HERITAGE IMPACT ASSESSMENT IN TERMS OF SECTION 38(8) OF THE NATIONAL HERITAGE RESOURCES ACT (NO 25/1999) FOR MINE PROSPECTING ON THE FARM WALTON AND TWO PORTIONS OF THE FARM ERITH NEAR KATHU UNDER THE GAMAGARA LOCAL MUNICIPALITY, NORTHERN CAPE



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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 interests in the undertaking of the proposed activity, other than fair remuneration for work performed, in terms of 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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EXECUTIVE SUMMARY

- This Heritage Impact Assessment (HIA) report has been prepared in support of a mine prospecting application on the Farm Walton and two portions of the Farm Erith near Kathu under the Gamagara Local Municipality in the Northern Cape Province.
- The Applicant, Specialized Animal Solutions (Pty) Ltd, intends to mine diatomaceous earth, a mineral derived from fossilised algae deposits. This report has been prepared following a site visit and ground survey on 6 July 2021.
- 3. The findings of the study may be summarised as follows:

4. Stone Age

Low density traces were found on the western portion of the Erith comprising scrapers and flakes on the surface, described as background scatter. No finds were recorded on the farm Walton.

5. Iron Age

No sites or relics dating to the Iron Age period were recorded.

6. Burial grounds

No graves or burial grounds were reported on the property.

- 7. Desk assessment of the likely heritage sensitivity of the eastern portion of Erith
- 8. While prior arrangements had been made for access to the eastern portion of Erith, the owner was in Kimberley as a result of a medical emergency. Regrettably he could not let the heritage team into his property in his absence. In the last resort, a desktop study has been conducted as follows:
- 9. The terrain features on both the eastern and western portions of the Farm Erith are basically similar including surface conditions and vegetation

configuration. The findings of a ground survey, if it had been done, were not likely to turn out to be fundamentally different from what was encountered on the western portion of the farm. The farm is bisected by a shallow stream which also runs through the western portion Erith as well as the Farm Walton.

On a more general note, it is an established fact that Stone Age material is widely distributed on the plains, ridges and valleys of the upper Karroo area north of the Orange-Vaal basin. The material comprises scrapers, blades, cores and flakes typologically dating to the Middle Stone Age/Late Stone Age period. Early Stone Age material has been encountered in places with occasional occurrence of hand-axes and cleavers. The sparse occurrence of these finds have been described as background scatters, with few places identified as stone tool quarry or manufacturing sites. These finds have not warranted further action after documentation. Rock Paintings are not likely to occur on Erith as there are no hills or outcrops on the property.

10. Other heritage resources that might occur in the broader area

The following site types of heritage have been encountered in the locality and are therefore flagged:

- Buildings and objects associated with modern commercial farming from the 19th century
- Graves, burial grounds and human bones.

11. Postulated heritage sensitivity of the study area

The studies which have been undertaken in the locality provide a good theoretical foundation from which to extrapolate the more likely scenarios on the farm under study. The area was obviously home to MSA/LSA hunter gatherers who left behind the scatters of stone tools and flake waste. The MSA/LSA finds on the western portion of Erith and on the Farm Marsh 467, 10 km to the south, have not warranted further action beyond primary documentation. It can therefore be reasonably concluded that the material yield from the western portion of Erith will not be anything different from what has been encountered on these two neighbouring properties. This is a sound

premise from which it is recommended that the mine prospecting should go ahead.

12. The Table below therefore provides a summary of the probability of occurrence of different typologies of heritage and a confidence rating of the predictions:

13. Probability of occurrence of different typologies of heritage

	HERITAGE TYPOLOGY	PROBABILITY OF	CONFIDENCE RATING
		OCCURRENCE	
1	MSA/LSA	99.99%	High
3	Rock paintings	0%1	High
4	Early Iron Age / Later Iron	0.01%	High
	Age		
5	Burial grounds	40%	Medium
6	Farm buildings and	75%	Medium
	structures		

¹ There are no hills on the property

14. The ranking system in the Table below relates to the national grading of heritage sites (adapted from Guidelines for involving Heritage Specialists in EIA processes by Winter S and & N. Baumann (2005, p19). The probability of occurrence of different grades of sites confirms the view that no finds in the study area are likely to warrant further action apart from documentation, which is a minimum requirement. During the exploration phase documentation of the finds can be done within the ambit of the Chance Finds Procedure.

