

**PHASE I HERITAGE IMPACT ASSESSMENT (INCLUDING
PALAEOLOGICAL ASSESSMENT) REQUESTED IN TERMS OF
SECTION 38 OF THE NATIONAL HERITAGE RESOURCES ACT NO
25/1999 FOR THE PROPOSED MINE PROSPECTING ON THE
REMAINDER OF THE FARM SCHIMDTSDRIFT 248,
PIXLEY KA SEME DISTRICT MUNICIPALITY,
NORTHERN CAPE PROVINCE**

Prepared by

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Monday, 24 September 2018



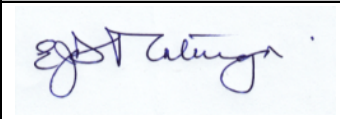
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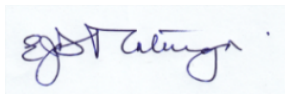
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DECLARATION OF INDEPENDENCE

AHSA Pty Ltd is an independent consultancy: I 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 fair remuneration for work performed, in terms the National Heritage Resources Act (No 25 of 1999).

DISCLAIMER

All possible care was taken to identify and document heritage resources during the survey in accordance with best practices in archaeology and heritage management. However it is always possible that some hidden or subterranean sites are overlooked during a survey. AHSA will not be held liable for such oversights and additional costs thereof.



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ABBREVIATIONS

EIA	Environmental Impact Assessment
HIA	Heritage Impact Assessment
LSA	Late Stone Age
LIA	Later Iron Age
PHRA	Provincial Heritage Resources Authority
MSA	Middle Stone Age
NHRA	National Heritage Resources Act
SAHRA	South African Heritage Resources Agency

DEFINITIONS

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”.¹

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.

¹ 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.

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.

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 2nd 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.

EXECUTIVE SUMMARY

1. This report is a Heritage Impact Assessment prepared in terms of Section 38 of the National Heritage Resources Act (25 of 1999) in respect of the proposed prospecting and application for mining rights on the Remainder of the Farm Schimtdsdrift 248, Pixley Ka Seme District Municipality, in the Northern Cape. An HIA is a tool to manage likely negative impacts of the proposed activities on heritage resources. This assessment is part of a multi-disciplinary study for Environmental Authorisation of the project in terms of the National Environmental Management Act (NEMA).

2. The heritage sensitivity of the property is summarised as follows:

3. *The Stone Age*

There are scatters of Stone Age material comprising scrapers, blades cores and flakes recorded in ten (10) places possibly dating from the Middle Stone Age to the Late Stone Age. No concentrations of artefacts were seen. The distribution pattern seems to indicate general hunter-gatherer activity in the area over time. None of the sites found therefore warrant further action.

4. *The Iron Age*

Two potsherds (of which one is quite thick, 20mm, suggesting a large pot) were found in one locality (SDT10). A later Iron Age date is proposed. The BaTlaping who lived in the area in the 19th century may descend from earlier Later Iron Age communities to which the pottery may be attributed.

5. Inventory of heritage sites.

SITE NO	LATITUDE	LONGITUDE	PERIOD	TYPE	DESCRIPTION	RANKING
SDT01	28°43'57.2"S,	24° 02'39.9"E	MSA/LSA	Artefacts	Flat area on the edge of a stream flowing into the Vaal a short distance. Fine black soils. Sparse acacia. Sharp edged scraper.	Medium B
SDT02	28°43'57.2"S	24° 02'49.2"E	MSA/LSA	Artefacts	Flat area. Fine black soils. Area recently cleared of acacia bush. Scraper.	Medium B
SDT03	28°43'58.1"S	24° 02'56.1"E	MSA/LSA	Artefacts	Flat terrain, sparse bush. Chert core.	Medium B
SDT04	28°43'59.6"S	24° 03'01.3"E	MSA/LSA	Artefacts	Erosion surface on the side of a gully, sparse acacia bush. Sharp-edged scraper and flake.	Medium B
SDT05	28°44'01.1"S	24° 02'50.3"E	MSA/LSA	Artefacts	Northern bank of the Vaal River. Fine blade and flake.	Medium B
SDT06	28°44'01.6"S	24° 02'45.4"E	MSA/LSA	Artefacts	Northern bank of the Vaal River. Two scrapers.	Medium B
SDT07	28°43'52.7"S	24° 03'00.8"E	MSA/LSA	Artefacts	Flat terrain, sparse bush. Flake/scraper.	Medium B
SDT08	28°43'51.7"S	24° 03'00.3"E	MSA/LSA	Artefacts	Flat terrain, sparse bush. Scraper and blade.	Medium B
SDT09	28°43'.54.8"S	24° 03'17.4"E	MSA/LSA	Artefacts	Erosion surface, sparse bush. Two scrapers.	Medium B
SDT10	28°43'49.1"S	24° 4'2.96"E	LIA	Artefacts	Flat terrain, close to the bank of the Vaal River. Two potsherds, of which one is 2cm thick suggesting a large pot.	Medium B
SDT11	28°43'25.7"S	24° 03'20.9"E	MSA/LSA	Artefacts	Flat terrain, sparse acacia bush. Two flakes.	Medium B

