

HERITAGE IMPACT ASSESSMENT IN TERMS OF SECTION 38(8) OF THE
NATIONAL HERITAGE RESOURCES ACT (NO 25/1999) FOR THE PROPOSED
AGRICULTURAL DEVELOPMENT (LUSERN & HYDROPONICS SYSTEMS
PROJECT) ON THE REMAINING EXTENT OF THE FARM MARSH NEAR KATHU,
NORTHERN CAPE

Prepared by

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Monday, 25 January 2021



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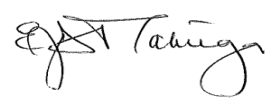
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DOCUMENTS CONTROL

APPLICANT	ENVIRONMENTAL CONSULTANT
Sishen Iron Ore Company (Pty) Ltd	Thaya Trading Enterprise

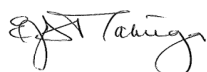
	Name	Signature	Date
FIELD WORK & REPORT	E. Matenga		25/01/2021

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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EXECUTIVE SUMMARY

1. This Heritage Impact Assessment (HIA) report has been prepared in support of an application for environmental authorization for the development of a community benefit agricultural project on the Remaining Extent of the Farm Marsh 467 on the outskirts of Kathu in the Northern Cape Province.
2. The donor, Sishen Iron Ore Company (Pty) Ltd, intends to set up a Cattle Feedlot Facility and a Hydroponics Systems Project with a footprint of 35ha. The scale of physical works may result in the damage and destruction of heritage resources.
3. A Heritage Impact Assessment is required to inform decisions on the mitigation of potentially harmful impacts.
4. *Findings of the survey*
5. The property is located 6km north of Kathu Pan Site (KP1), now proclaimed a Grade 1 site and hence protected. Kathu Airport is located between the farm Marsh 467 and KP1. In our view given distance between two localities there is no prospect of inclusion of the sites on Marsh 467 in a buffer zone of the Grade 1 site.
6. On the farm Marsh 467 there are scatters of lithics comprising a few scrapers and significantly many flakes possibly dating to the Middle Stone Age. 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.
7. *The Iron Age*
No sites or relics dating to the Iron Age were recorded.

8. *Historic structures*

Wooden posts, a water tank and drinking trough are remnants of livestock holding and feeding facilities. The water tank and trough will be reused in the cattle fattening project.

9. *Burial grounds*

10. No graves or burial grounds were reported on the property.

11. Heritage sites

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING	MITIGATION
MSH01	27°36'53.50"S	22°58'50.50"E	Modern	Open flat terrain. Wooden posts are the remains of livestock holding pens, water tank, cement plastered drinking trough.	Low	Water tank and trough will be reused in the cattle fattening project.
MSH02	27°36'54.20"S	22°58'51.34"E	-	Kathu pan, one of a number of pans found north of Kathu town holding water in the rain season when the water table rises. Stone Age artefacts have been reported in other pans to the south which have been investigated.	Medium B	No further action
MSH03	27°36'50.90"S	22°58'55.80"E	MSA	Flat terrain, calcretic waste, scattered black thorn bushes. 3 flakes	Medium B	No further action
MSH04	27°36'50.00"S	22°58'56.60"E	MSA	Flat terrain, calcretic waste, scattered black thorn bushes. 6 lithics, flakes some of which may have been used as scrapers.	Medium B	No further action
MSH05	27°36'46.80"S	22°59'1.10"E	MSA	Flat terrain, calcretic waste and exposed calcretic hardpan. Scattered bushes - Vaalbos (<i>Tarchonanthus camphoratus</i>). 5 lithics: 1 micro-scraper (dark colour) and flake waste.	Medium B	No further action
MSH06	27°36'41.00"S	22°58'57.40"E	MSA	Flat terrain, calcretic waste and exposed calcretic hardpan. Scattered bushes - Vaalbos (<i>Tarchonanthus camphoratus</i>). 4 lithics: 1 scraper and flake waste.	Medium B	No further action
MSH07	27°36'39.70"S	22°58'51.60"E	MSA	Flat terrain with scattered bushes. 1 scraper.	Medium B	No further action
MSH08	27°36'43.30"S	22°58'53.90"E	MSA	Flat terrain with scattered bushes. 1 scraper	Medium B	No further action
MSH09	27°36'42.10"S	22°58'53.10"E	MSA	Flat terrain, calcretic waste and hardpan. Scattered black thorn bushes. 1 black flake waste, possibly obsidian.	Medium B	No further action
MSH10	27°36'45.50"S	22°58'48.20"E	MSA	Flat terrain, calcretic waste and hardpan. Scattered black thorn bushes. 3 lithics: 1 scraper, 2 flakes.	Medium B	No further action
MSH11	27°36'47.70"S	22°58'47.30"E	MSA	Open flat terrain, grass plain without trees. 1 core which shows a detachment surface.	Medium B	No further action

12. 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. 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.	10
4	Low	Heritage sites which have been recorded, but considered of minor value relative to the proposed development.	1
		TOTAL	11

13. Recommendations and conclusions

The agricultural project can be considered in light of the low cultural significance of the material found. As a standard precaution in the event of other heritage resources being discovered 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.

