TSIMBA

ARCHAEOLOGICAL FOOTPRINTS (PTY) LTD

PHASE 1 HERITAGE IMPACT ASSESSMENT FOR THE CONSTRUCTION OF THE MVUNYANA RIVER BRIDGE, LOCATED WITHIN THE UMZINYATHI DISTRICT MUNICIPALITY, KWAZULU-NATAL.

HANSLAB ENVIRONMENTAL CONSULTANTS (PTY) LTD| NOVEMBER 2020

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AUTHOR'S CREDENTIALS

The report was authored by Mr. Roy Muroyi (Archaeologist) is a holder of an Honours Degree, Archaeology, Cultural Heritage and Museum Studies (Midlands State University) an MA CDS (Heritage Interpretation) from the University of Witwatersrand, he attended further training as a Laboratory Specialist for Human anatomy and human skeletal analysis through the University of Cape-Town human biology department in-conjunction with Cape Archaeological Surveys. Mr Muroyi has over six years industry experience , after leaving the Department of National Museums and Monuments of Botswana where he worked as an Archaeological Impact assessments adjudicating officer Mr . Muroyi then moved to South Africa where has been involved in a range of Cultural Resources Management (CRM) projects. He has so far exhumed over 500 historical burials as a professional archaeologist and carried out close to a 100 Heritage Impact Assessments.

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DOCUMENT INFORMATION

DOCUMENT INFORMATION ITEM	DESCRIPTION
Proposed development and location	The location of river crossing is shown on the 1:20000 locality plan. The crossing lies close to the Mhlungwani and Nqutu areas.
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	Rolling terrain
Coordinates	
Municipalities	uMzinyathi District Municipality, KwaZulu-Natal.
Predominant land use of surrounding area	Rural area
Applicant	KwaZulu-Natal Department of Transport:
EAP	Hanslab Environmental Consultants (Pty) Ltd
Heritage Consultant	Tsimba Archaeological Footprints (Pty) Ltd 24 Lawson Mansions 74Loveday Street, Johannesburg, CBD Gauteng, 2000
Author (s)	Mr. Roy Muroyi (Archaeology and Heritage Specialist)

EXECUTIVE SUMMARY

KwaZulu-Natal Department of Transport (Applicant) proposes to construct suitable structure over the Mvunyana River near Nqutu. 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 Local Planning Authorities 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 the KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No 5 of 2018).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 Vryheid and Nqutu 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 that these areas have been systematically surveyed for archaeological heritage sites in the past. These surveys were mostly conducted by archaeologists attached to the then Natal Museum as well as by Amafa staff. Sixty sites are recorded in the data base of the KwaZulu-Natal Museum. These include fourteen Early Stone Age sites, eight Middle Stone Age sites, ten Later Stone Age sites, three rock painting sites, and forty Later Iron Age sites. The majority of the Early Stone Age sites occur in open air context such as large dongas. Middle and Later Stone Age sites occur in context in four rock shelters. Within the proposed development footprint the field survey conducted by Tsimba Archaeological Footprints also did not find any cultural heritage resources.

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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
KZN	Kwa-Zulu Natal
LSA	Late Stone Age
LIA	Late Iron Age
MIA	Middle Iron Age
MSA	Middle Stone Age
SAHRA	South African Heritage Resources Agency

GLOSSARY

Achievement	▪ Something accomplished, esp. by valour, boldness, or superior ability
Aesthetic	▪ Relating to the sense of the beautiful or the science of aesthetics.
Community	▪ All the people of a specific locality or country
Culture	▪ The sum total of ways of living built up by a group of human beings, which is transmitted from one generation to another.
Cultural	▪ Of or relating to culture or cultivation.
Diversity	▪ The state or fact of being diverse; difference; unlikeness.
Geological (geology)	▪ The science which treats of the earth, the rocks of which it is composed, and the changes which it has undergone or is undergoing.
High	▪ Intensified; exceeding the common degree or measure; strong; intense, energetic
Importance	▪ The quality or fact of being important.
influence	▪ Power of producing effects by invisible or insensible means.
Potential	▪ Possible as opposed to actual.
Integrity	▪ The state of being whole, entire, or undiminished.
Religious	▪ Of, relating to, or concerned with religion.
Significant	▪ important; of consequence
Social	▪ Living, or disposed to live, in companionship with others or in a community, rather than in isolation.
Spiritual	▪ Of, relating to, or consisting of spirit or incorporeal being.
Valued	▪ Highly regarded or esteemed

