

# TSIMBA



**ARCHAEOLOGICAL FOOTPRINTS (PTY) LTD**

**PHASE 1 HERITAGE IMPACT ASSESSMENT OF, AVOCA SOUTH,  
ETHEKWENI MUNICIPALITY**

**MAY 2020**

**GCS WATER AND ENVIRONMENTAL CONSULTANTS**


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**BACKGROUND INFORMATION ON THE PROJECT**

Consultant:	Roy Muroyi (Tsimba Archaeological Footprints )
Type of development:	The development of an industrial and business estate comprising light industry, business parks and warehousing built on platforms. The proposed development will include the rehabilitation of old clay mining area on the footprint. The rehabilitation process will include the filling-up of the excavated areas.
Rezoning or subdivision:	Not applicable
Terms of reference	To carry out a Heritage Impact Assessment (phase 1)
Legislative requirements:	The Heritage Impact Assessment was carried out in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and following the requirements of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) and the KwaZulu-Natal Heritage Act, 1997 (Act No. 4 of 2008)
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## **EXECUTIVE SUMMARY**

This Archaeological and Heritage Impact Assessment (AIA/HIA) Report has been prepared to address requirements of Section 38 of the National Heritage Resources Act, Act 25 of 1999 (NHRA) and the KwaZulu-Natal Heritage Act, 1997 (Act No. 4 of 2008). The field survey conducted by Tsimba Archaeological Footprints noted the existence of fragments/ remnants of old sand dunes that has been extensively disturbed due to clay mining activities on the property in the past. These extensive disturbances around the proposed development footprint have also continued to the present day due to human activities around the site. This has made it very difficult for the stone tools to be identified (as full) only fragments that are out of context can be found.

The context of archaeological remains has always been a matter of keen interest to pre-historians, for the relationships of cultural features to one another and to the natural features of a site are the foundations of our discipline. If we fail to record the context, or if we misread or misinterpret that context, proper archaeological interpretation is impossible (Wood and Johnson 1978: 315). None of the tools identified are situated in original stratigraphic or spatial context. Other than the extensively disturbed stone artefacts fragments there are no archaeological remains and the site has little research value. Additionally, various sites of stratigraphic tradition of this period and culture occur along the KwaZulu-Natal coastal dune cordon. Most of these are better preserved than the site at Avoca South and have greater study.

Due to the nature of the findings of the survey a value-based management process described by Burra Charter was adopted. This management process entails three stages: significance assessment, develop policy and management (ICOMOS Australia 1999). Further revisions introduced a fourth stage for assessing vulnerability into the process in order to explicitly identify threats to cultural significance (Clark 1968), or for purposely change cultural heritage, through means of implementing development projects. This value-based management process has been extensively applied in countries such as Australia and United Kingdom, either by changing the legislation or drafting new conservation guidelines (English Heritage 2008). Other researches have also focused in developing, improving and/or verifying this process, among which are the important reports produced at The Getty Conservation Institute.

The value-based management process proposed that the developer should be given the go ahead and continue with the proposed project under a strict periodic monitoring program by an accredited archaeologist. This monitoring exercise will assist in the event that stone tools are identified during the construction phase. A Chance finds procedure (CFP) should also be implemented in the event that more fuller stone tools are identified underground. The older Corobrick buildings and structures in the south western section of the footprint were also identified and assessed and were found to be less than 60 years. These buildings therefore do not constitute part of the heritage built environment.

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**ABBREVIATIONS**

<b>Acronyms</b>	<b>Description</b>
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
KZNDOT	KwaZulu-Natal Department of Transport
PIA	Paleontological Impact Assessment

**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**

The development of an industrial and business estate comprising light industry, business parks and warehousing built on platforms. The proposed development will include the rehabilitation of old clay mining area on the footprint. The rehabilitation process will include the filling-up of the excavated areas.

The findings of this report have been informed by desktop data review, Frans and Sian (2015) HIA and impact assessment reporting which include recommendations to guide heritage authorities in making decisions with regards to the proposed project. This study was conducted as part of the specialist input for the Environmental Impact Assessment exercise. The impact assessment study also includes detailed recommendations on how to mitigate and manage negative impacts while enhancing positive effects on the project area.