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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.

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.

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

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

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

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

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

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 ± 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

1.1. Nature of Development

This Heritage Impact Assessment (HIA) report has been prepared in support of an application for environmental authorization for the development of a community benefit agricultural project on the Remaining Extent of the Farm Marsh 467 on the outskirts of Kathu, Northern Cape Province (Figures 1-2). The donor, Sishen Iron Ore Company (Pty) Ltd, in line with its corporate social responsibility, intends to develop a Cattle Feedlot Facility (10ha) and a Hydroponics Systems Project on 25ha. The projects will draw power from a Photovoltaic Plant with an expected generation capacity of 50 Megawatts.

The project will entail the following physical works:

- Construction of Feedlot Facility on 10ha;
- Construction of a Solar powered Submersible Pump system;
- Construction of Solar powered Pump station;
- Fencing around the perimeter of feedlot facility;
- Construction of Water Reservoir;
- Construction of Hydroponic Systems 25 Ha;
- Construction of a Solar power plant to provide power to the Hydroponic Systems;
- Construction of Irrigation System including Storage tanks;
- Construction and operation of bee harvesting and honey processing facility and associated beeswax product-related manufacturing

The above mentioned physical works will result in the disturbance or destruction of heritage resources if they occur in the footprint of the proposed development. The duty to protect heritage resources likely to be affected by a project 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 farm Marsh 467 is situated 10km north of Kathu on eastern margins of the Kalahari sands. This area is a flat terrain 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 property 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. The superficial sandy loam soils are windblown from the Kalahari and have accumulated over millions of years. Below the topsoil there is calcretic stratum occasionally exposed on the surface as a hardpan or gravely waste. Vegetation is karoo scrub dominated by black thorn (*Acacia mellifera subsp. Detinens*) and *Vaalbos* a shrub endemic in this region (*Tarchonanthus camphoratus*)² (Figures 3-5).

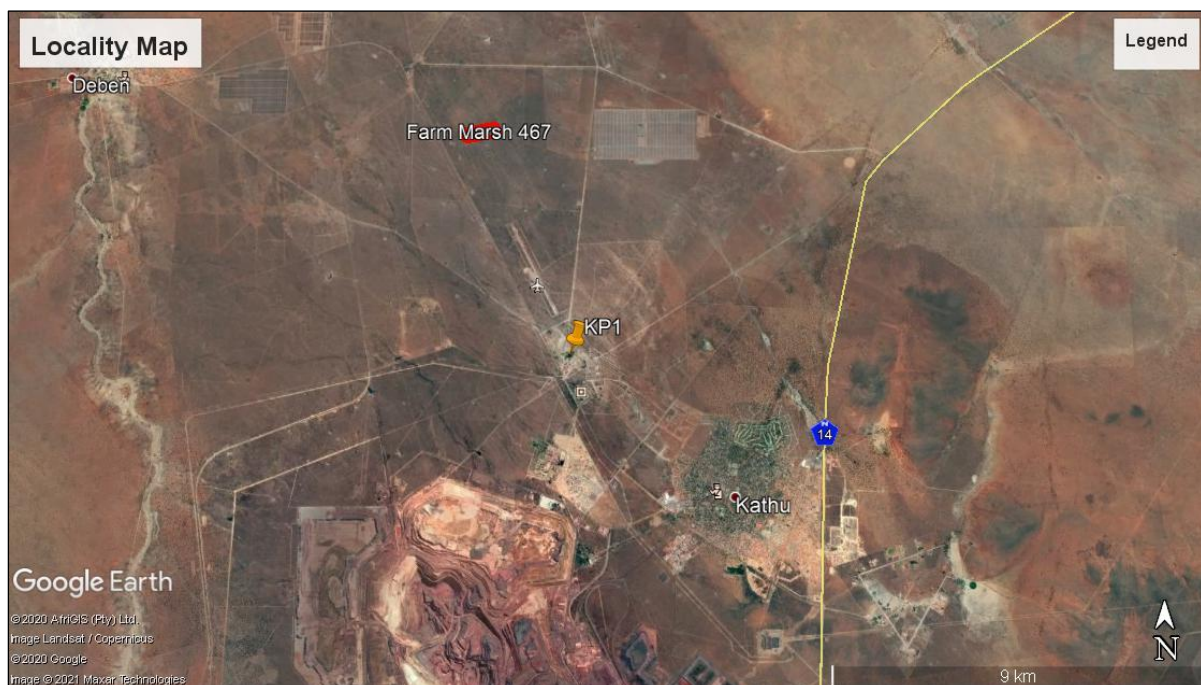


Figure 1: Google Earth Map shows the location of the project area on the Farm Marsh 467 north of Kathu. KP1 is an Early Stone Age 6km south of Marsh 467 and proclaimed a Grade 1 site in 2013.

