



**PHASE 1  
HERITAGE IMPACT ASSESSMENT FOR  
THE PROPOSED PHASE ONE HERITAGE  
IMPACT ASSESSMENT FOR THE  
PROPOSED  
ONSPOED PROSPECTING RIGHTS**

**DEVELOPED FOR**



**DECEMBER | 2020**

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## DOCUMENT INFORMATION

DOCUMENT INFORMATION ITEM	DESCRIPTION
Proposed development and location	Phase one heritage Impact assessment for the proposed Onspoed prospecting rights
Purpose of the study	To carry out a Heritage Impact Assessment to determine the presence/absence of cultural heritage and the impact of the development of heritage on the resources.
Topography	Flat terrain
Coordinates	28,92583 -25,8007
Municipalities	Magisterial District of Tshwane, Gauteng Province.
Predominant land use of surrounding area	Farming area
Applicant	Nichume Operations (Pty) Ltd
EAP	Myezo Environmental Management Services (Pty) Ltd
Heritage Consultant	Tsimba Archaeological Footprints (Pty) Ltd 24 Lawson Mansions 74Loveday Street, Johannesburg, CBD Gauteng, 2000
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## EXECUTIVE SUMMARY

Nichume Operations (Pty) Ltd (Applicant) has applied for a COAL prospecting right in terms of Section 17 (1) of the Mineral and Petroleum Resources Development Act (Act 28 of 2002). This document is part of the environmental authorisation application under the National Environmental Management Act, 1998 (Act No. 107 of 1998), Environmental Impact Assessment Regulations (EIA) 2014 as amended in April 2017.

The purpose of this document is to provide the competent authority with the necessary and appropriate information that will inform the proposals included in the EIA document. An assessment of the heritage values of the proposed development site will be included in order to determine their overall significance. This Phase 1 heritage impact assessment has also been included in order to assess the potential implications of the proposals on the affected heritage assets (if any exists within the proposed development footprint). The document is also there to design and set in place a strategy and management regime for cultural heritage that is consistent with the provisions of relevant in terms of the requirements of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) and other relevant international heritage legislations. The terminology used and the methodology followed with regards to the compilation of the HIA are explained and the legal framework stated (*see Appendix A*).

An archival and historical desktop study was undertaken which was used to compile a historical layering of the study area within its regional context. The review of a range of cultural heritage information was undertaken; these included a desktop search for the broader Bronkhorstspuit District, heritage databases, lists and registers, as well as a range of other documented information (including heritage impact assessment reports and a range of ethno-historic and archaeological sources at both local and regional levels). These components indicated that the broader Bronkhorstspuit has been systematically surveyed for archaeological heritage sites in the past. Scholars and contract heritage practitioners like Duxbury (1981), Van der Walt (2007), Coetzee, (2008), Du Piesanie (2014) have conducted some research around this area. Stone Walled sites and other historical structures have been discovered by these practitioners. The area around Bronkhorstspuit is also famous for colonial heritage and running battles between the English and the Boers. It was however noted that there were no cultural heritage resources within the proposed development site.

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## ABBREVIATIONS

ACRONYMS	DESCRIPTION
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
CRM	Cultural Resource Management
DEA	Department of Environmental Affairs
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
ESA	Early Stone Age
GIS	Geographic Information System
GPS	Global Positioning System
HIA	Heritage Impact Assessment
LSA	Late Stone Age
LIA	Late Iron Age
MIA	Middle Iron Age
MSA	Middle Stone Age
SAHRA	South African Heritage Resources Agency

## GLOSSARY

Achievement	<ul style="list-style-type: none"> <li>▪ Something accomplished, esp. by valour, boldness, or superior ability</li> </ul>
Aesthetic	<ul style="list-style-type: none"> <li>▪ Relating to the sense of the beautiful or the science of aesthetics.</li> </ul>
Community	<ul style="list-style-type: none"> <li>▪ All the people of a specific locality or country</li> </ul>
Culture	<ul style="list-style-type: none"> <li>▪ The sum total of ways of living built up by a group of human beings, which is transmitted from one generation to another.</li> </ul>
Cultural	<ul style="list-style-type: none"> <li>▪ Of or relating to culture or cultivation.</li> </ul>
Diversity	<ul style="list-style-type: none"> <li>▪ The state or fact of being diverse; difference; unlikeness.</li> </ul>
Geological (geology)	<ul style="list-style-type: none"> <li>▪ The science which treats of the earth, the rocks of which it is composed, and the changes which it has undergone or is undergoing.</li> </ul>
High	<ul style="list-style-type: none"> <li>▪ Intensified; exceeding the common degree or measure; strong; intense, energetic</li> </ul>
Importance	<ul style="list-style-type: none"> <li>▪ The quality or fact of being important.</li> </ul>
Influence	<ul style="list-style-type: none"> <li>▪ Power of producing effects by invisible or insensible means.</li> </ul>
Potential	<ul style="list-style-type: none"> <li>▪ Possible as opposed to actual.</li> </ul>
Integrity	<ul style="list-style-type: none"> <li>▪ The state of being whole, entire, or undiminished.</li> </ul>
Religious	<ul style="list-style-type: none"> <li>▪ Of, relating to, or concerned with religion.</li> </ul>
Significant	<ul style="list-style-type: none"> <li>▪ important; of consequence</li> </ul>
Social	<ul style="list-style-type: none"> <li>▪ Living, or disposed to live, in companionship with others or in a community, rather than in isolation.</li> </ul>
Spiritual	<ul style="list-style-type: none"> <li>▪ Of, relating to, or consisting of spirit or incorporeal being.</li> </ul>
Valued	<ul style="list-style-type: none"> <li>▪ Highly regarded or esteemed</li> </ul>



## 1.0 INTRODUCTION

### 1.1 PROJECT BACKGROUND

Tsimba Archaeological Footprints (Pty) Ltd was requested by Myezo Environmental Management Services (Pty) Ltd to conduct a heritage impact assessment (HIA) of the proposed prospecting at portion 28 of Onspoed 500. The aim of the survey was to identify and document archaeological sites, cultural resources, sites associated with oral histories (intangible heritage), graves, cultural landscapes, and any structures of historical significance (tangible heritage) that may be affected within the proposed project footprint.