The appointment of Tsimba Archaeological Footprints is in terms of the National Heritage Resources Act (NHRA), No. 25 of 1999 and the KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No 5 of 2018). The HIA is completed in accordance to requirements of Section 38 (1) (a) of the NHRA, No. 25 of 1999 :- (c) any development or other activity which will change the character of a site (i) exceeding 5 000 m2 in extent;

### **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).



## 2.0 DESCRIPTION OF THE RECEIVING ENVIRONMENT

### 2.1 Location

The study area is located near Durban North, at Avoca South. It lies between N2 and R 102 and is accessible via Toncoro Road (**Figure 1**). For the project area the GPS coordinates are given as: S 29 ° 44' 56. E 31 ° 1' 15.34 "78" The total site area is 59.61 hectares, and is currently being zoned by Corobrik as an extractive industry and under clay mining.



Figure 1: Map of outline of the various development options onsite Source GCS

### 2.2 Receiving Environment of the study area

The area consists of office and factory buildings in the northwest portion of Corobrik, as well as a former clay mining area to the south and west. Large portions of the southern and western regions were also placed under cultivation of sugar cane. Particular attention has been paid to the exposed sandy deposit region situated to the immediate south of the buildings (**Figure 5**). This area consisted of disturbed soils as is evidenced by previous mining activities on the footprint. Environmental consultants identified stone artefacts on this portion previously.

### 3.0 METHODOLOGY

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. The methodology is guided by the need to acknowledge different readings of heritage significance over time, i.e. heritage significance as a dynamic concept which includes the following (see Figure 2)

