



**MBOFHO**  
Consulting and Projects

Reg.:2007/229071/23

Vat: 4960258335

Tax Ref No.:9108819161

Office: 91 Hans van Rensburg Street, office 107, Euracia Courts, Polokwane, P.O Box 54, Polokwane, 0700.  
Tel: 015 297 7324 Cel: 079 1930 634, Fax: 086 539 6388, Email : [silidima@gmail.com](mailto:silidima@gmail.com)

---

## **GREATER SOUTPANSBERG CHAPUDI PROJECT**

### **HERITAGE RESOURCES**

#### **FINAL REPORT**

<b>Applicant</b>	<b>Environmental Consultant</b>
<b>Coal of Africa Limited</b> The Campus, Gabba Building (2 <sup>nd</sup> floor), 57 Sloane Street, Bryanston PO Box 69517, Bryanston, 2021 Telephone 011 575 4363 Facsimile 086 562 1335 E-mail: <a href="mailto:Baldwin.khosa@coalofafrica.com">Baldwin.khosa@coalofafrica.com</a>	<b>Jacana Environmentals cc</b> Marietjie Eksteen 7 Landdros Mare Street, Polokwane PO Box 31675, Superbia, 0759 Tel: (015) 291 4015 Fax: (015) 291 5035 Email: <a href="mailto:marietjie@jacanacc.co.za">marietjie@jacanacc.co.za</a>

**Date: 18 November 2013**


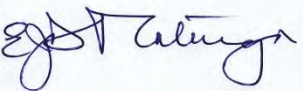
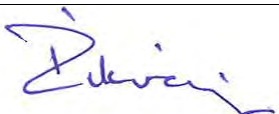
## REPORT DETAILS

<b>Project name:</b>	HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED GREATER SOUTPANSBERG CHAPUDI PROJECT
<b>CLIENT:</b>	Coal of Africa Limited
<b>Environmental firm:</b>	Jacana Environmentals cc
<b>Heritage firm:</b>	Mbofho Consulting and Project Managers
<b>Project team:</b>	<b>Matodzi A. Silidi:</b> M.A Env Management (UOFS), PGD in Heritage St (UCT), B.Env. Sc. (UNIVEN), ASHEEP (NOSA), SAMTRAC (NOSA), Environmental and Mining Rehab (Potch). <b>Dr. Edward Matenga:</b> PhD Archaeology & Heritage, Uppsala, Sweden; MPhil. Archaeology, Uppsala; Certificate in the Integrated Conservation of Territories and Landscapes of Heritage Value, ICCROM, Rome
<b>Report Moderator:</b>	<b>Prof Innocent Pikirayi</b> PhD in Archaeology, Uppsala University (Sweden). Professor and HOD: Department of Archaeology and Anthropology, University of Pretoria

## **ABBREVIATIONS**

<b>CRM</b>	Cultural Resources Management
<b>CMP</b>	Conservation Management Plan
<b>DEDET</b>	Department of Economic Development, Environment and Tourism
<b>DEA</b>	Department of Environmental Affairs
<b>DMR</b>	Department of Mineral Resources
<b>EIA</b>	Environmental Impact Assessment
<b>HIA</b>	Heritage Impact Assessment
<b>LSA</b>	Late Stone Age
<b>LIA</b>	Later Iron Age
<b>LIHRA</b>	Limpopo Heritage Resources Authority
<b>PHRA</b>	Provincial Heritage Resources Authority
<b>MCPM</b>	Mbofho Consulting and Project Managers
<b>MSA</b>	Middle Stone Age
<b>NHRA</b>	National Heritage Resources Act
<b>NEMA</b>	National Environmental Management Act
<b>NTFP</b>	Non-timber Forest Product
<b>SAHRA</b>	South African Heritage Resources Agency
<b>WAC</b>	The World Archaeological Congress

## DOCUMENT CONTROL

	NAME	SIGNATURE	DATE
FIELD WORK AND REPORT:	Mr M.A Silidi		14/11/2013
FIELD WORK AND REPORT:	Dr E. Matenga (PhD)		14/11/2013
MODERATOR:	Prof I. Pikirayi (PhD)		16/11/2013