1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

Tsimba Archaeological Footprints (Pty) Ltd was requested by Hanslab Environmental Consultants (Pty) Ltd to conduct a heritage impact assessment (HIA) of the proposed construction of the Mvunyana River Bridge. 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 .The HIA is completed in accordance to requirements of Section 38 (1) (b) of the NHRA, No. 25 of 1999:- *any person who intends to undertake a development categorised as—the construction of a bridge or similar structure exceeding 50 m in length. 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.* This Act can be read together with the and the KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No 5 of 2018) Section 41 (1) (b) *any person who intends to undertake a development categorised as— the construction of a bridge or similar structure exceeding 50 m in length. 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.*

1.2 LEGISLATIVE FRAME WORKS USED

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. National Heritage and Resources Act of South Africa No.25 of 1999
5. KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No 5 of 2018).
6. The Athens Charter, the Restoration of Historic Monuments (1931)
7. 7. The International Council on Monuments and Sites(1965)
8. 8. The World Heritage Convention(1972)
9. 9. The Washington Charter (1987)
10. 10. Organisation of World Heritage Cities (1993).

1.3 POLICY DOCUMENTS

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 in with other National, Provincial and local City Council planning / policy documents that include heritage management as a key aspect in local city council policy formulation. In the

uMzinyathi District Municipality and the Zululand District Municipality some of these planning documents include but not limited to the following;

- National Development Plan Vision for 2030
- Comprehensive Rural Development Programme
- Breaking New Ground

1.4 Motivation

In the rainy seasons there is currently no safe means for pedestrians and vehicles to cross the river. Communities are then left isolated and experience considerable trouble accessing vital schools and clinics in the area. There is a definite need for the bridge for users to cross the river safely.

1.5 Scope of works

BRIDGE/CULVERT WIDTHS	DESIGN FLOOD	FOUNDING THE BRIDGE SUB-STRUCTURE	TRAFFIC LOADING	BRIDGE FEATURES
Considering the current development in the area, a sidewalk will be provided on one side of the road to accommodate pedestrians. The link road is currently an unclassified road and thus the width between the bridge parapets will be in accordance with a one-way bridge, viz, 6.4 m between parapets.	The design flood and freeboard to the bridge soffits is in accordance with the Department's Structures Design Manual.	As these are preliminary design proposals, there have been no detailed geotechnical investigations. A reasonable assumption, based on rock outcrops visible on site,has been made that suitable founding for spread footings will be encountered at depths of 2 to 3m below existing ground level.	It is proposed that the bridge or culvert will be designed for NA and NB36 traffic loading in accordance with TMH7 parts 1, 2 and 3.	The proposed designs take into consideration the needs of Vukuzakhe contractors EPWP and CPG targets, hence the use of precast beams as opposed to staging over the river and simplified abutment walls.

