gaigher 2012; Kaplan 2010; Orton 2018, 2019; Smith 2013).

5.6. Cultural landscapes and scenic routes

Cultural landscapes are the product of the interactions between humans and nature in a particular area. Sauer (1925) defined them thus: “The cultural landscape is fashioned from a natural landscape by a cultural group. Culture is the agent, the natural area is the medium, the cultural landscape the result”.

The cultural landscape is largely a natural landscape with a primeval character that has scenic beauty and, during flower season, great tourism value to the surrounding area. The rocky mountains with their granite boulders and domes and intervening sandy plains create a primeval landscape with considerable aesthetic qualities. The many small-scale mines occurring in the area have added an industrial/mining component to the landscape but their small scale means that they are barely noticeable in the landscape.

Namaqualand is very well-known for its natural beauty and in this regard the N7 is seen as an important scenic route. It is also the route that links South Africa with Namibia.

5.7. Statement of significance and provisional grading

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 reasons that a place may have cultural significance are outlined in Section 3(3) of the NHRA (see Section 2 above).

The potential palaeontological resources are deemed to have low cultural significance for their scientific value, although a very small possibility of finding higher significance materials does exist in the region. Although difficult to grade as yet undiscovered fossils, the potential palaeontological resources of the region can be regarded as being no more than grade GPA.

Stone Age archaeological traces are very rare in this landscape and most materials are expected to be isolated artefacts of very low significance (GPC). Sites would likely occur in sheltered areas in the lee of boulders or in rock shelters and such sites could be of high cultural significance for their

scientific value and be up to grade IIIA, especially if they contain rock art. The chances of such finds, however, are very low. The vast majority of Stone Age resources would likely not merit more than Grade GPC.

Graves could be present within the study area and would have high cultural significance for their social value and would be graded IIIA.

The built heritage of the wider area is generally of no more than medium cultural significance for its architectural, historical and social values. Although four PHSs do occur near Springbok and are thus Grade II resources, they are all well outside of the present study area.

The cultural landscape of the area is considered to be of medium significance for its aesthetic value. The N7 is a scenic route of high local significance.

Aside from the cultural landscape, no specific heritage resources are known from within the study area and thus none are mapped.

6. ASSESSMENT OF IMPACTS

While palaeontological heritage is assessed in the separate specialist study, impacts to archaeology and graves are considered here. No impacts to built heritage are expected and impacts to the cultural landscape are likely to be so small as to be negligible. These aspects are thus not assessed further. Impacts could occur during any phase of work, although most would likely occur during construction (accessing the drill locations, grubbing as may be required, and setting up of the drill rig). Operation (drilling) and decommissioning (rehabilitation) are less likely to result in impacts.

6.1. Impacts to archaeological resources and graves

Direct impacts to archaeological resources could occur during all phases of any drilling that takes place. However, such resources are generally rare on the landscape. Because of the very low likelihood of resources being present, the impact significance before and after mitigation is rated as **low negative** (Table 2). The only mitigation measures that can be applied are to ensure that all visible sites, graves and historical features are avoided during drilling. Advice should be sought from an archaeologist once the drill sites are known in order to assist with this. A field survey of the drill sites and access routes may well be required. Because such prospecting does not typically impact on heritage, the cumulative impacts are similarly of low significance. There are no fatal flaws in terms of archaeology.

Table 2: Assessment of archaeological and built heritage impacts.

Potential impacts on archaeological resources	
Nature and status of impact:	Direct, Negative
Extent and duration of impact:	Local, Permanent
Intensity	Low, but high for graves
Probability of occurrence:	Improbable
Degree to which the impact can be reversed:	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low
Cumulative impact prior to mitigation:	Low
Significance rating of impact prior to mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

Degree to which the impact can be mitigated:	High
Proposed mitigation:	<ul style="list-style-type: none"> • Avoid any visible sites, graves and historical features • Seek specialist archaeological advice prior to drilling
Cumulative impact post mitigation:	Low
Significance rating of impact after mitigation (Low, Medium, Medium-High, High, or Very-High)	Low

6.2. Cumulative impacts

Due to the nature of the proposed prospecting, cumulative impacts are not expected to be of any concern for this project. They are considered to be of low significance.

