PHASE 1
HERITAGE IMPACT ASSESSMENT REPORT
APPLICATION FOR ENVIRONMENTAL AUTHORISATION

THE PROPOSED CONSTRUCTION OF A HIGH-LEVEL BRIDGE AND CULVERT OVER THE VUNGU RIVER, ON ROAD D1724, KWACEZA, KZN

Developed for :	Developed by:
HANSLAB Environmental Consultants	TSIMBA ARCHAEOLOGICAL FOOTPRINTS (PTY) LTD

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JUNE 2022

AUTHOR'S CREDENTIALS AND DECLARATION OF INDEPENDENCE

Archaeology and Heritage Specialist

Personal Details: Roy Muroyi

Years of experience: Eight (8) Years

Educational Background: Masters Degree Heritage Studies – University of Witwatersrand

Masters Critical Diversity Studies – University of Witwatersrand

Hon. BA. Archaeology, Cultural Heritage and Museum Studies

Accreditations and Memberships: Association of Southern African Professional Archaeologists

Association of Professional Heritage Professionals

International Association Impact Assessment South Africa

KwaZulu-Natal Amafa and Research Institute

Society of Black Archaeologist

Cultural Resources Management Projects Completed:

: Over 100 Heritage Impact Assessments

: Close to 500 historical human burials excavated

I,_____Roy Muroyi_____, declare that –

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist

TECHNICAL SUMMARY

DOCUMENT INFORMATION ITEM	DESCRIPTION
Proposed development and location	Proposed construction of a suitable structure to provide a medium to long-term solution for the accessibility of pedestrians and vehicles across a tributary to the Vungu River. The proposed structure site will fall under the jurisdiction of the Ulundi Local Municipality (KZN 266), DC26.T
Purpose of the study	To carry out a Phase 1 Heritage Impact Assessment to determine the presence/absence of archaeological assess their archaeological significance in terms of the NHRA of 1999, The Kwazulu-Natal Amafa and Research Institute (Act 5 of 2018) and SHARA guidelines.
Municipalities	Zululand District Municipality
Predominant land use of surrounding area	Rural Homesteads
Applicant	KwaZulu-Natal Department of Transport
Coordinates	Bridge - 27°59'30.29"S ; 31°22'25.42"E Culvert - 27°59'31.41"S ; 31°22'26.01"E
Client Details	Hanslab Environmental Consultants (Pty) Ltd 1 Sugar Close, Block 1 Gateway Office Park, Durban Email: Nokukhanya@hanslab.co.za
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Development criteria in terms of Section 38(1) of the NHR Act	**Yes**	**No**
Construction of road, wall, power line, pipeline, canal or otherlinear form of development or barrier exceeding 300m in length	Yes	
Construction of bridge or similar structure exceeding 50m in length	Yes	
Development exceeding 5000 sq m		
Development involving three or more existing erven or subdivisions		
Development involving three or more erven or divisions that have been consolidated within past five years		
Rezoning of site exceeding 10 000 sq m		
Any other development category, public open space, squares, parks, recreation grounds		

EXECUTIVE SUMMARY

The Applicant, KwaZulu-Natal Department of Transport proposes to upgrade District Road 1724 inclusive of the construction of a bridge and culvert structure for the safe transportation of vehicular and pedestrian traffic across a tributary to the Vungu River at KM 0.42 & 0.47. The proposed structure site will fall under the jurisdiction of the Ulundi Local Municipality (KZN 266), DC26.The structures' locations are over a tributary to the Vungu. Access to site may be gained from the R66 (P52-2) from Ulundi, heading towards Nongoma and turning left onto P487. Travel along P487 for approximately 32.2km. The greater Ulundi area has been sporadically surveyed for archaeological heritage sites by archaeologists previously employed by the Natal Museum, the Ondini Cultural Museum and Amafa. The most systematic surveys occurred recently in the Emakhosini Opate Park (Pelser 2013) and further south at the Umfolozi-Hluluwe Nature Reserve.

The existing data, as recorded in the KwaZulu-Natal Museum heritage site inventory, suggests the Ulundi contains a diverse range of archaeological sites spanning several time periods and cultural traditions. There have been six Early Stone Age sites discovered in the broader study area. These sites are estimated to be 300,000 to 1.5 million years old. The majority of these occur in dongas near water, with little in-situ material. In the nature reserve, 59 Middle Stone Age sites have been discovered. Sites from the Middle Stone Age are associated with anatomically modern individuals and date from 40 000 to 200 000 years ago.

The larger Ulundi area is particularly well-known for its important location in the early 1800s formation of King Shaka Zulu's Zulu state. The eMakhosini valley (Valley of the Kings) located in the close vicinity of Ulundi, to the south-west. Several stone-walled constructions surround the valley, which were previously home to the powerful Buthelezi and Khumalo tribes. The main cultural groups in the Ceza area are Zulu speaking and the types of settlement in the area are rural and remote. Migrant labour and subsistence farming are the main economic activities in the area. The Ceza area also carries a heavy vibration of colonial heritage and historical heritage. The Ceza caves, located on Ceza Mountain, were the site of Dinuzulu's final stand against British colonization of Zululand. Following the Anglo-Zulu War of 1879, Zululand was divided into 13 pieces and distributed to individual chiefs. Hlatshwayo was restored as Paramount Chief to put an end to the instability, but civil war erupted in Zululand, and his son Siwelile the first replaced him following his death in 1884. The young monarch was given to the Usuthu group, who built a safe haven for him in the Ceza Forest caverns.