2.0 DESCRIPTION OF THE RECEIVING ENVIRONMENT

2.1 Location

The location of river crossing is shown on the 1:20000 locality plan. The crossing lies close to the Mhlungwani and Nqutu areas. ***(see Figure 1 below).***

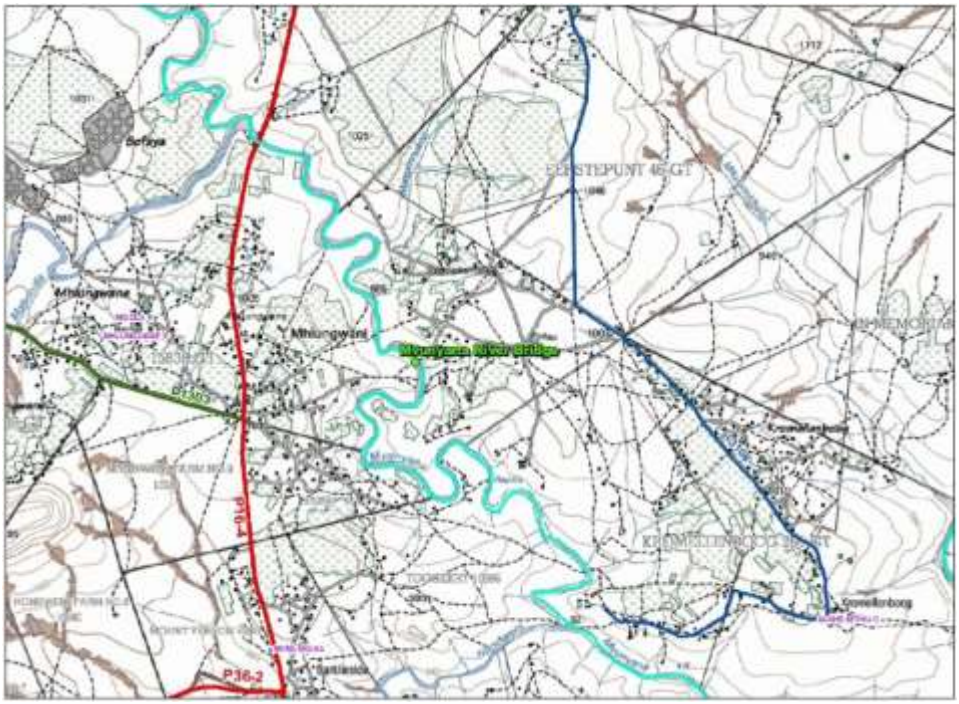


Figure 1: Locality map of the proposed development site(Credit Kyle Raman)

2.2 Physical Environment

A preliminary investigation report done by Kyle Raman (2019) noted that there is medium hard rock visible on each side of the river. Spread footings are then thought to be suitable foundations for the structure. The proposed site is located within a rural area.

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 cultural heritage resources. 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

A systematic survey of the proposed development site was conducted paying specific attention to baseline situations; the type, distribution and significance of heritage such as archaeological artefacts, human burials old buildings and other historical sites that may exist. The survey was conducted on foot on the 26th of October 2020. The systemic survey of the area as indicated by Burke and Smith (2004) resulted in the maximum coverage of the site. The descriptions findings of this survey are given below.

3.3 Public Participation Process

The local community is critical in giving an oral account as well as detailed intangible values of a site. Article 12 of the Burra Charter states the conservation, interpretation and management of a heritage resource should provide for the participation of people for whom the place has significant associations and meanings, or who have social, spiritual or other cultural responsibilities for the place.

A public participation process was carried out and peoples from local community were interviewed in order to obtain information relating to the heritage resources and the significance of the buildings to them. The local community was useful in regards to getting information in regards to their living heritage as well as other possible heritage resources that may exist within the project servitude. These inputs were made use of in the compilation of this report.

3.4 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 (i.e. in the Western Cape, Heritage Western Cape) 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:

- *Places, buildings, structures and equipment of cultural significance;*
- *Places to which oral traditions are attached or which are associated with living heritage;*
- *Historical settlements and townscapes;*
- *Landscapes and natural features of cultural significance;*
- *Geological sites of scientific or cultural importance;*
- *Archaeological sites and objects;*
- *Graves and burial grounds;*
- *Sites of significance relating to the history of slavery in South Africa;*
- *Moveable objects including military objects, fine art, books records, documents, archaeological and paleontological objects, and materials.*

A Phase 1 HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of heritage specialist input is to:

- Identify any heritage resources, which may be affected;
- Assess the nature and degree of significance of such resources;
- Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- Assess the negative and positive impact of the development on these resources; and
- Make recommendations for the appropriate heritage management of these impacts.