6.3. Evaluation of impacts relative to sustainable social and economic benefits

Section 38(3)(d) of the NHRA requires an evaluation of the impacts on heritage resources relative to the sustainable social and economic benefits to be derived from the development. There presently is a need for jobs in the area and without prospecting for new ore it will not be possible to establish new mining ventures which could provide jobs. This would be a negative socio-economic impact both in terms of the potential to provide jobs and in terms of reducing the chances of economic investment into the area. Prospecting is, in the long term, thus potentially beneficial to the local economy.

6.4. Existing impacts to heritage resources

There are currently no obvious threats to heritage resources on the site aside from the natural degradation, weathering and erosion that will affect rock art and archaeological materials. These impacts would be of **negligible negative** significance. There are no existing threats to the cultural landscape or any sites associated with living heritage.

6.5. The No-Go alternative

If the project were not implemented then the site would stay as it currently is (impact significance of **neutral**). The no-go alternative would be detrimental to future mining in the area and would thus potentially reduce the inflow of investment into the local economy. Potential new jobs in the mining sector would also not be created. Although it is not yet known whether mining would proceed, the No-Go option might not be the best option in terms of socio-economic benefits. Since significant heritage impacts are not expected, the loss of socio-economic benefits is more significant and suggests that the No-Go option is less desirable in heritage terms.

6.6. Levels of acceptable change

Any impact to an archaeological or palaeontological resource or a grave is deemed unacceptable until such time as the resource has been inspected and studied further if necessary. Impacts to the landscape are difficult to quantify but in general a development that visually dominates the landscape from many publicly accessible vantage points is undesirable. Because of the nature of the proposed prospecting, such an impact to the landscape is not envisaged.

7. INPUT TO THE ENVIRONMENTAL MANAGEMENT PROGRAMME

The actions recorded in Table 3 should be included in the environmental management programme (EMPr) for the project.

Table 3: Heritage considerations for inclusion in the EMPr.

Impact	Mitigation / management objectives & outcomes	Mitigation / management actions	Monitoring		
			Methodology	Frequency	Responsibility
Impacts to archaeology and graves					
Damage or destruction of archaeological sites or graves	Avoid impacts (preferred) or locate and sample or rescue sites/burials before disturbance	Once drilling locations are determined, an archaeologist should examine the locations from the desktop to determine whether a survey is required or if any areas should be avoided.	Appoint archaeologist to examine plan and conduct survey if required well before drilling starts	Once-off	Project developer
Damage or destruction of archaeological sites or graves	Rescue information, artefacts or burials before extensive damage occurs	Reporting chance finds as early as possible, protect in situ and stop work in immediate area.	Inform staff to be vigilant when setting up each drill location	Ongoing basis	Contractor
Impacts to fossils					
Damage or destruction of fossils	Locate and protect and/or collect fossils	Apply Chance Finds Procedure if fossils are seen during drilling.	Ensure staff are aware that fossil bones could be seen.	Ongoing basis	Contractor
Impacts to the cultural landscape					
Visible landscape scarring	Minimise landscape scarring	Ensure disturbance is kept to a minimum and does not exceed project requirements. Rehabilitate all disturbed areas.	Monitoring of surface clearance relative to need	Ongoing basis	Contractor

8. CONCLUSIONS

This report has found that Stone Age resources are rare on the wider landscape and are of little to no concern. More recent archaeological remains relate to the use of the landscape by local herders, with some of this use likely to date after the advent of mission stations in the area. Although not of high significance in and of themselves, such traces are also related to living heritage in the area which is significant.

The nature of the proposed prospecting and very small number of surface heritage traces likely to occur means that impacts to significant resources are highly unlikely to occur. For precautionary

reasons, a desktop evaluation of the drill sites will help to further reduce the chances of any impacts and allow for a site inspection if necessary.

No specific buffers are currently required, but this is subject to re-evaluation once the drilling locations are known.

8.1. Reasoned opinion of the specialist

Given the very limited chances of any heritage impacts occurring, it is the opinion of the heritage specialist that the proposed prospecting project may proceed in full.

9. RECOMMENDATIONS

It is recommended that the proposed prospecting be authorised, but subject to the following recommendations which should be included as conditions of authorisation:

- Once the drilling locations are known, a map should be provided to an archaeologist for desktop analysis. If any potentially sensitive areas cannot be avoided then a brief site visit should be carried out to confirm sensitivity and, in consultation with the prospecting geologists, propose alternative nearby drill sites. An opinion should then be expressed in a letter that should be submitted to SAHRA confirming whether or not drilling may proceed;
- Regardless of the above archaeological opinion, all drill sites should be carefully inspected by project staff to ensure that no heritage features are present;
- A fossil Chance Finds Procedure must be included in the project EMP and implemented in the event of any chance finds of fossils; and
- 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

Dewar, G. 2007. *The archaeology of the coastal desert of Namaqualand, South Africa: a regional synthesis*. Unpublished DPhil thesis: University of Cape Town.