Hanslab Environmental Consultants (Pty) Ltd has been appointed as the Environmental Assessment Practitioner (EAP) for the proposed development (hereafter referred to as "the EAP") have been appointed has been appointed by on behalf of KwaZulu-Natal Department of Transport to undertake the Environmental Assessment process for the proposed development.

In-turn Hanslab Environmental Consultants (Pty) Ltd requested Tsimba Archaeological Footprints (Pty) Ltd to conduct a Phase 1 Heritage Impact Assessment (HIA) for the proposed development. This HIA study was commissioned through the provisions of the National Heritage Resources Act of 1999 and supporting regulations such as the South African Heritage Resources Agency Minimum Standards for Specialist Heritage Studies (Archaeology, Palaeontology, Built Environment and Living Heritage). In order to produce an up best practice product. The assessment was also informed by the international standards such as the ICOMOS Guidelines on Impact Assessment near World Heritage places, and ICOMOS Australia's Burra Charter. Combined, these standards of best practice motivate for robust impact assessment processes and a cautious approach to the management of sites. They set out firmly that the cultural significance of heritage places must guide all decisions, developmental and otherwise.

The findings of this report have been informed by desktop data review, archaeological field survey and impact assessment reporting which include recommendations to guide heritage authorities in making decisions with regards to the proposed project. This study was conducted before any activities took place on the proposed development area. The impact assessment study also includes detailed recommendations on how to mitigate and manage negative impacts while enhancing positive effects on the project area.

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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	▪ 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

KwaZulu-Natal Department of Transport proposes to upgrade District Road 1724 inclusive of the construction of a bridge and culvert structure for the safe transportation of vehicular and pedestrian traffic across a tributary to the Vungu River at KM 0.42 & 0.47. The proposed structure site will fall under the jurisdiction of the Ulundi Local Municipality (KZN 266), DC26

Environmental Impact Assessments (EIA) currently being conducted by Hanslab Environmental Consultants (Pty) Ltd is used as an analytic approach for evaluating the expected impacts of development. The decision to include a Heritage Impact Assessment was influenced by the compulsory DFFE Screening tool, which found the site to be sensitively high in terms of the archaeological aspect. A baseline survey was carried out to provide a reference point against which impacts can be measured, including a desktop study and a field archaeological study.

This HIA is designed to assist statutory authorities in identifying and preventing the approval of aggressive developments, understood as the development that destroys the cultural significance of heritage properties. HIA structure an evaluation of the potential damage or benefits that may accrue to the significance of the cultural heritage assets.

1.2 Proposed project scope of works and motivation

- *Information supplied by Hanslab Environmental Consultants (Pty) Ltd*

The project includes the upgrade of D1724 from gravel to blacktop and subsequent design of two structures crossing over a tributary to the Vungu River

The proposed crossing point will provide a crucial link between communities in order to access the following necessary amenities: Schools:

- Ceza Primary School
- Embukisweni Junior Primary
- Phikwase High School
- Ivungu High School Clinics:

Ceza PHC Mobile Base Building the structures will provide the community with an easier route to their desired locations. Government officials have indicated that members of the community are left stranded during periods of high rainfall. The existing crossing point is unable to accommodate the flow from the tributary to the Vungu River. Therefore, community members wait a long period for the floods to subside before crossing. The proposed structure will also promote public transport and development in the surrounding areas. The construction process will also increase employment locally and provide skills development.

2.0 THE HERITAGE IMPACT ASSESSMENT PROCES

2.1 The Terms of Reference for this HIA study are:

Heritage impact assessments (hereinafter referred to as HIA) are applied to cultural heritage assets. This is a recent notion grounded in the requirements to perform environmental assessments at the project or more strategic levels. The practice of performing an impact analysis is not new, however. As Clark (2001, p. 22) observes, "impact analysis is not a particularly special, unusual or complex process; it is simply a codification of the basic analysis undertaken by any competent conservation adviser". The HIA exists to:

- Review existing theories and models of cultural heritage resources interpretation and how to develop effective methods of archaeological interpretation for future generations to assist and assist SAHRA in their deliberations;
- Clarify the extent and ways in which current site context archaeological findings may affect the interpretation of cultural sites for present and future generations;
- Shed light on the potential challenges and opportunities brought about by the existence of archaeological sites and other conflicting views of the values of a site;
- Set out the ethical considerations on the interpretation and preservation of archaeological findings given the varied range of approaches available;
- Explain that the issue of archaeological preservation and conservation as relevant not only National Heritage or Provincial Heritage properties, but also for any significant cultural site;
- Focus on best practice of interpretation and preservation of archaeological findings.

2.2 The aim: - There are two interlinked aims for this HIA. The first is to identify and document cultural heritage 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 development footprint. The second aim of this HIA is to assess the archaeological significance of the findings and make recommendations based on the best archaeological practice of interpretation and preservation of archaeological findings

2.3 The findings: - The findings of this report have been informed by desktop data review and impact assessment reporting which include recommendations to guide heritage authorities in making decisions with regards to the proposed project. This study was conducted before any activities too place on the proposed development area. The impact assessment study also includes detailed recommendations on how to mitigate and manage negative impacts while enhancing positive effects on the project area.