### DISTRIBUTIONLIST

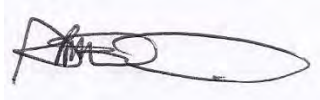
AGENCY, ORGANISATION OR PERSON	# OF COPIES
LIHRA	1
SAHRA	1
Jacana	14

### REVISIONAND AMENDMENTS

DATE	No.	DESCRIPTION OF REVISION OR AMENDMENT
2013/11/17	1	Draft version revision
2013/11/26	2	Final Draft Version

## DECLARATION OF INDEPENDENCE

Mbofho Consulting and Project Managers cc is an independent consultant and hereby declare that Mbofho Consulting and Project Managers have no interest, be it business, financial, personal or other vested interest in the undertaking of the proposed activity, other than fair remuneration for work performed, in terms of both the Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002) and the National Heritage Resources Act, 1999 (Act 25 of 1999).



---

**Full Name:** Matodzi A. Silidi

**Title / Position:** Director

**Qualification(s):** M.A Env Management (UOFS), PGD in Heritage St (UCT), B.Env. Sc. (UNIVEN), ASHEEP (NOSA), SAMTRAC (NOSA), Environmental and Mining Rehab (Potch).

**Experience:** 11 years

This document contains information proprietary to Mbofho Consulting and Project Managers cc and as such should be treated as confidential unless specifically identified as a public document by law. The document may not be copied, reproduced, or used for any manner without prior written consent from Mbofho Consulting and Project Managers Copyright is specifically reserved.

## DEFINITIONS

**Archaeological material:** remains resulting from human activity left as evidence of their presence which, as proscribed by South African heritage legislation, are older than 100 years, which are in the form of artifacts, food remains and other traces such as rock paintings or engravings, burials, fireplaces and structures.

**Artifact/Ecofact:** Any movable object that has been used, modified or manufactured by humans.

**Catalogue:** An inventory or register of artifacts and/or sites.

**Conservation:** All the processes of looking after a site/heritage place or landscape including maintenance, preservation, restoration, reconstruction and adaptation.

**Cultural Heritage Resources:** refers to physical cultural properties such as archaeological sites, palaeontological sites, historic and prehistorical places, buildings, structures and material remains, cultural sites such as places of rituals, burial sites or graves and their associated materials, geological or natural features of cultural importance or scientific significance. This include intangible resources such religion practices, ritual ceremonies, oral histories, memories indigenous knowledge.

**Cultural landscape:** “the combined works of nature and man” and demonstrate “the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both internal and external”.

**Cultural Resources Management (CRM):** the conservation of cultural heritage resources, management, and sustainable utilization and present for present and for the future generations

**Cultural Significance:** is the aesthetic, historical, scientific and social value for past, present and future generations.

**Early Stone Age:** Predominantly the Acheulean hand axe industry complex dating to + 1Myr yrs – 250 000 yrs. before present.

**Early Iron Age:** Refers cultural period of the first millennium AD associated with the introduction of metallurgy and agriculture in Eastern and Southern Africa

**Later Iron Age:** Refers to the period after 1000AD marked by increasing social and political complexity. Evidence of economic wealth through trade and livestock keeping especially cattle

**Excavation:** A method in which archaeological materials are extracted, involving systematic recovery of archaeological remains and their context by removing soil and any other material covering them.

**Grave:** a place of burial which include materials such as tombstone or other marker such as cross etc.

**Historic material:** means remains resulting from human activities, which are younger than 100 years and no longer in use, which include artefacts, human remains and artificial features and structures.

**Intangible heritage:** Something of cultural value that is not primarily expressed in a material form e.g. rituals, knowledge systems, oral traditions, transmitted between people and within communities.

**Historical archaeology:** the study of material remains from both the remote and recent past in relationship to documentary history and the stratigraphy of the ground in which they are found; or archaeological investigation on sites of the historic period. In South Africa it refers to the immediate pre-colonial period, contact with European colonists and the modern industrial period.

**In situ material:** means material culture and surrounding deposits in their original location and context, for instance archaeological remains that have not been disturbed.