² Prof. Hugh Glen (Botanist), Pers. Com. 22 September 2015.

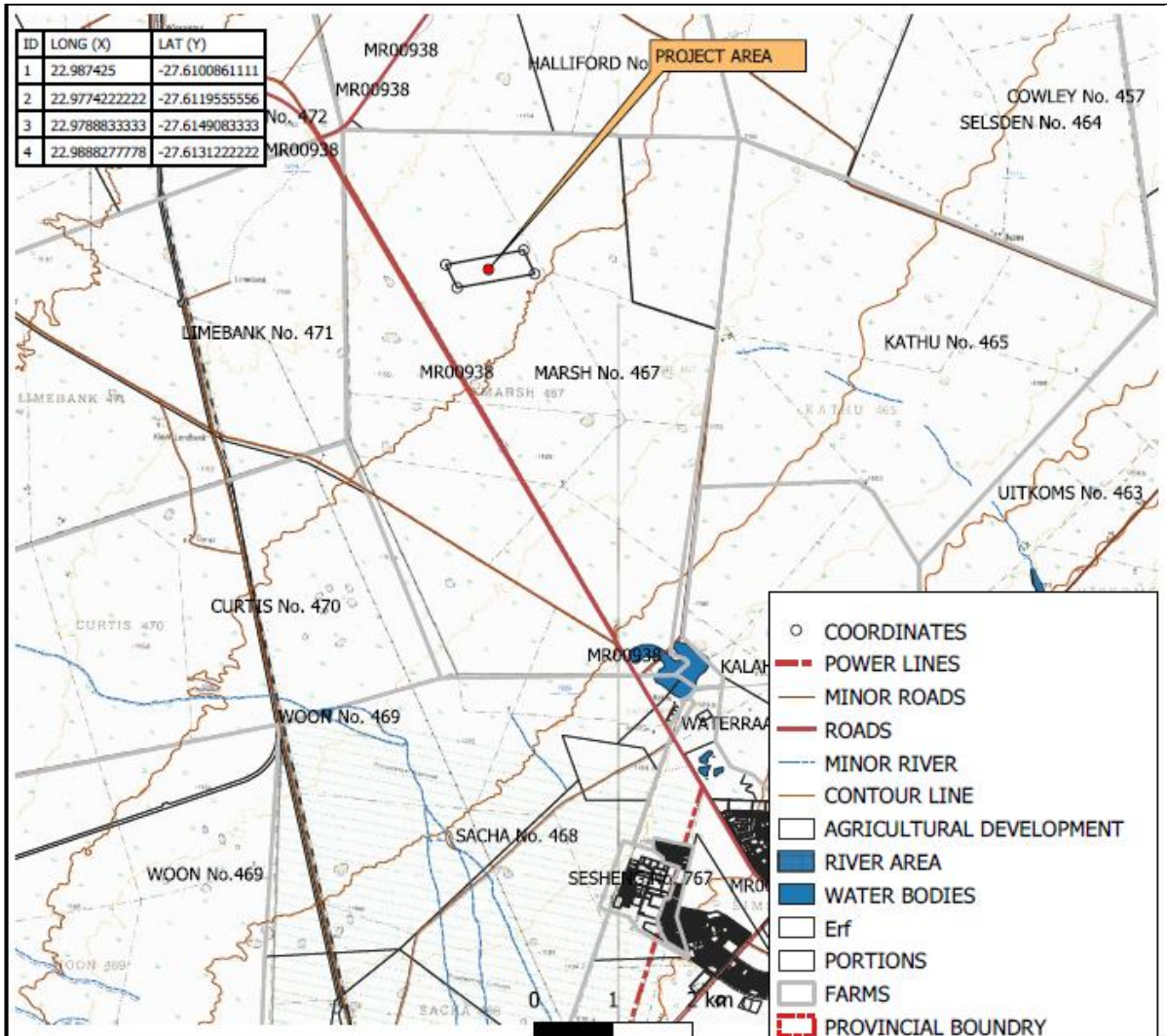


Figure 2: Locality map shows the location of the project area on the Farm Marsh 467.



Figure 3: View of the property shows a grassy plain and scattered bushes, a mixture of black thorn (Swarthaak) (*Acacia mellifera subsp. Detinens*) and Vaalbos (*Tarchonanthus camphoratus*).



Figure 4: Black thorn bushes and gravelly calcrete.



Figure 5: Occasional exposure of calcretic hardpan.