2.4 Legislative Frame works used

- The Australia ICOMOS charter for places of cultural significance (the Burra Charter).
- The principles for the analysis, conservation and structural restoration of architectural heritage (2003)
- The National Heritage and Resources Act of South Africa No.25 of 1999
- The Athens Charter, the Restoration of Historic Monuments (1931)
  The International Council on Monuments and Sites (1965)
- The World Heritage Convention (1972)
- The Washington Charter (1987)
- The International Charter for the Conservation and Restoration of Monuments and sites (the Venice charter 2006).
- The Organisation of World Heritage Cities (1993).

2.5 HIA Scope of works

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

- ***Desktop study***

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

- ***Field Survey***

A surface physical of the proposed development footprint where the proposed development will take place. The aim of the survey will be to identify any cultural heritage resources that may be available within the boundaries of the study site.

- ***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). The Kwazulu-Natal Amafa and Research Institute (Act 5 of 2018).

3.0 DESCRIPTION OF THE RECEIVING ENVIRONMENT

3.1 Locality Information

The location for the proposed structure site will fall under the jurisdiction of the Ulundi Local Municipality (KZN 266), DC26.The structures' locations are over a tributary to the Vungu. Access to site may be gained from the R66 (P52-2) from Ulundi, heading towards Nongoma and turning left onto P487. Travel along P487 for approximately 32.2km. Turn left onto D1724 and travel 0.42km to reach the site of works.

Coordinates at start (R66): *28°07'45.8"S 31°30'26.8"E*
Coordinates of site of works: *27°59'31.41"S ; 31°22'26.01"E*