GRADE	RANKING	SIGNIFICANCE	PROBABILITY OF	CONFIDENCE
			OCCURRENCE	RATING
1	National	Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or		High
		potential Grade 1, 2 or 3A heritage resources		
2	Provincial	Of high intrinsic, associational and contextual heritage value within a	0%	High
		national, provincial and local context, i.e. formally declared or		
		potential Grade? 2 heritage resources		
3A	Local	Of high intrinsic, associational and contextual heritage value within a	10%	Medium
		national, provincial and local context, i.e. formally declared or		
		potential Grade 3A heritage resources		
3B	Local	Of moderate to high intrinsic, associational and contextual value	20%	High
		within a local context, i.e. potential Grade 3B heritage resources		
3C	Local	Of medium to low intrinsic, associational or contextual heritage value	99,99%	High
		within a national, provincial and local context, i.e. potential Grade 3C		
		heritage resources		

15. Heritage Sites on the western portion of Erith

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING	MITIGATION
ERT01	27°28'33.80"S	22°59'56.10"E	MSA/LSA	Western portion of Erith: Sandy soil with calcrete waste. Scraper with retouched edges.	Medium B	No further action
ERT02	27°28'36.60"S	22°59'57.30"E	MSA/LSA	Western portion of Erith: Flat terrain, superficial sands, scattered acacia scrub. 3 lithics: 2 flakes of jaspilite and quartz, 1 scraper.	Medium B	No further action
ERT03	27°28'36.80"S	23° 0'6.40"E	MSA/LSA	Western portion of Erith: Shallow dry stream bed. 1 scraper	Medium B	No further action
ERT04	27°28'36.80"S	23° 0'6.40"E	MSA/LSA	Western portion of Erith: On the edge of a thick acacia stand. 1 scraper.	Medium B	No further action

16. Chance Finds Procedure (CPF)

A Heritage Chance Finds Procedure (CFP) is annexed to the HIA Report. Since this is a scientific procedure, the CPF has been adapted from similar documents which have been referenced.

17. Conclusion and recommendations

In light of these findings, it is recommended that the mineral prospecting can go ahead. As a standard precaution, archaeological deposits are usually buried underground. If archaeological artefacts or skeletal material will be exposed in the area during construction, such activities should be halted, and the provincial heritage resources authority or SAHRA notified in order for an investigation and evaluation of the finds to take place.

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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 structures, artefacts, food remains and other traces such as rock paintings or engravings, burials, and fireplaces.

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, and 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".²

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.

² 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.

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

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

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

Historic material: means remains resulting from human activities, which are younger than 100 years, and 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 societies and long-distance trade contacts.

Late Stone Age: The period from ± 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.

1. INTRODUCTION

This Heritage Impact Assessment (HIA) report has been prepared in support of a mine prospecting application on the Farm Walton and two portions of the Farm Erith near Kathu under the Gamagara Local Municipality in the Northern Cape Province. The Applicant, Specialized Animal Solutions (Pty) Ltd, intends to mine diatomaceous earth, a mineral derived from fossilised algae deposits. This report has been prepared following a site visit and ground survey on the 6th of July 2021.

1.1. Nature of proposed activities

As stated above, the target mineral is diatomaceous earth which is buried below a shallow overburden of sand and is processed into a supplement for stock feed. Prospecting for the mineral may entail the following activities:

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

Heritage resources may be destroyed or disturbed if they occur in the footprint of the proposed development. The duty to protect heritage resources likely at risk as a result is enacted in Section 38 of the National Heritage Resources Act, which requires that a Heritage Impact Assessment is conducted to inform decisions on the mitigation of potentially harmful impacts.

1.2. Location and physical setting

The Farms Walton and Erith are situated 20 km north of Kathu on the eastern margins of the Kalahari sands. The terrain is a flatbed between the Kuruman Hills to the east and the Langberge Mountains to the west. On a large scale, Kathu is on the western margin of the Ghaap Plateau, a vast elevated plain rising the Vaal-Orange River valleys in the southeast to an altitude of c. 1300m AMSL and straddling the Northwest and Northern Cape Provinces. To the southwest of the of Kathu, banded ironstone hills have been mined by opencast methods and the area is now occupied by Kumba Iron Ore mine, one of the largest of such mines in the world.

Superficial sandy loam soils on the Farm Erith are windblown from the Kalahari and have accumulated over millions of years. There are occasional exposures of scrub dominated calcrete. Vegetation is karoo by blackthorn (Acacia mellifera subsp. Detinens)3 (Figures 2, 3). A seasonal stream forms a shallow basin cutting across all three farms and trending SE-NW. In large part, the stream bed is covered with grass with few erosion surfaces having been noticed.

On the farm Walton, which lies to the west of Erith surface conditions are somewhat different. In the central and south parts Kalahari sand deposits are substantial to a depth of 1 m. In the central area there is a stand of Terminalia sericea (silver cluster-leaf) significant, as it is probably the southernmost extent of its distribution in Southern Africa. In a northern portion of the farm surface conditions are similar to those on Erith. Karoo scrub vegetation occurs dominated by acacias.



Figure 1: Google Earth Map showing the location of the farms Walton and Erith north of Kathu

³ Prof. Hugh Glen (Botanist), Pers. Com. 22 September 2015.



Figure 2: Typical view of the landscape on the farm Erith, scattered acacia trees and bushes



Figure 3: Kalahari sand and scattered trees and bushes on the farm Erith



Figure 4: On the farm Walton, sand overburden exposed on the road to a depth of 1 m



Figure 5: On the farm Walton a stand of Terminalia sericia trees



Figure 6: On Walton, shallow seasonal stream bed

2. LEGAL FRAMEWORK

The principal law on the management of heritage resources is the National Heritage Resources Act (No 25 / 1999) (MHRA).