2. LEGAL FRAMEWORK

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

2.1. Protection of buildings and structures

Section 34 of 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.

2.2. Prescription of heritage impact assessments

Heritage Impact Assessments are prescribed when the scale of a development proposal crosses thresholds as set out in Section 38 of the National Heritage Resources Act (No 25 1999) as follows:

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 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.*

2.2. 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.

2.3. The National Environmental Management Act

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.

2.4. 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 available in academic articles and on SAHRIS. Archaeological findings around Kathu Pan and investigations ongoing at Kathu Townlands have been given spotlight.³

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

³ 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

Africa, the art of a Continent in 1995.

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

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°

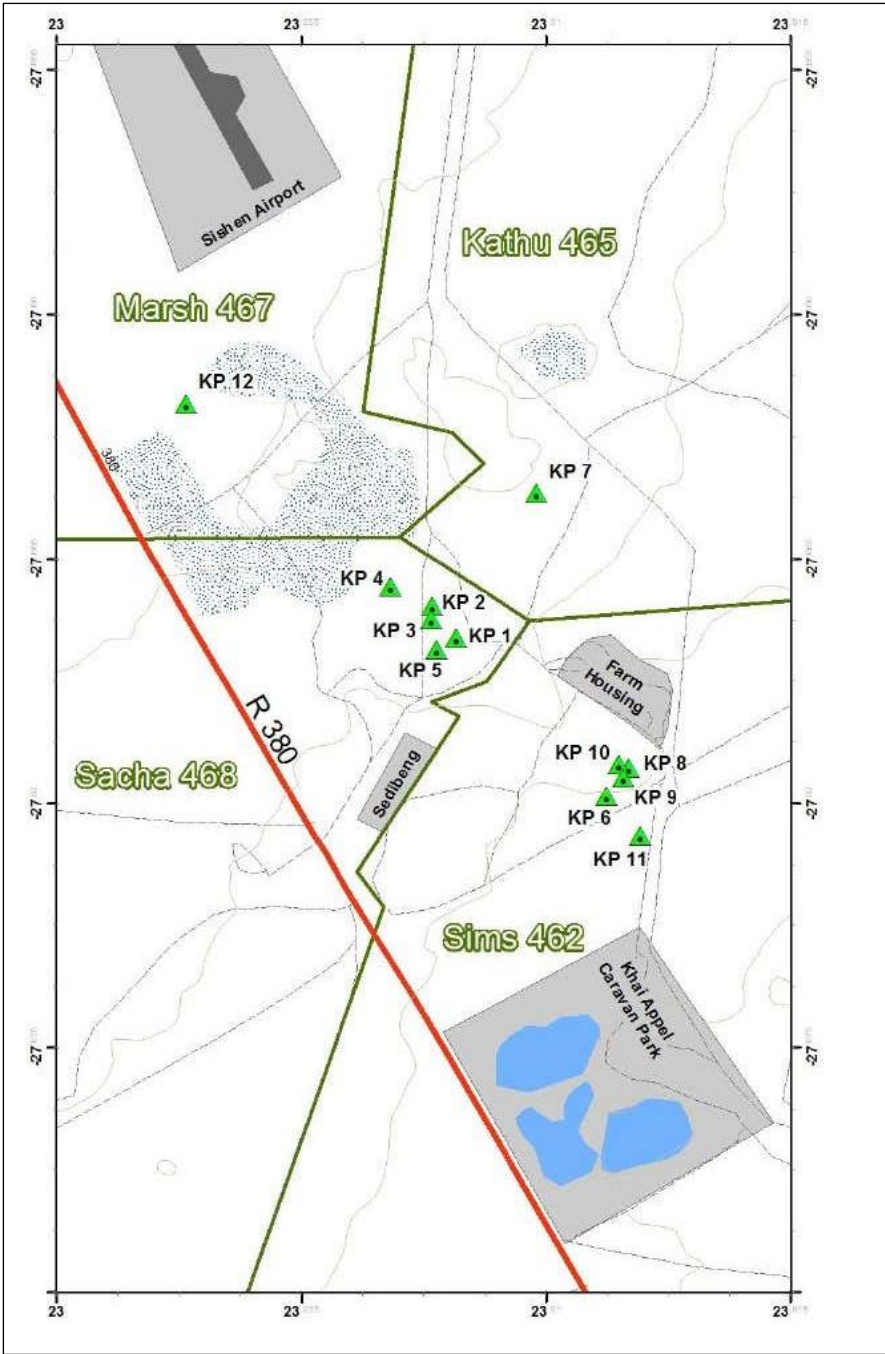


Figure 6: Estimated locations of KP1-KP12 based on 2013 fieldwork (Walker et al. 2013, p13).