**Later Iron Age:** The period from the beginning of the 2<sup>nd</sup> millennium AD marked by the emergence of complex state society and long-distance trade contacts.

**Late Stone Age:** The period from  $\pm$  30 000-yr. to the introduction of metals and farming technology

**Middle Stone Age:** Various stone using industries dating from  $\pm$  250 000 yr. - 30 000 yrs. ago

**Monuments:** architectural works, buildings, sites, sculpture, elements or structures of an archaeological nature, inscriptions, cave dwellings which are outstanding from the point of view of history, art and science.

**Place:** means site, area, building or other work, group of buildings or other works, together with pertinent contents, surroundings and historical and archaeological deposits.

**Preservation:** means protecting and maintaining the fabric of a place in its existing state and retarding deterioration or change, and may include stabilization where necessary.

**Sherd:** ceramic fragment.

**Significance grading:** Grading of sites or artifacts according to their historical, cultural or scientific value.

**Site:** a spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

**Site Recoding Template:** Site recording form.

## EXECUTIVE SUMMARY

The following report is a Heritage Impact Assessment (HIA) for the Chapudi Project area which describes potential adverse and positive effects of the proposed mining operations on heritage resources. The report builds on a scoping survey conducted earlier and adds results of fieldwork which followed. The report will inform decisions on intervention strategies for sustainable management of the heritage resources in the mining area.

The Impact Assessment follows the requirements of the National Heritage Resources Act (No 25: 1999), the relevant sections of which are Section 38 (Heritage Impact Assessment process), Section 34 (Buildings and Structures older than 60 years) Section 35 (Archaeological and Palaeontological sites) and Section 36 (Graves and Burial Grounds).

The cultural sequence in South Africa has been outlined to provide a framework for the identification of Heritage Resources. It is largely based on archaeological reconstruction. In addition cultural landscapes and intangible heritage have been considered as important dimensions of heritage.

To our knowledge there are no proclaimed Grade 1 sites in the Chapudi Project Area. Machema Ruins is situated west of the Sand River, 18km from the Project Area and outside the mine operations area. These ruins are substantial although their grading is yet to be ascertained.

Ninety-four (94) heritage sites have been recorded under 6 typologies as follows:

	<b>Heritage Typology</b>	<b>Quantity/Description</b>
1	Grave Sites	23
2	Stone Age Archaeological Sites	1
3	Later Iron Age Archaeological Sites	18
4	Later Iron Age Ruins	6
5	Sites of the commercial farming period	37



	(historical archaeology)	
6	Cultural Landscapes (forest products)	9
	<b>TOTAL NUMBER OF SITES</b>	<b>94</b>

A ranking system has been used to isolate sites that will need attention before or during the operation phase of the project. Twenty-nine (29) heritage sites have been prioritized under Categories 1 and 2 as deserving the highest attention before or during the operation phase of the project.

	<b>Ranking</b>	<b>Explanation</b>	<b>No of sites</b>
1	Very high	23 burials (Section 36 of NHRA) require stakeholder consultations before relocation or other mitigation measures are considered. 5 ruins have high cultural and architectural significance; these must not be disturbed.	28
2	High	Substantial archaeological deposits (1 site). It requires mitigation.	1
3	Medium	Archaeological deposits (4 sites); Cultural landscapes (Mopani, Baobab commercial farmsteads) (14); and 1 small ruin. They may require mitigation	19
4	Low	Heritage sites deemed of less importance. These are mostly sites with pottery but belonging to the relatively recent commercial farming period. Decisions on mitigation will be made by a heritage expert including options of destruction with or without salvage.	46
		<b>TOTAL</b>	<b>94</b>

The nature and scale of impacts of the proposed mining on heritage are summarised in the following table:

	<b>ACTIVITY</b>	<b>POTENTIAL IMPACTS</b>
1	Mineral extraction	Stripping of top soil and mineral extraction opencast methods will represent the most extensive excavation of the area and earthmoving. Total destruction of heritage sites
2	Non-carbonaceous material dump	Overlaying (and destruction) of heritage sites.
3	Carbonaceous damp	Overlaying (and destruction) of heritage sites