2.1. Heritage Impact Assessments

Section 38 of the NHRA lists activities and thresholds that trigger an HIA:

- 38. (1) 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 300 m in length;
- (b) the construction of a bridge or similar structure exceeding 50 m in length;
- (c) any development or other activity which will change the character of a site—
- (i) exceeding 5 000 m² 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.

2.2. Protection of buildings and structures

Section 34 of the NHRA is a precautionary statutory provision to protect all buildings at least 60 years old in case it is found that they are worth retaining as landmarks of cultural heritage significance. It 34 reads:

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

2.3. Graves and burial grounds

Section 36 of the NHRA provides for the protection of certain graves and burial grounds. Graves are generally classified under the following categories:

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

This study is mindful of public sensibilities about the sanctity of graves and burial grounds whether they are protected by the law or not.

2.4. The National Environmental Management Act (No 107 of 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.

2.5. The Burra Charter on Conservation of Places of Cultural Significance

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

3. APPROACH AND METHODOLOGY

3.1. Literature Survey

A literature survey was undertaken to provide background information on the area of study as it relates to geography, the archaeological and heritage sensitivity. Much has been written about the archaeology of Kathu and is available in academic articles and on SAHRIS. Archaeological findings around Kathu Pan and investigations ongoing at Kathu Townlands have been given spotlight.⁴

Kathu Pan is a series of sinkholes located on the northern outskirts of Kathu. They have produced extremely significant archaeological and palaeocological data since its discovery in 1974. Hand axes and faunal remains were observed in the walls sinkholes. Archaeological excavations at a site called KP1 began in 1980. Subsequently, excavations were conducted at 11 other sites named KP2 – KP12. ESA artefacts and fauna were found in association with each other in near primary context. The stratigraphy at Kathu Pan showed an ESA to MSA sequence. A classic pear shaped hand axe made of banded ironstone was among the finds and was much publicised which has been loaned to a travelling exhibition Royal Academy of Arts exhibition *-Africa, the art of a Continent* in 1995.

The Kathu Pans are protected it terms of a proclamation in 2013 as Grade 1 site in terms of Section 7 of the NHRA.

⁴ Walker, S J H., M. Chazan & D. Morris 2013. Kathu Pan: Location and Significance: A report requested by SAHRA for the purpose of nomination Found at:

https://www.academia.edu/7773969/Kathu_Pan_Location_and_Significance_A_report_requested_by_SAHRA _for_the_purpose_of_nomination

Table 1: GPS coordinates (estimated locations) of the Early Stone Age Sites on pans which have been investigated (Walker, et al 2013, p12).

SITE	LATITUDE	LONGITUDE
KP1	-27.66662800000°	23.00814601000°
KP 2	-27.66598997000°	23.00766002000°
KP3	-27.66624997000°	23.00763002000°
KP4	-27.66558504000°	23.00681002000°
KP5	-27.66686998000°	23.00774996000°
KP6	-27.66987699000°	23.01121797000°
KP7	-27.66367970850°	23.00978534830°
KP8	-27.66949210770°	23.01154927120°
KP9	-27.66929971700°	23.01165956040°
KP10	-27.66922254850°	23.01146586850°
KP11	-27.67067982070°	23.01189461260°
KP12	-27.661842°	23.002633°

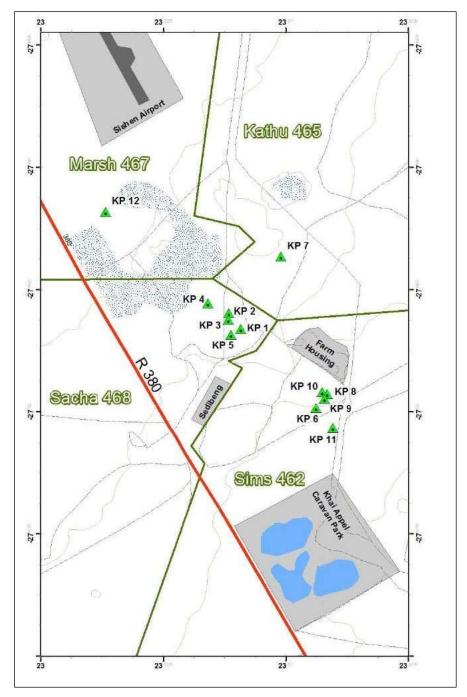


Figure 7: Estimated locations of KP1-KP12 based on 2013 fieldwork (Walker et al. 2013, p13)



Figure 8: Google Earth map shows the location of the Kathu Pan sites, including KP1 (top left hand of map) which has been declared a Grade 1 site

The Kathu Pan Sites have been identified as part of an established Early Stone Age Tradition which has been designated the Kathu Complex that show high intensity of lithic production as evidenced by the high density of manufacturing debris and finished artifacts. The findings from Kathu Townlands on the eastern outskirts of the town represent an extensive occupation covering several hectares and has been found to be in sharp contrast to low density Acheulean occupation at the much publicized Wonderwerk Cave in the Kuruman Hills, 56 km to the east.⁵ In August 2013, excavations were undertaken as part of Phase Heritage Impact Assessment (data recovery as mitigation) for the development of a shopping mall on a small portion of the known deposit. The excavated trenches exposed dense artefact deposits mixed with rubble and sand reaching a maximum depth of 2.2 m. The massive quantity of artefacts recovered were consistent with an Acheulean (ESA) age exploiting the Banded Ironstone Formation (BIF) as source of the raw material. The sites are protected and are the subject of ongoing research.