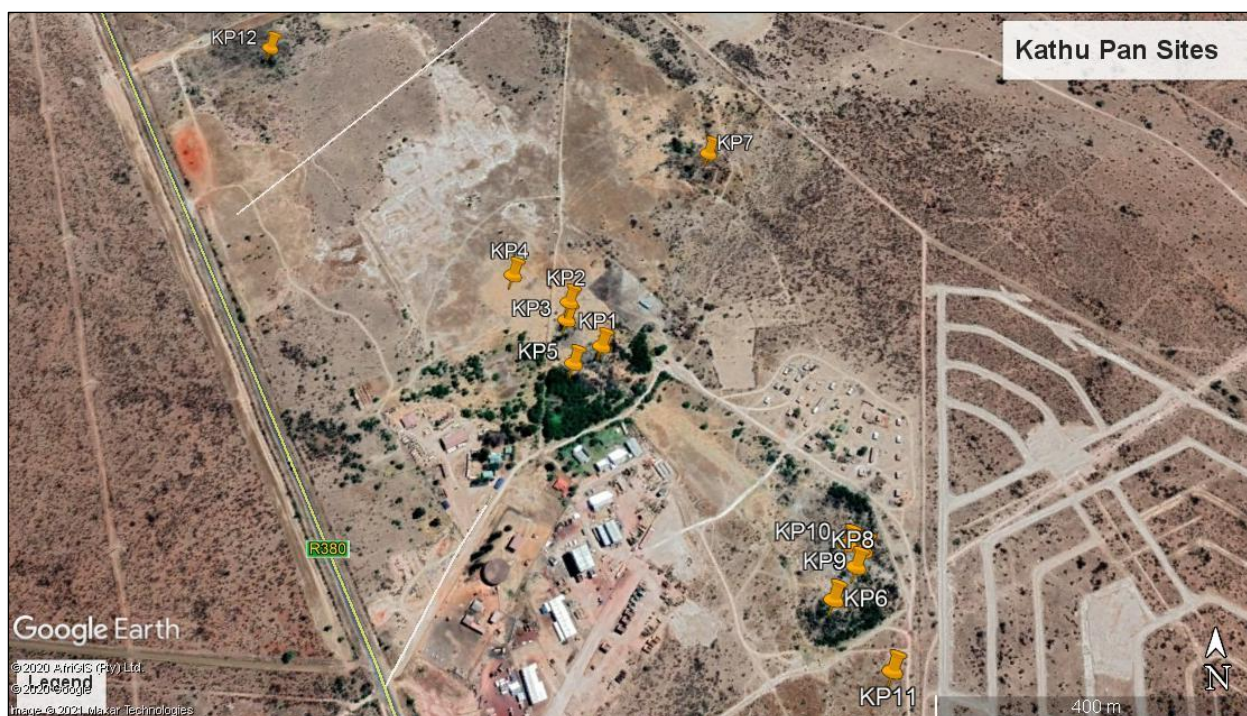


Figure 7. Google Earth map shows the location of the Kathu Pan sites, including KP1 (top left hand of map) which has been declared a Grade 1 site.

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, 56km to the east.⁴ In August 2013 excavations were undertaken as part of Phase Heritage Impact Assessment (data recovery as mitigation) for the development 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 2.2m. 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.

3.2. Ground Survey

⁴ 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

On 13 January 2020 a site visit was made and observations were taken from the property by means of walking surveys, largely random, but also targeting spots seen as likely to yield material.

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. They must be protected.	
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	

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

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

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.⁵

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.

⁵ Deacon, J. and N. Lancaster. 1986. *Later Quaternary Palaeo-environments of Southern Africa*. Oxford: Oxford University Press.

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, rock-shelters 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.

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.⁶ 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 Inglesby Farm near Olifantshoek.⁷ 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.⁸

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

⁶ Deacon, J & H. Deacon. 1999. *Human Beginnings in South Africa*. Cape Town: David Philip.

⁷ Dreyer, Corbus. 2014. Ibid: 11

⁸ <http://www.southafrica.org.za/south-africa-travel-postmasburg.html>.

Beaumont, Peter. 2007. 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.

people which has been associated with speakers of Bantu languages.⁹ 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 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 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. 100km from Kathu are significant.¹⁰

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

⁹ Phillipson, D. W. 2005. *African Archaeology*. Cambridge: University of Cambridge Press: 249.

¹⁰ 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

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/Difaqane 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 Mantatise 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.¹¹

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

¹¹ 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

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 the 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 30km south of present day Olifantshoek.