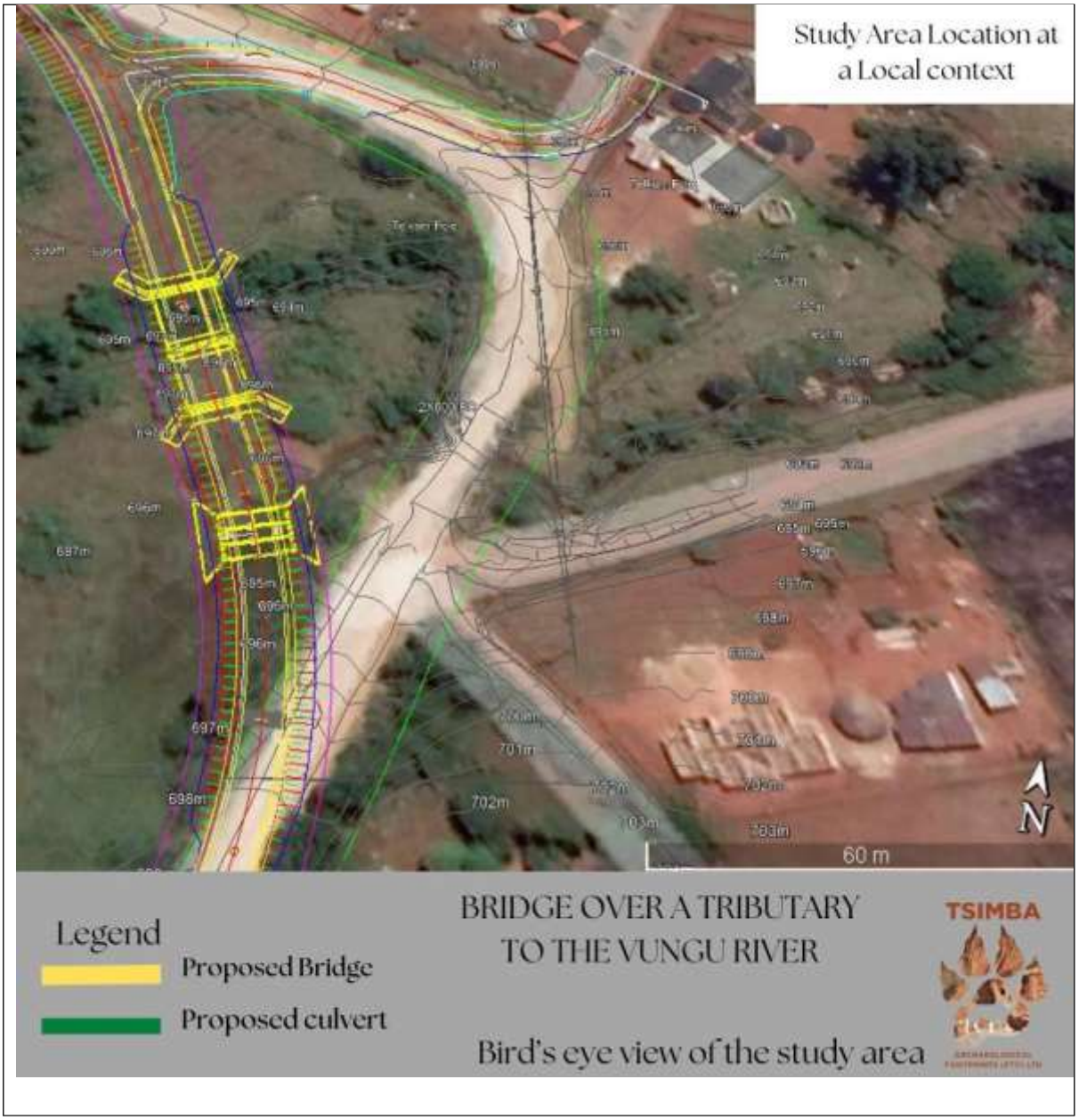

Figure 1: Site layout of the proposed development site

Figure 2: Locality Map of the proposed development site from a regional context

4.0 METHODOLOGY

4.1 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 on the broader study Ceza and Ulundi areas was consulted;
- The SAHRIS website and the National Data Base were consulted to obtain background information on previous heritage surveys and assessments in the area; and other planning documents.
- 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

4.3 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;
- 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 is the NEMA (read together with the 2014 EIA Regulations) and the NHRA of 1999
- The consolidation of the data collected using the various sources as described above;
- Acknowledgement of impacts on heritage resources (such as unearthed graves) predicted to occur during construction; and
- Geological Information Systems mapping of known archaeological sites and maps in the region
- A discussion of the results of this study with conclusions and recommendations based on the available data and study findings.

5.0 LEGISLATIVE FRAMEWORK

This HIA is informed and conducted to fulfil the requirements of the National Heritage Resources Act (No 25 of 1999) - *38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—(c) any development or other activity which will change the character of a site— (a) the construction of a road, wall, powerline, 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.*

5.1 Scope of the Phase 1 HIA

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 within the broader cultural landscape;
- Identify any heritage resources within the proposed development site;
- 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.

5.2 Cultural Heritage Resources Management Policy Objectives

a. To preserve representative samples of the National archaeological resources for the scientific and educational benefit of present and future generations;
b. To ensure that development proponents consider archaeological resource values and concerns in the course of project planning; and
c. To ensure where decisions are made to develop land, the proponents adopt one of the following actions:
    - ➲ avoid archaeological sites wherever possible;
    - ➲ implement measures which will mitigate project impacts on archaeological sites; or
    - ➲ Compensate the local communities for unavoidable losses of significant archaeological value.

6.0 CULTURAL LANDSCAPE ASSESSMENT

6.1 Introduction

In interpreting the cultural heritage significance of any particular landscape, recent heritage management research has shown that it is important to have a clear framework of criteria to assist in consistent assessment of the different host cultural landscapes that occur within the broader proposed development area falls within. These will be based on established practice from other works that have been carried out within the existing cultural landscape. It is likely to be based on a wide range of criteria (archaeological background of the area, historical background of the area, the settlement pattern in the area and degree of apparent human influence, among others) and it will define the degree of significance of the existing cultural landscape.

The question of the value of cultural landscape receptors will need careful consideration. By its very nature the work is concerned with designated cultural landscapes of national value for their cultural heritage values but the cultural landscapes within designated areas do nevertheless vary in their character and quality. It may therefore be appropriate to make a fine-grained assessment of the value of the cultural landscape character areas affected in the designated area. This will draw on statements about the special qualities contributing to the cultural heritage value of individual designated areas, on established criteria such as landscape quality and condition, scenic quality, historic/ heritage value, perceptual aspects and associations, and on other information such as the extent and setting of heritage assets including registered cultural heritage sites, burial grounds and archaeological sites.

6.2 Cultural Landscape Methodology

The methodology employed in carrying out the cultural landscape assessment of the proposals for the proposed development has been drawn from best practice guidelines and the Landscape Institute and the Institute of Environmental Management & Assessments “Guidelines for Landscape and Visual Impact Assessment” Second Edition (Spon Press 2002).The aim of these guidelines is to set high standards for the scope and contents of landscape and visual assessments and to establish certain principles that will help to achieve consistency, credibility and effectiveness in cultural landscape impact assessment. Guidance is contained in this publication on some approaches and techniques, which have been found to be effective and useful in practice by landscape professionals. However, the guidelines are not intended as a prescriptive set of rules, and have been adapted to the specific project.

Stage 1: Through a desktop and archival research process the heritage specialist is required to identify those landscape character types/areas of National, Provincial and Regional heritage significance which may be affected by the proposed development. The specialist should also locate information relevant to assessing landscape value for example written historical statements of special qualities.

Stage 2: Initial identification of potential effects the proposed development will bring to the broader regional area and design options to mitigate potential effects;

Stage 3: Design the development taking account of identified potential mitigation measures to avoid negative effects.

Stage 4: Assessment of effects the proposed developments have on the broader cultural landscape and considers its residual effects;

Stage 5: Fitting the cultural landscape assessment into the whole HIA.

6.3 Archaeological background of the study area

- **Stone Age Period**

From a theoretical perspective, the historical profile of the area under study is a pointer to the potential richness of the area in terms of tangible and intangible heritage, and possibly archaeology. There were changes that occurred slowly in the Early Stone Age; for more than a million years and over a wide geographic area, only slight differences existed in the forms of stone tools. The slow alterations in hominins'physical appearance that took place over the same time period, however, have allowed physical anthropologists to recognize new species in the genus Homo. An archaic form of Homo sapiens appeared about 500 000 years ago; important specimens belonging to this physical type have been found at Hopefield in Western Cape province and at the Cave of Hearths in Mpumalanga province.