⁻

⁵ Walker, S J H., M. Chazan & D. Morris 2014. Kathu Townlands: A High Density Earlier Stone Age Locality in the Interior of South Africa Found at:

 $https://www.researchgate.net/publication/264203935_Kathu_Townlands_A_High_Density_Earlier_Stone_Age_Locality_in_the_Interior_of_South_Africa$

Fourie, W. 2015. The proposed upgrade of the 66kV network in the Kuruman area, Northern Cape Province (PGS Heritage)

The report concerned a heritage survey along the servitude of a proposed Eskom power line from Kuruman to Hotazel passing north of the farm La Rochelle (map on p. 10). Two cemeteries, several historic farmsteads, historic asbestos mines, a sacred site and a Provincial Monument and a memorial were recorded. No Stone Age finds were reported (p. iv).

Schalkwyk, J. A. 2020. The development of a power line, access road and above ground storage of LPG gas as part of the Proposed Kagiso Solar Power Plant on the Remaining Extent of the Farm Kameelaar No 315 Registration Division Kuruman, Northern Cape Province

The footprint of the development lies south of Hotazel. No heritage finds were reported.

This author conducted a heritage impact assessment on the farm Marsh 467 which lies on the east side of the R380 Road, 10 km north or Kathu and the same distances south of the Farms Walton and Erith. Scatters of lithics comprising a few scrapers and significantly many flakes were recorded. While the area around Kathu has a significant Early Stone Age footprint, the finds on the farm Marsh 467 appear to date to the Middle Stone Age and none of the of the ESA type tools were found.⁶

3.2. Ground Survey

On 6 July 2020 a site visit was made and observations were taken from the Walton and the western portion of Erith by means walking surveys and a vehicle. While prior arrangement had been made for access to the eastern portion of Erith, the owner went to Kimberley as a result of a medical emergency. Regrettably he could not let the heritage team into his property in his absence. In the last resort a desktop study has been undertaken. A map of the survey track log is provided below (Figure 9).

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⁶ Matenga, E. 2021. Heritage Impact Assessment in terms of Section 38(8) of the National Heritage Resources Act (No 25/1999) for the Proposed Agricultural Development (Hydroponics Systems Project) on the Remaining Extent of the Farm Marsh Near Kathu, Northern Cape.

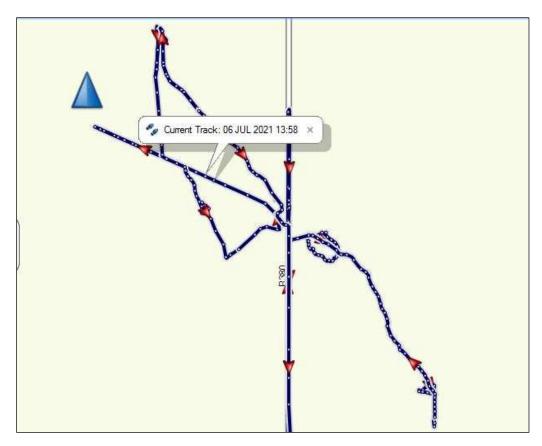


Figure 9: Map of the survey track log

3.3. Significance ranking of findings

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

	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.	
2	Medium A	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. These may be protected at the recommendations of a heritage expert.	
3	Medium B	Sites exhibiting archaeological characteristics of the area, unless otherwise recommended no further action is warranted after they have been documented.	
4	Low	Heritage sites which have been recorded, but considered of minor value relative to the proposed development.	
		TOTAL	

3.4. Limitations of the Study

Ground visibility was impaired by a thick cover of grass in many places. It is possible that over many years surface discard of artefacts and manufacturing waste were likely to have been covered by the windblown sand. This possibility is with reference especially to the deep sand beds in parts of the Farm Walton. The owner of the eastern portion of Erith reserved access to the property at short notice.