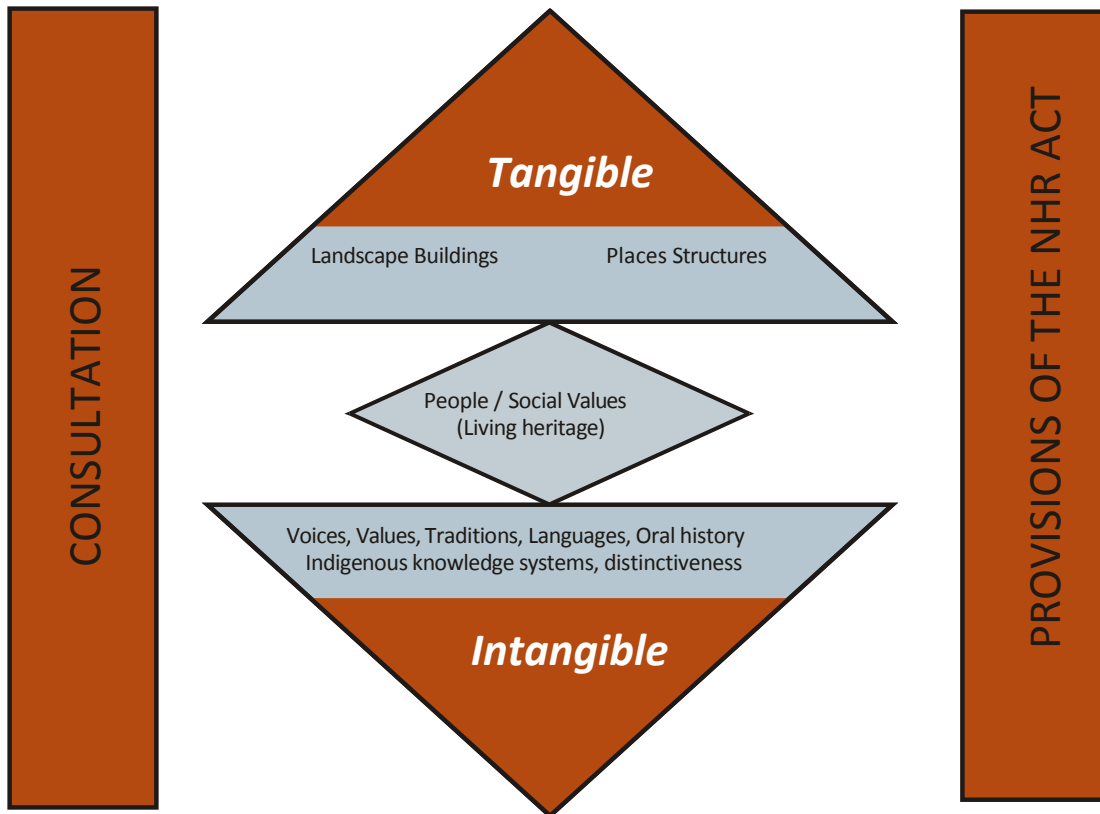


Figure 2: The Heritage Assessment Concept

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 studies conducted in and around the region where the proposed infrastructure development will take place;
- Available archaeological literature covering the Kwa-Zulu Natal province area was also 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 the Kwa Zulu Natal Heritage Data Base.
- 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.
- The Report used the Frans and Prins (2015) HIA report as a baseline for the current site condition.

#### **4.0 LEGISLATIVE FRAMEWORK**

This HIA and Desktop Paleontological study is informed and conducted to fulfil the requirements of the National Heritage Resources Act (No 25 of 1999) 38 (a) and the KwaZulu-Natal Amafa and Research Institute Act, 2018 (Act No 5 of 2018) Section 41 (1). (c) any development or other activity which will change the character of a site—(i) exceeding 5 000 m<sup>2</sup> in extent.

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.

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, Amafa or SAHRA must be notified in order for an investigation and evaluation of the find(s) to take place (see KwaZulu-Natal Heritage Act 4 of 2008 or 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 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 or field ploughing.

## **6.0 ARCHEOLOGICAL AND HISTORICAL BACKGROUND**

In the last few years, the KwaZulu-Natal Museum and subsequently private heritage consultants have surveyed the greater Durban, including the portion covered by the study area, fairly well for archeological heritage sites. The area's distribution of the archaeological site was poorly documented before 1950. The available evidence, as captured in inventories of heritage sites from the Amafa and KwaZulu-Natal Museum, suggests that the greater Durban region includes a wide spectrum of archeological sites covering different periods of time and cultural traditions. They range from Early Stone Age, Middle Stone Age and Later Stone Age to sites in the Early Iron Age, Middle Iron Age, and Later Iron Age. Although Early Stone Age sites occur at various locations in the greater Durban none of them are in context and occur mostly in open air situations. These sites were inhabited by Homo erectus and Homo heidelbergensis who were for the most part scavengers.

A break in ceramic style may identify the first appearance of Nguni speakers; the Nguni style is very different from the sequence of the Early Iron Age around the Durban area. The split is dated to about 1200 AD. The layout of Nguni settlements follows the principles of the Central Cattle Pattern where cattle were kept in the middle of the homestead, representing the wealthy of the family as well as their importance in the community; a female residential area is surrounded by an arc of grain bins and houses.

Evidently, the Nguni were the first people to integrate stonewalling in this pattern. The earliest type of walling, known as Moor Park, dates from the 14th to 16th centuries and is located in defensive positions on hilltops in the midlands, from Bergville to Dundee. Among other things, this type emphasizes the front/back axis: low hut platforms supported beehive huts in the residential zone behind cattle enclosures and middens. Variations of this type occur on the plateau to the north and west and represent the movement of Southern Nguni who claim Musi as a legendary leader.

The middle / side axis is reinforced by another form of walling. The oldest wall of this second type exists on the plateau in the Free State near the hill Ntsuanatsatsi, and is classified as Type N. It dates back to the mid-15th century. Variations of this sort occur further north on the plateau, and they represent the Northern Nguni movement that claims Langa as its legendary leader. The Durban area is also host to a much older heritage two notable Middle Stone Age sites in the greater Durban area is Umlatuzana near Marianhill and Segubudu near Stanger. Sibudu Cave, about 40 km to the northeast, contains an important Middle Stone Age sequence. The oldest occupation, the pre-Stillbay, is older than 70 000 years, while the Stillbay itself dates to 70 000 years ago. At this time, double pointed bifacial points were probably hafted and used as spearheads, while perforated seashells are some of the oldest jewellery in the world. Equally significant, the Howiesons Poort occupation stratified above (65 to 62 000 years old) contains small quartz segments (half-moon shaped tools with a straight cutting edge) that were glued onto arrow shafts. The people were hunting small game such as the blue duiker. This is some of the oldest evidence for bow and arrow hunting in the world.