The long episode of cultural and physical evolution gave way to a period of more rapid change about 200 000 years ago. Hand axes and large bifacial stone tools were replaced by stone flakes and blades that were fashioned into scrapers, spear points, and parts for hafted, composite implements. This technological stage, now known as the Middle Stone Age, is represented by numerous sites in SouthAfrica. No systematic research concerning the Early and Middle Stone Ages of the lower Thukela Basin has been undertaken, although dozens of open-air scatters of stone artefacts dating to this period have been recorded there.

Most Early Stone Age sites in South Africa can probably be connected with the hominin species known as Homo erectus. Simply modified stones, hand axes, scraping tools, and other bifacial artifacts had a wide variety of purposes, including butchering animal carcasses, scraping hides, and digging for plant foods. Most South African archaeological sites from this period are the remains of open camps, often by the sides of rivers and lakes, although some are rock shelters, such as Montagu Cave in the Cape region. Open camps and rock overhangs were used for shelter. Day-to-day debris has survived to provide some evidence of early ways of life, although plant foods have rarely been preserved.

The Early Stone Age sites occur close to permanent water sources. Some Middle Stone Age flakes, probably dating back to ca. 40 000 – 200 000 years ago, occur in disturbed context in dongas and road cuttings. The majority of Later Stone Age sites as well as rock art sites occur further west in the foothills of the Drakensberg. These typically occur in small shelters in the sandstone formations some leading up to the Drakensberg.

Early Stone Age (ESA) dating between 2 million years ago to about 200 000 years ago. Gavin Anderson recorded two ESA sites on the R 3 road in Estcourt south East of the proposed development site. The site consists of two stone-walled archaeological sites on the same ridge of a hill. The first site is near the location of pylon no. 240. This site is a low stone-walled structure. The walling is not well-preserved, but there appears to be an archaeological deposit associated with the walling. This site may date to between 1250 AD and 1440 AD. This site is of medium archaeological significance and any impact will be negative. The second site in this group is near pylon no. 242. The site extends from the existing transmission line to the Ariadne-Venus line path, and has already been negatively affected by the current pylon.

The site consists of three to four circular stone-walled structures that may be the remains of houses and a cattle-byre. There is a potential archaeological deposit at this site. The site is of medium archaeological significance and any impact will be negative. The stone-walled features of this site were accurately mapped. The tower would not affect the site itself, however the access road has the potential to damage portions of the site.

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**.** The most well-known are Sibidu Cave and Umhlatuzana Cave in the study area's

south east, and Border Cave in the study area's north. All of these locations gave compelling evidence of high-resolution data. and stratigraphy in depth (Wadley & Jacobs, 2006). Fourteen sites from the Middle Stone Age have been discovered in the Msinga area. Like the Early Stone Age sites, these are primarily relegated to open-air locations with little residual archaeological context.

The good organic preservation at Sibidu cave allows for analyses of charcoal, seeds and bone and these, in turn, permit environmental reconstructions of the period between about 26 000 and 62 000 years ago. Vegetation changes are apparent from the charcoal (Allott, this issue) and seed studies (Wadley, this issue), and faunal analysis (Plug, this issue) reveals that there was a rich and diverse animal population in the area.

The cave occupants were clearly skilled hunters for there is little evidence that non-human predators contributed bone to the archaeologically recovered sample. Cultural material from Sibidu includes a huge collection of late MSA stone tools and rare pieces of worked bone, one of which has been directly dated (Cain, this issue). Residue analysis on a large sample of the stone tools shows that the cave occupants processed much plant material and used individual tools for multiple tasks (Williamson, this issue).

The excavations are ongoing and the papers presented here do not, therefore, provide the last word on Sibidu Cave. New excavations conducted since completing the analyses communicated in this issue have uncovered a long Howiesons Poort occupation in the deeper, older deposits of the site and there is no indication that bedrock will be reached soon.

Figure 3: Quartz tipped arrows over 60ka found at Sibidu cave

Figure 4: Marine shell beads from Sibidu cave

Figure 5: Early evidence of middle stone age at Umhlathuzana cave

Figure 6: View of the Umulndi battlefields (Credit : Amafa Research and Institute

Figure 7: Grave of Zulu kaMalandela (1627–1709), son of Malandela, was the founder and chief of the Zulu clan.

Figure 8: Ceza Caves (Credit : Amafa Research and Institute)

6.4 Historical background of the study area

The main cultural groups in the area are Zulu speaking and the types of settlement in the area are rural and remote. Migrant labour and subsistence farming are the main economic activities in the area. Sites such as the Ceza caves, located on Ceza Mountain, were the site of Dinuzulu's final stand against British colonization of Zululand are of historical significance. Following the Anglo-Zulu War of 1879, Zululand was divided into 13 pieces and distributed to individual chiefs. Hlatshwayo was restored as Paramount Chief to put an end to the instability, but civil war erupted in Zululand, and his son Siwelile the first replaced him following his death in 1884. The young monarch was given to the Usuthu group, who built a safe haven for him in the Ceza Forest caverns. Dinuzulu was eventually installed as king after defeating his rival Zibhebhu with the help of the Boers. The Boers then claimed the property they had been given in exchange for their efforts, prompting Dinuzulu to seek assistance from the British. Instead, the British conquered all of Zululand, and Dinuzulu responded in 1887 by attacking Zulus loyal to Britain and attempting to drive away European traders and missionaries. The government in Natal sought assistance from the Cape, and in 1888, 2000 British troops were dispatched to Eshowe to fight Dinuzulu, who was besieging a fort at the mouth of the iMfolozi River.