6. Ranking of Findings

	RANKING	SIGNIFICANCE	No of sites
1	High	National and Provincial heritage sites (Section 7 of NHRA). All burials including those protected under Section 36 of NHRA. They must be protected.	0
2	Medium A	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. Footprint of early modern mining. These may be protected at the recommendations of a heritage expert.	0
3	Medium B	Sites exhibiting archaeological characteristics of the area, but do not warrant further action after they have been documented.	11
4	Low	Heritage sites which have been recorded, but considered of minor value relative to the proposed development.	0
		TOTAL	11

7. 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

Eleven (11) sites were recorded of which ten (11) are occurrences of MSA/LSA artefacts. Two potsherds indicate occupation through the Later Iron Age or later.

(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 a definition of potential risks based on perceived value of the heritage and potential threats posed by the proposed development. No sites need to be protected.

(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

Mining is an important lever of economy development for the South African economy. The mineral wealth can provide stimulus for rapid socio-economic development in the Northern Cape Province in particular and the country as a whole. Mining is labour intensive and can contribute immensely to alleviate the current high rate of unemployment. General improvement in the quality of livelihoods in local communities and the country at large is expected.

(j) 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

N/A

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

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

8. Risk Assessment of the Findings

EVALUATION CRITERIA	RISK ASSESSMENT
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)
Nature of Impact	Negative, both direct & indirect impacts.
Extent of Impact	Test pits, excavations and ground clearing has potential to damage 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	High.
Mitigation measures	If archaeological or other heritage relics are found during the construction phase, heritage authorities will be advised immediately and a heritage specialist will be called to attend. This is standard precaution in view of inherent limitations of archaeological fieldwork.
Level of significance of impacts after mitigation	Low.

Cumulative Impacts	None.
Comments or Discussion	None.

9. Recommendations and conclusions

As there are no sites that warrant further action, the mine prospecting can go ahead. In the event of discovery of other heritage resources in future phases of the project, the Provincial Heritage Resources Authority or SAHRA must be alerted immediately and an archaeologist or heritage expert called to attend.

1. INTRODUCTION

This Report is a Heritage Impact Assessment (HIA) prepared on behalf of Silver Solutions Pty Ltd in support of an application for a Prospecting and Mining Right on the Remainder of the Farm Schmidtsdrift 248, Pixley Ka Seme District Municipality, in the Northern Cape Province. A ground survey was conducted on 11 September 2018 for the documentation of archaeological and historical material that might occur on the property. The reporting complies with Section 38 of the National Heritage Resources Act (No 25 of 1999) which requires that mitigation measures be considered where a proposed development is likely to result in the disturbance or destruction of heritage resources.

1.1. Nature of development and expected impacts

The applicant intends to mine alluvial diamonds in superficial gravels (placers) on the Remainder of the Farm Schmidtsdrift 248. Over a period spanning millions of years the Vaal River has flown over a wide plain with water channels shifting and in the process depositing gravels mixed with sand. It has been posited that the diamonds in the gravels were eroded from kimberlite pipes found in many places on the plains of the Highveld and deposited along the course of the river.

The proposed prospecting and mining by opencast methods may result in the disturbance or destruction of heritage resources where they exist. For this reason a HIA is conducted which profiles the archaeological and palaeontological resources present as a basis for prescribing appropriate mitigation measures.

2. LOCATION AND PHYSICAL SETTING

The property is located on the northern bank of the Vaal River on the southern outskirts of Schmidtsdrift Village 70km west of Kimberley and c. 40km downstream of the confluence of the Vaal and Harts River (28°43'35.43"S, 24° 3'6.00"). The key geomorphological feature is the Vaal River (known in seSotho as 'Lekwa'). This perennial river meanders across the semi-arid southern plains from its sources on the western foot of the Drakensberg Mountains, only 240km from the Indian Ocean. It flows west some 1 120km to its confluence with the Orange River, which continues another 1 350km to the Atlantic Ocean. The river has been a strategic lifeline for communities living in these semi-arid parts of the highveld from Stone Age times and it continues to hold that vital importance as a precious source of water (Figs 1-3). Vegetation, which is predominated by acacia is largely degraded due to mining activity and exploitation by villagers from nearby Schmidtsdrift. Vegetation on the edge of the Vaal River tends to be dense as a result of the high water table. In the western part of the property there is a natural deposit of fine black soil with a high clay content which seems to result from long term alluvial deposition.