The colonial history of the area starts around 1820 when early English ivory traders established themselves at Port Natal (Durban). Dutch descendants (i.e. Voortrekkers) moved into the area soon after 1834 and established a short lived Boer republic called Natalia. However, by 1845 Natal became a British colony. Colonial buildings dating from the later 19th century as well as subsequent periods abound in the greater Durban area. These, like the archaeological resources of the province, are also protected by heritage legislation (Derwent 2006).

## **7.0 DISCUSSION OF THE FINDINGS**

This report's findings bench marked on the findings earlier by Frans Prins and Sian Hall in 2015. The archaeological sites identified are heavily disturbed due to past clay mining activities in the area (see below). Other disturbed areas on the footprint yielded no artefacts or structures of heritage significance.

Disturbed and exposed layers were investigated. These areas are likely to be exposed or yield archaeological and other heritage resources that may be buried underneath the soil and be brought to the surface by human activities. The survey covered all sections on the proposed development footprint old mining areas, office buildings, and sugar cane plantations. The survey paid attention to the old mining area behind the Corobrick buildings where stone flakes were noted by environmental consultants in the past.

Firstly, the impact types most commonly observed are alteration, transfer, and removal. This area has been heavily disturbed by past mining activities. Soil, clay, and sand were removed down to the level of bedrock. The remains of ancient dunes of sand are still visible on the edges of the mining area. However, due to these mining operations the ancient visible sand dunes were also disturbed. Although certain types of alterations to artifacts may impair their potential for providing data on original function or on manufacturing sequences, in general, the artifacts (in small pieces) are still 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 flakes by their nature are difficult to analyse. Post depositional edge damage to lithic artifacts or debitage may occasionally be misidentified as use-wear (see Hayden 1979).

Secondly, due to erosion and mining operations the artifacts are no longer in context this has affected the integrity of the site therefore making it impossible to interpret the relationship between the artifacts and the site. Transfer and removal of artifacts, without alteration, affects the integrity of the site, and the validity of the cultural inferences based on artifact location or descriptions. For example, correct identification and interpretation of artifact clusters as "activity areas" depends on their having remained more or less in situ since initial deposition. The ravages caused by rodents, tree roots, and relic collectors are well known, as are the actions of vertisols (self mulching soils), and other geomorphic processes that transfer artifacts from place to place within a site, or remove them altogether.

Finally, the overall site has been altered significantly through mining activities and other human activities that take place on a day to day basis. This has completely altered the site from its historical context to a modern site where commercial production of goods is the main use. Despite David Clarke's assertions that description and study of artefacts are the sole purpose of archaeology (1968:13), to the contrary description and study of artifacts per-se are not the sole purposes of archaeology (see also, Rouse 1973). In the context of modern archaeological resource conservation and management, it is the integrity of the site, its potential for answering significant research questions, and its susceptibility to damage as the direct or indirect result of human activity that are crucial for decision making. Given below is a picture overview of the proposed study area;

