

HERITAGE IMPACT ASSESSMENT REPORT:

APPLICATION FOR AMENDMENT OF  
MINE RIGHTS ON PORTIONS OF  
HEUVELFONTEIN 215 JR,  
MPUMALANGA

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Date: 5 December 2022

I, **Alexander Antonites**, declare that:

- I am conducting all work and activities relating to the application for the Section 102 amendment of mine rights on portions of HEUVELFONTEIN 215 JR, Mpumalanga in an objective manner, even if this results in views and findings that are not favourable to the client.
- I declare that there are no circumstances that may compromise my objectivity in performing such work.
- I have the required expertise in conducting the specialist report and I will comply with legislation, including the relevant Heritage Legislation (National Heritage Resources Act no. 25 of 1999, Human Tissue Act 65 of 1983 as amended, Removal of Graves and Dead Bodies Ordinance no. 7 of 1925, Excavations Ordinance no. 12 of 1980), the Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment (SAHRA and the CRM section of ASAPA), regulations and any guidelines that have relevance to the proposed activity;
- I have not, 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 declaration are true and correct.



Signature of specialist

December 2022

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## ABBREVIATIONS AND ACRONYMS

Abbreviation/Acronym	Description
ASAPA	Association for South African Professional Archaeologists
AIA	Archaeological Impact Assessment
BP	Before Present
BCE	Before Common Era
BGG	Burial Grounds and Graves
CSF	Correctional Services Facility
CRM	Culture Resources Management
DPW	Department of Public Works
DWS	Department of Water and Sanitation
ECO	Environmental Control Officer
EIA	Early Iron Age (also Early Farmer Period)
EIA	Environmental Impact Assessment
EFP	Early Farmer Period (also Early Iron Age)
ESA	Earlier Stone Age
GDS	Green Drop System
GIS	Geographic Information Systems
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
LFP	Later Farmer Period (also Later Iron Age)
LIA	Later Iron Age (also Later Farmer Period)
LSA	Later Stone Age
MIA	Middle Iron Age (also Early later Farmer Period)
MSA	Middle Stone Age
NHRA	National Heritage Resources Act No.25 of 1999, Section 35
PFS	Pre-Feasibility Study
PHRA	Provincial Heritage Resources Authority
SAHRA	South African Heritage Resources Association
YCE	Years before Common Era (Present)

## EXECUTIVE SUMMARY

Project Title	Application for Amendment of Mine rights on portions of Heuvelfontein 215 JR, Mpumalanga
Project Location:	S: 26° 1' 23"; E: 28° 57' 52"
1:50 000 Map Sheet	2628 BB Kendal
Farm Portion / Parcel	Portions of the farm <b>Heuvelfontein 215 JR</b> that are part of the Kendal Forest Holdings and consist of small holding numbers 1, 2, 3, 4, 19, 20, 21, 22, 23, 38, 39, 40, 41, 42, 57, 58, 59, 60, 61, 62, 77, 78, 79, 80, 81
Magisterial District / Municipal Area	Nkangala District Municipality / Emalahleni Municipal area
Province	Mpumalanga

This report is the result of a Heritage Impact Assessment (HIA) conducted by Dr Xander Antonites, on 23 November 2022 on portions of the farm Heuvelfontein 215 JR in the Emalahleni Municipal area of the Mpumalanga Province. The project is an application for the Section 102 Mining Right amendment in order to begin opencast mining by the Mzimkhulu Colliery onto portions of Heuvelfontein 215 JR on the small holdings known as Kendal Forest Holdings, plot numbers 1, 2, 3, 4, 19, 20, 21, 22, 23, 38, 39, 40, 41, 42, 57, 58, 59, 60, 61, 62, 77, 78, 79, 80, 81. The Mzimkhulu Colliery is between the N4 and the R555, north of Kendal and West of Ogies, Mpumalanga Province.

A previous field assessment and report was compiled during the prospecting phase by J. Nel (The Heritage Foundation) and submitted for SAHRA in February 2021. SAHRA final comments was given (Ref number **16094**) which noted that a Section 102 application for mine rights amendment will require a full HIA. Subsequently, Amber Earth appointed Xander Antonites in November 2022 in this capacity

The HIA identified the following:

- Two graves of unknown age were recorded.
- No other areas of significant cultural and heritage remains were identified.
- No built structures older than 65 years were identified.
- No archaeological artefacts or features were identified.

**It is recommended that the recorded graves be exhumed and reburied. This must be done in accordance with South African law and by a suitably qualified specialist.**

Monitoring of the development progress by an ECO is recommended during the planning and construction phases of the project. Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended, and the archaeological specialist should be notified immediately.

## HERITAGE SITE LOCATIONS

Table 1: Summary of Heritage sites

Site Code	Coordinates	Description	Mitigation Action
UP-HF-2628-01	S: 26.0256; E: 28.9486	Graves	Exhumation and reburial

## HERITAGE IMPACT ASSESSMENT REPORT:

# APPLICATION FOR AMENDMENT OF MINE RIGHT ON PORTIONS OF HEUVELFONTEIN 215 JR, MPUMALANGA

Xander Antonites (PhD)

## 1. PROJECT BACKGROUND

Amber Earth Pty Ltd. appointed Xander Antonites to undertake a heritage assessment portions of the farm HEUVELFONTEIN 215 JR as part of the application for a Section 102 amendment of mining rights of the current uMzimkhulu colliery on Klipfontein 586 JR, located directly to the north of the current application, between the N4 and the R555.

The project area is in the town of Kendal, 9 km west of the town of Ogies in the Emalahleni Municipal district. It is entirely contained on 25 small holdings, which are part of the Kendal Forest Holdings. The affected small holdings are numbers 1, 2, 3, 4, 19, 20, 21, 22, 23, 38, 39, 40, 41, 42, 57, 58, 59, 60, 61, 62, 77, 78, 79, 80, 81.