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 Amafa Research and Institute 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

DATE	DESCRIPTION
2.5 million to 250,000 years ago	The Early Stone Age of South Africa is associated with the Homo erectus hominid. These hominids used a selection of stone tools such as hand axes, which were used for the butchering of animals, scraping their hides and digging for plant foods (Mc Dougalletal 2005). The earliest of these technological phases is known as Oldowan, which is associated with crude flakes and hammer stones and dates to approximately 2 million years ago. These tools are characterised by their large sizes and being created from a single core. Prins (2012) points out to portions of the greater Nqutu and Vryheid areas. These areas have been systematically surveyed for archaeological heritage sites in the past. These were mostly conducted by archaeologists attached to the then Natal Museum as well as by Amafa staff. Sixty sites are recorded in the data base of the KwaZulu-Natal Museum. These include fourteen Early Stone Age sites, eight Middle Stone Age sites, ten Later Stone Age sites, three rock painting sites, and forty Later Iron Age sites. The majority of the Early Stone Age sites occur in open air context such as large dongas. Middle and Later Stone Age sites occur in context in four rock shelters.
250,000 to 40,000 years ago	Middle Stone Age bands hunted medium-sized and large prey, including antelope and zebra, although they tended to avoid the largest and most dangerous animals, such as the elephant and the rhinoceros. They also ate seabirds and marine mammals that could be found along the shore and sometimes collected tortoises and ostrich eggs in large quantities The Middle Stone Age, is represented by numerous sites in South Africa. Open camps and rock overhangs were used for shelter.
40,000 years ago to the historic past	The numerous collections of stone tools from South

	African archaeological sites show a great degree of variation through time and across the subcontinent. The remains of plant foods have been well preserved at such sites as Melkhoutboom Cave, De Hangen, and Diepkloof in the Cape region. Animals were trapped and hunted with spears and arrows on which were mounted well-crafted stone blades. Bands moved with the seasons as they followed game into higher lands in the spring and early summer months, when plant foods could also be found. Basic tool making techniques began to undergo additional change about 40 000 years ago. Small finely worked stone implements known as microliths became more common, while the heavier scrapers and points of the Middle Stone Age appeared less frequently. Archaeologists refer to this technological stage as the Late Stone Age.
25 000 years ago	Although scholars originally saw the South African rock art as the work of exotic foreigners such as Minoans or Phoenicians or as the product of primitive minds, they now believe that the paintings were closely associated with the work of medicine men, shamans who were involved in the well-being of the band and often worked in a state of trance. Specific representations include depictions of trance dances, metaphors for trance such as death and flight, rainmaking, and control of the movement of antelope herds.
1 700 years ago	Early Iron Age People settled along the inland foot of the sand dunes on sandy but humus rich soils would have ensured good crops for the first year or two after they had been cleared (see Maggs 1989). These early agro-pastoralists produced a characteristic pottery style known as Matola. The Matola people also exploited the wild plant and animal resources of the forest and adjacent sea-shore. The communities seem to been small groups of perhaps a few dozen slash-and burn cultivators, moving into a landscape sparsely inhabited

	by LSA San hunter-gatherers.

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

Tsimba Archaeological footprints archaeologists took a survey along a 68.44m (length) and 16.2m (width) corridor. This survey consisted of surface reconnaissance and systematic river bank (open pit investigation) along transects at 2m intervals. 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. aerial photography, fault line inspection and so on.

Figure 2: View of the proposed development site from the Mhlungwani village.

Figure 3: Part of the river crossing that is currently being used by the local community members. Notice he ground visibility mentioned above as well as the clearance making it difficult for archaeological artefacts existence

Figure 4: A view of the river banks that were assessed for any pre- historic settlements that may have existed along the Mvunyana River

Figure 5: A view of the current road from the Eastern side of the river.