Beater and Muroyi (2019) Heritage Impact assessment study of the Babanango game reserve observed the existence of many Iron Age Zulu stone walled homesteads. The stone walled sites consist of at least two distinct circular stone walled enclosures (livestock/cattle kraal), various sections of stone walling,some other less visible and distinct enclosures, with concentrations of stone cairns of varying sizes and other features. Iron Age studies have also noted the existence of these sites in the wider area. Archaeologists have also excavated some of these Iron Age sites in the interior grasslands of KwaZulu-Natal. These have aided in the interpretations for homestead patterns among the Zulu in the game reserve.

The Type B settlement sites consisted of primary stone enclosures arranged in a roughly circular plan and linked by secondary walls to form secondary enclosures. The entrances to the Babanango enclosures were often distinctive with carefully cobbled passages that were invariably placed to lead up the slope of the hill (Mitchell 2002:354).

The eMakhosini Cultural Landscape north of the proposed development site is a combination of historic sites, landscapes and history bound by oral traditions and cultural significance defining the Zulu culture.

eMakhosini (literally “the valley of the chiefs”) lies south-east of the project area. Much of the area is defined by the presence of several stone walled sites associated with the powerful Buthelezi and Khumalo clans. These clans among others were key players in the formation of the Zulu kingdom. The famous King Shaka Zulu was born here around 1785 and it is here that his forbearers, Nkosinkulu Zulu, Phunga, Mageba, Ndaba, Jama and Senzangakhona lie buried. The graves and royal residences of four paramount rulers of the Zulu – Shaka, Dingane, Mpande and Cetswayo - are located in and around the eMakhosini Valley (G&A Heritage 2011 p.25). However, around the proposed development area the Mabhudu, Ndwandwe, and Mthethwa were the most important, largest, and powerful states of the time. Other smaller states, meanwhile, developed themselves in the region.

These included the Qwabe, Bhaca, Mbo, Hlubi, Bhele, Ngwane, and many others in the south (Wright & Hamilton, 1989). The Thembu and Mcunu clans lived in the larger Msinga area. In the early nineteenth century, the Zulu empire, founded by King Shaka, remained the most powerful in the region. Shaka fought mercilessly and frequently vanquished his opponents, conquering their cattle, wives, and villages. Given below is a list of Zulu wars and their dates around the Ceza area.

Historical Date	Historical Events
1888 January	Large location assigned Zibhebhu inflames the uSuthu further. More troops moved up temporarily to Ndwandwe contain the situation.
15 February	Dinuzulu unsuccessfully seeks assistance from New Republic. March–April: AbaQulusi supporters of Dinuzulu start mustering on Ceza Mountain on the border of northwestern Zululandand the New Republic
26 April	Attempt by the Zululand Police to arrest uSuthu ringleaders at Dinuzulu’s oSuthu homestead resisted by force.
May	uSuthu under Dinuzulu join abaQulusi on Ceza and raid Zulu loyalists and white traders
31 May	Zibhebhu reinforces the Ivuna magistracy held by the Zululand Police

6 June	Zululand Police, assisted by British troops, repulsed when they attempt to arrest uSuthu leaders on Ceza.
8 June	uSuthu on Ceza and Boer freebooters in control of much of northern Zululand. Usuthu forces under umNtwana Shingana kaMpande concentrate on Hlophekhulu Mountain in central Zululand. Zibhebhu raids his uSuthu neighbors from Ivuna.
15 June	Reinforcements dispatched to Zululand from the Natal garrison. African auxiliaries raised in the Eshowe and Nkandhla Districts of Zululand.
23 June	uSuthu from Ceza, under Dinuzulu, rout Zibhebhu at Ivuna but avoid attacking the magistrate's fort. Lieutenant- General Smyth, the general officer commanding in South Africa arrives in Eshowe to take command.
24-28 June	Ivuna garrison and Mandlakazi survivors evacuated to British base at Nkonjeni. British vabandon Zululand north of the Black Mfolozi River.
30 June	In battle of Ntondotha, coastal uSuthu unsuccessfully attack Fort Andries in the Lower Umfolosi District.
2 July	British troops and African auxiliaries under Colonel Stabb storm Hlophekhulu and restore British control in central Zululand.
6 July	Formation of Eshowe Column under Major Mc-Kean at Kongella Camp to relieve Fort Andries. Usuthu in northeastern Zululand, assisted by Boer freebooters, begin ravaging Zibhebhu's

6 August	Coastal Column reaches Ivuna. Dinuzulu disbands uSuthu on Ceza and seeks refuge in SAR

6.6 Cultural Landscape Assessment of Significance

Significance is not absolute and can only be identified in relation to each individual development and its unique location. It is important that any assessment of significance adopts an informed and well-reasoned judgement, supported through a clear justification as to how the conclusions about significance for each effect have been derived. It should be emphasised that whilst this methodology is designed to be robust and transparent, professional judgement is ultimately applied to determine the level of significance applied to each effect.