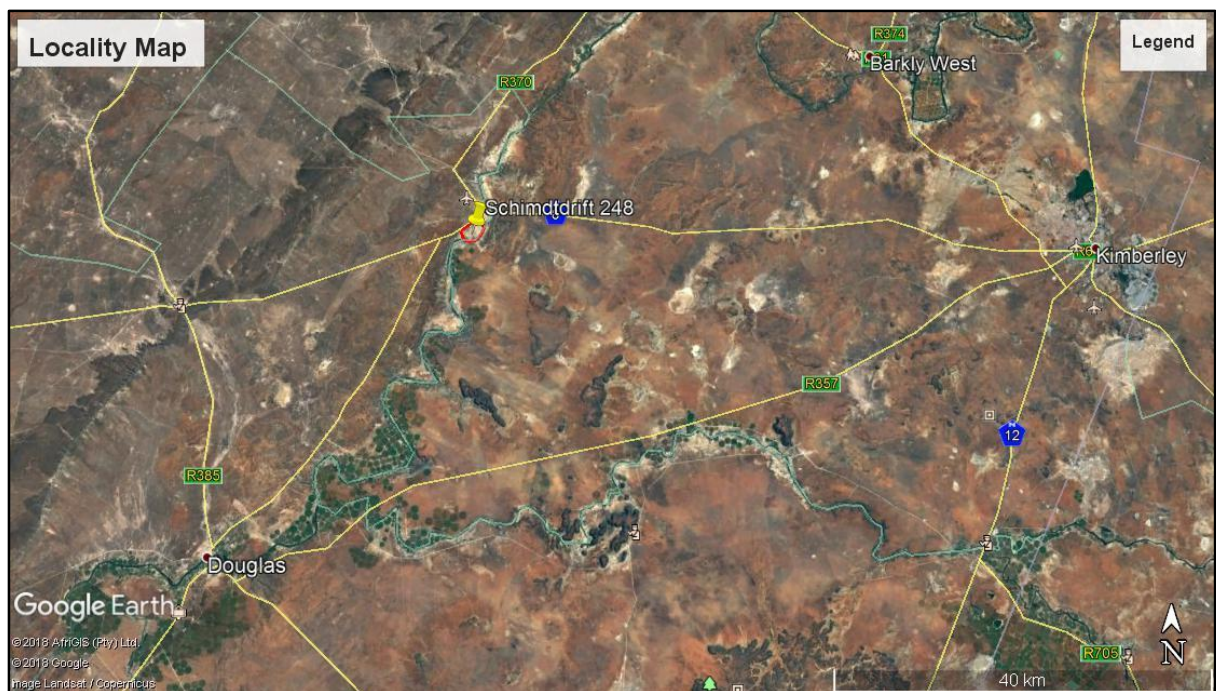


Figure 1: Google-Earth map shows the location of Schmidtsdrift Farm on the banks of the Vaal River.



Figure 2: View south of the flat terrain with alluvial gravels facing the Vaal River.



Figure 3: Fine black soil exposed on a dry stream flowing into the Vaal River (Vaal River behind the camera).



Figure 4: View of a central part of the property. Erosion surfaces and sparse acacia.



Figure 5: The Vaal River, taken from the northern bank.

3. LEGAL FRAMEWORK

3.1. The National Heritage Resources Act (25 of 1999)

The proposed prospecting requires a Heritage Impact Assessment as stipulated under Section 38 of the National Heritage Resources Act (No 25 1999). Terms and conditions of an HIA are stated as follows:

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, power line, 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 50m in length;

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

(i) exceeding 5 000m² in extent; 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 m² in extent; or

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

Other Sections of the **National Heritage Resources Act** (No. 25 of 1999) NHRA of relevant application are:

Section 34 of the NHRA for provisional protection of all structures and features older than 60 years.

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

Section 36 of the **NHRA** gives priority for the protection of Graves and Burial Grounds graves and burial grounds more than 60 years old, and graves and burial ground of victims of conflict.

3.2. International Principles and Policies

In practice heritage management advocates protection and respect the sanctity of all graves regardless of their age. International principles are based on the same ethical considerations. The the **Vermillion Accord on Human Remains** adopted by the **World Archaeological Congress (WAC)** at the WAC Inter-Congress in South Dakota (USA) urges “*respect for the mortal remains of the dead shall be accorded to all, irrespective of origin, race, religion, nationality, custom and tradition.*”

3.3. The National Environmental Management Act (No 107/1998)

This act 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.

3.4. The Burra Charter

Some generic principles and standards for the protection of heritage resources are drawn from international charters and conventions, in particular the **Australia Charter for the Conservation of Places of Cultural Significance (the Burra Charter 1999)**, which South Africa has adopted.

4. APPROACH AND METHODOLOGY

5.1. Literature Survey

The purpose of a literature survey is to provide background information on the area as it relates to geography, the cultural sequence and known heritage potential of the area. A number of reports generated through heritage impact assessment studies in the area were available as reference material. I have carried out a number of surveys in the broader area to the north and south:

Matenga, E. 2017: Phase I Heritage Impact Assessment Requested in terms of Section 38 of the National Heritage Resources Act No 25/1999 for a Mining right on Vaalbos Island on the Vaal River near Longlands, Barkly West District, Northern Cape Province.

Matenga, E. 2018. Phase I Heritage Impact Assessment (including Palaeontological Assessment) requested in terms of Section 38 of the National Heritage Resources Act No 25/1999 for Mining Permit and Related Infrastructural Activities on a Piece of the Farm Longlands 350 Situated in the Magisterial District of Barkly West, Northern Cape Province

Matenga, E. 2016. 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 84 & Portion of farm 393, Barkly West District, Northern Cape Province.