Eastwood, E.B. & Smith, B.W. 2005. Fingerprints of the Khoekhoen: geometric and handprinted rock art in the Central Limpopo Basin, southern Africa. *South African Archaeological Society Goodwin Series* 9: 63–76.

Kaplan, J. 2010. Archaeological Impact Assessment of a proposed wind energy facility near Springbok, Northern Cape. Unpublished report for DJ Environmental Consultants.

Kaplan, J. 2016. Heritage Impact Assessment: Namaqualand Regional Water Supply Scheme – upgrade of the water supply pipeline from Okiep to Concordia and Carolusberg, Northern Cape Province. Unpublished report for Enviroafrica.

Morris, D. 2018. Heritage Impact Assessment for the proposed prospecting at Spektakel, Namakwa District Municipality, Northern Cape.

- Okiep Copper Company. 1952. *Namaqualand Copper: 100 years of progress*. Cape Town: R. Beerman Publishers. Accessed online from “Namaqualand Geology & Archaeology” on 5 June 2021 at: https://www.facebook.com/groups/572343416862762?_rdc=1&_rdr.
- Late Holocene archaeology in Namaqualand, South Africa: hunter-gatherers and herders in a semi-arid environment. Unpublished D Phil thesis: University of Oxford.
- Orton, J.D.J. 2012. Late Holocene archaeology in Namaqualand, South Africa: hunter-gatherers and herders in a semi-arid environment. Unpublished D Phil thesis: University of Oxford.
2019. Heritage Impact Assessment: proposed reopening of three copper mines at Concordia, Namakwaland Magisterial District, Northern Cape. Report prepared for N.J. van Zyl. Lakeside: ASHA Consulting (Pty) Ltd.
- Orton, J. & Halkett, D. 2010. Stone tools, beads and a river: two Holocene microlithic sites at Jakkalsberg in the northwestern Richtersveld, Northern Cape. *South African Archaeological Bulletin* 65: 13-25.
- Robertshaw, P.T. 1978. The archaeology of an abandoned pastoralist camp-site. *South African Journal of Science* 74: 29-31.
- SAHRA. 2007. Minimum Standards: archaeological and palaeontological components of impact assessment reports. Document produced by the South African Heritage Resources Agency, May 2007.
- Sauer, C.O. 1925. The Morphology of Landscape. University of California Publications on Geography 2(2): 19-54.
- Smalberger, J.M. 1975. *A history of Copper Mining in Namaqualand*. C. Struik (Pty) Ltd: Cape Town & Johannesburg.
- Smith, A.B. 2013. Proposed Solar PV Facility: Klipdam Farm 134/17 Springbok: A heritage impact assessment. Unpublished report for Footprint Environmental Services.
- Smith, B.W. & Ouzman, S. 2004. Taking stock: identifying Khoekhoen herder rock art in southern Africa. *Current Anthropology* 45: 499–526.
- Van Rijssen, W.J. 1994. Rock art: the question of authorship. In: Dowson, T.A. & Lewis-Williams, D. (eds) *Contested Images: Diversity in Southern African Rock Art Research*: 159–175. Johannesburg: Witwatersrand University Press.
- Webley, L. 1992. The history and archaeology of pastoralist and hunter-gatherer settlement in the North-Western Cape, South Africa. Unpublished DPhil thesis: University of Cape Town.
- Winter, S. & Oberholzer, B. 2013. Heritage and Scenic Resources: Inventory and Policy Framework for the Western Cape. Report prepared for the Provincial Government of the Western Cape Department of Environmental Affairs and Development Planning. Sarah Winter Heritage Planner, and Bernard Oberholzer Landscape Architect / Environmental Planner, in association with Setplan.

APPENDIX 1 – Curriculum Vitae



Curriculum Vitae

Jayson David John Orton

ARCHAEOLOGIST AND HERITAGE CONSULTANT

Contact Details and personal information:

Address: 23 Dover Road, Muizenberg, 7945
Telephone: (021) 788 1025
Cell Phone: 083 272 3225
Email: jayson@asha-consulting.co.za

Birth date and place: 22 June 1976, Cape Town, South Africa
Citizenship: South African
ID no: 760622 522 4085
Driver's License: Code 08
Marital Status: Married to Carol Orton
Languages spoken: English and Afrikaans

Education:

SA College High School	Matric	1994
University of Cape Town	B.A. (Archaeology, Environmental & Geographical Science) 1997	
University of Cape Town	B.A. (Honours) (Archaeology)*	1998
University of Cape Town	M.A. (Archaeology)	2004
University of Oxford	D.Phil. (Archaeology)	2013

*Frank Schweitzer memorial book prize for an outstanding student and the degree in the First Class.