The two principal criteria determining the significance of effects are the scale or magnitude of effect, and the cultural heritage sensitivity of the location or receptor. With regard to visual receptors, a **HIGH** significance of effect would be from **HIGH** sensitivity receptors such as Regional to National significance old buildings and heritage sites with a Local rating where they would receive a major change in the view. A low significance of effect would be from the least sensitive low significance old buildings and heritage sites with a Local rating would be affected for a smaller period of time as they would experience transient views. Where no change is identified the significance is assessed as neutral. These thresholds will be determined by combining sensitivity and magnitude, with reference to any general terminology accepted for the whole Heritage Impact Assessment.

6.7 Significance of Cultural Landscape Impacts

This project is given a Low adverse significance to the cultural landscape. This id due to the fact that the proposed development landscape has very minimal known cultural heritage significance. Given below is a table that shows the ICOMOS assessment of significance of cultural landscapes.

Assessment of significance of the cultural landscape impacts ▪ Red cells represent significant adverse impacts ▪ Yellow cells represent significant beneficial impacts ▪ Blue cells represent impacts that are not significant			Landscape receptor sensitivity		
			High	Medium	Low
			Landscape with National heritage significance Status sites and cultural Landscapes with Provincial heritage Significance Status	Regional or Local Significance Heritage sites valued characteristics reasonably tolerant of changes of the type proposed.	A relatively unimportant cultural landscape with few features of value or interest, potentially tolerant of substantial change of the type proposed.
Magnitude of landscape impact	Major	Significant adverse changes, over a significant area, to key characteristics or features or to the landscape's character or distinctiveness for more than 2 years	High adverse significance	High/Medium adverse significance	Medium adverse significance
	Moderate adverse	Noticeable but not significant adverse changes for more than 2 years or significant adverse changes for more than 6 months but less than 2 years, over a significant area, to key characteristics or features or to the landscape's character or distinctiveness.	High/Medium adverse significance	Medium adverse significance	Low adverse significance
	Slight adverse	Noticeable adverse changes for less than 2 years, significant adverse changes for less than 6 months, or barely discernible adverse changes for any length of time.	Medium adverse significance	Low adverse significance	Neutral
	Neutral	Any change would be negligible, unnoticeable or there are no predicted changes.	Neutral	Neutral	Neutral
	Slight benefit	Noticeable beneficial changes for less than 2 years, significant beneficial changes for less than 6 months, or barely discernible beneficial changes for any length of time.	Medium beneficial significance	Low beneficial significance	Neutral
	Moderate benefit	Noticeable but not significant beneficial changes for more than 2 years or significant beneficial changes for more than 6 months but less than 2 years, over a significant area, to key characteristics or features or to the landscape's character or distinctiveness.	High/Medium beneficial significance	Medium beneficial significance	Low beneficial significance
	Major benefit	Significant beneficial changes, over a significant area, to key characteristics or features or to the landscape's character or distinctiveness for more than 2 years	High beneficial significance	High/Medium beneficial significance	Medium beneficial significance

Table 1: ICOMOS guideline for assessing significance of cultural landscape impacts

6.8 Cultural Landscape Significance Assessment

The broader geographical landscape has been sporadically surveyed for archaeological heritage sites by archaeologists previously employed by the Natal Museum, the Ondini Cultural Museum and Amafa. The most systematic surveys occurred recently in the Emakhosini Opate Park (Pelser 2013) and further south at the Umfolozi-Hluluwe Nature Reserve. The existing data, as recorded in the KwaZulu-Natal Museum heritage site inventory, suggests the Ulundi contains a diverse range of archaeological sites spanning several time periods and cultural traditions. There have been six Early Stone Age sites discovered in the broader study area. These sites are estimated to be 300,000 to 1.5 million years old. The majority of these occur in dongas near water, with little in-situ material. In the nature reserve, 59 Middle Stone Age sites have been discovered. Sites from the Middle Stone Age are associated with anatomically modern individuals and date from 40 000 to 200 000 years ago.

No cultural heritage resources were recorded in the proposed development landscape.

Table 2: Cultural Landscape Significance Assessment

Ceza Cultural Landscape	The Ceza Cultural Landscape is a landscape with National heritage significance Status sites and cultural Landscapes with Provincial heritage Significance Status
The proposed site Cultural Landscape	The proposed site a with Local Significance Heritage sites valued characteristics reasonably tolerant of changes of the type proposed.

7.0 DISCUSSION OF THE FINDINGS

This field visit, completed by a qualified archaeologist assessed the entire area that could be impacted during construction phase of proposed construction of the culvert and bridge. The field survey was undertaken on the 14th of June2022. The proposed development site is heavily vegetated. Vegetation cover can sometimes be a hindrance to archaeological artefacts being identified. Archaeological resources may however be discovered during excavations or any ground breaking activities that may impact on the study area.

The assessment included visual inspection to identify features with predictable archaeological potential, surface inspection of areas with exposed sediments for cultural materials, subsurface testing of terrain features exhibiting archaeological potential, and ground conditions, the thawing, screening and analysis of frozen sediment samples. Disturbed and exposed layers 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 human activities. No archaeological artefacts were recovered in and around the proposed development area.