Matenga, E. 2017. 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 Farm 393, Barkly West District, Northern Cape Province.

Other specialists have also worked in the area, viz:

Hutten, M. 2013. Heritage Impact Assessment for the Proposed Manlenox Solar Park west of Barkly West, Northern Cape.

Coetzee, F. 2013. Cultural Heritage Survey of the Proposed Renewable PV Project on the Farm 248/0000, Northern Cape

With this research in the vicinity previously, significant data existed to form a picture of the archaeological potential of the area.

These studies and many not mentioned here recorded occurrences of sites dating from Early Stone Age (ESA) through the Middle Stone Age (MSA) to the Late Stone Age (LSA), with a majority falling under the MSA/LSA periods. Generally finds occur as scatters of scrapers, blades and cores while concentrated finds evidencing manufacture sites or settlements are rare.

5.2. Ground Survey

Data was collected by means of walking surveys, largely random, but also targeting spots seen as likely to yield material.

5.3. Significance Ranking

Heritage sites have been ranked to show potential risks relative to their cultural significance.

Ranking of Findings

	RANKING	SIGNIFICANCE	No of sites
1	High	National and Provincial heritage sites (Section 7 of NHRA). All burials including those protected under Section 36 of NHRA. They must be protected.	
2	Medium A	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. Footprint of early modern mining. These may be protected at the recommendations of a heritage expert.	
3	Medium B	Sites exhibiting archaeological characteristics of the area, but do not warrant further action after they have been documented.	
4	Low	Heritage sites which have been recorded, but considered of minor value relative to the proposed development.	
		TOTAL	

6. ARCHAEOLOGICAL AND HISTORICAL CONTEXT

6.1. Cultural Sequence Summary

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	Nguni / Sotho/Venda people	Iron Age Farmers	Mfecance / Difaqane
(iii) Colonial period	19 th Century	European settlers / farmers / missionaries/ industrialisation	Buildings, Missions, Mines, metals, glass, ceramics

6.2. Appearance of hominids

Hominids were proto-humans which appeared in South Africa more than 3 million years ago. The hominid site nearest to the study area is Taung near Vryburg (140km to the northeast). This is a UNESCO World Heritage Site proclaimed together with the Sterkfontein Caves (Krugersdorp) and Makapans Valley (Mokopane) in a serial nomination. No hominid sites have been reported along the Vaal River.

6.3. The Early Stone Age (2 million to 250 000 years BP)

The Stone Age dates back more than 2 million years representing a more explicit beginning of the cultural sequence divided into three epochs, the Early, Middle and Late Stone Ages. These early people made stone and bone implements. Material

evidence is found in caves, rock-shelters and on river sides and edges of streams, and very rarely seen in open country. Such tools bore a consistent shape such as the pear-shaped handaxe, cleavers and core tools.² These tool industries have been called Oldowan and Acheulian and were probably used to butcher large animals such as elephants, rhinoceros and hippopotamus. Acheulian artefacts are usually found near sites where they were manufactured and thus in close proximity to the raw material or at kill sites. Early hunters are classified as hominids meaning that they had not evolved to the present human form. Progressively a good profile of the Stone Age in the Northern Cape Province has been constructed from many heritage impact assessments that have been conducted in recent years. Early (ESA) and Middle Stone Age (MSA) lithics occur over most of area with a more recent find of Later Stone Age (LSA) occupations.³ 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.⁴

6.4. Middle Stone Age (MSA) [250 000 yrs – 30 000 yrs BP]

The Middle Stone Age (MSA), appeared 250 000 years ago and is marked by the introduction of a new tool kit which included prepared cores, parallel-sided blades and triangular points hafted to make spears. By then humans had become skilful hunters, especially of large grazers such as wildebeest, hartebeest and eland. By humans had evolved significantly to become anatomically modern. Caves were used for shelter suggesting permanent or semi-permanent settlement. There is archaeological evidence from some of the caves indicating the making of fire.⁵

A number of field surveys have been carried in the broader area confirming significant hunter gatherer activity from the MSA onwards.

6.5. Later Stone Age (LSA)[40 000 yrs to ca2000 yrs BP]

² Deacon, H.J. & Deacon, J. 1999. Human Beginnings in South Africa: Uncovering the Secrets of the Stone Age. Cape Town: David Philip.

³ Schalkwyk, J. 2015. Heritage Scoping Assessment for the Proposed Perseus-Kronos 765KV Transmission Power Line and Substations Upgrade, Northern Cape and Free State Provinces, p6.

⁴ Humphreys, A.J.B. & Thackeray, A.I. 1983. Ghaap and Gariep. Later Stone Age Studies in the Northern Cape. Cape Town: South African Archaeological Society Monograph Series 2.

⁵ Deacon, J & H. Deacon. 1999. Human Beginnings in South Africa. Cape Town: David Philip.