The appointment of Tsimba Archaeological Footprints is in terms of the National Heritage Resources Act (NHRA), No. 25 of 1999. Section 38 (1) of the National Heritage Resources Act requires that where relevant, an Impact Assessment is undertaken in case where a listed activity is triggered. Such activities include:

- (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 50 m in length; and
- (c) any development or other activity which will change the character of an area of land, or water -
  - (i) exceeding 5 000 m<sup>2</sup> in extent;
  - (ii) involving three or more existing erven or subdivisions thereof; or
  - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
  - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a Provincial Heritage Resources Authority;
- (d) the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent; or
- (e) any other category of development provided for in regulations by SAHRA or a Provincial Heritage Resources Authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development. Excluding those that are public records as defined in section 1 of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996)

### 1.2 INTERNATIONAL HERITAGE MANAGEMENT DOCUMENTS USED

The NHRA serves as the controlling legal framework for heritage management in South Africa. South African heritage legislation is broad ranging and provides theoretical protection to all categories of heritage. The Act lays down general principles for governing heritage resources management throughout the republic and provides for the identification, assessment, and management of the heritage resources of the country. This Act however does not work in isolation. It works together with other international heritage Management policy documents such the following:

1. ICOMOS, 1996. International Charter for the Conservation and Restoration of Monuments and sites (the Venice charter).
2. ICOMOS, 1999. The Australia ICOMOS charter for places of cultural significance (the Burra Charter).
3. ICOMOS Charter, Principles for the analysis, conservation and structural restoration of architectural heritage (2003)
4. The Athens Charter, the Restoration of Historic Monuments (1931)
5. 7. The International Council on Monuments and Sites(1965)

6. 8. The World Heritage Convention(1972)
7. 9. The Washington Charter (1987)
8. 10. Organisation of World Heritage Cities (1993).

### **1.3 SCOPE OF WORKS OF THIS HIA**

The Proposed project scope of the activities is given in the table below;

#### **Desktop study**

Conduct a brief desktop study where information on the area is collected to provide a background setting of the archaeology and cultural heritage that can be expected in the area.

#### **Field study**

Conduct a field study to: a) systematically survey the proposed project area to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points identified as significant areas; c) determine the levels of significance of the various types of heritage resources recorded in the project area.

#### **Reporting**

Report on the identification of anticipated and cumulative impacts that the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project; i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with Heritage legislation and the code of ethics and guidelines of ASAPA.

#### **Reasoned Opinion**

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

### **1.4 RISK ASSESSMENT OF THE PROPOSED DEVELOPMENT**

Nichume Operations (Pty) Ltd require a Prospecting Right (PR) in terms of the Mineral and Petroleum Resources Development Act, 2002 (MPRDA, Act No. 28 of 2002). Below is a risk assessment evaluation table that shows the risk the proposed development poses to cultural heritage resources:

EVALUATION CRITERIA	RISK ASSESSMENT
Description of potential impact	Negative impacts range from partial to total destruction of surface and under-surface movable/immovable relics.
Nature of Impact	Negative impacts can both be direct or indirect.
Legal Requirements	Sections 34, 35, 36, 38 of National Heritage Resources Act (No. 25 1999).
Stage/Phase	Prospecting for minerals (test pits, drilling)
Nature of Impact	Negative, both direct & indirect impacts.
Extent of Impact	Test pits, drilling and ground clearing have potential to damage archaeological resources above and below the surface not seen during the survey.
Duration of Impact	Any accidental destruction of surface or subsurface relics is not reversible, but can be mitigated.

## 2.0 DESCRIPTION OF THE RECEIVING ENVIRONMENT

### 2.1 LOCATION

The proposed development is located approximately 8km northwest of Balmoral in the Magisterial District of Tshwane, Gauteng Province. (see Figure 1 below).