In 1878 there was a revolt against the British in Griqualand West which spread beyond into the Olifantshoek area. The British sent a force under Sir Charles Warren to put down the revolt. Dithakong was subjected to bombardment by Charles Warren.¹²

Between 1881 and 1883 the Tlalo 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

¹² Dithakong. Found at: <https://en.wikipedia.org/wiki/Dithakong>

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, rinderpest 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.¹³ 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.¹⁴ (Figure 11). British war graves on a farm west of Olifantshoek are a tourist attraction. The farms Langkloof, Inglesby, Lukin, Gamayana, Pudahush, Toto, Luka and Hopkins west of Olifantshoek are named after major role players in the Langberg Rebellion.

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.

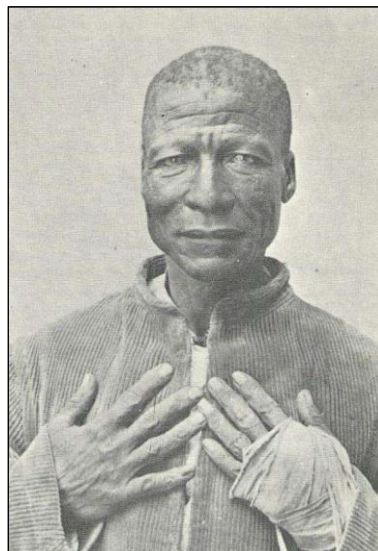


Figure 8: Toto, leader of the Tlaro (From Fourie, 2018: 34).

¹³ Information provided by Mr Rean Van De Luytgaarden, Owner of Elephant Rock Inn, Oilfantshoek.

¹⁴ http://en.wikipedia.org/wiki/Toto_Makgolokwe

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

5. FINDINGS OF THE SURVEY

The property is located 6km north of Kathu Pan Site (KP1), now proclaimed a Grade 1 site and hence protected. Kathu Airport is located between the farm Marsh 467 and KP1. In our view given distance between the two localities there is no prospect of inclusion of the sites on the farm Marsh 467 in a buffer zone of the Grade 1 site.

On the farm Marsh 467 there are scatters of lithics comprising a few scrapers and significantly many flakes. 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.

5.1. The Iron Age

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

5.2. Historic structures

Wooden posts, a water tank and drinking trough are remnants of livestock holding and feeding facilities. The water tank and trough will be reused in the cattle fattening project.

5.3. Burial grounds

No graves or burial grounds were reported on the property.

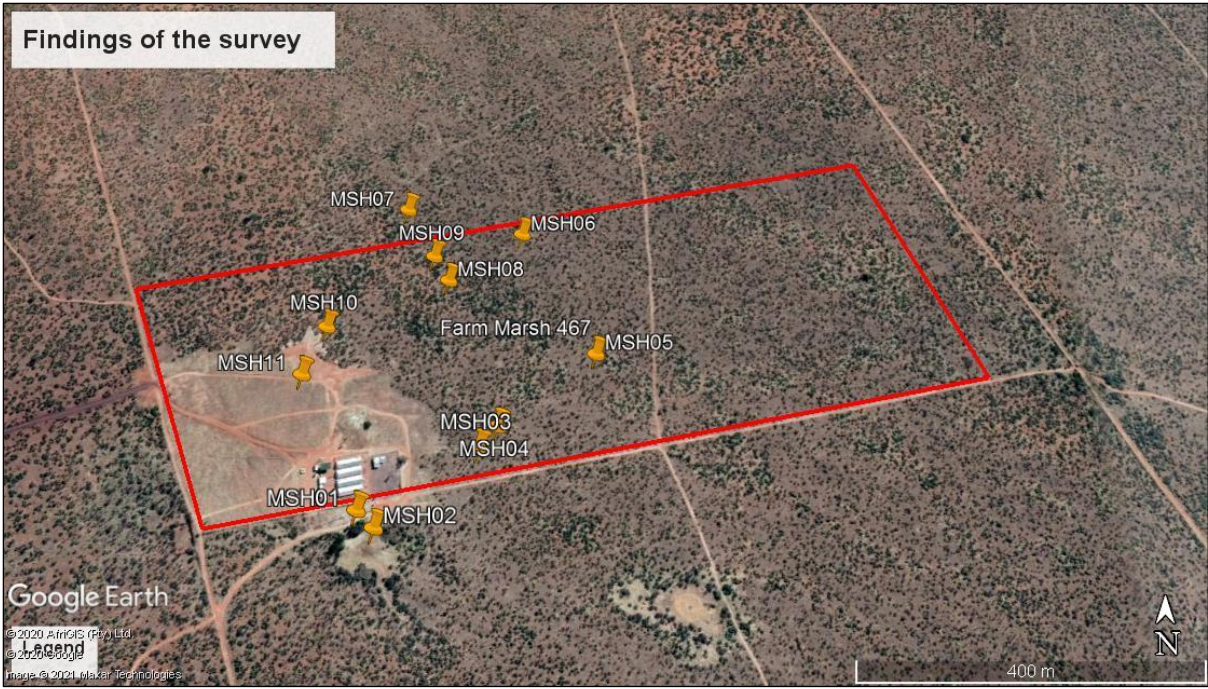


Figure 9: Google Earth Map shows the location of finds (sites).