By the beginning of the LSA, humans had evolved to *Homo sapiens* which refer to the modern physical form and thinking capabilities. Several behavioural traits are noticed, such as rock art and purposeful burials with ornaments, became a regular practice. LSA technology is characterised by microlithic scrapers and segments made from very fine-grained rock. Spear hunting continued, but LSA people also hunted small game with bows and poisoned arrows. Practitioners of rock art were ancestors of the San and sites abound in the whole of Southern Africa. Wildebeest Kuil Rock Art Centre is a rock engraving site now with an interpretation centre on land owned by the !Xun and Khwe San situated c. 60km to the southeast from the study area along the R31 road from Kimberley to Barkly West. The site was first known to the public in modern times by the renowned 19th century researcher, George William Stow.⁶ A number of rock engravings have been reported in the vicinity of Lime Acres and Danielskuil (c. 75km northwest) including recent art ascribed to the Griquas and Khoikhoi.⁷

6.6. Early Iron Age

The Iron Age was a gradual spread or expansion of settlement of different groups of speakers of Bantu languages over a period that could have spanned more than 2 millennia. These communities indigenous to the continent brought with them domestic animals, crops, pottery and metal technology. However there are few if any sites attributed to the EIA in the western parts of the country.⁸ Most Iron Age settlements are concentrated in the eastern part of the country. The woodland zone was preferred for settlement, but there is strong possibility that transhumant pastoralism was practiced and seasonal hunting camps were established in the inhospitable western regions of the country.

There is however increasing evidence that sheep and probably cattle as well might have moved into the area much earlier than the Iron Age.⁹

⁶ Wildebeest Kuil Rock Art Centre, at: <http://www.kimberley.co.za/city/wildebeest-kuil-rock-art-centre/> (Consulted 3 May 2017).

⁷ Collins, S. 1973. Rock-engravings of the Danielskuil Townlands. *South African Archaeological Bulletin* 109-110: 49-57.; Eastwood, E.B. & Smith, B.W. 2005.

⁸ Phillipson, D. W. 2005. *African Archaeology*. Cambridge: University of Cambridge Press.

⁹ Evers, T. M. 1988. *Recognition of Groups in the Iron Age of Southern Africa*. Unpublished PhD Thesis, University of Witwatersrand. Huffman 2007. *A Handbook on the Iron Age*. Scottsville: UKZN Press

6.7. The Later Iron Age

The LIA is marked by the presence of extensive stonewalled settlements such as the Tlhaping capital at Dithakong near Kuruman.¹⁰

6.8. Historical context

The study area is historically home to the Tlhaping segment of the Tswana, who descended from the Iron Age people and probably from a far back as the Stone Age. The early 19th century was a political turning point with an increasingly uncertain security situation and internal displacements. The first of these episodes was the Difaqane characterised by inter-tribal raids. During the late 18th and early 19th centuries Griqua herders (people of Coloured stock from the southwest) settled in this area establishing a town called Klaarwater and subsequently renamed Griquatown. Meanwhile white hunters, traders and missionaries also entered the area. A little later the Afrikaners arrived bringing their stock as part of a mass exodus from the Cape called the Great Trek. The discovery of diamonds at Kimberley sparked the “rush”. The area which became known as Griqualand West was subsequently incorporated into the Cape Colony in the 1880s.¹¹

6.9. Vaal River alluvial diamond diggings

The mining of alluvial diamonds in the Vaal River Valley started in 1869 carried out by a party of prospectors from Natal organised by the British Army. As they continued the search for the gemstones along the valley they struck good finds at Klipdrift (Barkly West). These finds sparked South Africa's first diamond rush. Following the news men began to flock from Britain and elsewhere to the new diggings. By April 1871 c. 5000 men had swarmed the Vaal, Modder, and Orange Rivers. The alluvial stones from the region proved to be of high quality. The miners staked claims while the local Griqua chiefs and the Boer Republics of the Transvaal and Orange Free State also joined in the fray. Ownership rights were initially given to local chiefs and Boer Trekkers. But the diggers proclaimed the Klip Drift Republic on 30th July 1870 with Stafford Parker

¹⁰ De Jong 2010: De Jong, R.C. 2010. Heritage impact assessment report: proposed manganese and iron ore mining right application in respect of the remainder of the farm Paling 434, Hay Registration Division, Northern Cape. Unpublished report prepared for Kai Batla Minerals Industry Consultants. Pretoria: Cultmatrix, p 36.

¹¹ De Jong, R.C. 2010. Heritage impact assessment report: proposed manganese and iron ore mining right application in respect of the remainder of the farm Paling 434, Hay Registration Division, Northern Cape. Unpublished report prepared for Kai Batla Minerals Industry Consultants. Pretoria: Cultmatrix.

as its elected president. In 1872, the British annexed the diamond fields and proclaimed Griqualand West as a crown state. It was subsequently incorporated into the Cape Colony in 1880. The majority of the prospectors abandoned the various Vaal River claims in the wake of richer finds at Kimberley in 1871. Mining of the river gravels has been going on sparking sporadic rushes over the last nearly one and half centuries.¹²