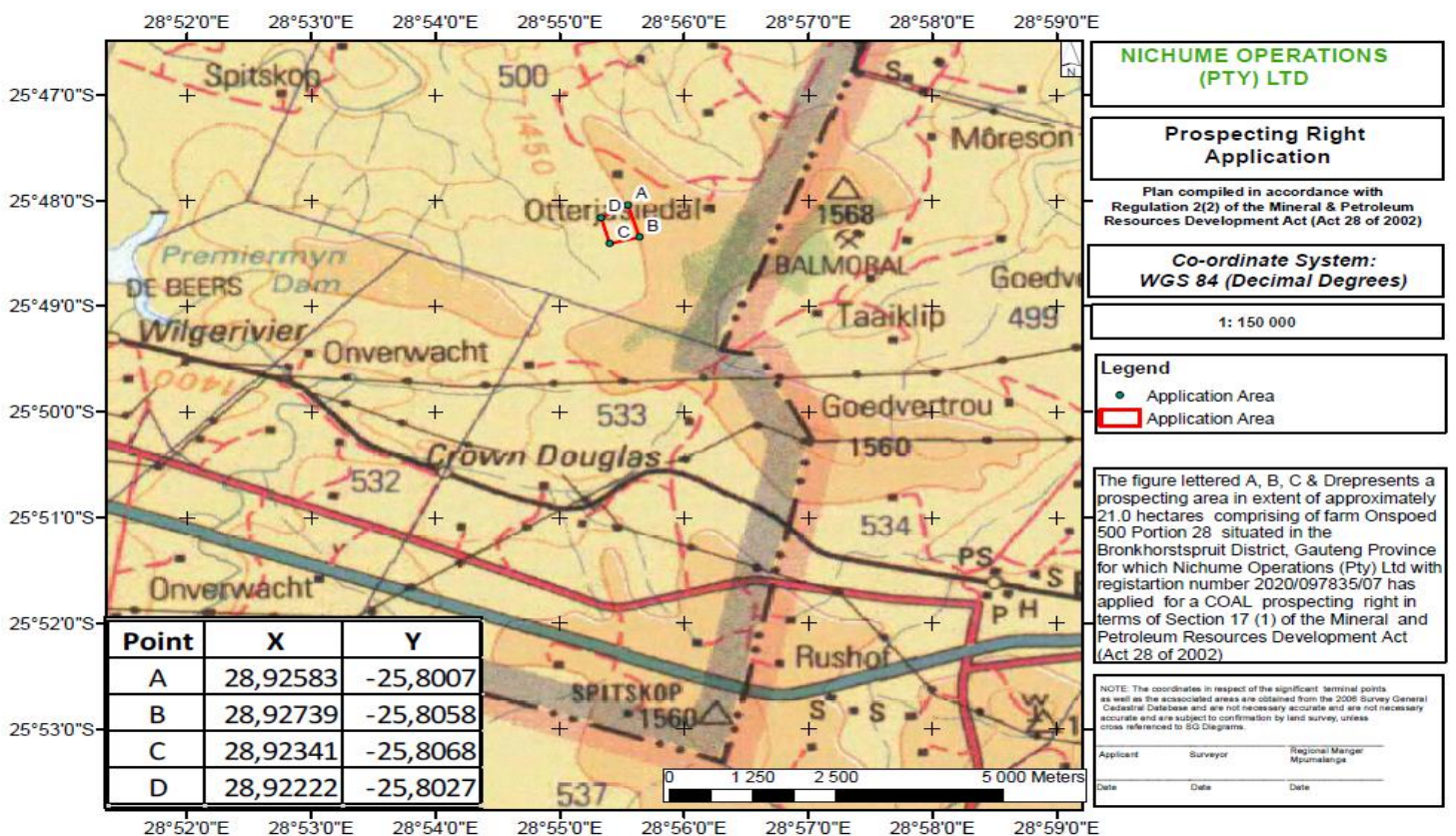


Figure 1: Locality map of the proposed development site ( Myezo)

## **3.0 METHODOLOGY**

### **3.1 LITERATURE REVIEW**

The methodology used in this HIA is based on a comprehensive understanding of the current or baseline situation; the type, distribution and significance of heritage resources as revealed through desk-based study and additional data acquisition, such as archaeological investigations, built heritage surveys, and recording of crafts, skills and intangible heritage. This is systematically integrated by the use of matrices with information on the nature and extent of the proposed engineering and other works to identify potential. The following tasks were also undertaken in relation to the cultural heritage and are described in this report:

The background information search of the proposed development area was conducted following the site maps from the client. Sources used in this study included:

- Published academic papers and HIA and PIA studies conducted in and around the region where the proposed infrastructure development will take place;
- Available archaeological literature covering the West coast district area was also consulted;
- The SAHRIS website and the National Data Base was consulted to obtain background information on previous heritage surveys and assessments in the area;
- Map Archives - Historical maps of the proposed area of development and its surrounds were assessed to aid information gathering of the proposed area of development and its surrounds.

### **3.2 FIELD SURVEY / GROUND TROTHING**

The field survey lasted for a day on the 11<sup>th</sup> of December 2020. It was conducted by an archaeologist from Tsimba Archaeological Footprint through driving and walking .A ground survey, following standard and accepted archaeological procedures, was conducted. The assessment was rigorous, and detailed enough to present a clear argument to justify the decision in the recommendations section, including sufficient information to support the findings contained in the assessment.

Disturbed and exposed layers of soils such as cultivated fields were investigated. These areas are likely to exposed or yield archaeological and other heritage resources that may be buried underneath the soil and be brought to the surface by animal and human activities including wild animal barrow pits and the extensively ploughed ground. The surface was also inspected for possible Stone Age scatters as well as exposed Iron Age implements and other archaeological resources. The survey followed investigated the cultural resources onsite using the best possible technologies for archaeological field surveys. The general project area was documented through photographs using a Nikon Camera (with built in GPS).

### **3.3 DATA CONSOLIDATION AND REPORT WRITING**

Data captured on the development area (during the field survey) by means of a desktop study and physical survey is used as a basis for this HIA. This data is also used to establish assessment for any possible current and future impacts within the development footprint. This includes the following:

- ✚ Assessment of the significance of the cultural resources in terms of their archaeological, built environment and landscape, historical, scientific, social, religious, aesthetic and tourism value(see **Appendix B**);
- ✚ A description of possible impacts of the proposed development, especially during the construction phase, in accordance with the standards and conventions for the management of cultural environments;
- ✚ Proposal of suitable mitigation measures to minimize possible negative impacts on the cultural environment and resources that may result during construction;
- ✚ Review of applicable legislative requirements that are the NEMA (read together with the 2014 EIA Regulations) the NHRA of 1999.

#### 4.0 LEGISLATIVE FRAMEWORK

This HIA study is informed and conducted to fulfil the requirements of the National Heritage Resources Act (No 25 of 1999) 38 (a)(i) exceeding 5 000 m2 in extent.