4	Stockpiles (topsoil & discards)	Overlaying (and destruction) of heritage sites
5	Mine infrastructure/Plant	Total destruction of heritage resources. Visual impacts on cultural landscapes.
6	Main access road, conveyor belt	Total destruction and visual impacts
7	Emulsion and explosion areas	Destruction, vibration, pollution

The nature and scale operations are distributed on a farm by farm basis as follows:

	Farm	Mining area	Carbonaceous material	Non-carbonaceous material	Stockpiles (topsoil & discards)	Mine Plant	Emulsion & explosion	Road Rail C- belt	Heritage sites <sup>1</sup>
1	Sutherland								5
2	Coniston								12
3	Woodlands								5
4	Bushy Rise <sup>2</sup>								31
5	Malapchani <sup>3</sup>								40
6	Ekland								1
								<b>TOTAL</b>	<b>94</b>

<sup>1</sup> Total number of sites found on each farm.

<sup>2</sup> Bushy Rise is comprises 2 farms (Bushy Rise Farm and Blackstone Farm)

<sup>3</sup> Malapchani is a combination of several farms; these are Malapchani, Mapani Ridge, Sandstone Edge and Driehoek. They constitute the largest area.

## GENERAL OBSERVATIONS

- (i) Twenty-nine(29) heritage sites have been prioritized under Categories 1 and 2 as deserving the highest attention before or during the operation phase of the project. These are five (5) stonewalled sites of the Zimbabwe Tradition, 23 graves and 1 late Iron Age settlement site which may require consultation with local communities and other stakeholders before any action on them is considered. The fate of Baobab trees in the mineral extraction areas must be decided in consultation with SAHRA and other stakeholders.
- (ii) Nineteen(19) heritage sites are considered to be of medium significance. These include 2 cultural landscapes exemplifying non-timber forest product exploitation.
- (iii) Forty-six (46) sites are considered to be of less importance. As they have been recorded as minimum requirement, they may be disposed of with or without salvage.

## SPECIFIC OBSERVATIONS

The following table is a summary of specific impacts identified. It shows heritage sites located on the mining belt or in close proximity. The mining belt roughly runs along the R523. These sites therefore require Phase II assessment. Salvage operations will be carried out in Phase II, and where possible locations of plants/dumps/discards may be reviewed.

SITE NO	HERITAGE TYPOLOGY	FARM	POTENTIAL THREATS
27	SA Site	Bushy Rise	No direct threats, site outside operational areas
29	LIA Site	Bushy Rise	Mineral extraction
45	LIA Site	Coniston	Mineral extraction
2	Ruins	Bushy Rise	No direct threat. Potential dust pollution
5	Ruins	Bushy Rise	No direct threat. Potential dust pollution
6	Ruins	Bushy Rise	No direct threat. Potential dust pollution
21	Ruins	Bushy Rise	No direct threat. Potential dust pollution

24	Ruins <sup>4</sup>	Bushy Rise	No direct threat. Potential dust pollution
25	Ruins	Bushy Rise	No direct threat. Potential dust pollution
10	Graves	Bushy Rise	Mineral extraction/Plant
12	Graves	Woodlands	Mineral extraction/Plant
37	Graves	Coniston	Non-carbonaceous dump
57, 60, 62, 68, 71, 73	Graves	Malapchani	Proximity of carbonaceous dump
16	Mopane Stand	Bushy Rise	Mineral extraction/Plant/Dump
35	Farmsteads	Woodlands	Mineral extraction/Plant/Dump
36	Farmsteads	Woodlands	Mineral extraction/Plant/Dump
47	Farmsteads	Coniston	Mineral extraction
48	Farmsteads	Coniston	Mineral extraction/Discards
93	Farmsteads	Sutherland	Carbonaceous dump
32	Marula stand	Woodlands	Mining
40	Marula Stand	Coniston	Non-carbonaceous dump
41	Marula Stand	Coniston	Non-carbonaceous dump

Our conclusions are that:

- (i) A number of heritage sites located along the mining belt which roughly runs along the R523 will be directly affected by the mining operations. These include Later Iron Age ruins, graves and stands of Marula trees which will require Phase II assessment. Salvage operations will be carried out in Phase II, and where possible locations of plants/dumps/discards may be reviewed.
- (ii) Six (6) stonewalled sites lie to the north of the mining belt. They are considered to be safe, but may be affected by dust pollution. Furthermore as population is expected to increase in the mining area, inadvertent destruction may result from ignorance or other human factors. Educational programmes will be necessary.