Schmidtdrift was established as ford across the Vaal River linking Kimberley to Griquatown. The area around Schmidtdrift was declared Crown Trust Land in 1827 reserved for the BaTlaping and Griqua people. The communities vacated the land in 1968 under the policies of the government of the day and it was designated state land and given to the South African Defence Forces for the establishment of a military base in 1974. At the end of the war in Namibia and the withdrawal of South African troops, the government resettled members of the 31 Battalion consisting of elements of the !Xun (also known as Vasekele) and Khwe (known also as Mbarakwengo) Bushman (San) at Schmidtdrift, but later moved them to Platfontein near Kimberley. The BaTlaping lodged a land claim which was granted in 2003.¹³

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

7. FINDINGS OF THE SURVEY

The heritage sensitivity of the property is summarised as follows:

7.1. The Stone Age

There are scatters of Stone Age material comprising scrapers, blades cores and flakes recorded in ten (10) places possibly dating from the Middle Stone Age to the Late Stone Age. No concentrations of artefacts were seen. This distribution pattern seems

¹² The Barkly West & Vaal River Diggings. Found at: <http://www.on-the-rand.co.uk/Diamond%20Grounds/Barkly%20West.htm>

¹³ Kleinbooi, K. 2007. Community Land Claim. University of the Western Cape.

to indicate general hunter-gatherer activity in the area over time. None of the sites found therefore warrant any further action.

7.2. The Iron Age

Two potsherds (of which one is quite thick, 20mm, indicating a large pot) were found in one locality (SDT10). A later Iron Age date is posited. The BaTlaping, a population segment of the Tswana who lived in the area in the 19th century may descend from earlier Later Iron Age communities to which the pottery may be attributed.

Table 1: Inventory of heritage sites.

SITE NO	LATITUDE	LONGITUDE	PERIOD	TYPE	DESCRIPTION	RANKING
SDT01	28°43'57.2"S,	24° 02'39.9"E	MSA/LSA	Artefacts	Flat area on the edge of a stream flowing into the Vaal a short distance. Fine black soils. Sparse acacia. Sharp edged scraper.	Medium B
SDT02	28°43'57.2"S	24° 02'49.2"E	MSA/LSA	Artefacts	Flat area. Fine black soils. Area recently cleared of acacia bush. Scraper.	Medium B
SDT03	28°43'58.1"S	24° 02'56.1"E	MSA/LSA	Artefacts	Flat terrain, sparse bush. Chert core.	Medium B
SDT04	28°43'59.6"S	24° 03'01.3"E	MSA/LSA	Artefacts	Erosion surface on the side of a gully, sparse acacia bush. Sharp-edged scraper and flake.	Medium B
SDT05	28°44'01.1"S	24° 02'50.3"E	MSA/LSA	Artefacts	Northern bank of the Vaal River. Fine blade and flake.	Medium B
SDT06	28°44'01.6"S	24° 02'45.4"E	MSA/LSA	Artefacts	Northern bank of the Vaal River. Two scrapers.	Medium B
SDT07	28°43'52.7"S	24° 03'00.8"E	MSA/LSA	Artefacts	Flat terrain, sparse bush. Flake/scraper.	Medium B
SDT08	28°43'51.7"S	24° 03'00.3"E	MSA/LSA	Artefacts	Flat terrain, sparse bush. Scraper and blade.	Medium B
SDT09	28°43'.54.8"S	24° 03'17.4"E	MSA/LSA	Artefacts	Erosion surface, sparse bush. Two scrapers.	Medium B
SDT10	28°43'49.1"S	24° 4'2.96"E	LIA	Artefacts	Flat terrain, close to the bank of the Vaal River. Two potsherds, of which one is 2cm thick suggesting a large pot.	Medium B
SDT11	28°43'25.7"S	24° 03'20.9"E	MSA/LSA	Artefacts	Flat terrain, sparse acacia bush. Two flakes.	Medium B