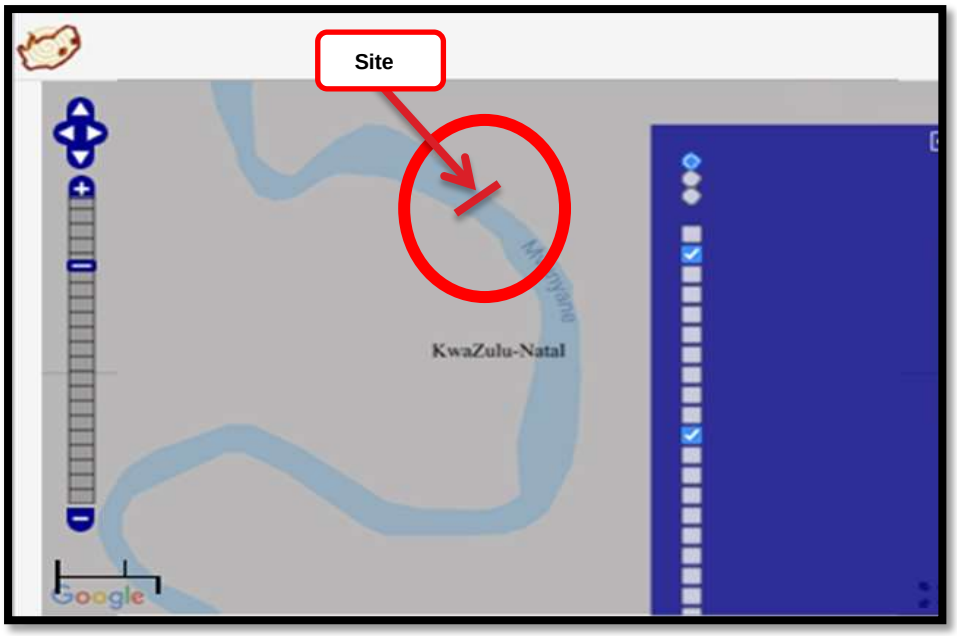
- ***Archaeology***

The principal goals our survey included discerning of past and present settlement patterns and other forms of past human behaviour in the landscape, studying of interactions between past populations and the river, predicting the characteristics of the subsurface record, and discovering the archaeological heritage for purposes of its protection and management in the rapidly developing and changing modern landscape.

It is important to note that during our site visit, we noted that vegetation density is low to high throughout the proposed development area. Most of the area along the river is used as grazing lands for cattle. Soil visibility was very high however it is highly unlikely that significant archaeological remains, or other heritage resources such as structures or ancestral graves, are present. No archaeological artefacts or sites were found during the site visit.

- ***Palaeontology***

Fossils in South Africa mainly occur in rocks of sedimentary nature and not in rocks from igneous or metamorphic nature. Therefore, if there is the presence of Karoo Supergroup strata the palaeontological sensitivity is generally **LOW** to **VERY HIGH**. The rocks of the Karoo Supergroup are internationally acclaimed for their richness and diversity of fossils. The rocks of the Beaufort Group of South Africa cover approximately one-third of the land surface and have yielded an abundance of well-preserved therapsids and other tetrapods which have been used to subdivide this Group into eight faunal Assemblage Zones. Over areas totalling fully 40% of Southern Africa the hard rocks', from the oldest to the Quaternary, are concealed by normally unconformable deposits – principally sand, gravel, sandstone, and limestone. Inland deposits are much more extensive than marine deposits and are terrestrial and usually unfossiliferous. Some of these deposits date back well into the Tertiary, whereas others are still accumulating. Owing to the all-to-often lack of fossils and of rocks suitable for radiometric or palaeomagnetic dating, no clear-cut dividing line between the Tertiary and Quaternary successions could be established (Kent 1980).



Colour	Sensitivity	Required Action
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Figure 6: 1 in 250 000 geological formation layers are courtesy of the Council for GeoScience

The study area is not paleo-sensitive therefore no paleontological studies are required.