4. ARCHAEOLOGICAL AND HISTORICAL CONTEXT

An outline of the cultural sequence in South Africa provides context for identification of heritage resources in the area of study. The sequence spans nearly 4.4 million years beginning with the appearance of Hominids. The major epochs are presented in the following Table

4.1. Cultural Sequence Summary

Table 2. Cultural sequence summary

PERIOD	EPOCH	ASSOCIATED CULTURAL GROUPS	TYPICAL MATERIAL EXPRESSIONS
Early Stone Age 2.5m - 250 000 YCE	Pleistocene	Early Hominids: Australopithecines Homo habilis Homo erectus	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First Homo sapiens species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	Homo sapiens 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	Mfecane / Difaqane
(iii) Colonial period	19 th Century	European settlers / farmers / missionaries/ industrialisation	Buildings, Missions, Mines, metals, glass, ceramics

4.2. Appearance of Hominids

Hominid or proto-humans appeared in South Africa more than 3 million years ago. These were primate species which are the immediate ancestors of man. Hominid sites and their fossil remains are largely confined to dolomite caves on the highveld in Gauteng, Limpopo and Northwest Provinces.⁷

To my knowledge the nearest hominid fossil site is at Taung near Vryburg (170 km to the east). This site is inscribed on the UNESCO World Heritage Site in a serial nomination with the Sterkfontein (Krugersdorp) and Makapans Valley (Mokopane). The preservation of hominid may be a function of geology and in the South African context these are almost always found in association with limestone deposits.

4.3. The Stone Age

The Stone Age dates back more than 1 million years, and is seen as the beginning of more definitive features of the cultural sequence divided into three epochs, the Early, Middle and Late Stone Ages. Stone and bone implements manifest the technology of the time and fall into distinct typologies indicating chronological development. Material evidence of human activities has been found in caves, rockshelters and riverside sites, and very rarely seen in open country. The Late Stone Age is also associated with the execution of paintings mostly in rock shelters and caves.

4.3.1. The Early Stone Age [1.4 million – 100 000 yrs BP]

The Early Stone Age marks the earliest appearance of stone artefacts about 1.4 million years ago. The pear-shaped hand-axe, cleavers and cores are archetypal artefacts (Deacon & Deacon, 1999). These tools, which have been called Acheulean after a site in France, were probably used to cut up large animals such as elephants, rhinoceros and hippopotamus. Acheulean artefacts are usually found near sites where they were manufactured and thus in close proximity to the raw material or at butchering sites. The early hunters are classified as hominids or proto-humans, meaning that they had not evolved to the present human form.

⁷ Deacon, J. and N. Lancaster. 1986. *Later Quaternary Palaeo-environments of Southern Africa*. Oxford: Oxford University Press.

Significant occurrences of ESA artefacts around Kathu have noted in Section 3 of this report, that they represent intensive occupation and exploitation for stone tool manufacture (Walker, et al 2013, p8). At Wonderwerk Cave c. 60km to the east occupation horizons of the same period have produced evidence of fire.

4.3.2. Middle Stone Age (MSA) [200 000 yrs – 30 000 yrs BP]

The Middle Stone Age (MSA), which appeared 200 000 years ago, 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. It is also believed that by then, humans had evolved significantly to become anatomically modern. Caves were used for shelter suggesting permanent or semi-permanent settlement. Furthermore, there is archaeological evidence from some of the caves indicating that people had mastered the art of making fire. These were two remarkable steps in human cultural advancement.⁸ The occupation stratigraphy at the Kathu Pan Sites and Kathu Townlands continued into the Middle Stone Age.

4.3.3. Later Stone Age (LSA)[40 000 yrs to ca 2000 yrs BP]

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 exhibited, such as rock art and purposeful burials with ornaments, became a regular practice. The practitioners of rock art are definitely the ancestors of the San and sites abound in the whole of Southern Africa. 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. Because of poor preservation, open sites become of less value compared to rock shelters.

Stone Age tools of the Middle to Late Stone Age continuum are prevalent in the broader region stretching from the banks of the Vaal and Orange in the south to Kuruman and Hotazel in the north. Rock paintings have been documented at

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⁸ Deacon, J & H. Deacon. 1999. *Human Beginnings in South Africa*. Cape Town: David Philip.

Inglesby Farm near Olifantshoek.⁹ A picture is gradually crystalizing of the extent of rock engravings on dolomite rocks and in some cases glaciated surfaces along the Vaal and Orange River Valleys. There is evidence of ancient mining of specularite around Postmasburg worked by the Khoisan and Tswana from the Middle Stone Age through to the Iron Age period.¹⁰

4.4. The Iron Age Culture [ca. 2000 years BP]

The Iron Age culture superseded the Stone Age at around 2000 years ago. The introduction of farming, metal technology and pottery appears to happen at the same time. A sudden synchronized appearance in South Africa and in the whole region of Eastern and Southern Africa has been thought to equate a rapid movement of people which has been associated with speakers of Bantu languages. The migration theory is a subject of ongoing debate. A gradual "expansion" model is an alternative hypothesis. In the southern part of the farmers associated with the Iron Age may have coexisted and intermingled with Khoisan communities for a long time, the cultural encounters producing the hybrid communities and languages found in the region today.

Two migration streams converge in South Africa, one originating in eastern Africa which has been called the *Urewe-Kwale Tradition* (or the eastern stream) and another from the west, spreading through Zambia and Angola, which he termed the *Kalundu Tradition* (or western stream). Although no sites in the western parts of the country have been explicitly linked with the Early Iron Age, one cannot rule out possible transhumant pastoralism / seasonal hunting camps in the western regions from early in the Iron Age.