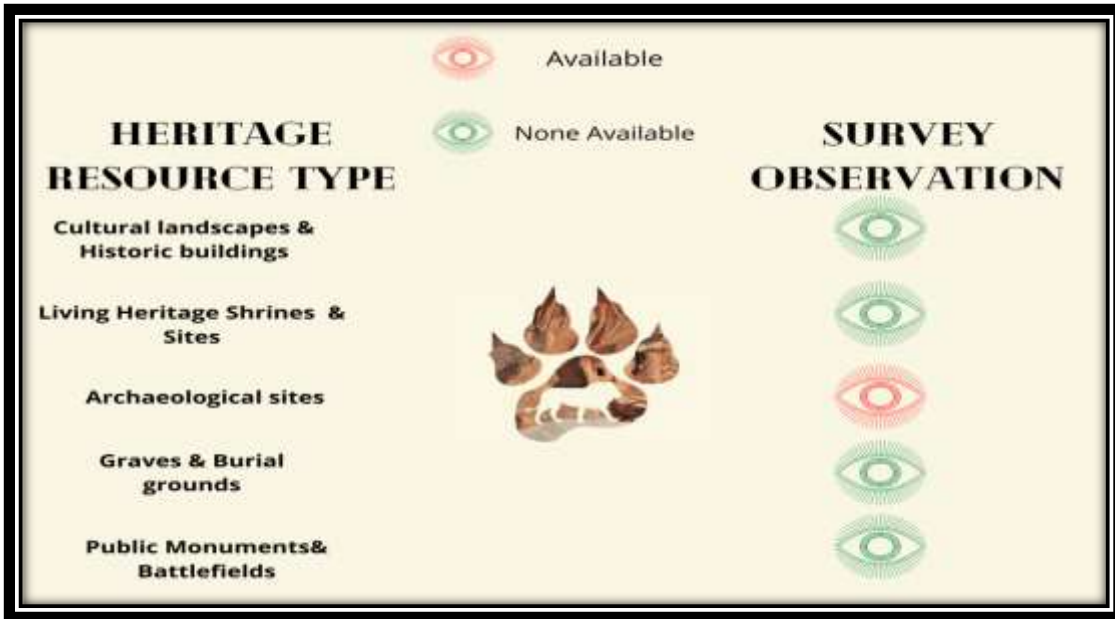


Figure 3: A summary of the archaeological field survey observations

### Archaeology

Six exposed areas were identified (Fig 4). However, all of these exposed areas from part of one archaeological site. It is critical for us to understand that soils are not static bodies. They are dynamic, open systems in which numerous processes operate to pedoturbate profiles, and to move objects vertically and horizontally within them. These processes may operate singly or in combination in additive or subtractive fashion, in all environments and at all latitudes. Fingerprint topography and linear *gilgai*, for example, express the combined effects of *argilloturbation* and *graviturbation* in subtropical latitudes. At high latitudes and altitudes, *gelifluction* lobes are produced by *graviturbation* and *cryoturbation*, and to some extent by *aquaturbation*. In many well-drained soils, *faunalturbation* by ants and earthworms may well offset the effects of cryoturbation (exemplified by the burial of objects by earthworms cited earlier), whereas in poorly drained soils the reverse seems to be true except perhaps where crayfish are present.

Cultural materials, then, may sink into the soil, may be concentrated into layers at depth, may be reoriented within the soil, may be thrust to the surface, or may be moved horizontally on a plane or downslope. Various processual permutations can be envisioned. The result can be a spurious association of artifacts, with concomitant distortion in interpretation. The stone flakes found lying scattered at the base of the eroded sand dunes are therefore impossible to interpret. In fact, all the exposed sandy areas south of the office buildings contained some stone flakes.

One suspected Early Stone Age cleaver (**Figure 11**) has been found, but the vast majority of stone flakes belong to the Middle Stone Age and consist of flakes and blades (**Figs 12-13**). One potential hammer stone was found but there were no cores the consultant could locate. The terms “suspected and potential “ are used to refer to these stone tools because without a proper context, one can-not be absolutely sure that these were ESA stone tools.

The rest of the stone flakes were made from indurated shale and quartzite of poor quality. Such stone flakes were the only geological material found, there are no traces of bones or plants. In no stratigraphic or spatial sense are the stone flakes. They appear to erode from the ancient sand dunes that were

disrupted in the past by mining activities. In addition, due to this disruption the site has very little research value, as well as bad preservation.

**7.1 Photographic presentation of the proposed development site**



Figure 4: Google aerial photograph showing the approximate extent of the stone flakes scatter behind the Corobrik buildings.



Figure 5: Google aerial photograph indicating the exposed sandy areas that contains the stone flakes.(Marked in Yellow)





Figure 6: View of the study area where grass cover is low



Figure 7: View of a stream showing pollution on site due to rubbish dumping



**Figure 8: Part of the developed areas within the proposed development footprint**



**Figure 9: Photograph of ancient sand dune showing extensive erosion and disturbance. The stone tools are associated with these features and they are not situated in any context.**



Figure 10: Eroded sand dune, due to clay mining activities with some stone flakes in the foreground. These tools are not in context



Figure 11: Potential Early Stone Age cleaver . Only one Early Stone Age period tool has been found on site.



Figure 12: Middle Stone Age flakes and blades made from indurated shale.