---

<sup>4</sup>This is a small site with rough walling which has been classified as medium in significance.

## TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	8
<b>1. INTRODUCTION.....</b>	<b>16</b>
<b>2. LEGAL FRAMEWORK.....</b>	<b>16</b>
<b>2.1. Heritage Impact Assessments.....</b>	<b>16</b>
<b>2.2. Protection of Archaeological Sites.....</b>	<b>17</b>
<b>2.3. Graves and Burial Grounds.....</b>	<b>17</b>
<b>3. METHODOLOGY.....</b>	<b>19</b>
<b>3.1. Scoping Report.....</b>	<b>19</b>
<b>3.2. Fieldwork.....</b>	<b>20</b>
<b>3.3. Site Recording Template.....</b>	<b>20</b>
<b>3.4. Significance Ranking.....</b>	<b>21</b>
<b>3.5. Spread-sheet Table of Heritage Sites.....</b>	<b>22</b>
<b>3.6. Fieldwork challenges.....</b>	<b>22</b>
<b>4. THEORETICAL FRAMEWORK.....</b>	<b>23</b>
<b>4.1. Cultural Sequence in South Africa as Framework for the Identification of Heritage Resources.....</b>	<b>23</b>
<b>4.2. Other Heritage Concepts.....</b>	<b>29</b>
<b>5. FINDINGS.....</b>	<b>31</b>
<b>5.1. Current Conservation Status of Heritage Resources in the Project Area.....</b>	<b>31</b>
<b>5.2. Assessment of Impacts Using a Risk Ranking System.....</b>	<b>32</b>
<b>5.3. Summary Data on Heritage Resources.....</b>	<b>33</b>
<b>5.4. Nature and Location of Mine Operations.....</b>	<b>33</b>
<b>5.5. Specific Assessment of Impacts.....</b>	<b>38</b>
<b>5.5. ASSESSEMENT OF IMPACTS USING THE HERITAGE IMPACT ASSESSMENT STATUTORY FRAMEWORK.....</b>	<b>55</b>
<b>6. CONCLUSIONS.....</b>	<b>59</b>
<b>6.1. GENERAL OBSERVATIONS.....</b>	<b>59</b>

<b>6.2. SPECIFIC OBSERVATIONS .....</b>	<b>59</b>
<b>7. REFERENCES.....</b>	<b>61</b>

## 1. INTRODUCTION

A Heritage Impact Assessment (HIA) was carried out to locate sites heritage significance to assess potential adverse or positive effects of the proposed mining operations in the Chapudi Area. The report builds on a scoping survey and has much greater depth of focus based on the results of fieldwork which followed. Thus the fieldwork reveals potential impacts of the proposed development with a high level of confidence. The report is a critical tool of making decisions on intervention strategies to protect the heritage. Below we outline the legal framework, methodology and theoretical approaches that have underpinned the HIA process.

## 2. LEGAL FRAMEWORK

The HIA has been carried out in accordance with the National Heritage Resources Act (No 25: 1999), the relevant sections of which are cited below:

### 2.1. Heritage Impact Assessments

Section 38 states the nature and scale of development which triggers a HIA. The Chapudi Project is a large scale mining operation which encompasses all the factors which trigger Section 38, and thus calls for a full HIA process:

**38.** (1) *Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—*

*(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*

*(b) the construction of a bridge or similar structure exceeding 50 m in length;*

*(c) any development or other activity which will change the character of a site—*

*(i) exceeding 5 000 m<sup>2</sup> in extent; or*

*(ii) involving three or more existing erven or subdivisions thereof; or*

*(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or*

*(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;*

*(d) the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent; or*

*(e) any other category of development provided for in the regulations by SAHRA or a provincial heritage resources authority,*

*must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.*

Section 34 provides provisional protection of buildings and structures more than 60 years old:



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

## **2.2. Protection of Archaeological Sites**

Section 35 (4) of the NHRA prohibits the destruction of archaeological, palaeontological and meteorite sites:

*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.*

## **2.3. Graves and Burial Grounds**

Section 36 of the NHRA gives priority for the protection of Graves and Burial Grounds of victims of conflict and graves and burial grounds more than 60 years old. Within this frame cautious approaches are considered including managed exhumations and re-interment to pave way for development. The international ethical standards favour this position and recommend decisions informed by consultation with communities who by association might have strong feelings for protection *in situ* and may argue that a development project is better moved to alternative site:

*(1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.*

*(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.*

*(3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—*

*(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; or*

*(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.*

*(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority. ....*

Section 36(6) implies that all kinds of graves found during the course of development must be reported and investigated:

*(6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority—*  
*(a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and*  
*(b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.*

A predevelopment Heritage Impact Assessment is predicated on Subsection 6 which requires a developer to halt operations if graves are discovered, even as Section 36 does not specify what course of action to take in respect of graves other than those of victims of conflict or less than 60 years old found in an area earmarked for development. The **World Archaeological Congress (WAC)** has set international ethical standards for the treatment of human remains. In 1989 the WAC Inter-Congress in South Dakota (USA) adopted the **Vermillion Accord on Human Remains** which advises:

- 1. Respect for the mortal remains of the dead shall be accorded to all, irrespective of origin, race, religion, nationality, custom and tradition.*
- 2. Respect for the wishes of the dead concerning disposition shall be accorded whenever possible, reasonable and lawful, when they are known or can be reasonably inferred.*
- 3. Respect for the wishes of the local community and of relatives or guardians of the dead shall be accorded whenever possible, reasonable and lawful.*

4. *Respect for the scientific research value of skeletal, mummified and other human remains (including fossil hominids) shall be accorded when such value is demonstrated to exist.*
5. *Agreement on the disposition of fossil, skeletal, mummified and other remains shall be reached by negotiation on the basis of mutual respect for the legitimate concerns of communities for the proper disposition of their ancestors, as well as the legitimate concerns of science and education.*
6. *The express recognition that the concerns of various ethnic groups, as well as those of science are legitimate and to be respected, will permit acceptable agreements to be reached and honoured.*

### **3. METHODOLOGY**

#### **3.1. Scoping Report**

At the beginning of the project a scoping report was prepared based on a desktop situation analysis. The Client made available relevant technical documents pertaining to the proposed mining operations, of major importance being map data showing mineral extraction areas, proposed siting of mine infrastructure and haulage routes.

A preliminary picture of the heritage potential of the area was constructed from project documents provided by the Client. Archaeologists Johannes Loubser (1991) Frans Roodt (2012) carried out research in the area and their findings provided clues on the kind of heritage resources to expect, in particular on the archaeological heritage.

In addition various other sources have been researched with internet being an important portal of access. The position of some important sites in relation to the mining activity areas were confirmed using Google-Earth's GPS system. This knowledge enriched the scoping report and guided our fieldwork strategies.

A general literature overview was carried out to gain understanding of a number of key issues, including:

- (a) The legal framework for HIAs and grading of sites in South Africa
- (b) Situating the Chapudi area in the broad sweep of South African history;
- (c) Understanding key conservation management issues for the area
- (d) Understanding the ethno-botany of the area, which reflect the dynamics of cultural landscapes.

Sections 3, 34, 35, 36 and 38 of the National Heritage Resources Act (No 25, 1999) form the legal context in which Heritage Impact Assessments are prescribed; they are stated in this report as the statutory reference point.

### **3.2. Fieldwork**

Conventional field methods of archaeological reconnaissance were employed during fieldwork – field-walking surveys, examination of artifacts found on the surface. A walking survey simply involves “going out on foot” and examining the ground surface in order to observe and record archaeological artifacts, features and activity areas.<sup>5</sup> The team stopped at irregular intervals to carry out random spot checks, a maximum radius of 100m covered.

Foot surveys were sometimes varied with windscreen surveys using a vehicle. Landscape characteristics were studied. Sometimes the team was fortunate to be accompanied by farm owners or workers and their insights and local knowledge proved very valuable. They pointed out especially the location of graves and archaeological sites and their knowledge of early commercial farming settlements form the basis of the historical archaeology component of this study.