The proposed project will entail open cast mining of coal deposits on the 109ha project area. The nature and size of the area under consideration necessitates a heritage impact assessment (HIA) in terms of section 38(1) of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA). A previous report (Ref Number 16094) for plots in the same project area was submitted to SAHRA in February 2021 for the prospecting right application by J. Nel (The Heritage Foundation). Nel conducted a desktop and field survey. SAHRA comments noted that the mining right application will require a full HIA (this report).



Figure 1: Project alignments on Google Earth imagery dated to 2021.

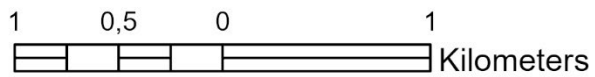
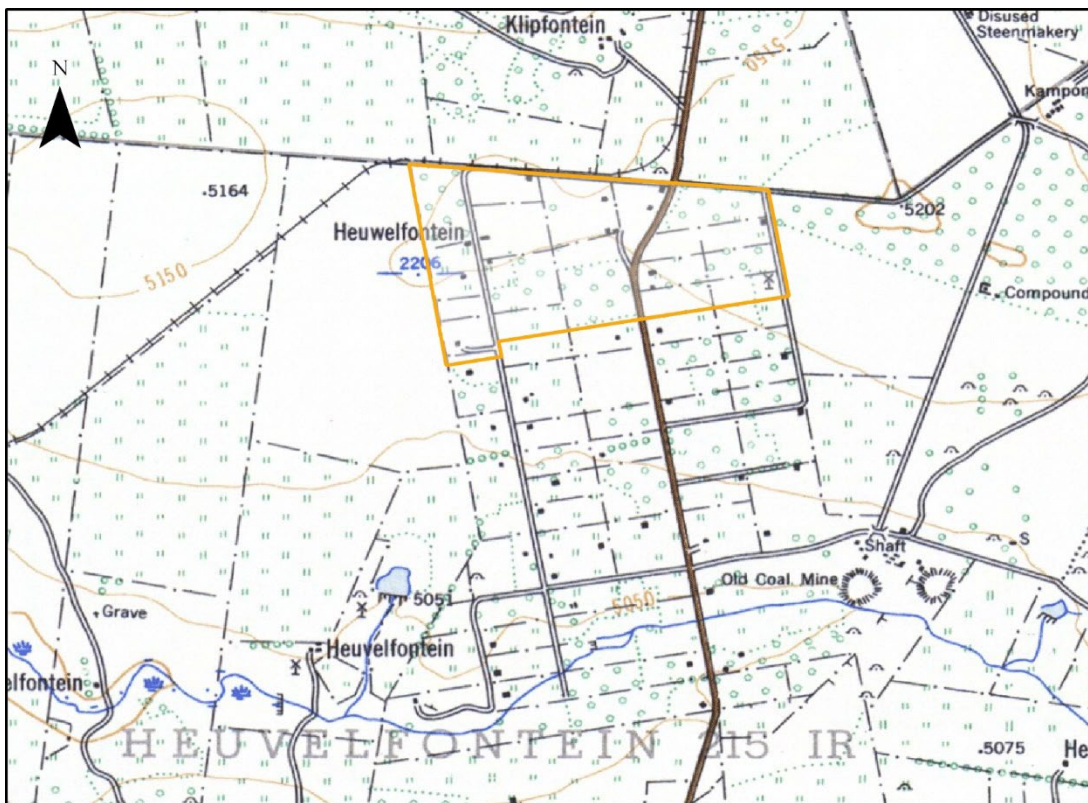


Figure 2: Project alignment indicated on 1:50 000 map2628 BB Kendal.



## 2. TERMS OF REFERENCE

The heritage component of the EIA is set out in the National Environmental Management Act (Act 107 of 1998) and section 38 of the National Heritage Resources Act (NHRA; Act 25 of 1999). The NHRA protects all structures and features older than 60 years, archaeological sites and material and graves as well as burial sites. This legislation ensures that developers implement measures to limit the potentially negative effects that the development could have on heritage resources.

Legislation defines the terms of reference for heritage specialists as the following:

- To provide a detailed description of all archaeological artefacts, structures (including graves) and settlements that may be affected (if any)
- Assess the nature and degree of significance of such resources within the area
- Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance
- Assess and rate any possible impact on the archaeological and historical remains within the area, which may emanate from the proposed development activities.
- Propose possible heritage management measures if such action is necessitated by the development.
- Liaise and consult with the South African Heritage Resources Agency (SAHRA and/or PHRA)

### 2.1 HERITAGE LEGISLATION, CONSERVATION AND MANAGEMENT

Heritage Resources are any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities, and history. It includes sites, structures, places, natural features, and material of palaeontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic, or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

#### 2.1.1 *Heritage Bodies*

The South African Heritage Resources Agency (SAHRA) is an agency within the Department of Sport, Arts and Culture tasked with an overall legislative mandate to identify, assess, manage, protect, and promote heritage resources in South Africa. SAHRA is mandated to coordinate the identification and management of the national estate. The aims are to introduce an integrated system for the identification, assessment, and management of the heritage resources and to enable provincial and local authorities to adopt powers to protect and manage them.

#### 2.1.2 *Legislation regarding archaeology and heritage sites*

The following Acts has direct bearing on Heritage resource protection and management process:

##### *National Heritage Resources Act No 25 of 1999, section 35*

The National Heritage Resources Act No 25 of 1999 (section 35) defines protected cultural heritage resources as:

- Archaeological artifacts, structures and sites older than 100 years
- Ethnographic art objects (e.g., prehistoric rock art) and ethnography
- Objects of decorative and visual arts
- Military objects, structures and sites older than 75 years
- Historical objects, structures and sites older than 60 years
- Proclaimed heritage sites

- Graveyards and graves older than 60 years
- Meteorites and fossils
- Objects, structures and sites of scientific or technological value.

The national estate includes the following:

- Places, buildings, structures and equipment of cultural significance
- Places to which oral traditions are attached or which are associated with living heritage
- Historical settlements and townscapes
- Landscapes and features of cultural significance
- Geological sites of scientific or cultural importance
- Archaeological and paleontological importance
- Graves and burial grounds
- Sites of significance relating to the history of slavery
- Movable objects (e.g., archaeological, paleontological, meteorites, geological specimens, military, ethnographic, books etc.)