Figure 13: Middle Stone Age flakes



Figure 14: Photograph showing Middle Stone Age flakes made from indurated shale and quartzite

## 8.0 HERITAGE ASSESSMENT OF SIGNIFICANCE

The Burra Charter<sup>3</sup> (ICOMOS Australia 1999) came to fill the gap left by the Charter of Venice (ICOM et al 1964), recognizing the “conservation as a dynamic process of change management” that should be conducted through a value-based approach; in which the “Statement of Significance” becomes the key document of the entire process. Even if national-oriented, the Burra Charter had a strong impact in the international community involved in the field of cultural heritage management. This same State of Significance became mandatory for States Parties to include in new nominations (UNESCO 2005). Nowadays, it is known as Statement of Outstanding Universal Value (UNESCO 2008). 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
<b>National Significance (NS)</b>	Grade 1		Conservation; National Site nomination
<b>Provincial Significance (PS)</b>	Grade 2		Conservation; Provincial Site nomination
<b>Local Significance (LS)</b>	Grade 3A	High Significance	Conservation; Mitigation not advised
<b>Local Significance (LS)</b>	Grade 3B	High Significance	Mitigation (Part of site should be retained)
<b>Generally Protected A (GP.A)</b>		High/ Medium Significance	Mitigation before destruction
<b>Generally Protected B (GP.B)</b>		Medium Significance	Recording before destruction
<b>Generally Protected C (GP.A)</b>		Low Significance	Destruction

Nevertheless, according to the guidelines issued by SAHRA (Table 2), this site is protected by heritage legislation, it has been classified as of low significance because it has no research value. It is highly disrupted and not all of the detected stone flakes were found in any spatial or stratigraphic sense. Therefore, the stone flakes cannot have an educational interest, since they cannot be interpreted. Nonetheless, the KwaZulu-Natal Museum's archeological database suggests that numerous sites of the Middle Stone Age in similar geomorphological location exist along the KwaZulu-Natal coastal cordon. These are in a better state of preservation and are more representative of this type of site than the highly disturbed occurrence in the study area

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

**Table 3: Impact of Significance**

<p>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.  <math>S = (E+D+M) P</math></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.
<p><b>Nature: During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological material or objects.</b></p>		
	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
<p>Mitigation: Impacts are rated as &lt;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. A Chance Find Procedure should be implemented for the project should any sites be identified during the construction process.</p>		



## **9.0 DESCRIPTION OF SOCIO ECONOMIC ENVIRONMENTAL IMPACTS**

By "social- economic impacts" we mean the economic consequences to human populations of any public or private actions that alter the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society .

Any development is likely to have a socio-economic impact on the area in which it is developed. In this section off the report, the socio-economic impacts of the proposed development on the identified heritage resources are identified and quantified.

### **✚ Construction phase:-**

There is a possibility of direct impacts during the construction phase. These are expected to be largely positive due to the developmental nature of the project. The economic impact assessment measures the anticipated economic impact of the capital expenditure (construction) of the proposed retail development. It includes economic output of new business sales creation, gross value added to the gross geographic product (GGP), additional total income created to households, as well number of jobs created.

### **✚ Operational phase:-**

The operational phase impacts that we identified as potentially impacting on the development are positive impacts. There are however two negative impacts, namely loss of construction phase temporary employment and health and safety risk. It is against this background that we strongly argue that the project will have a POSITIVE impact on the socio –economy of the greater. The economic impacts are determined by a multiplier analysis which measures the direct and indirect impacts on the regional economy derived from the capital expenditure of the proposed development. Four different impacts are identified, and are described as follows:

- i. New business Sales Multiplier Effect
- ii. Gross Value-Added Multiplier Effect
- iii. Household Income Multiplier Effect
- iv. The Employment Multiplier Effect

Overall, some of these various measures of economic impact overlap and for this reason cannot necessarily be added together and should rather be understood to represent different dimensions of measuring economic impact.