The purpose of the National Heritage Resources Act (NHRA) (Act 25 of 1999) is to introduce an integrated and interactive system for the management of the national heritage resources in South Africa. The Act also serves to empower civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations, as well as to provide for the protection and management of conservation-worthy places and areas by local authorities. It enables the provinces to establish heritage authorities, which must adopt powers to protect and manage certain categories of heritage resources; and provides for the protection and management of conservation-worthy places and areas by local authorities. In terms of Section 8 of the Act, there is a three-tier system for heritage resources management, in which national level functions are the responsibility of SAHRA, provincial level functions are the responsibility of provincial heritage resources authorities and local level functions are the responsibility of local authorities. Heritage resources authorities and local authorities are therefore accountable for their actions and decisions and the performance of functions under this system. Types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (Act No.25 of 1999): (i) (i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens. Heritage resources significant enough to be considered part

of the national “estate” in Section 3(2) of the NHRA, and may include inter alia:

- o Places, buildings, structures and equipment of cultural significance;
- o Places to which oral traditions are attached or which are associated with living heritage;
- o Historical settlements and townscapes;
- o Landscapes and natural features of cultural significance;
- o Geological sites of scientific or cultural importance;
- o Archaeological sites and objects;
- o Graves and burial grounds;

*o Sites of significance relating to the history of slavery in South Africa;*

*o Moveable objects including military objects, fine art, books records, documents, archaeological and paleontological objects, and materials.*

## **5.0 ASSUMPTIONS AND LIMITATIONS**

- i. The investigation was influenced by the unpredictability of buried archaeological remains (absence of evidence does not mean evidence of absence) and the difficulty in establishing intangible heritage values. It should be remembered that archaeological deposits (including graves and traces of mining heritage) usually occur below the ground level.
- ii. Should artefacts or skeletal material be revealed at the site during construction, such activities should be halted immediately, and a competent heritage practitioner, SAHRA must be notified in order for an investigation and evaluation of the find(s) to take place (see NHRA (Act No. 25 of 1999), Section 36 (6).
- iii. Recommendations contained in this document do not exempt the developer from complying with any national, provincial, and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the NHRA.
- iv. The author assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report.
- v. The field survey did not include any form of subsurface inspection beyond the inspection of burrows, road cut sections, and the sections exposed by erosion on the edges of the river.

## 6.0 ARCHEOLOGICAL AND HISTORICAL BACKGROUND

ARCHAEOLOGICAL PERIOD	APPROXIMATE DATES <for less than and > for greater than
Earlier Stone Age Tools = Handaxes and cleavers	more than 2 million years ago to >200 000 years ago
Middle Stone Age Tools =Stone flakes such as scrapers, points and blades	<300 000 years ago to >20 000 years ago
Later Stone Age (Includes gatherer rock art) Tools = Wood, bone, hearths, ostrich eggshell beads and even bedding material	<40 000 years ago up to historical times in certain areas
Early Iron Age	c. AD 200 - c. AD 900
Middle Iron Age	c. AD 900 – c. AD 1300
Late Iron Age (Stonewalled sites)	c. AD 1300 - c. AD 1840 (c. AD 1640 - c. AD 1840)

Figure 2: Archaeological sequence of southern Africa

### **Early Stone Age**

Concentrations of Early Stone Age (ESA) sites are usually present on the flood-plains of perennial rivers and may date to over 2 million years ago. These ESA open sites may contain scatters of stone tools and manufacturing debris and secondly, large concentrated deposits ranging from pebble tool choppers to core tools such as handaxes and cleavers. The earliest hominins who made these stone tools, probably not always actively hunted, instead relying on the opportunistic scavenging of meat from carnivore fill sites. Sterkfontein Caves, archaeological and paleontological site lies 52 kilometres away from the study site. The caves were blasted in the Sterkfontein Caves in 1896. Anatomical indications which support the concept of evolution can be seen in hominid fossils from the Sterkfontein Caves and other sites in the Cradle of Humankind. Our earliest ancestors belonged to species now extinct and are known only from fossils at sites such as these. Towards Mpumalanga to the east a number of Stone Age sites have been recorded and researched by scientists. The Later phases of the Stone Age began at around 20 000 years BP (Before Present). This period was marked by numerous technological innovations and social transformations within these early hunter-gatherer societies. Hunting tools now included the bow and arrow. More particularly, the link-shaft arrow which comprises a poisoned bone tip loosely linked to a shaft which fell away when an animal was shot and left the arrow tip embedded in the prey animal. Other innovations included bored stones used as digging –stick weights to help with uprooting of tubers and roots, small stone tools, normally less than 25mm long, which was used for cutting meat and scraping hides.

There were also polished bone needles, twine made from plant fibers, tortoiseshell bowls, fishing equipment including bone hooks and stone sinkers, ostrich eggshell beads and other decorative artwork (Delius, 2007)

Palaeoanthropologist Professor Ron Clarke has argued that Stw 252 appears very different from *Australopithecus africanus* in that it has much larger teeth, a flatter upper face, a thinner brow region and a differently shaped braincase. He observed the same features in Sts 71, and suggested these, plus some other large-toothed hominids from Sterkfontein and the Makapans Valley, represent another *Australopithecus* which lived at the same time as *Australopithecus africanus*. "Little Foot", which is still being excavated from Sterkfontein Member 2, is one of the oldest australopithecines ever found, dating to between 4.1-million and 3.3-million years old, according to palaeomagnetic evidence and cosmogenic isotope dating. The species to which the skeleton belongs will only be determined when it has been completely extracted from the rock in which it lies embedded. Other hominid remains dating to a similar time have also been recovered from the Jacovec Cavern at Sterkfontein.