Metal working was a new technology not possessed by the Stone Age hunters. As mixed farmers, iron-using peoples practiced agriculture and kept domestic animals such as cattle, sheep, goat and chicken amongst others. However, there is

⁹ Dreyer, Corbus. 2014. Ibid: 11

¹⁰ http://www.southafrica.org.za/south-africa-travel-postmasburg.html.

<u>Beaumont, Peter. 2007.</u> Phase 1 Heritage Impact Assessment Report on the Farm Portions Potentially Affected by a Proposed Direct Rail Link between the Sishen South Mine near Postmasburg and the Sishen - Saldanha line, Siyanda District Municipality, Northern Cape Province.

¹¹ Phillipson, D. W. 2005. African Archaeology. Cambridge: University of Cambridge Press: 249.

increasing evidence that sheep and cattle might have been in the area with the Khoikhoi much earlier than the introduction of metals.

4.4.1. The later Iron Age

The Later Iron Age is marked by the presence of extensive stonewalled settlements found in a large swathe of territory across Limpopo, Mpumalanga, Northwest, Northern and Free State Provinces. The stone wall remnants of the Tlhaping capital at Dithakong northeast of Kuruman and c. 100 km from Kathu are significant.¹²

4.5. Precolonial historical context

Kathu falls within the historical land of the Tswana, specifically the Tlhaping (east of Kuruman stretching to Vaal and Orange River valleys) and the Tlaro in the region of Kuruman, Kathu and Olifantshoek. The interface between the Later Iron Age with the Tswana is a grey area in terms of the existing state of research. For now we can postulate that they are descendants of LIA farming communities.

4.6. The Mfecane/Difagane Upheavals

In the 1820s Tshaka's unification wars on the eastern seaboard, what became Zululand, set in motion a series of migrations, north, south and west onto the South African highveld. The Ngwane under Matiwane wreaked havoc with several groups on the southern highveld. The Ndebele of Mzilikazi penetrated the central highveld causing displacement of Sotho and Tswana groups living there. As the security situation deteriorated, Sotho segments under Sebitoane and Mantatisi drifted out of the Plateau settling on the upper Zambezi flood plains; while Mzilikazi was also dislodged after bloody fights with the Afrikaners in 1837, taking with him assimilated elements of the Sotho and Tswana.¹³

The Battle of Dithakong in 1823 was one of the manifestations of the period of strife in this part of South Africa called Difagane. It was fought between Manthatisi's Sotho

¹² 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

¹³ Muller, C. F. J. 1986. *Five Hundred Years: A History of South Africa*. 5th Edition. Pretoria: Rasmussen, R. K. 1977. *Mzilikazi of the Ndebele. African Historical Biographies*. London: Heinemann

migrants and the Batlhaping with the help of the Griqua. The battle documented by the Missionary Robert Moffat on 23 June 1823. At the behest of Rev Moffat the Griqua sent a relief force of 200 horsemen led by Rev Waterboer in Griquatown, and the Griqua leaders (Barend Barends from Danielskuil and Adam Kok II from Campbell).

4.7. The European Contact Period

4.7.1. Missionaries and explorers

At the beginning of the 19th century the German explorer Martin Henrich and Carl Lichtenstein travelled through the general vicinity of the study area. Crossing the Orange River near present-day Prieska, Lichtenstein's party visited present-day Daniëlskuil, and by June 1805 they were at Blinkklip (Postmasburg), famous for its specularite mines. The party trekked further north and reached the Kuruman River in the middle of Tswana communities.

The explorer William John Burchell travelled through the area in 1811 followed by John Campbell in 1813. During 1813 John Campbell of the London Missionary Society also visited the general vicinity of the study area. He passed through Postmasburg on his way to Kuruman (Fourie 2018: 28).

The London Missionary Society established at Kuruman in 1817 under the tutelage of Robert Moffat. The spot was chosen for its abundant water supply issuing from a spring. The remains of the old mission are treasured heritage, the bicentenary of which was marked on 2017 (Figure 9). Moffat struck a cordial relationship with Mzilikazi in spite of the notorious reputation the Matabele had earned as marauders. The culmination of this friendship was the establishment years later of a mission station at Inyathi (near present day Bulawayo, Zimbabwe) in Mzilikazi's new territory north of the Limpopo River. Moffat's Mission at Kuruman was also the passage of the famous Scottish Doctor and explorer, David Livingstone, credited with the discovery of the Victoria Falls in 1855. The missionary episode is seen as a prelude to expansion of the colonial frontier from the Cape.

4.7.2. Colonial occupation and African resistance

One of the important triggers of European interest in the area was the discovery of diamonds at Kimberley in 1867. With increasing mining activity at Kimberley, the British annexed Griqualand West in 1871, its northern boundary set 30 km south of the present day Olifantshoek.

In 1878, there was a revolt against the British in Griqualand West which spread beyond into the Oilfantshoek area. The British sent a force under Sir Charles Warren to put down the revolt. Dithakong was subjected to bombardment by Charles Warren.¹⁴

Between 1881 and 1883 the Tlaro and Tlhaping mounted resistance against Boer encroachment. In the ensuing fights the Boers prevailed leading to the establishment of the Republics of Stellaland and Goosen. These state systems were however short-lived as the British annexed the two Republics two years later and declared Bechuanaland (land of the Tswana) as a crown land. In 1895, Bechuanaland was incorporated into the Cape Colony.