## **10.0 Conclusions**

A reasonably accurate assessment of the pedoturbatory history of the soils and sediments at every archaeological site is absolutely pre-requisite to valid archaeological interpretations. This, is difficult to achieve with the study area. Although scatters of stone age flakes can be recovered it is impossible to interpret them without context, therefore making it impossible for them to be used for any educational purposes. No other cultural heritage resources were found onsite besides these stone age flakes. The construction phase will likely have very low significance impacts. During this phase, Stone Age artefacts, graves, and other heritage resources may be discovered. These activities can have a negative and irreversible impact on heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

## **Recommendations**

It is recommended that AFAMA exercise their discretion and offer a conditional approval for the project. Below are the recommended recommendations;

- The construction teams must be inducted on the possibility of encountering archaeological resources that may be accidentally exposed during clearance and construction at the site prior to commencement of work on the site in order to ensure appropriate mitigation measures and that course of action is afforded to any chance finds in accordance with the Chance Find Procedure (**see Appendix C**)
- Strict and clear reporting procedures for chance finds must be followed by the client and their contractors throughout the whole construction period.
- Archaeological watching briefs at regular intervals should also be carried out regularly by an appointed archaeologist to insure that no possible archaeological resources are lost during the construction phase.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**Object:** Artefact (cultural object)

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

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

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

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

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

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

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

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

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

## **APPENDIX B: HISTORICAL BACK GROUND OF SOUTH AFRICA**

South Africa's rich history dates back to some of the earliest human settlements in the world. Heritage sites such as the Apartheid Museum and Robben Island will give you a glimpse of the violence of South Africa's past - and the miracle of our reconciliation. Going back to the 17th and 18th Centuries, South Africa experienced so much conflict that the country is a veritable patchwork of battlefields. And don't forget where it all began - the Cradle of Humankind is one of the richest hominid fossil sites in the world. Fossilised footprints near Cape Town and the wealth of rock paintings the Drakensberg mountains and elsewhere, all testify to humanity's origins on this ancient continent.

### ◀ 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 characterised by vast arid plains with outcroppings of haphazard rock piles and a land of many diverse cultures and of frontier history

### ◀ Western Cape

From Robben Island where Nelson Mandela was imprisoned for 27 years to the Battle Fields Route - the famous battle sites of the Anglo-Boer and Anglo-Zulu wars - the South African history comes alive when travelling through its cities and towns. It is a region of majestic mountains, colourful patchworks of farmland set in lovely valleys, long beaches and, further inland, the wide-open landscape of the semidesert Karoo.

**APPENDIX C: 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.

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- ✚ 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 D: ENVIRONMENTAL CONTEXT FOR HERITAGE SPECIALIST STUDIES IN SOUTHERN AFRICA**

This is 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

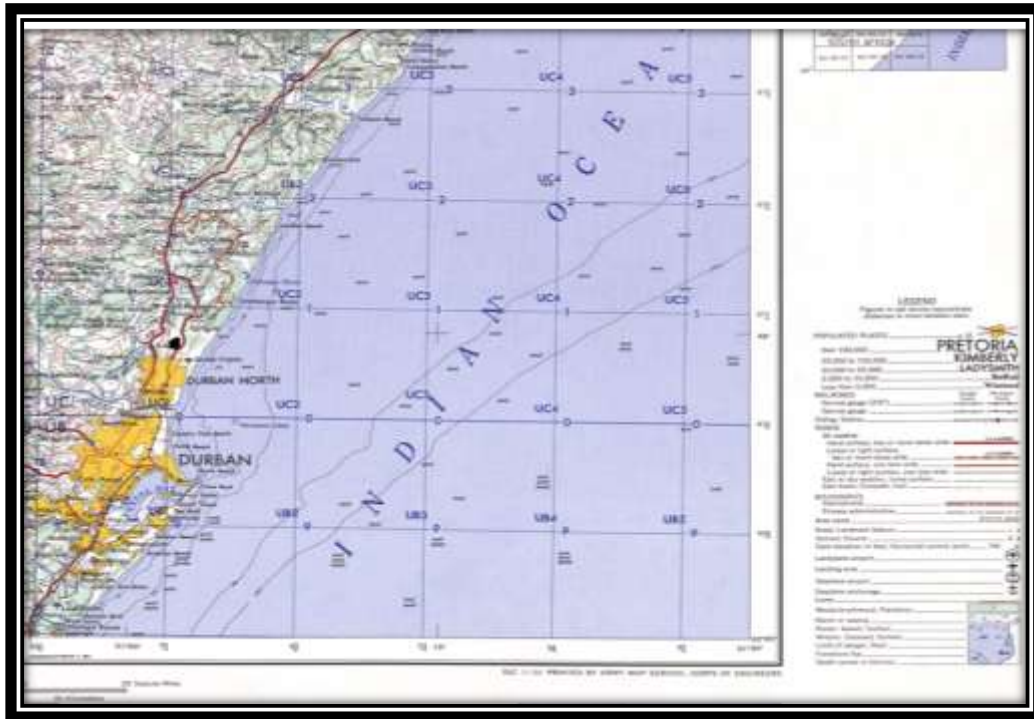
**APPENDIX E : RELATIONSHIP BETWEEN DIFFERENT HERITAGE CONTEXTS,  
HERITAGE RESOURCE LIKELY TO OCCUR WITHIN THESE CONTEXTS AND LIKELY  
SOURCES OF HERITAGE IMPACTS/ISSUES.**