### **Middle Stone Age**

During Middle Stone Age (MSA) times (c. 150 000 – 30 000 BP), people became more mobile, occupying areas formerly avoided. According to Thakeray (1992) the MSA is a period that still remains somewhat murky, as much of the MSA lies beyond the limits of conventional radiocarbon dating. However, the concept of the MSA remains useful as a means of identifying a technological stage characterized by flakes and flake-blades with faceted platforms, produced from prepared cores, as distinct from the core tool-based ESA technology. No known Stone Age sites or artifacts are present in close proximity to the development area. The closest well-known Stone Age sites are those of Aasvoelkop, Melvillekoppies, Primrose & Linksfield (Bergh 1999, p 4). Rock engraving sites are also known to occur north-east of Carletonville (Bergh 1999, p 5).

### **Later Stone Age**

The LSA is usually associated with San hunter-gatherers or their immediate predecessors and date between 200 and 30 000 years ago (see Huffman 2007). The Late Stone Age, considered to have started some 20 000 years ago, is associated with the predecessors of the San and Khoi Khoi. Late Stone Age (LSA) people had even more advanced technology than the MSA people and therefore succeeded in occupying even more diverse habitats. Also, for the first time we now get evidence of people's activities derived from material other than stone tools. Ostrich eggshell beads, ground bone arrowheads, small bored stones and wood fragments with incised markings are traditionally linked with the LSA.

LSA people preferred, though not exclusively, to occupy rock shelters and caves and it is this type of sealed context that make it possible for us to learn much more about them than is the case with earlier periods. The



West rand area is underlaid by dolomite rock and has many caves and sinkholes. The region is an unparalleled treasure trove of archaeological finds including the earliest authenticated man-made fire. Gaigher (2020).

There is a recorded Late Stone Age site named Fort Troje near Cullinan, a town to the northwest of Bronkhorstspuit. This site belongs to sites associated with the Late Holocene period (500BC approx.) associated with some pottery and microlith stone tools particular to the Smithfield industry (6000 BC approx.)

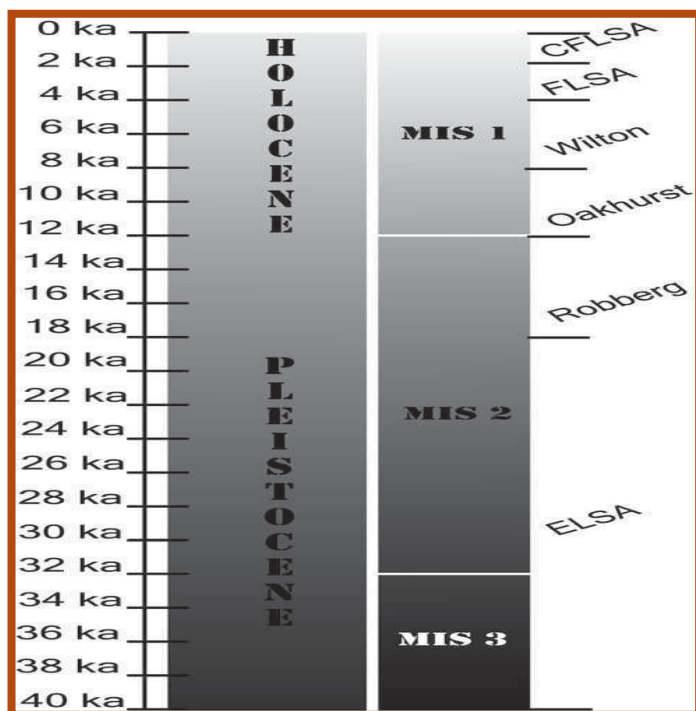


Figure 3: A timeline showing the chronological order of southern African Later Stone Age technological complexes (Source Lombard et al (2012))



Figure 4: A reproduction of southern African Bush arrows made using bones and at times stone as arrow head (Source Lombard et al (2012))

#### Brief History of Bronkhorstpruit

Before the establishment of the Bronkhorstpruit in 1858, a group of Voortrekkers settled in the Bronkhorstpruit creek, which was originally called Kalkoenkransrivier. A railway station was established on the present-day site of Bronkhorstpruit in 1894. In June 1897, the South African Republic gave its approval for the establishment of the town, by that time already named Bronkhorstpruit by locals. It was however only in 1905 that Bronkhorstpruit, also referred to as Erasmus, was officially proclaimed as a town. There is disagreement about how the town originally got its name. Some say that it was named after the farmer J. G. Bronkhorst, whereas others believe that it was named after the plant bronkors (the Afrikaans name for watercress), that grew in the region of the creek.

## 7.0 DISCUSSION OF THE FINDINGS

Our visit to the site noted that no development activities associated with the proposed project had begun at the time, in accordance with National and Provincial heritage legislation, a summary table of the heritage resources assessed, and observed is given below;

HERITAGE RESOURCE TYPE	OBSERVATION
Cultural landscapes and Historic buildings	None were identified within the proposed
Living Heritage Shrines and Sites	None were identified within the proposed
Geological and Palaeontological sites of scientific or cultural	None were identified within the proposed
Archaeological sites	None were identified within the proposed
Graves and Burial grounds	None were identified within the proposed
Public Monuments and Memorials	None were identified within the proposed
Battlefields	None were identified within the proposed

The survey undertaken consisted of surface reconnaissance and systematic cultivated areas (open pit investigation) along fields and the farm yard. We expected to come across archaeological artefacts such as potsherds and Iron Age fragment associated with the historic agro-pastoralist communities. This survey was a non-destructive method of surface survey which was used in combination with other (non-destructive) prospection method, e.g. photography, fault line inspection and so on.



Figure 5: Front end faced of the farm house. Notice the French door and the new windows that serves as proof this building cannot be an old building (60years or older).