In terms of activities carried out on archaeological and heritage sites the Act states that:

*“No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority.”*

(NHRA 1999:58)

No person may, without a permit issued by the responsible heritage resources authority:

- a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite.
- b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite.
- c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
- d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects or use such equipment for the recovery of meteorites. (35. [4] 1999:58).”

No person may, without a permit issued by SAHRA or a provincial heritage resources agency:

- a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves.
- b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority.
- c) bring onto or use at a burial ground or grave referred to in paragraph (left) or (right) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60).”

*Human Tissue Act of 1983 and Ordinance on the Removal of Graves and Dead Bodies of 1925*

Graves and burial grounds are commonly divided into the following subsets:

- a) ancestral graves
- b) royal graves and graves of traditional leaders
- c) graves of victims of conflict
- d) graves designated by the Minister
- d) historical graves and cemeteries
- e) human remains

Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant local authorities.

*National Environmental Management Act No 107 of 1998*

This Act (Act 107 of 1998) states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made. Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible, the disturbance should be minimized and remedied.

### 3. RATING OF SIGNIFICANCE

The National Heritage Resources Act (Act 25 of 1999) also stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

- **Grade I:** Heritage resources with qualities so exceptional that they are of special national significance.
- **Grade II:** Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region.
- **Grade III:** Other heritage resources worthy of conservation, and which prescribes heritage resources assessment criteria, as set out in Section 3(3) of the act.

Significance is influenced by the context and state of the archaeological site. Six criteria were considered following Kruger (2019):

- Site integrity
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures)
- Density of scatter (dispersed scatter)
- Social value
- Uniqueness
- Potential to answer current and future research questions.

The categories of significance were based on the above criteria the above and the grading system outlined in NHRA. It is summarised in Table 3.

**Table 1: Field rating of significance**

Significance	Rating Action
No significance: sites that do not require mitigation.	None
Low significance: sites, which may require mitigation.	2a. Recording and documentation (Phase 1) of site; no further action required 2b. Controlled sampling (shovel test pits, auguring), mapping and documentation (Phase 2 investigation); permit required for sampling and destruction
Medium significance: sites, which require mitigation.	3. Excavation of representative sample, C14 dating, mapping and documentation (Phase 2 investigation); permit required for sampling and destruction [including 2a & 2b]
High significance: sites, where disturbance should be avoided.	4a. Nomination for listing on Heritage Register (National, Provincial or Local) (Phase 2 & 3 investigation); site management plan; permit required if utilised for education or tourism
High significance: Graves and burial places	4b. Locate demonstrable descendants through social consulting; obtain permits from applicable legislation, ordinances and regional by-laws; mitigation and or exhumation and reinterment [including 2a, 2b & 3]

#### 4. STATEMENT OF SIGNIFICANCE AND IMPACT RATING

This section outlines the potential impact of risk situations and scenarios commonly associated with heritage resources management. Refer to Appendix 1: for guideline of the rating of impacts and recommendation of management actions for areas of heritage potential within the study area.

##### 4.1 DIRECT, INDIRECT AND CUMULATIVE EFFECTS

Beyond the initial direct or primary impact, the HIA should also consider the potential indirect and cumulative impacts. Winter and Baumann (2005) define **direct or primary impacts** as those that occur at the same time and in the same space as the proposed activity. **Indirect effects** occur at a later stage or at a different place from the causal activity or may be impacts that occur as through a “complex pathway” (Winter and Baumann 2005, 24).

**Cumulative effects** are a constellation of processes that are seemingly insignificant in isolation but have a significant cumulative effect on heritage resources (ibid.).

##### 4.1.1 Direct Impact Rating Criteria

The criteria used for assessment of impacts is based on the guidelines set out by Winter and Baumann (2005) and Department of Environmental Affairs and Tourism (1998):

Extent

Local	extend only as far as the footprint of the proposed activity/development
Site	Impact extends beyond the project footprint to immediate surrounds
Regional	within which development takes place, i.e., farm, suburb, town, community
National	Impact is on a national level

Duration

Short term	The impact will disappear with through mitigation or through natural processes
Medium term	The impact will last up to the end of the phases, where after it will be negated
Long term	impact will persist indefinitely, possibly beyond the operational life of the activity, either because of natural processes or by human intervention
Permanent	Permanent where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient

Magnitude severity

Low	where the impact affects the resource in such a way that its heritage value is not affected
Medium	where the affected resource is altered but its heritage value continues to exist albeit in a modified way
High	where heritage value is altered to the extent that it will temporarily or permanently be damaged or destroyed

Probability

Improbable	where the possibility of the impact to materialize is very low either because of design or historic experience;
Probable	where there is a distinct possibility that the impact will occur
Highly	probable, where it is most likely that the impact will occur; or
Definite	where the impact will definitely occur regardless of any mitigation measures.

Impact Significance

Low	negligible effect on heritage – no effect on decision
Medium	where it would have a moderate effect on heritage and – influences the decision
High	high risk of, a big effect on heritage. Impacts of high significance should have a major influence on the decision
Very high	high risk of, an irreversible and possibly irreplaceable impact on heritage – central factor in decision-making

4.1.2 *Direct Impact Weighting Matrix*

Aspect	Description	Weight
Extent		
	Local	1
	Site	2
	Regional	3
Duration		
	Short term	1
	Medium term	3
	Long term	4
	Permanent	5
Magnitude/Severity		
	Low	2
	Medium	6
	High	8
Probability		
	Improbable	1
	Probable	3
	Highly Probable	4
	Definite	5
Impact Rating	Sum (Duration, Scale, Magnitude) x Probability	
Negligible	<10	
Low	<40	
Moderate	<60	
High	>60	