4.7.3. The Langberg Rebellion 1896-7

Mounting anger among the Tlhaping and Tlaro over the confiscation of land, confinement to reserves and continued demands for land at the expense of the reserves led to rebellion. The outbreak of the bovine disease andrinderpest in many parts of southern Africa provided the ignition. Demand by the British that the Tlaro put down their horses to contain the epidemic was interpreted as sabotage in preparation for war. Chief Toto Makgolokwe of the Tlaro led his people into war and made a good account by defeating British Forces in one of the encounters which lasted 8 months (Figure 10). British war graves on a farm west of Olifantshoek are a tourist attraction. The farms Langkloof, Inglesby, Lukin, Gamayana, Puduhush, Toto, Luka and Hopkins west of Olifantshoek are named after major role players in the Langberg Rebellion.

¹⁴ Dithakong. Found at: https://en.wikipedia.org/wiki/Dithakong

¹⁵ Information provided by Mr Rean Van De Luytgaarden, Owner of Elephant Rock Inn, Oilfantshoek.

¹⁶ http://en.wikipedia.org/wiki/Toto Makgolokwe

The British forces eventually captured Toto Makgolokwe and his son Phemelo together with King (kgosi) Galeshewe who had sheltered in the area. Toto and his son were taken prisoners to Robben Island; Toto died there.



Figure 10: Toto, leader of the Tlaro (Fourie, 2017: 34).

The above is the framework for identifying heritage resources in the area.

5. FINDINGS OF THE SURVEY

The footprint of the proposed development is located 16 km north of Kathu Pan Site (KP1), now proclaimed a Grade 1 site. The National Heritage Site will not be affected by the proposed development.

5.1. Stone Age

Low density traces were found on the western portion of Erith comprising scrapers and flakes on the surface described as background scatters. No finds were recorded on the farm Walton (Table 4, Figure 11).

5.2. The Iron Age

No sites or relics dating to the Iron Age period were recorded.

5.3. Burial grounds

No graves or burial grounds were reported on the property.

5.4. Desk assessment of the likely heritage sensitivity of the eastern portion of Erith

The terrain features on both the eastern and western portions of the farm Erith are basically similar including surface conditions and vegetation configuration. The findings of a ground survey were not likely to turn out to be fundamentally different from what was encountered on the western portion of the farm. The farm is bisected by a shallow stream which also runs through the western portion as well as the Farm Walton.

On a more general note, it is an established fact that Stone Age material is widely distributed on the plains, ridges and valleys of the upper Karroo area north and south of the Orange-Vaal basin. The material comprises scrapers, blades, cores and flakes typologically dating to the Middle Stone Age/Late Stone Age period. Early Stone Age material has been encountered in places with occasional occurrence of hand-axes and cleavers. The scattered distribution pattern seems to suggest general hunter-gatherer activity on the Ghaap Plateau. Rarely have the findings warranted further action such as professional excavations or the issue of a destruction permit from SAHRA. These finds have therefore not warranted further action after documentation. Rock Paintings are not likely to occur on Erith as there are no hills or outcrops on the property.

5.4.1. Other heritage resources that might occur in the broader area

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

- Buildings and objects associated with modern commercial farming from the 19th century
- Graves, burial grounds and human bones.

5.4.2. Postulated heritage sensitivity of the study area

The studies which have been undertaken in the locality provide a good theoretical foundation from which to extrapolate the more likely scenarios on the farm under study. The area was obviously home to MSA/LSA hunter gatherers who left behind

the scatters of stone tools and flake waste. The MSA/LSA finds on the western portion of Erith and on the Farm Marsh 467, 10 km to the south, have not warranted further action beyond primary documentation. It can therefore be reasonably concluded that the material yield from the western portion of Erith will not be anything different from what has been encountered on these two neighbouring properties. This is a sound premise from which it is recommend that the mine prospecting should go ahead.

The Table 2 below therefore provides a summary of the probability of occurrence of different typologies of heritage and a confidence rating of the predictions:

Table 2: Probability of occurrence of different typologies of heritage

	HERITAGE TYPOLOGY	PROBABILITY OF	CONFIDENCE RATING
		OCCURRENCE	
1	MSA/LSA	99.99%	High
3	Rock paintings	0% ¹⁷	High
4	Early Iron Age / Later Iron	0.01%	High
	Age		
5	Burial grounds	40%	Medium
6	Farm buildings and	75%	Medium
	structures		

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¹⁷ There are no hills on the property

Table 3. The ranking system in the Table below relates to the national grading of heritage sites (adapted from Guidelines for involving Heritage Specialists in EIA processes by Winter S and & N. Baumann (2005, p19). The probability of occurrence of different grades of sites confirms the view that no finds in the study area are likely to warrant further action apart from documentation, which is a minimum requirement. During the exploration phase documentation of the finds can be done within the ambit of the Chance Finds Procedure.