Figure 6: View of another newer structure in the yard



Figure 7: View of some of the cultivated areas in the fields that were inspected for possible exposed layers of archaeological findings



Figure 8: Grass cover within the proposed development footprint. Without ground visibility such sections of the site can make it very difficult to identify archaeological artefacts

## 8.0 HERITAGE ASSESSMENT OF SIGNIFICANCE

Site significance classification standards prescribed by SAHRA (2006), and acknowledged by ASAPA for the SADC region, were used for the purposes of this report.

- ❖ The main aim in assessing significance is to produce a succinct statement of significance, which summarises an item's heritage values. The statement is the basis for policies and management structures that will affect the item's future.

Table 1: SAHRA's Site Significance classification minimum standards

FILED RATING	GRADE	CLASSIFICATION	RECOMMENDATION
National Significance (NS)	Grade 1		Conservation; National Site nomination
Provincial Significance (PS)	Grade 2		Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP.A)		High/ Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)		Medium Significance	Recording before destruction
Generally Protected C (GP.A)		Low Significance	Destruction

Site significance is calculated by combining the following concepts in the given formula.

$$S = (E+D+M) P$$

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The significance weightings for each potential impact are as follows:

Table 2: The significance weightings for each potential impact

ASPECT	DESCRIPTION	WEIGHT
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Scale	Local	1
	Site	2
	Regional	3
Magnitude/Severity	Low	2
	Medium	6
	High	8

Table 3: Impact of Significance

IT PROVIDES AN INDICATION OF THE IMPORTANCE OF THE IMPACT IN TERMS OF BOTH TANGIBLE AND INTANGIBLE CHARACTERISTICS. (S) IS FORMULATED BY ADDING THE SUM OF NUMBERS ASSIGNED TO EXTENT (E), DURATION (D), AND INTENSITY (I) AND MULTIPLYING THE SUM BY THE PROBABILITY. S= (E+D+M) P		
<30	Low	Mitigation of impacts is easily achieved where this impact would not have a direct influence on the decision to develop in the area.
30-60	Medium	Mitigation of impact is both feasible and fairly easy. The impact could influence the decision to develop in the area unless it is effectively mitigated.
>60	High	Significant impacts where there is difficult. The impact must have an influence on the

		decision process to develop in the area.
<b>NATURE: DURING THE CONSTRUCTION PHASE ACTIVITIES RESULTING IN DISTURBANCE OF SURFACES AND/OR SUB-SURFACES MAY DESTROY, DAMAGE, ALTER, OR REMOVE FROM ITS ORIGINAL POSITION ARCHAEOLOGICAL MATERIAL OR OBJECTS.</b>		
	Without Mitigation	With Mitigation
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Low (2)	Low(2)
Probability	Not Probable (2)	Not probable (2)
Significance	Low (16)	Low(16)
Status	Negative	Negative
Reversibility	Not irreversible	Not irreversible
Irreversible loss of resources	No resources were recorded	No resources were recorded
Can impacts be mitigated?	Yes, a chance find procedure should be implemented.	Yes
Mitigation: Impacts are rated as <30 (Low) Mitigation of impacts is easily achieved where this impact would not have a direct influence on the decision to develop in the area. Due to the lack of apparent significant heritage resources no further mitigation is required prior to construction. A Chance Find Procedure should be implemented for the project should any sites be identified during the construction process.		

## 9.0 CONCLUSIONS

This Heritage Study concluded that the proposed project is acceptable, Tsimba Archaeological Footprints therefore requests the Provincial Heritage Authority to exercise their discretion and offer a positive review to the application. The project will create employment for the unemployed in the community. This project does not only benefit the local community but also helps in resuscitating the National economy which has been put under a lot of strain by the Covid-19 pandemic. Employment creation is currently one of the top priorities of the government.

Due to the lack of apparent significant heritage resources no further mitigation is required prior to construction. A Chance Find Procedure should be implemented for the project should any sites be identified during the construction process.



## 10.0 RECOMMENDATIONS

- ❖ The Chance finds procedure (CFP) should be implemented in the event that stone tools are identified underground (**See Appendix B**)
- ❖ Any additions to the existing study area will have to be surveyed by a suitably qualified heritage specialist.

It is the opinion of the author of this report that in terms of the heritage aspects addressed as part of the defined scope of work of this study this development may be allowed to continue. A conditional approval may be issued following the recommendations and mitigation measures given below.

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## APPENDIX A: DEFINITION OF TERMS ADOPTED IN THIS HIA

✚ The terminology adopted in this document is mainly influenced by the NHRA of South Africa (1999) and the Burra Charter (1979).

**Adaptation:** Changes made to a place so that it can have different but reconcilable uses.

**Artefact:** Cultural object (made by humans).

**Buffer Zone:** Means an area surrounding a cultural heritage which has restrictions placed on its use or where collaborative projects and programs are undertaken to afford additional protection to the site.

**Co-management:** Managing in such a way as to take into account the needs and desires of stakeholders, neighbours and partners, and incorporating these into decision making through, amongst others, the promulgation of a local board.

**Conservation:** In relation to heritage resources, includes protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance as defined. These processes include, but are not necessarily restricted to preservation, restoration, reconstruction and adaptation.

**Contextual Paradigm:** A scientific approach which places importance on the total context as catalyst for cultural change and which specifically studies the symbolic role of the individual and immediate historical context.

**Cultural Resource:** Any place or object of cultural significance

**Cultural Significance:** Means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance of a place or object for past, present and future generations.

**Feature:** A coincidental find of movable cultural objects (also see Knudson 1978: 20).

**Grading:** The South African heritage resource management system is based on a grading system, which provides for assigning the appropriate level of management responsibility to a heritage resource.

**Heritage Resources Management:** The utilization of management techniques to protect and develop cultural resources so that these become long term cultural heritage which are of value to the general public.