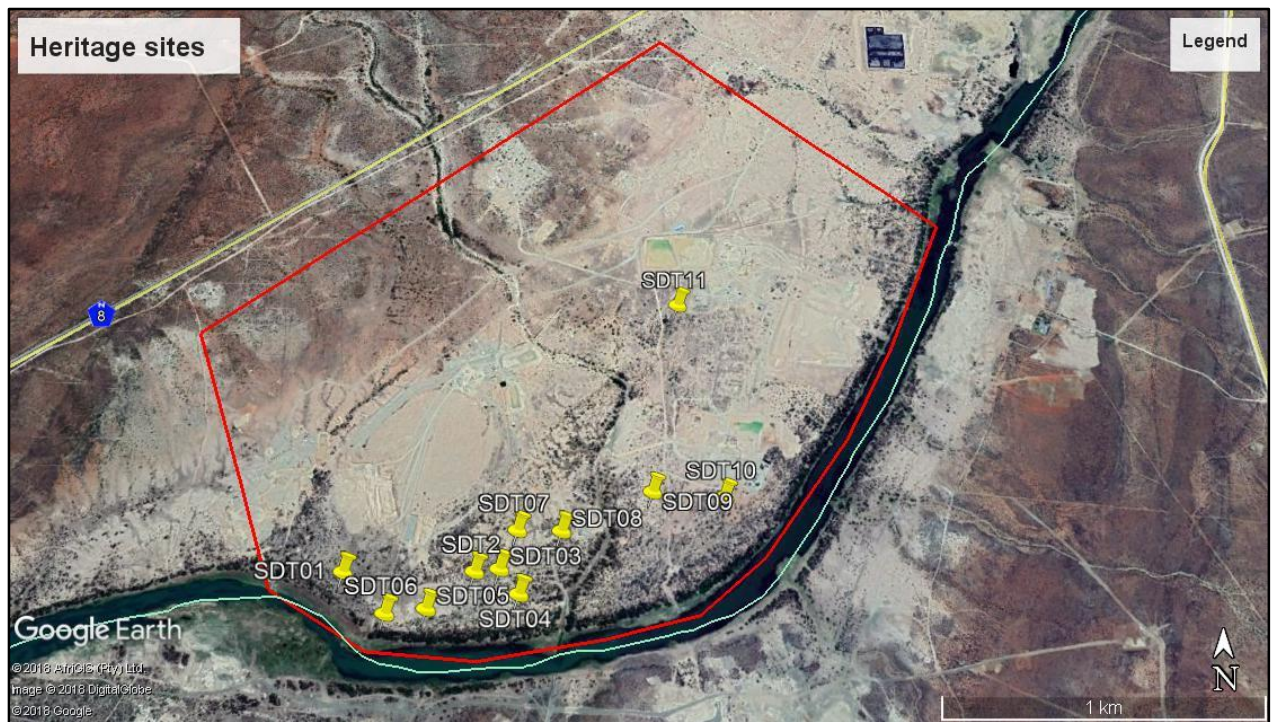


Figure 6: Location of heritage sites.

7.3. Ranking of Findings

	RANKING	SIGNIFICANCE	No of sites
1	High	National and Provincial heritage sites (Section 7 of NHRA). All burials including those protected under Section 36 of NHRA. They must be protected.	0
2	Medium A	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. Footprint of early modern mining. These may be protected at the recommendations of a heritage expert.	0
3	Medium B	Sites exhibiting archaeological characteristics of the area, but do not warrant further action after they have been documented.	11
4	Low	Heritage sites which have been recorded, but considered of minor value relative to the proposed development.	0
		TOTAL	11

7.4. 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

Eleven sites (11) sites were recorded of which ten (11) are occurrences of MSA/LSA artefacts. Two potsherds indicate occupation through the Later Iron Age or later.

(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 a definition of potential risks based on perceived value of the heritage and potential threats posed by the proposed development. No sites need to be protected.

(k) 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

Mining is an important lever of economy development for the South African economy. The mineral wealth can provide stimulus for rapid socio-economic development in the Northern Cape Province in particular and the country as a

whole. Mining is labour intensive and can contribute immensely to alleviate the current high rate of employment. General improvement in the quality of livelihoods in local communities and the country at large is expected.

(l) 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

N/A

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

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

7.5. Risk Assessment of the Findings

EVALUATION CRITERIA	RISK ASSESSMENT
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)
Nature of Impact	Negative, both direct & indirect impacts.

Extent of Impact	Test pits, excavations and ground clearing has potential to damage 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	High.
Mitigation measures	If archaeological or other heritage relics are found during the construction phase, heritage authorities will be advised immediately and a heritage specialist will be called to attend. This is standard precaution in view of inherent limitations of archaeological fieldwork.
Level of significance of impacts after mitigation	Low.
Cumulative Impacts	None.
Comments or Discussion	None.

8. RECOMMENDATIONS AND CONCLUSIONS

As there are no sites that warrant further action, the mine prospecting can go ahead. In the event of discovery of other heritage resources in future phases of the project, the Provincial Heritage Resources Authority or SAHRA must be alerted immediately and an archaeologist or heritage expert called to attend.

9. CATALOGUE OF HERITAGE SITES

SITE NO	COORDINATES	PERIOD
SDT01	28°43'57.2"S, 24° 02'39.9"E	MSA/LSA



DESCRIPTION: Flat area on the edge of a stream flowing into the Vaal a short distance. Fine black soils. Sparse acacia. Sharp edged scraper.

HERITAGE SIGNIFICANCE: Evidence of stone tool manufacture and use during the MSA/LSA.

SITE NO	COORDINATES	PERIOD
SDT02	28°43'57.2"S, 24° 02'49.2"E	MSA/LSA



DESCRIPTION: Flat area. Fine black soils. Area recently cleared of acacia bush. Scraper.

HERITAGE SIGNIFICANCE: Evidence of stone tool manufacture and use during the MSA/LSA.

SITE NO	COORDINATES	PERIOD
SDT03	28°43'56.93"S, 24° 2'58.82"E	MSA/LSA



DESCRIPTION: Flat terrain, sparse bush. Chert core.

HERITAGE SIGNIFICANCE: Evidence of stone tool manufacture and use during the MSA/LSA.

SITE NO	COORDINATES	PERIOD
SDT04	28°43'59.6"S, 24° 03'01.3"E	MSA/LSA



DESCRIPTION: Erosion surface on the side of a gully, sparse acacia bush. Sharp-edged scraper and flake.