### **3.3. Site Recording Template**

A Heritage Site Recording Template with many data fields was used as a framework for recording sites that were discovered. Some fields were left blank because in an exercise of this nature some information is not immediately available. The heritage

---

<sup>5</sup> David (2006: p9).

site recording form is the basis of a Register or Catalogue of Heritage Sites (Annexures I) attached hereto. For identification purposes the site names given are often the names of the Farms on which the sites are found. Photographs and GPS coordinates in degrees, minutes and seconds allow future use of the database in websites such as Earth-Google or national and/or local GIS platforms. GPS coordinates, will allow future researchers to retrace the sites; as such these sites shall never be “lost” (even if some will be destroyed during mining operations). Better still if the sites can be incorporated into future tourist and educational itineraries of the Mine.

### 3.4. Significance Ranking

The significance ranking is in respect of perceived impacts of the proposed development. Thus the sites are not being ranked *per se* as provided under Section 7 of NHRA as this is outside the scope of this work. Significance is thus determined under General Principle (general criteria of defining the National Estate) stated in Section 3 of the same Act which will be referred to later. The following four categories will determine the nature of intervention and mitigation. For ease of recognition the categories are highlighted by a colour scheme which is also used in both the Catalogue of Heritage Sites and consolidated table (spread sheet) of heritage sites.

	Ranking	Explanation	
1	Very high	All burials (Section 36 of NHRA) require stakeholder consultations before relocation or other mitigation measures are considered	Amber
2	High	Substantial archaeological deposits, buildings protected under Section 34 of NHRA. They require mitigation	Yellow
3	Medium	Mostly cultural landscapes (Mopani, Baobab, Marula stands) including modern farmsteads. They also include archaeological sites of lesser importance. They may require mitigation	Blue
4	Low	Heritage sites deemed of less importance. The minimum requirement is that the sites have been recorded. Decisions on mitigation will be made by a heritage expert including options of destruction with or without salvage.	Grey

### **3.5. Spread-sheet Table of Heritage Sites**

The site catalogue was summarised in an MS Excel spread-sheet with each row representing a site and site attributes summarised under selected key fields (columns). In this format site characteristics (attributes) could be analysed and patterns noted.

### **3.6. Fieldwork challenges**

There were delays and short notification in securing appointments to visit the commercial farms, which sometimes resulted in visits being rescheduled. Some schedules were abandoned midstream. This presented planning and logistical difficulties. We also observed difficulties in estimating minimum time requirements for fieldwork in relation to the area to be covered and the level of detail expected. Almost invariably time had to be extended. The presence of dangerous animals such as Buffalo, Leopard and Snakes had been advised. Fortunately there were no incidents.

## 4. THEORETICAL FRAMEWORK

### 4.1. Cultural Sequence in South Africa as Framework for the Identification of Heritage Resources

The following is an outline of the cultural sequence in South Africa and some heritage concepts that form the theoretical framework for understanding typologies of heritage resources in South Africa.

#### 4.1.1. *The Stone Age*

South Africa's human history and heritage span more than 3 million years. Hominid sites and their fossil remains are largely confined to dolomite caves on the highveld in Gauteng, Limpopo and Northwest Provinces.<sup>6</sup> Hominid refers to primate species which are the immediate ancestors of man. The Stone Age which dates back more than 1 million years marks a more diagnostic appearance of the cultural sequence divided into three epochs, the Early, Middle and Late Stone Ages. Stone and bone implements manifest the technology of the period and fall into distinct typologies indicating chronological development. Material evidence of human activities has been found in caves, rock-shelters and riverside sites, and very rarely seen in open country.<sup>7</sup> The Late Stone Age is also associated with the execution of paintings mostly in rock shelters and caves.