**Heritage Resources Management Paradigm:** A scientific approach based on the Contextual paradigm, but placing the emphasis on the cultural importance of archaeological (and historical) sites for the community.

**Heritage Site Management:** The control of the elements that make up the physical and social environment of a site, its physical condition, land use, human visitors, interpretation etc. Management may be aimed at preservation or, if necessary at minimizing damage or destruction or at presentation of the site to the public.

**Historic:** Means significant in history, belonging to the past; of what is important or famous in the past.

**Historical:** Means belonging to the past, or relating to the study of history.

**Maintenance:** Means the continuous protective care of the fabric, contents and setting of a place. It does not involve physical alteration.

**Object:** Artefact (cultural object)

**Paradigm:** Theories, laws, models, analogies, metaphors and the epistemological and methodological values used by researchers to solve a scientific problem.

**Preservation:** Refers to protecting and maintaining the fabric of a place in its existing state and retarding deterioration or change, and may include stabilization where necessary. Preservation is appropriate where the existing state of the fabric itself constitutes evidence of specific cultural significance, or where insufficient evidence is available to allow other conservation processes to be carried out.

**Protection:** With reference to cultural heritage resources this includes the conservation, maintenance, preservation and sustainable utilization of places or objects in order to maintain the cultural significance thereof.

**Place:** Means a geographically defined area. It may include elements, objects, spaces and views. Place may have tangible and intangible dimensions.

**Reconstruction:** To bring a place or object as close as possible to a specific known state by using old and new materials.

**Rehabilitation:** The repairing and/ or changing of a structure without necessarily taking the historical correctness thereof into account (NMC 1983: 1).

**Restoration:** To bring a place or object back as close as possible to a known state, without using any new materials.

**Site:** A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artefacts, found on a single location.

**Sustainable:** Means the use of such resource in a way and at a rate that would not lead to its long-term decline, would not decrease its historical integrity or cultural significance and would ensure its continued use to meet the needs and aspirations of present and future generations of people.

## APPENDIX B: PROTOCOL FOR CHANCE FINDS AND MANAGEMENT PLAN

### CHANCE FIND PROCEDURE

#### What is a Chance Finds Procedure?

The purpose of Archaeological Chance Find Procedure (CFP) is to address the possibility of cultural heritage resources and archaeological deposits becoming exposed during ground altering activities within the project area and to provide protocols to follow in the case of a chance archaeological find to ensure that archaeological sites are documented and protected as required. A CFP is a tool for the protection of previously unidentified cultural heritage resources during construction and mining. The main purpose of a CFP is to raise awareness of all mine workers on site regarding the potential for accidental discovery of cultural heritage resources and establish a procedure for the protection of these resources.

Chance finds are defined as potential cultural heritage (or paleontological) objects, features, or sites that are identified outside of or after Heritage Impact studies, normally as a result of construction monitoring. Archaeological sites are protected by The National Heritage Resources Act of 1999. They are non-renewable, very susceptible to disturbance and are finite in number. Archaeological sites are an important resource that is protected for their historical, cultural, scientific and educational value to the general public, local communities.

#### What are the objectives of the CFP?

The objectives of this 'Chance Find Procedure' are to promote preservation of archaeological data while minimizing disruption of construction scheduling. It is recommended that due to the moderate to high archaeological potential of some areas within the project area, all on site personnel and contractors be informed of the Archaeological Chance Find Procedure and have access to a copy while on site.

#### Where is a CFP applicable?

Developments that involve excavation, movement, or disturbance of soils have the potential to impact archaeological materials, if present. Activities such as road construction, land clearing, and excavation are all examples of activities that may adversely affect archaeological deposits. Chance finds may be made by any member of the project team who may not necessarily be an archaeologist or even visitors. Appropriate application of a CFP on development projects has led to discovery of cultural heritage resources that were not identified during archaeological and heritage impact assessments. As such, it is considered to be a valuable instrument when properly implemented. For the CFP to be effective, the mine manager must ensure that all personnel on the proposed mine site understand the CFP and the importance of adhering to it if cultural heritage resources are encountered. In addition, training or induction on cultural heritage resources that might potentially be found on site should be provided. In short, the Chance Find Procedure details the necessary steps to be taken if any culturally significant artefacts are found during mining or construction.

#### What is the CF Procedure?

The following procedure is to be executed in the event that archaeological material is discovered:

- ✚ All construction activity in the vicinity of the accidental find/feature/site must cease immediately to avoid further damage to the site.
- ✚ Briefly note the type of archaeological materials you think you've encountered, its location, and if possible, the depth below surface of the find.
- ✚ Report your discovery to your supervisor or if they are unavailable, report to the project Environmental Control Officer (ECO) who will provide further instructions.

- ✚ If the supervisor is not available, notify the ECO immediately. The ECO will then report the find to the Mine Manager who will promptly notify the project archaeologist and SAHRA.
- ✚ Delineate the discovered find/ feature/ site and provide a 25m buffer zone from all sides of the find.
- ✚ An archaeologist should be contracted to give further recommendations.

## APPENDIX C: DEFINATION OF VALUES

VALUE	DEFINITION
Historic value	Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.
Scientific value	Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period
Aesthetic value	Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
Social value	Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons
Rarity	Does it possess uncommon, rare or endangered aspects of natural or cultural heritage
Representivity	Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use function, design or technique) in the environment of the nation, province region or locality.