HERITAGE CONTEXT	HERITAGE RESOURCES	SOURCES OF HERITAGE IMPACTS/ISSUES
A. PALAEOLOGICAL LANDSCAPE CONTEXT	Fossil remains. Such resources are typically found in specific geographical areas, e.g. the Karoo and are embedded in ancient rock and limestone/calcrete formations.	<ul style="list-style-type: none"> <li>◀ Road cuttings</li> <li>◀ Quarry excavation</li> </ul>
B. ARCHAEOLOGICAL LANDSCAPE CONTEXT  NOTE: Archaeology is the study of human material and remains (by definition) and is not restricted in any formal way as being below the ground surface.	Archaeological remains dating to the following periods: <ul style="list-style-type: none"> <li>◀ ESA</li> <li>◀ MSA</li> <li>◀ LSA</li> <li>◀ LSA - Herder</li> <li>◀ Historical</li> <li>◀ Maritime history</li> </ul> Types of sites that could occur include: <ul style="list-style-type: none"> <li>◀ Shell middens</li> <li>◀ Historical dumps</li> <li>◀ Structural remains</li> </ul>	<ul style="list-style-type: none"> <li>◀ Subsurface excavations including ground leveling, landscaping, foundation preparation.</li> <li>◀ In the case of maritime resources, development including land reclamation, harbor/marina/water front developments, marine mining, engineering and salvaging.</li> </ul>

	<ul style="list-style-type: none"> <li>◀ Object including industrial machinery, aircraft and maritime objects</li> <li>◀ Ancient campsites, kraals and villages</li> <li>◀ Battle and military sites</li> <li>◀ Burials over 100 years</li> <li>◀ Stone tool making sites</li> <li>◀ Fossil sites containing artifacts, animal and human remains.</li> </ul> <p>The location of these remains across the landscape is unpredictable but signifiers of the likelihood of <i>in-situ</i> pre-colonial remains include <i>inter alia</i> the following:</p> <ul style="list-style-type: none"> <li>◀ Ancient river courses/springs</li> <li>◀ Coastal dunefields</li> <li>◀ Pristine natural landscape conditions</li> <li>◀ Coastal rocky outcrops</li> <li>◀ Abandoned areas of human settlement.</li> </ul> <p>The location of archaeological remains dating to the historical period is also unpredictable. However, as a broad indicator, such remains are likely to occur where there has been human occupation/habitation for more than 60 years.</p>	
<p>C. HISTORICAL BUILT URBAN LANDSCAPE CONTEXT</p>	<ul style="list-style-type: none"> <li>◀ Historical townscapes/streetscapes.</li> <li>◀ Historical structures; i.e. older than 60 years</li> <li>◀ Formal public spaces.</li> <li>◀ Formally declared urban conservation areas.</li> <li>◀ Places associated with social identity/displacement.</li> </ul>	<p>A range of physical and land use changes within this context could result in the following heritage impacts/issues:</p> <ul style="list-style-type: none"> <li>◀ Loss of historical fabric or layering related to demolition or alteration work.</li> <li>◀ Loss of urban morphology related to changes in patterns of subdivision and incompatibility of the scale, massing and form of new development.</li> <li>◀ Loss of social fabric related to processes of gentrification and urban renewal.</li> </ul>

**APPENDIX F: TOPOGRAPHIC & HISTORICAL MAPS SHOWING THE LOCATION OF THE STUDY SITE**

Topographic Map (Source :University of Texas Austin Libraries)



Historical Map developed in 1888 (Source :University of Texas Austin Libraries)



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