GRADE	RANKING	SIGNIFICANCE	PROBABILITY OF	CONFIDENCE
			OCCURRENCE	RATING
1	National	Of high intrinsic, associational and contextual heritage value within a		High
		national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources		
2	Provincial	Of high intrinsic, associational and contextual heritage value within a	0%	High
		national, provincial and local context, i.e. formally declared or		
		potential Grade 2 heritage resources		
3A	Local	Of high intrinsic, associational and contextual heritage value within a	10%	Medium
		national, provincial and local context, i.e. formally declared or		
		potential Grade 3A heritage resources		
3B	Local	Of moderate to high intrinsic, associational and contextual value	20%	High
		within a local context, i.e. potential Grade 3B heritage resources		
3C	Local	Of medium to low intrinsic, associational or contextual heritage value	99,99%	High
		within a national, provincial and local context, i.e. potential Grade 3C		
		heritage resources		

5.5. Chance Finds Procedure (CPF)

A Heritage Chance Finds Procedure (CFP) is annexed to the HIA Report. Since this is a scientific procedure, the CPF has been adapted from similar documents which have been referenced.

Table 4: Heritage sites on the western portion of Erith

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING	MITIGATION
ERT01	27°28'33.80"S	22°59'56.10"E	MSA/LSA	Western portion Erith: Sandy soil with calcrete waste. Scraper with retouched edges.	Medium B	No further action
ERT02	27°28'36.60"S	22°59'57.30"E	MSA/LSA	Western portion Erith: Flat terrain, superficial sands, scattered acacia scrub. 3 lithics: 2 flakes of jaspilite and quartz, 1 scraper.	Medium B	No further action
ERT03	27°28'36.80"S	23° 0'6.40"E	MSA/LSA	Western portion Erith: Shallow dry stream bed. 1 scraper	Medium B	No further action
ERT04	27°28'36.80"S	23° 0'6.40"E	MSA/LSA	Western portion Erith: On the edge of a thick acacia stand. 1 scraper.	Medium B	No further action



Figure 11: Map showing the location of heritage sites on the western portion of the farm Erith

5.6. Assessment of Impacts using the 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 Four (4) sites with Stone Age lithics.
- (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

N/A.

(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 in the Northern Cape offers great prospect for recovery and growth of the national economy which is currently constrained by a number of factors including the global coronavirus pandemic. Diatomaceous earth is processed into a supplement for stock feeds, and it has many other industrial uses. Stock farming is critical for sustainable management of food security.

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

N/A

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

N/A

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

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

5.7. Risk Assessment of the findings

EVALUATION CRITERIA	RISK ASSESSMENT	
Description of potential	Negative impacts range from partial to total destruction of	
impact	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 the National Heritage Resources	
	Act No. 25 (1999)	
Stage/Phase	Excavation of test pits, ground clearance.	
Extent of Impact	Excavations and ground clearance can result in the damage	
	and destruction of archaeological resources above and below	
	the surface not seen during the survey.	
Duration of Impact	Any accidental destruction of surface or subsurface relics is	
	not reversible, but can be mitigated.	
Intensity	Uncertain.	
Probability of occurrence	Medium.	
Confidence of assessment	High.	
Level of significance of	High.	
impacts before mitigation		
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.	
Level of significance of	Low.	
impacts after mitigation		
Cumulative Impacts	None.	
Comments or Discussion	None.	

6. CONCLUSION AND RECOMMENDATIONS

In light of these findings, it is recommended that the mineral prospecting can go ahead. As a standard precaution, archaeological deposits are usually buried underground. If archaeological artefacts or skeletal material will be exposed in the area during construction, such activities should be halted, and the provincial heritage resources authority or SAHRA notified in order for an investigation and evaluation of the finds to take place.

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8. CATALOGUE OF HERITAGE SITES

SITE NO	COORDINATES		PERIOD
ERT01	27°28'33.80"S	22°59'56.10"E	MSA/LSA





DESCRIPTION: Erith: Sandy soil with calcrete waste. Scraper with retouched edges.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the
	MSA/LSA
MITIGATION	No further action required.

SITE NO	COORDINATES	3	PERIOD
ERT02	27°28'36.60"S	22°59'57.30"E	MSA/LSA





DESCRIPTION: Erith: Flat terrain, superficial sands, scattered acacia scrub. 3 lithics: 2 flakes of jaspilite and quartz, 1 scraper.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the
	MSA/LSA
MITIGATION	No further action required.

SITE NO	COORDINATES		PERIOD
ERT03	27°28'36.80"S	23° 0'6.40"E	MSA/LSA





DESCRIPTION : Erith: Shallow dry stream bed. I scraper.		
HERITAGE SIGNIFICANCE		
	MSA/LSA	
MITIGATION No further action required.		

SITE NO	COORDINATES	3	PERIOD
ERT04	27°28'36.80"S	23° 0'6.40"E	MSA/LSA





DESCRIPTION: Erith: On the edge of a thick acacia stand. I scraper.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the
	MSA/LSA
MITIGATION	No further action required.