8.0 HERITAGE ASSESSMENT OF SIGNIFICANCE

The significance of a site can be modified or added to. Its importance can be increased by communicating the significance to more people through the media or archaeological reports. 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.
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.		
	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 Amafa Research and Institute to exercise their discretion and offer a positive review to the application*. The project will benefit the local community through bringing various services close to them. The project will also 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 value- based management process used in this study proposed that the developer should be given the go ahead and continue with the proposed project subject to a Chance Finds Procedure being implemented.
- This Chance finds procedure (CFP) should also 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.

11.0 REFERENCES

1) Bryant, A. T. 1965. Olden times in Zululand and Natal. Cape Town: C. Struik.
2) Cable, J. H. C. 1984. Economy and technology in the Late Stone Age of southern Natal. Cambridge monographs in African archaeology, 9 BAR international series, 201. Oxford: British Archaeological Reports.
3) Huffman, T.N. 2007. Handbook for the Iron Age. Pietermaritzburg: UKZN Press.
4) Maggs, T.M. l976. Iron Age communities of the southern Highveld. Pietermaritzburg: Natal Museum.
5) Mazel, A., 1989. The Stone Age peoples of Natal. In Duminy, A. and Guest, B. 1989. Natal and Zululand.
6) Kent, L. E., 1980. Part 1: Lithostratigraphy of the Republic of South Africa, South West Africa/Namibia and the Republics of Bophuthatswana, Transkei and Venda. SACS, Council for Geosciences, Stratigraphy of South Africa. 1980. South African Committee for Stratigraphy. Handbook 8, Part 1, pp 690.
7) Raman, K. 2019. Preliminary investigation report for Mvunyana river bridge on new link road near p16-4 km 26 in the Nqutu area: TIRS – Engineering Services, Developed for KwaZulu-Natal Department of Transport.
8) Prins, F. 2012. Heritage Impact Assessment of the proposed Nqabeni/Eros/Oribi 132kv loop in Loop out powerlines, Ugu District Municipality.

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 epistimatological 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.

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:

- Precambian (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. PALAEONTOLOGICAL 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: ▪ ESA ▪ MSA ▪ LSA ▪ LSA - Herder ▪ Historical ▪ Maritime history Types of sites that could occur include: ▪ Shell middens ▪ Historical dumps ▪ Structural remains	▪ Subsurface excavations including ground leveling, landscaping, foundation preparation. ▪ In the case of maritime resources, development including land reclamation, harbor/marina/water front developments, marine mining, engineering and salvaging.
C. HISTORICAL BUILT URBAN LANDSCAPE CONTEXT	◄ Historical townscapes/streetscapes. ◄ Historical structures; i.e. older than 60 years ◄ Formal public spaces. ◄ Formally declared urban conservation areas. ◄ Places associated with social identity/displacement.	A range of physical and land use changes within this context could result in the following heritage impacts/issues: ◄ Loss of historical fabric or layering related to demolition or alteration work. ◄ Loss of urban morphology related to changes in patterns of subdivision and incompatibility of the scale, massing and form of new development. ◄ Loss of social fabric related to processes of gentrification and urban renewal.

APPENDIX F: KNOWN NATIONAL HISTORICAL SITES IN SOUTH AFRICA

Free State The quaint, small towns of the Free State are rich historical and cultural heritage with friendly people where visitors are always welcome.
Eastern Cape 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.
Gauteng 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.
KwaZulu Natal **Remnants of British colonialism and a mix of Zulu, Indian and Afrikaans traditions give the province a rich cultural and historical diversity**
Limpopo It's also home to the Mapungubwe Cultural Landscape, one of the country's seven World Heritage sites.
Mpumalanga Mpumalanga - "the place where the sun rises" is home to the historic village of Pilgrims Rest - established during the gold rush.
North West 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.
Northern Cape 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
Western Cape **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**