## 5. ARCHAEOLOGICAL AND HISTORICAL CONTEXT OF PROJECT

### 5.1 STONE AGES

In Southern Africa, the Stone Age is defined by the use of stone cobbles and flakes that have been modified into tools such as scrapers, points and hand axes. Our early ancestors such as *Homo ergaster* and early *Homo sapiens* first used these tools as much as 1.4 million years ago (Mitchell 2002:59). Stone technology would persist throughout the human species development right up to the arrival of iron using farming people in southern Africa some 2000 years ago. Changes in the stone tool technology over time allows different stone tool industries to be chronologically separated based on trends in tool design. This provides the useful partitioning of the entire Stone Age sequence into three broad phases outlined by Lombard et. al. (2012) below:

Earlier Stone Age: 2 million – 200 000 years ago

Middle Stone Age: 300 000 – 20 000 years ago

Later Stone Age: 40 000 – <2 000 years ago

### 5.2 IRON AGE

The advent of the Iron Age in southern Africa sees the widespread adoption of metallurgy, ceramics and agriculture. The period is associated with farming communities who spoke Bantu languages and dates from around AD 350 up to the 1800s (Huffman 2007). The Iron Age has been divided into distinct periods. These periods, however, do not mark changes in technology (as is the case with the Stone Age) but rather signify changes in the social and political organisation of the Iron Age farmers. The three periods of the Iron Age are presented by Huffman (2007) as follows:

Early Iron Age: AD 200 – 900

Middle Iron Age: AD 900 – 1300

Late Iron Age: AD 1300 – 1840

The Iron Age covers the history of black African communities and, as a chronological unit, is typically taken to end when concerted contact with European settlers start.

### 5.3 HISTORICAL PERIOD

The historical period is best regarded as a phase where historical sources can be reliably used to reconstruct past events. The earliest sources of historical data found in southern Africa take the form of oral accounts that were recorded by travellers and missionaries as they explored the interior of the country while later sources tend to be more formally constructed as literacy rates increased with more European settlers entering the region (Vollenhoven 2006:189).

## 6. SOURCES OF INFORMATION

### 6.1 DESKTOP STUDY

The desktop study focussed on the previous research conducted in the area contained in reports, published material, aerial photographs, remote sensing data.

#### 6.1.1 *Heritage Reports*

Heritage reports on the SAHRIS database was consulted for other archaeological finds.

Previous impact assessments conducted in the approximated 20 km radius vicinity of the project area (Angel 2018 ; Baker 2017; Celliers 2015; De Jong 2007; Fourie 2009, 2018; Fourie and Fourie 2009; Gaigher 2007; Higgitt 2012; Küsel 2008; Moses 2020; Murimbika 2008; NCHM 2002a, 2002b, 2003; Pelser 2016, 2018 2021; Roodt 2007, 2008; Tomose 2011; van Schalkwyk 2006, 2009; Van der Walt 2007, 2018; Van Vollenhoven 2012, 2015).

#### 6.1.2 *Map data*

Historical and current topographical maps were consulted as sources of information on potential areas of significance. These were georeferenced in ArcGIS and Google earth with the project area superimposed.

#### 6.1.3 *Remote Sensing Data*

Historical and modern aerial and satellite imagery of the project area was studied to identify any heritage sites. Historical aerial imagery from the National Geo-spatial Information database from 1941, 1953, 1979 and recent Google Earth imagery between 2003 and 2022 were inspected. The remote sensing data was used to date historical activities and structures (refer to results below).

#### 6.1.4 *Published Research*

Publication repositories and archives were consulted for any published research that pertains to the project.

#### 6.1.5 *Archival data*

The database of the National Archives of South African was searched any relevant data that pertains to the project area.

## 7. HERITAGE OVERVIEW OF PROJECT AREA

Heritage assessments between the years 2007 to 2021 were reviewed to identify the general scope of heritage resources in the general Kendal-Ogies region. The most prominent include, stone tool scatters, ceramics scatters, marked and unmarked burials, stone walling, historic farmhouses, cairns and formal and informal graves and burial grounds.

Spatially, the project falls within the Mpumalanga Highveld. Numerous rivers merge into two main river systems – the Olifants river and the Komati River. These confluences created fertile landscapes that provided resources to early hominids as early as 1.4 million years ago up to historical communities of the recent past.



## 7.1 STONE AGE

The Earlier and Middle Stone Age are poorly represented on Mpumalanga Highveld. Very few ESA and MSA sites exist in the eastern Highveld region of Mpumalanga. However, this may be attributed to the lack of systematic research conducted in the area and not necessarily as evidence that archaeological features are not present in the area. It is likely that the highveld area was abundant in food, water gathering locations and hunting opportunities, but less appropriate for settling due to the lack of shelter and availability of needed resources to construct stone tools (Celliers 2015). ESA stone tools are characteristically core tool-based technology, whereas MSA stone tools were constructed from prepared cores to make faceted platform flakes and flake-blades (van Schalkwyk 2006). Artefacts from the ESA and MSA are more often found along watercourses like the Vaal River or more sheltered areas like in the Magaliesburg. A few MSA artefacts were noted by Van Vollenhoven (1992) and Huffman (1999) in the Emalahleni-Middleburg region.

The Later Stone Age (LSA) are more frequent in the area than earlier industries. Several LSA sites have been found around Carolina and eManzana (Badplaas). Rock paintings have also been recorded at Carolina, eManzana, Machadodorp and Rietspruit in the vicinity of project area as well (Bergh 1995: 4-5). Individual artifacts from the LSA have been noted at sites in the region as well, but none of such significance that warranted further research.

## 7.2 IRON AGE

African farmers of the Iron Age occupied southern Africa since c. AD 300. However, no Iron Age sites dating from the first millennium AD have been on the Highveld area around the project area. Having cultivated cereals like sorghum and millet, EIA communities relied on the summer rainfall season and were unlikely to settle in the more central interior highveld. Areas with rich alluvial soils near rivers, water and firewood were much more suited to their needs.