Table 2: Heritage sites

SITE NO	LATITUDE	LONGITUDE	PERIOD	DESCRIPTION	RANKING	MITIGATION
MSH01	27°36'53.50"S	22°58'50.50"E	Modern	Open flat terrain. Wooden posts are the remains of livestock holding pens, water tank, cement plastered drinking trough.	Low	Water tank and trough will be reused in the cattle fattening project.
MSH02	27°36'54.20"S	22°58'51.34"E		Kathu pan, one of a number of pans found north of Kathu town holding water in the rain season when the water table rises. Stone Age artefacts have been reported in other pans to the south which have been investigated.	Medium B	No further action
MSH03	27°36'50.90"S	22°58'55.80"E	MSA	Flat terrain, calcretic waste, scattered black thorn bushes. 3 flakes	Medium B	No further action
MSH04	27°36'50.00"S	22°58'56.60"E	MSA	Flat terrain, calcretic waste, scattered black thorn bushes. 6 lithics, flakes some of which may have been used as scrapers.	Medium B	No further action
MSH05	27°36'46.80"S	22°59'1.10"E	MSA	Flat terrain, calcretic waste and exposed calcretic hardpan. Scattered bushes - Vaalbos (<i>Tarchonanthus camphoratus</i>). 5 lithics: 1 micro-scraper (dark colour) and flake waste.	Medium B	No further action
MSH06	27°36'41.00"S	22°58'57.40"E	MSA	Flat terrain, calcretic waste and exposed calcretic hardpan. Scattered bushes - Vaalbos (<i>Tarchonanthus camphoratus</i>). 4 lithics: 1 scraper and flake waste.	Medium B	No further action
MSH07	27°36'39.70"S	22°58'51.60"E	MSA	Flat terrain with scattered bushes. 1 scraper.	Medium B	No further action
MSH08	27°36'43.30"S	22°58'53.90"E	MSA	Flat terrain with scattered bushes. 1 scraper	Medium B	No further action
MSH09	27°36'42.10"S	22°58'53.10"E	MSA	Flat terrain, calcretic waste and hardpan. Scattered black thorn bushes. 1 black flake waste, possibly obsidian.	Medium B	No further action
MSH10	27°36'45.50"S	22°58'48.20"E	MSA	Flat terrain, calcretic waste and hardpan. Scattered black thorn bushes. 3 lithics: 1 scraper, 2 flakes.	Medium B	No further action
MSH11	27°36'47.70"S	22°58'47.30"E	MSA	Open flat terrain, grass plain without trees. 1 core which shows a detachment surface.	Medium B	No further action

5.4. 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. 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.	10
4	Low	Heritage sites which have been recorded, but considered of minor value relative to the proposed development.	1
		TOTAL	11

5.5. 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
 Eleven (11) localities with findings were recorded. None of these sites were seen as sensitive to warrant further action

(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.

(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. The proposed development will have no serious impact on heritage resources.

(d) 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

Under its corporate social responsibility programmes, Sishen Iron Ore Company has provided capital for the cattle feeding scheme and the hydroponics systems project. The project will provide occupation and support livelihoods in the local communities; it is therefore for public good.

(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

Consultation of local communities was undertaken within the ambit of the broader Environmental Impact Assessment process.

(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, the Provincial Heritage Resources Authority or SAHRA will be informed immediately and an archaeologist or heritage expert called to attend.

5.6. 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	Site preparation
Extent of Impact	Ground clearing, excavation of foundation trenches can result in damage and destruction of archaeological resources above and below the surface not seen during the survey.
Duration of Impact	Any accidental destruction of surface or subsurface relics is not reversible, but can be mitigated.
Intensity	Uncertain.
Probability of occurrence	Medium.
Confidence of assessment	High.
Level of significance of impacts before mitigation	High.
Mitigation measures	No further action is required. 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 impacts after mitigation	Low.
Cumulative Impacts	None.
Comments or Discussion	None.

6. RECOMMENDATIONS AND CONCLUSIONS

The agricultural project can be considered in light of the low cultural significance of the material found. As a standard precaution in the event of other heritage resources being discovered 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.

7. CATALOGUE OF HERITAGE SITES

SITE NO	COORDINATES		PERIOD
MSH01	27°36'53.50"S	22°58'50.50"E	Modern
			
<p>DESCRIPTION: Open flat terrain. Wooden posts are the remains of livestock holding pens, water tank, cement plastered drinking trough.</p>			
HERITAGE SIGNIFICANCE		Association with commercial farming.	
MITIGATION		Water tank and trough will be reused in the cattle fattening project.	