## APPENDIX D: ENVIRONMENTAL CONTEXT FOR HERITAGE SPECIALIST STUDIES IN SOUTHERN AFRICA

**THIS IS A CATEGORIZED BY A TEMPORAL LAYERING INCLUDING A SUBSTANTIAL PRE-COLONIAL, EARLY CONTACT AND EARLY COLONIAL HISTORY AS DISTINCT FROM OTHER REGIONS. THE FOLLOWING TABLE CAN BE REGARDED AS A USEFUL CATEGORIZATION OF THESE FORMATIVE LAYERS:**

### Indigenous:

#### Palaeontological and geological:

- ◀ Precambrian (1.2 bya to late Pleistocene 20 000 ya) Archaeological:
- ◀ Earlier Stone Age (3 mya to 300 00ya) (ESA)
- ◀ Middle Stone Age (c300 000 to 30 000 ya) (MSA)
- ◀ Later Stone Age (c 30 000 to 2000 ya) (LSA)
- ◀ Late Stone Age Herder period (after 2000 ya) (LSA - Herder period)
- ◀ Early contact (c 1500 - 1652)

### Colonial:

- ◀ Dutch East India Company (1652 - 1795)
- ◀ Transition British and Dutch occupation (1796-1814)
- ◀ British colony (1814 -1910)
- ◀ Union of South Africa (1911-1961)
- ◀ Republic of South Africa (1962 – 1996)

### Democratic:

- ◀ Republic of South Africa (1997 to present)

It is also useful to identify specific themes, which are relevant to the Western Cape context. These include, *inter alia*, the following:

- ◀ Role of women
- ◀ Liberation struggle
- ◀ Victims of conflict
- ◀ Slavery
- ◀ Religion
- ◀ Pandemic health crisis
- ◀ Agriculture
- ◀ Water

Specific spatial regions also reveal distinct characteristics, which are a function of the interplay between biophysical conditions and historical processes. Such broad regions include the following:

- ◀ West Coast
- ◀ Boland
- ◀ Overberg
- ◀ Karoo

A large number and concentration of formally protected Grade 1, 2 and World Heritage Sites, also characterize the Western Cape. Such sites include:

- ◀ Robben Island
- ◀ Table Mountain National Park



**APPENDIX E: RELATIONSHIP BETWEEN DIFFERENT HERITAGE CONTEXTS, HERITAGE RESOURCE LIKELY TO OCCUR WITHIN THESE CONTEXTS AND LIKELY SOURCES OF HERITAGE IMPACTS/ISSUES.**

HERITAGE CONTEXT	HERITAGE RESOURCES	SOURCES OF HERITAGE IMPACTS/ISSUES
A. PALAEOLOGICAL LANDSCAPE CONTEXT	Fossil remains. Such resources are typically found in specific geographical areas, e.g. the Karoo and are embedded in ancient rock and limestone/calcrete formations.	Road cuttings Quarry excavation
B. ARCHAEOLOGICAL LANDSCAPE CONTEXT  NOTE: Archaeology is the study of human material and remains (by definition) and is not restricted in any formal way as being below the ground surface.	Archaeological remains dating to the following periods: <ul style="list-style-type: none"> <li>▪ ESA</li> <li>▪ MSA</li> <li>▪ LSA</li> <li>▪ LSA - Herder</li> <li>▪ Historical</li> <li>▪ Maritime history</li> </ul> Types of sites that could occur include: <ul style="list-style-type: none"> <li>▪ Shell middens</li> <li>▪ Historical dumps</li> <li>▪ Structural remains</li> </ul>	<ul style="list-style-type: none"> <li>▪ Subsurface excavations including ground leveling, landscaping, foundation preparation.</li> <li>▪ In the case of maritime resources, development including land reclamation, harbor/marina/water front developments, marine mining, engineering and salvaging.</li> </ul>
C. HISTORICAL BUILT URBAN LANDSCAPE CONTEXT	<ul style="list-style-type: none"> <li>◀ Historical townscapes/streetscapes.</li> <li>◀ Historical structures; i.e. older than 60 years</li> <li>◀ Formal public spaces.</li> <li>◀ Formally declared urban conservation areas.</li> <li>◀ Places associated with social identity/displacement.</li> </ul>	A range of physical and land use changes within this context could result in the following heritage impacts/issues: <ul style="list-style-type: none"> <li>◀ Loss of historical fabric or layering related to demolition or alteration work.</li> <li>◀ Loss of urban morphology related to changes in patterns of subdivision and incompatibility of the scale, massing and form of new development.</li> <li>◀ Loss of social fabric related to processes of gentrification and urban renewal.</li> </ul>

## APPENDIX F: KNOWN NATIONAL HISTORICAL SITES IN SOUTH AFRICA

<b>Free State</b> The quaint, small towns of the Free State are rich historical and cultural heritage with friendly people where visitors are always welcome.
<b>Eastern Cape</b> Home of the Xhosa people, site where 9 border wars were fought between the Xhosa and the British and also birthplace of the major apartheid resistance movements.
<b>Gauteng</b> Since the discoveries of gold in 1886 the province has developed into an economic powerhouse with townships, battlefields and gravesites bearing testimony to the challenges faced by its people.
<b>KwaZulu Natal</b> Remnants of British colonialism and a mix of Zulu, Indian and Afrikaans traditions give the province a rich cultural and historical diversity
<b>Limpopo</b> It's also home to the Mapungubwe Cultural Landscape, one of the country's seven World Heritage sites.
<b>Mpumalanga</b> Mpumalanga - "the place where the sun rises" is home to the historic village of Pilgrims Rest - established during the gold rush.
<b>North West</b> Portions of two of South Africa's Unesco World Heritage sites fall within North West: the Vredefort Dome, the largest visible meteor-impact crater, and the Taung hominid fossil site.
<b>Northern Cape</b> The Northern Cape landscape is characterized by vast arid plains with outcroppings of haphazard rock piles and a land of many diverse cultures and of frontier history
<b>Western Cape</b> It is a region of majestic mountains, colorful patchworks of farmland set in lovely valleys, long beaches and, further inland, the wide-open landscape of the semidesert Karoo