Later Iron Age sites are most likely related to the historical Sotho, Ndebele and siSwati-speaking communities that settled in the region from the 16<sup>th</sup> century onwards when, warmer climates allowed farming communities to settle previously unsuitable regions of the Mpumalanga Highveld (van Schalkwyk 2006: 6). However, the Difaqane wars of the last quarter of the 18<sup>th</sup> and first 30 years of the 19<sup>th</sup> century led to a steep drop in population numbers. The Difaqane (Sotho), or Mfecane (“the crushing” in Nguni), was a series of battles fought between communities in the Highveld region of Mpumalanga (Lye 1967: 108). The conflicts were caused by the heightened competition for land and trade and culmination was a large population displacement across the entire Highveld region. Some chiefdoms, especially the Zulu under king Shaka Kasenzangakhona, launched attacks on other societies from their KwaZulu-Natal homeland. Other groups such the Ndebele under Mzilikazi, adopted a mobile military strategy, moving generally north and westward, waging war along the way. Mzilikazi’s impi probably moved through the project area between 1821 and 1823 (Bergh 1999: 11) and it is possible that the Ndebele may have established settlements between the Emalahleni-Ogies-Kendal area and Pretoria.

## 7.3 HISTORICAL PERIOD

During the same time as the Difaqane, the large northern migration of white settlers from the Cape was also taking place. Since the 1720’s some missionaries and travellers found themselves on expeditions to the north, but this was the first major migration to occur (Cloete 2000). By the 1860’s dense populations of white, Dutch-speaking settlers

occupied central areas of the previous Transvaal Province (present-day Gauteng, Mpumalanga, Limpopo and portions of the North West Province). White farmers only settled in the project area in large numbers after 1853, when the South African Republic (ZAR) traded land for white farms from the Swazi.

During the South African (Anglo-Boer) War of 1899-1902, a number of skirmishes took place on farms in the larger project area. These include battles on the farms included Oshoek (4 December 1901), Trigaardsfontein (10 December 1901), Witbank (11 January 1902) and Nelspan (26 January 1902). In accordance with the British “scorched earth” policy, many structures and settlements erected by the Boers were destroyed during wartime in the Anglo Boer War which was waged between 1899 and 1902 (Cloete 2000).

The closest town of considerable size is Witbank (Emalahleni) which was established around 1894 as the railway line connecting Pretoria and Maputo (previously Lorenzo Marques) passed near where the city is located today. After the discovery of gold field on the Witwatersrand, the demand for cheap energy increased. The town of Witbank was established after four collieries had already been established and productive since 1899. To serve the growing coal industry, the town of Ogies, 15 km east of the project area was established in 1928 on the farm Ogiesfontein, “fountain with many ‘eyes’ or springs” (Raper 2004, 345). Archival records suggest that the coal fields around Kendal were also exploited from approximately this date onwards (e.g. Kendal Colliery 1923), though the exact date of the establishment of the Kendal town is not clear. To meet a predicted increase in energy demand, the Kendal power station and associated infrastructure was built between 1982 and 1993 (“ESKOM 1983-1992 - Eskom Heritage” 2021). The section of small holdings on which the project is located, the Kendal Forest Estate – likely named after the earlier plantation at the site – was established in the 1970s (Kendal Forest Landbouhoewes 1974).

## 8. FIELD SURVEY METHODS

An archaeological foot survey was conducted on 23 November 2022. Where open areas were encountered, the survey followed standard archaeological practice of walking transects, spaced roughly 20m apart. An unstructured survey was conducted in built-up areas. The survey team used real time positioning in relation to the project by means of a mobile GIS application. Sites of interest and of the project area were handheld GPS (Garmin GpSMap 66S) and recorded using Datum WGS 84.

### 8.1 LIMITATIONS

#### 8.1.1 *Access*

Locked gates prevented access restriction prevented to some plots or homesteads in the project area. Visual inspected and aerial imagery were used to supplement inspection of these areas where direct access was limited.

#### 8.1.2 *Visibility*

Farming, residential and commercial activities limited surface visibility where present. Vegetation cover had a minimal impact on most of the survey. The exception being dense stands of wattle trees in the south east areas.

#### 8.1.3 *Previous Impact*

Historical aerial imagery and ground survey indicates that the proposed mining area has been intensively utilised since at least 1944. Aerial imagery from 1944 indicates that the plots were used as a plantation. In subsequent years,

land use changed to agriculture with fruit trees and plough zones still present in much of the area. Since the 1970s residential activities increase in the area under study (Refer to Figures ).



**Figure 3: Aerial imagery of the project area from 1944 indicating the absence of any architecture and the utilisation of the area as a plantation.**



**Figure 4: Aerial imagery from 1953 showing decrease of plantation cover and utilisation of plots as farmland as well as the general absence of any built structures.**



Figure 5: Project area on aerial imagery from 1979. Earliest indication of the buildings which are present on site today.



Figure 6: View of Plot 63 as an example of mix of dense built-up areas and agricultural use that characterises the project area.



Figure 7: Aerial imagery of Plot 1 and 2 from 1979, indicating mixed land use.



Figure 8: Plot 1 in 2022 used for commercial enterprise (trucking service) illustrating development and intense land use of area at present and high impact on any possible heritage resources.

## 9. RESULTS OF THE HERITAGE ASSESMENT

The HIA investigation found that previous impacts related to forestry, farming, residential, commercial and mining, will have had a significant negative impact on the preservation of heritage resources in the general area.

- The only identified heritage resources occur on **Plot 57** (. This comprises two graves with headstones and referred to here as UP-2628-HF-01. These graves were noted in the prospecting report compiled by Nel (2021) but fell outside the scope of that report. Inspection of the graves were conducted during the HIA field survey and reported below.

- No other areas of heritage significance were identified during the study. Inspection of aerial photographs indicate the absence of any built structures older than 60 years. The mining right application is entirely located on smallholdings with no visible heritage resources. None of the smallholdings inspected contain deposits or objects of heritage value nor do they constitute places of significance in themselves.



Figure 9: Views facing west (left) and southwest (right) over Plot 38, 39 and 40.



Figure 10: A deep excavation trench between Plot 58 and 38 (left) and with a c. 1980s residential structure on Plot 39 (right).



Figure 11: Modern commercial activities on Plot 81 (left) and a residential structure on Plot 61 (right).



Figure 12: Structure on Plot 4 (left) and a parkinglot and comercial property on Plot 1 and 2 (right).