Employment History:

Spatial Archaeology Research Unit, UCT	Research assistant	Jan 1996 – Dec 1998
Department of Archaeology, UCT	Field archaeologist	Jan 1998 – Dec 1998
UCT Archaeology Contracts Office	Field archaeologist	Jan 1999 – May 2004
UCT Archaeology Contracts Office	Heritage & archaeological consultant	Jun 2004 – May 2012
School of Archaeology, University of Oxford	Undergraduate Tutor	Oct 2008 – Dec 2008
ACO Associates cc	Associate, Heritage & archaeological consultant	Jan 2011 – Dec 2013
ASHA Consulting (Pty) Ltd	Director, Heritage & archaeological consultant	Jan 2014 –

Professional Accreditation:

Association of Southern African Professional Archaeologists (ASAPA) membership number: 233

CRM Section member with the following accreditation:

- Principal Investigator: Coastal shell middens (awarded 2007)
Stone Age archaeology (awarded 2007)
Grave relocation (awarded 2014)
- Field Director: Rock art (awarded 2007)
Colonial period archaeology (awarded 2007)

Association of Professional Heritage Practitioners (APHP) membership number: 43

- Accredited Professional Heritage Practitioner

➤ **Memberships and affiliations:**

South African Archaeological Society Council member	2004 – 2016
Assoc. Southern African Professional Archaeologists (ASAPA) member	2006 –
UCT Department of Archaeology Research Associate	2013 – 2017
Heritage Western Cape APM Committee member	2013 – 2023
UNISA Department of Archaeology and Anthropology Research Fellow	2014 –
Fish Hoek Valley Historical Association	2014 –
Kalk Bay Historical Association	2016 –
Association of Professional Heritage Practitioners member	2016 –

Fieldwork and project experience:

Extensive fieldwork and experience as both Field Director and Principle Investigator throughout the Western and Northern Cape, and also in the western parts of the Free State and Eastern Cape as follows:

Feasibility studies:

- Heritage feasibility studies examining all aspects of heritage from the desktop

Phase 1 surveys and impact assessments:

- Project types
 - Notification of Intent to Develop applications (for Heritage Western Cape)
 - Desktop-based Letter of Exemption (for the South African Heritage Resources Agency)
 - Heritage Impact Assessments (largely in the Environmental Impact Assessment or Basic Assessment context under NEMA and Section 38(8) of the NHRA, but also self-standing assessments under Section 38(1) of the NHRA)
 - Archaeological specialist studies
 - Phase 1 archaeological test excavations in historical and prehistoric sites
 - Archaeological research projects
- Development types
 - Mining and borrow pits
 - Roads (new and upgrades)
 - Residential, commercial and industrial development
 - Dams and pipe lines
 - Power lines and substations
 - Renewable energy facilities (wind energy, solar energy and hydro-electric facilities)

Phase 2 mitigation and research excavations:

- ESA open sites
 - Duinefontein, Gouda, Namaqualand
- MSA rock shelters
 - Fish Hoek, Yzerfontein, Cederberg, Namaqualand
- MSA open sites
 - Swartland, Bushmanland, Namaqualand
- LSA rock shelters
 - Cederberg, Namaqualand, Bushmanland
- LSA open sites (inland)
 - Swartland, Franschoek, Namaqualand, Bushmanland
- LSA coastal shell middens
 - Melkbosstrand, Yzerfontein, Saldanha Bay, Paternoster, Dwarskersbos, Infanta, Knysna, Namaqualand
- LSA burials
 - Melkbosstrand, Saldanha Bay, Namaqualand, Knysna
- Historical sites
 - Franschoek (farmstead and well), Waterfront (fort, dump and well), Noordhoek (cottage), variety of small excavations in central Cape Town and surrounding suburbs
- Historic burial grounds
 - Green Point (Prestwich Street), V&A Waterfront (Marina Residential), Paarl

Awards:

Western Cape Government Cultural Affairs Awards 2015/2016: Best Heritage Project.