The bridge is still functional though no longer functioning to its full capacity because of damages and abrasion around the bridge. Firstly, the impact types most commonly observed are alteration, transfer, and removal. This area has been heavily disturbed by past human activities. Soil, clay, and sand were removed down to the level of bedrock. Although certain types of alterations to artifacts may impair the potential for providing data on original function or on manufacturing sequences of artifacts, in general, the artifacts (in small pieces) would still be identifiable. However, their altered condition poses an insurmountable problem for analysis, that is, a sherd can no longer be identified as a sherd, and a flake by their nature are difficult to analyse. Post depositional edge damage to lithic artifacts or debitage may occasionally be misidentified as use-wear (see Harmilton 1987).

After the field study has been completed, a report including associated findings was compiled for permit application from Amafa Research and Institute for commenting.

Figure 9: View of the bridge from the downward depression

Figure 10: View of the bridge from a distance

Figure 11: View of the culvert with homesteads running along

Figure 12: View of the water passing through under the bridge

Figure 13: Picture one showing water lodging on top of the bridge and dense vegetation cover around the bridge

Figure 14: Picture two showing water lodging on top of the bridge and dense vegetation cover around the bridge

Figure 15: View of the closest homesteads along the proposed site

Figure 16: View of the rolling terrain along the general development area

Figure 17: View of a water pipe covered in dense vegetation

Figure 18: Another view of the area to be affected by the culvert

Figure 19: View of scribed concrete slab showing the year the bridge was built

Figure 20: View of another area to be affected by the culvert

Table 3:Site Assessment of values

1. Historic value			
Is it important in the community, or pattern of history			No
Does it have strong or special association with the life or work of a person, group or organization of importance in history			No
Does it have significance relating to the history of slavery			No
2. Aesthetic value			
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group			No
3. Scientific value			
Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage			No
Is it important in demonstrating a high degree of creative or technical achievement at a particular period			No
4. Social value			
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons			Yes
5. Rarity			
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage			No
6. Representivity			
Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects			Yes
Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class			No
Importance in demonstrating the principal characteristics 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.			No
7. Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Regional			
Local			
Specific community			Yes
8. Significance rating of feature			
1.	Low		Yes
2.	Medium		
3.	High		
9. Field Register Rating			
1.	National/Grade 1: High significance - No alteration whatsoever without permit from SAHRA		

2.	Provincial/Grade 2: High significance - No alteration whatsoever without permit from provincial heritage authority.	
3.	Local/Grade 3A: High significance - Mitigation as part of development process not advised.	
4.	Local/Grade 3B: High significance - Could be mitigated and (part) retained as heritage register site	
5.	Generally protected 4A: High/medium significance - Should be mitigated before destruction	
6.	Generally protected 4B: Medium significance - Should be recorded before destruction	
7.	Generally protected 4C: Low significance - Requires no further recording before destruction	Yes

8.0 CONCLUSIONS RECOMENDATIONS

This report is an independent view and makes recommendations to the Amafa Research and Institute based on its findings. The authority will consider the recommendations and make a decision based on conservation principles.

No cultural heritage resources were discovered or recorded during the field survey. Naturally, the expansion of a new road bridge improves transportation in the area, reducing the frequency of accidents, reducing the distance people must travel, and allowing the community to plan future road infrastructure development. In addition to these advantages, bridges have a significant impact on local economies. A bigger bridge can be used by communities as a trade route crossing path. The community's capacity to engage with its neighbours is severely limited by smaller bridges, suffocating markets and trade.

There is no doubt that a well-functioning transportation infrastructure is critical to access neighbouring villages. The more development roads, the more prospects for economic development in Kwa-Zulu Natal. Based on what is known about the existing bridge and its current state the following conclusions can be made

- The bridge is definitely less than 60 years old;
- Due to neglect, the deliberate removal of constituent elements, or as a result of vandalism, the integrity of the bridge has been totally compromised;
- It shows no unique features, either in its design or construction; and
- No important person or event can be associated with it.
- The bridge is therefore rated to be:
- Generally protected 4C: Low significance - Requires no further recording before destruction. It has also been shown in this report that bridges of similar construction and age are to be found in a number of places all over the Amafa Research and Institute. Fortunately, most of them are in good condition due to continued use
- Tsimba Archaeological Footprints (Pty) Ltd requests the Amafa Research and Institute to offer an approval for the proposed project.

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APPENDIX A: ARCHAEOLOGICAL CHANCE FINDS 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 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 A: BRIDGES WITH SIMILAR ARCHITECTURAL STYLE BUILT DURING THE SAME TIME PERIOD IN KZN

Figure 21: Tugela River Bridge (2008)

Figure 22:Ngebvu bridge (2015)

Figure 23: Gungununu River bridge (2018)

Figure 24: Madonela Pedestrian bridge (2022)

Figure 25: Umzimbubu (2018)

Figure 26: Nyakana river bridge (2018)

APPENDIX B: TERMINOLOGY USED IN THE TEXT

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.

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. Managementmay 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.

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 C: DEFINITION 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 ofnatural 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: 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	▪ 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.
	Types of sites that could occur include: ▪ Shell middens	
	▪ Historical dumps	
	▪ Structural remains	
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.