Figure 13: Partially demoshed building on Plot 39 (left) and operational mine workshop on Plot 57 (right).



**Figure 14: General view of Plot 77 facing west (left) and south (right).**

#### 9.1 STONE AGE

No Stone Age material was found in the project area.

#### 9.2 IRON AGE

No Iron Age material was found in the project area.

#### 9.3 HISTORICAL SITES

Although there are built structures on all the plots investigated, none of are older than 60 years. This is confirmed by aerial imagery that show that the no structures were present in the 1953 images. The earliest aerial imagery with built structures clearly discernible dates to 1979. Archival documents indicate that the 1980s saw the application of several plots for commercial land use. Aerial images from 1944 do show that the entire area was used as a plantation (likely wattle or gum trees). Records in the National Archives of South Africa (NASA) indicates that the KENDAL FOREST COMPANY was in operation by 1920 (Assistant Secretary, Kendal Forest Company, Limited, Johannesburg 1920). The plantation likely is the origin of the named Kendal Forest Holdings of the small holdings contained in the project area.

#### 9.4 GRAVES AND BURIAL GROUNDS

Two closely spaced graves were identified on Plot 57. At present, the plot is used as a mine workshop and is largely built up and generally disturbed by earthmoving activities. No other heritage structures or related deposits were identified on the property.

The graves are located on a narrow parcel formed between a barbed wire perimeter fence next to the dirt road and an electrical security fence spaced 2m inside. The perimeter runs along a dirt road which forms the northern perimeter of the project area, and close to its northwest corner.

The graves are rectangular, roughly 1 x 1,5m and raised 20cm above ground surface. Their borders are formed by precast cement slabs with a coarse gravel grit. Both are filled with slag and clinker infill. Both graves have grave stones with headstones made from precast cement slabs. The headstones are painted white, but this is flaking



revealing the cement underneath. Inscriptions were carved into the precast slabs. The lettering shape suggests that it was possibly made with an angle grinder or similar circular cutting tool.

- The southern headstone is a roughly 40cm high rectangle and has vertically orientated “**A 15**” inscribed on the east facing side.
- The northern grave is a rectangle whose top is cut to a trapezoid shape. It is marked “**A 1964**” on its east facing side.

Both are overgrown with weeds but are protected by the fence lines and access control to the property. No grave offerings or cultural items in its vicinity suggest recent visitation or commemorations. The National Archives of South African database on Data of the South African Genealogical Society on Gravestones has no recorded graves on the farm Heuvelfontein 215JR and the graves can therefore be considered as unrecorded.

The absence of any surface items also makes dating difficult, and historical aerial imagery does not provide any clarification about dates either. It is possible that the “1964” inscription on the northern grave could refer to a date, however, this cannot be absolutely confirmed by the available evidence. The clinker and slag fill and precast cement borders and headstones however suggest a possible twentieth century date and could **possibly be older than 60 years**.

Graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983), the Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) and the Regulations relating to the Management of Human Remains as contained in the National Health Act (ACT NO. 61 OF 2003). Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act (25 of 1999) and the Human Tissues Act of 1983.

An application to exhume and rebury the two graves on Plot 57 on Heuvelfontein 215 JR by a suitably qualified specialist will be required as future mitigation. Given the uncertainty of their age and the potential to be older than 60-years, this report proposes a SAHRA permit as a requirement in addition to other regulations set out in various National Acts such as the National Health Act (ACT NO. 61 OF 2003).



Figure 15: Location of graves (UP-2626-HF-01) in relation to project area.

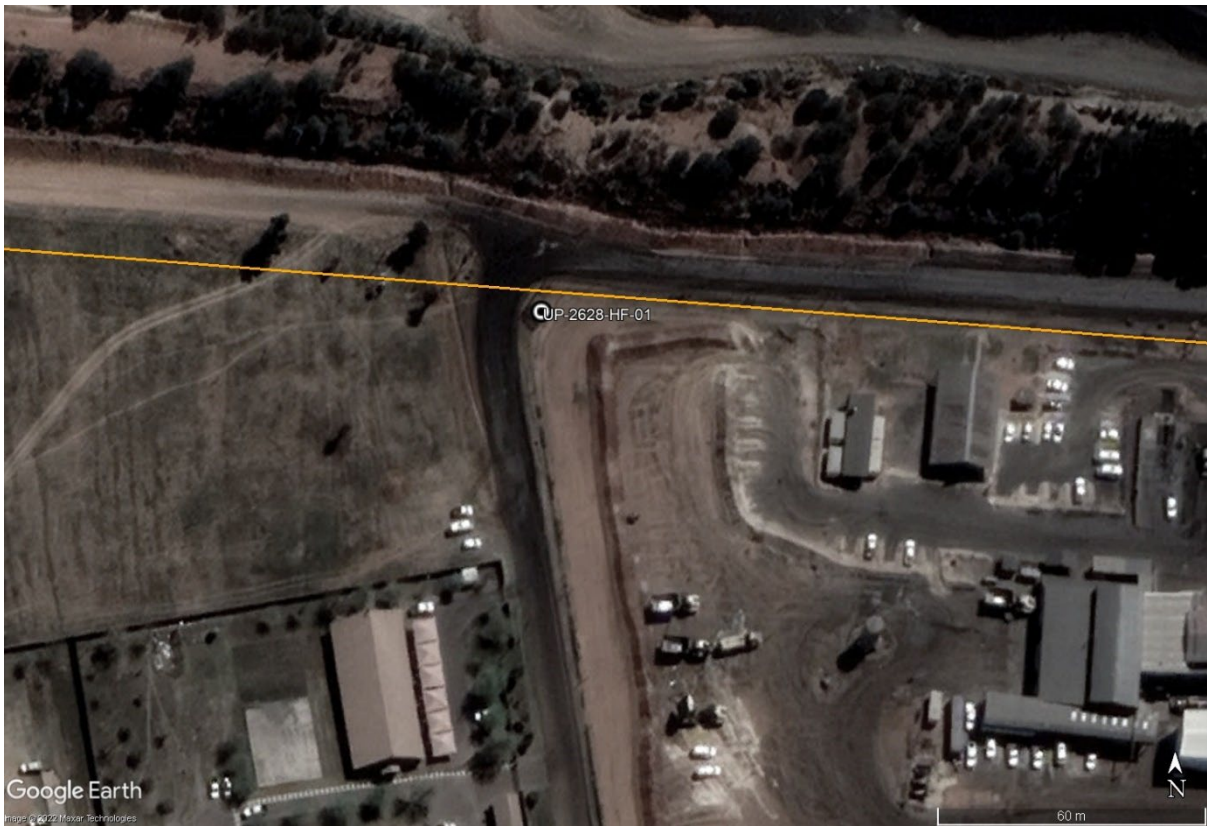


Figure 16: Closeup of graves (UP-2626-HF-01) in relation to project area.