SITE NO	COORDINATES		PERIOD
MSH02	27°36'54.20"S	22°58'51.34"E	-
			
<p>DESCRIPTION: Kathu pan, one of a number of pans found north of Kathu town holding water in the rain season when the water table rises. Stone Age artefacts have been reported in other pans to the south which have been investigated.</p>			
HERITAGE SIGNIFICANCE		Possible association with hunter gathered communities	
MITIGATION		The pan lies close to but outside the boundaries of the project.	

SITE NO	COORDINATES		PERIOD
MSH03	27°36'50.90"S	22°58'55.80"E	MSA

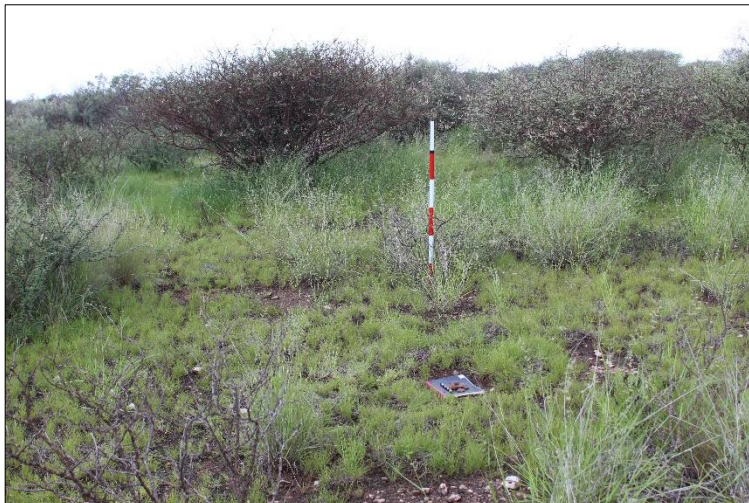


DESCRIPTION: Flat terrain, calcretic waste, scattered black thorn bushes.
3 flakes.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the ESA.
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MITIGATION	No further action required. But finds collectible.
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SITE NO	COORDINATES		PERIOD
MSH04	27°36'50.00"S	22°58'56.60"E	MSA



DESCRIPTION: Flat terrain, calcretic waste, scattered black thorn bushes.

6 lithics, flakes some of which may have been used as scrapers.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the ESA.
MITIGATION	No further action required. But finds collectible.

SITE NO	COORDINATES		PERIOD
MSH05	27°36'46.80"S	22°59'1.10"E	MSA



DESCRIPTION: Flat terrain, calcretic waste and exposed calcretic hardpan. Scattered bushes - Vaalbos (*Tarchonanthus camphoratus*). 5 lithics: 1 micro-scraper (dark colour) and flake waste.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the ESA.
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MITIGATION	No further action required. But finds collectible.
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SITE NO	COORDINATES		PERIOD
MSH06	27°36'41.00"S	22°58'57.40"E	MSA



DESCRIPTION: Flat terrain, calcretic waste and exposed calcretic hardpan. Scattered bushes - Vaalbos (*Tarchonanthus camphoratus*). 4 lithics: 1 scraper and flake waste.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the ESA.
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MITIGATION	No further action required. But finds collectible.
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SITE NO	COORDINATES		PERIOD
MSH07	27°36'39.70"S	22°58'51.60"E	MSA



DESCRIPTION: Flat terrain with scattered bushes. 1 scraper.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the ESA.
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MITIGATION	No further action required. But finds collectible.
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SITE NO	COORDINATES		PERIOD
MSH08	27°36'43.30"S	22°58'53.90"E	MSA



DESCRIPTION: Flat terrain with scattered bushes. 1 scraper

HERITAGE SIGNIFICANCE

Evidence of hunter-gatherer activities during the ESA.

MITIGATION

No further action required. But finds collectible.

SITE NO	COORDINATES		PERIOD
MSH09	27°36'42.10"S	22°58'53.10"E	MSA



DESCRIPTION: Flat terrain, calcretic waste and hardpan. Scattered black thorn bushes. 1 black flake waste, possibly obsidian.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the ESA.
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MITIGATION	No further action required. But finds collectible.
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SITE NO	COORDINATES		PERIOD
MSH10	27°36'45.50"S	22°58'48.20"E	MSA



DESCRIPTION: Flat terrain, calcretic waste and hardpan. Scattered black thorn bushes. 3 lithics: 1 scraper, 2 flakes.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the ESA.
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MITIGATION	No further action required. But finds collectible.
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SITE NO	COORDINATES		PERIOD
MSH11	27°36'47.70"S	22°58'47.30"E	MSA



DESCRIPTION: Open flat terrain, grass plain without trees. 1 core which shows a detachment surface.

HERITAGE SIGNIFICANCE	Evidence of hunter-gatherer activities during the ESA.
------------------------------	--

MITIGATION	No further action required. But finds collectible.
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