HERITAGE SIGNIFICANCE: Evidence of stone tool manufacture and use during the MSA/LSA.

SITE NO	COORDINATES	PERIOD
SDT05	28°44'01.1"S, 24° 02'50.3"E	MSA/LSA



DESCRIPTION: Northern bank of the Vaal River. Fine blade and flake.

HERITAGE SIGNIFICANCE: Evidence of stone tool manufacture and use during the MSA/LSA.

SITE NO	COORDINATES	PERIOD
SDT06	28°44'01.6"S, 24° 02'45.4"E	MSA/LSA



DESCRIPTION: Northern bank of the Vaal River. Two scrapers.

HERITAGE SIGNIFICANCE: Evidence of stone tool manufacture and use during the MSA/LSA.

SITE NO	COORDINATES	PERIOD
SDT07	28°43'52.7"S, 24° 03'00.8"E	MSA/LSA



DESCRIPTION: Flat terrain, sparse bush. Flake/scrapper.

HERITAGE SIGNIFICANCE: Evidence of stone tool manufacture and use during the MSA/LSA.

SITE NO	COORDINATES	PERIOD
SDT08	28°43'52.80"S, 24° 3'6.21"E	MSA/LSA



DESCRIPTION: Flat terrain, sparse bush. Scraper and blade.

HERITAGE SIGNIFICANCE: Evidence of stone tool manufacture and use during the MSA/LSA.

SITE NO	COORDINATES	PERIOD
SDT09	28°43'.54.8"S, 24° 03'17.4"E	MSA/LSA



DESCRIPTION: Erosion surface, sparse bush. Two scrapers.

HERITAGE SIGNIFICANCE: Evidence of stone tool manufacture and use during the MSA/LSA.

SITE NO	COORDINATES	PERIOD
SDT10	28°43'49.1"S, 24° 03'26.3 "E	LIA



DESCRIPTION: Flat terrain, close to the bank of the Vaal River. Two potsherds, of which one is 2cm thick suggesting a large pot.

HERITAGE SIGNIFICANCE: Possible LIA association.

SITE NO	COORDINATES	PERIOD
SDT11	28°43'25.7"S, 24° 03'20.9"E	MSA/LSA



DESCRIPTION: Flat terrain, sparse acacia bush. Two flakes.

HERITAGE SIGNIFICANCE: Evidence of stone tool manufacture and use during the MSA/LSA.

10. REFERENCES

- Collins, S. 1973.** Rock-engravings of the Danielskuil Townlands. South African Archaeological Bulletin 109-110: 49-57.; Eastwood, E.B. & Smith, B.W. 2005.
- Deacon, H.J. & Deacon, J. 1999.** Human Beginnings in South Africa: Uncovering the Secrets of the Stone Age. Cape Town: David Philip.
- De Jong, R. C. 2010.** Heritage Impact Assessment Report: Proposed Manganese and Iron Ore Mining Right Application in Respect of the Remainder of the Farm Paling 434, Hay Registration Division, Northern Cape Province. Cultmatrix.
- Dreyer, C. 2016.** Archaeological and Historical Investigation of the Proposed Diamond Mining Activities at the Farm Winter's Rush (Longlands 350), Barkly West, Northern Cape.
- Evers, T. M. 1988.** Recognition of Groups in the Iron Age of Southern Africa. Unpublished PhD Thesis, University of Witwatersrand. Huffman 2007. A Handbook on the Iron Age. Scottsville: UKZN Press.
- Government of South Africa. 1999.** The National Heritage Resource Act (25 of 1999).
- Huffman, T. N. 2007.** A Handbook of the Iron Age. Cape Town: UKZN Press
- Humphreys, A.J.B. & Thackeray, A.I. 1983.** Ghaap and Gariep. Later Stone Age Studies in the Northern Cape. Cape Town: South African Archaeological Society Monograph Series 2.
- Kleinbooi, K. 2007.** Community Land Claim. University of the Western Cape.
- Matenga, E. 2017:** Phase I Heritage Impact Assessment Requested in terms of Section 38 of the National Heritage Resources Act No 25/1999 for a Mining right on Vaalbos Island on the Vaal River near Longlands, Barkly West District, Northern Cape Province.
- Matenga, E. 2016.** 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 84 & Portion of farm 393, Barkly West District, Northern Cape Province.
- Matenga, E. 2017.** 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 Farm 393, Barkly West District, Northern Cape Province.

Matenga, E. 2018. 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 and application for mining rights on the Farm 85, Barkly West District, Northern Cape province.

Phillipson, D. W. 2005. African Archaeology. Cambridge: University of Cambridge Press.

Schalkwyk, J. 2015. Heritage Scoping Assessment for the Proposed Perseus-Kronos 765KV Transmission Power Line and Substations Upgrade, Northern Cape and Free State Provinces.

Websites

The Barkly West & Vaal River Diggings. Found at: <http://www.on-the-rand.co.uk/Diamond%20Grounds/Barkly%20West.htm> Consulted October 2017.

11.ACKNOWLEDGEMENTS

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