Figure 17: View of areas on Plot 57 adjacent to graves (left) and overview of graves behind fencing, facing northwest (right).



Figure 18: View graves facing south (left) and facing north (right).



Figure 19: Images facing west of Grave 1 (left), and Grave 2 (right).



Figure 20: Headstones of Grave 1 (left) and grave 2 (right).



Figure 21: Details of the headstone of Grave 1.



Figure 22: Infill and grave borders Grave 1 (left) and Grave 2 (right).

**Table 2: Summary direct impact on heritage finds**

Site	Impact	Mitigation	Extent		Duration		Magnitude		Probability		Impact		Mitigation Measures to be Implemented
			Scale	Score	Scale	Score	Scale	Score	Scale	Score	Scale	Score	
UP-HF-2628-01	Destruction	Exhumation and reburial	Site	1	Permanent	5	High	8	Definite	5	High	70	Exhumation and reburial required.

## 10. PALEONTOLOGICAL SENSITIVITY

The project area falls within a **Very High sensitivity zone** and a field assessment of the proposed areas was conducted. The PIA report by Prof Bamford is attached to the HIA report.

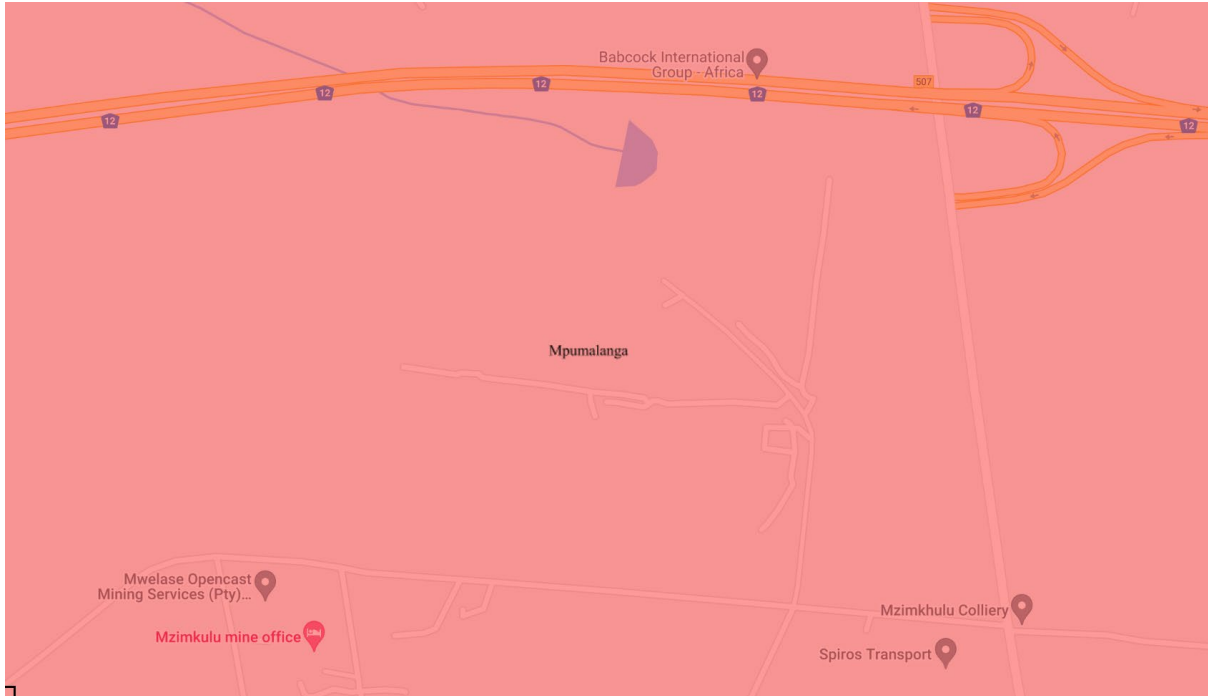


Figure 21: Paleontological sensitivity map.

### 11. MANAGEMENT ACTIONS

The following management measures should be considered during mining rights application on Portions of Heuvelfontein 215 JR.

SITES	UP-HF-2628-01	
LOCATION	Heuvelfontein 215 JR, Plot 57, Kendal Forest Holdings	
COORDINATES	S: 26.02566667 E: 28.94869444	
PROJECT COMPONENT/S	Within extension of mine right application footprint	
POTENTIAL IMPACT	Destruction	
ACTIVITY RISK/SOURCE	Mining, Earth moving, excavation	
MITIGATION: TARGET/OBJECTIVE	Exhumation and Reburial	
MITIGATION: ACTION/CONTROL	RESPONSIBILITY	TIMEFRAME
Fixed Mitigation Procedure (required)		
Exhumation and reburial	Suitably qualified grave relocation specialist.	To be completed before mining operations can begin.

## 12. RECOMMENDATION

The following general recommendations are made based the impact assessment process:

1. **UP-HF-2638-01** is defined as **the** location of two graves. Graves are of **HIGH SIGNIFICANCE** and further mitigation steps in the form of exhumation and reburial are needed. Precise dating of the burials is impossible with the evidence at hand. Indicators however suggest a high likelihood of a 20<sup>th</sup> century date and the possibility therefore remains that they are older than 60-years. If they prove to be older than 60-years a SAHRA permit is required.
2. Monitoring of the development progress by an ECO is recommended during the planning and construction phases of the project. Should any subsurface palaeontological, archaeological or historical material, or burials be exposed during construction activities, all activities should be suspended, and the archaeological specialist should be notified immediately.



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## APPENDIX 1: HERITAGE LEGISLATION BACKGROUND

### A1.1 NATIONAL HERITAGE RESOURCES ACT NO 25 OF 1999, SECTION 35

According to the National Heritage Resources Act of 1999 a historical site is any identifiable building or part thereof, marker, milestone, gravestone, landmark or tell older than 60 years.

The Act identifies heritage objects as:

- objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects, meteorites and rare geological specimens
- visual art objects
- military objects
- numismatic objects
- objects of cultural and historical significance
- objects to which oral traditions are attached and which are associated with living heritage
- objects of scientific or technological interest
- any other prescribed category

With regards to activities on archaeological and heritage sites this Act states that:

“No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority.” (34. [1] 1999:58)

“No person may, without a permit issued by the responsible heritage resources authority-

- a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite.
- b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite.
- c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
- d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects or use such equipment for the recovery of meteorites. (35. [4] 1999:58).”

“No person may, without a permit issued by SAHRA or a provincial heritage resources agency may -

- a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves.
- b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority.
- c) bring onto or use at a burial ground or grave referred to in paragraph (left) or (right) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60).”

A1.2 HUMAN TISSUE ACT OF 1983 AND ORDINANCE ON THE REMOVAL OF GRAVES AND DEAD BODIES OF 1925

Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and the Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant Local Authorities.

## APPENDIX 2: MANAGEMENT AND MITIGATION ACTIONS

### A1.3 CATEGORIES OF SIGNIFICANCE

Rating the significance of archaeological sites, and consequently grading the potential impact on the resources is linked to the significance of the site itself. The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences. The guidelines as provided by the NHRA (Act No. 25 of 1999) in Section 3, with special reference to subsection 3 are used when determining the cultural significance or other special value of archaeological or historical sites. In addition, ICOMOS (the Australian Committee of the International Council on Monuments and Sites) highlights four cultural attributes, which are valuable to any given culture:

#### *Aesthetic value:*

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria include consideration of the form, scale, colour, texture and material of the fabric, the general atmosphere associated with the place and its uses and also the aesthetic values commonly assessed in the analysis of landscapes and townscape.

#### *Historic value:*

Historic value encompasses the history of aesthetics, science and society and therefore to a large extent underlies all of the attributes discussed here. Usually, a place has historical value because of association with an event, person, phase or activity.

#### *Scientific value:*

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality and on the degree to which the place may contribute further substantial information.

#### *Social value*

Social value includes the qualities for which a place has become a focus of spiritual, political, national or other cultural sentiment to a certain group.

It is important for heritage specialist input in the EIA process to take into account the heritage management structure set up by the NHR Act. It makes provision for a 3-tier system of management including the South Africa Heritage Resources Agency (SAHRA) at a national level, Provincial Heritage Resources Authorities (PHRAs) at a provincial and the local authority. The Act makes provision for two types or forms of protection of heritage resources, i.e., formally protected and generally protected sites:

Formally protected sites:



- Grade 1 or national heritage sites, which are managed by SAHRA
- Grade 2 or provincial heritage sites, which are managed by the provincial HRA (MP-PHRA).
- Grade 3 or local heritage sites.

Generally protected sites:

- Human burials older than 60 years.
- Archaeological and palaeontological sites.
- Shipwrecks and associated remains older than 60 years.
- Structures older than 60 years.

With reference to the evaluation of sites, the certainty of prediction is definite, unless stated otherwise and if the significance of the site is rated high, the significance of the impact will also result in a high rating. The same rule applies if the significance rating of the site is low. The significance of archaeological sites is generally ranked into the following categories.

#### A1.4 MITIGATION CATEGORIES

The following provides a guideline of relevant heritage resources management actions in the conservation of heritage resources:

##### *No further action / Monitoring*

Where no heritage resources have been documented, heritage resources occur well outside the impact zone of any development or the primary context of the surroundings at a development footprint has been largely destroyed or altered, no further immediate action is required. Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation in order to ensure that no undetected heritage\ remains are destroyed.

##### ***Avoidance***

This is appropriate where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. Mitigation is not acceptable or not possible. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources.

##### *Mitigation*

This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated to a degree of medium to low significance, e.g., the high to medium impact of a development on an archaeological site could be mitigated through sampling/excavation of the remains. Not all negative impacts can be mitigated.

##### *Compensation*

Compensation is generally not an appropriate heritage management action. The main function of management actions should be to conserve the resource for the benefit of future generations. Once lost it cannot be renewed.

The circumstances around the potential public or heritage benefits would need to be exceptional to warrant this type of action, especially in the case of where the impact was high.

#### *Rehabilitation*

Rehabilitation is considered in heritage management terms as an intervention typically involving the adding of a new heritage layer to enable a new sustainable use. It is not appropriate when the process necessitates the removal of previous historical layers, i.e., restoration of a building or place to the previous state/period. It is an appropriate heritage management action in the following cases:

- The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation.
- Where rehabilitation implies appropriate conservation interventions, i.e., adaptive reuse, repair and maintenance, consolidation and minimal loss of historical fabric.
- Where the rehabilitation process will not result in a negative impact on the intrinsic value of the resource.

#### *Enhancement*

Enhancement is appropriate where the overall heritage significance and its public appreciation value are improved. It does not imply creation of a condition that might never have occurred during the evolution of a place, e.g., the tendency to sanitize the past. This management action might result from the removal of previous layers where these layers are culturally of low significance and detract from the significance of the resource. It would be appropriate in a range of heritage contexts and applicable to a range of resources. In the case of formally protected or significant resources, appropriate enhancement action should be encouraged. Care should, however, be taken to ensure that the process does not have a negative impact on the character and context of the resource. It would thus have to be carefully monitored.