#### 4.1.2. *The Early Stone Age [1.4 million – 100 000 yrs BP]*

The Early Stone Age marks the earliest appearance of stone artefacts about 1.4 million years ago. Such tools bore a consistent shape such as the pear-shaped handaxe, cleavers and core tools (Deacon & Deacon, 1999). These tools, which have been called Acheulian after a site in France, were probably used to butcher large animals such as Elephants, Rhinos and Hippos that had died from natural causes. Acheulian artefacts are usually found near sites where they were manufactured and thus in close proximity to the raw material or at butchering

---

<sup>6</sup> Deacon, J. and N. Lancaster. 1986. *Later Quaternary Palaeo-environments of Southern Africa*. Oxford: Oxford University Press.

<sup>7</sup> <http://archaeology.about/od/bterms/g/bordercave.htm>

sites. The early hunters are classified as hominids meaning that they had not evolved to the present human form.

#### **4.1.3. Middle Stone Age (MSA) [100 000 yrs – 40 000 yrs BP]**

The Middle Stone Age (MSA), which appeared 100 000 years ago, is marked by the introduction of a new tool kit which included prepared cores, parallel-sided blades and triangular points hafted to make spears. By then men had become skilful hunters, especially of large grazers such as Wildebeest, Hartebeest and Eland. It is also believed that by then, men had evolved to become anatomically modern. Caves were used for shelter suggesting permanent or semi-permanent settlement. Furthermore there is archaeological evidence from caves indicating that people had mastered the art of making fire. These were two remarkable steps in human cultural advancement.<sup>8</sup>

#### **4.1.4. Later Stone Age (LSA) [40 000 yrs to ca 2000 yrs BP]**

By the beginning of the LSA, humans were classified as *Homo sapiens* which refer to the modern physical form and thinking capabilities. Several behavioural traits are exhibited, such as rock art paintings and purposeful burials with ornaments, became a regular practice. The practitioners of the Rock Art are definitely the ancestors of the San and sites abound in the whole of South Africa. LSA technology is characterised by microlithic scrapers and segments made from very fine-grained rock. Spear hunting probably continued, but LSA people also hunted small game with bows and poisoned arrows. Because of poor preservation, open sites are usually of less value than rock shelters.

#### **4.1.5. The Iron Age Culture [ca 2000 years BP]**

The Iron Age culture, which supplanted the Stone Age at least 2000 years ago, is associated with the introduction of farming and the use of several metals and pottery. Scholars have analyzed existing archaeological evidence using various models, the earliest attempts of which arrived at the conclusion that a sudden synchronized appearance of these technologies occurred in South Africa, indeed in the whole region of Eastern and Southern Africa, suggesting a fairly rapid spread of

---

<sup>8</sup>Deacon, J&H. Deacon. 1999. *Human Beginnings in South Africa*. Cape Town: David Philip.



people.<sup>9</sup>The concept of migration itself has been debated, since these people are indigenous to Africa. Thus current theoretical positions are in support of a gradual “expansion” or “spread” (rather than a migration in the strict sense) of populations of speakers of Bantu languages from a source or sources in the North. Pottery, even though broken into shards has a high survival rate, and has been a handy means for characterizing and identifying archaeological traditions within the broad Iron-using culture and to further isolate geographical variations, which have been called *facies*.<sup>10</sup>Ceramic classifications rely largely on shape and decoration similarities and variations. Coupled with radiocarbon dates, which have been obtained at several sites, it has been possible to reconstruct a picture of the chronological and spatial development of Iron Age traditions.

#### **4.1.6. Early Iron Age**

Metalworking represents a new technology not found among the Stone Age hunters. As mixed farmers, iron-using peoples practiced agriculture and kept domestic animals such as Cattle, Sheep, Goats and Chickens amongst others. There is however increasing evidence that Sheep might have moved into the area much earlier than the Iron Age.

According to Huffman (2007) there were two streams of Early Iron Age (EIA) expansion converging in South Africa, one originating in east Africa which has been called the Urewe-Kwale Tradition (or the eastern stream) and another from the west spreading through Zambia and Angola called the Kalundu Tradition (or western stream) (Figs 1-3).

***Urewe Tradition*** spawned the following facies:

- Matola (Eastern Seaboard)
- Mzonjanifacies (Broederstroom) AD 450 – 750)

***Kalundu Tradition*** spawned the following facies:

Benfica Sub-branch:

---

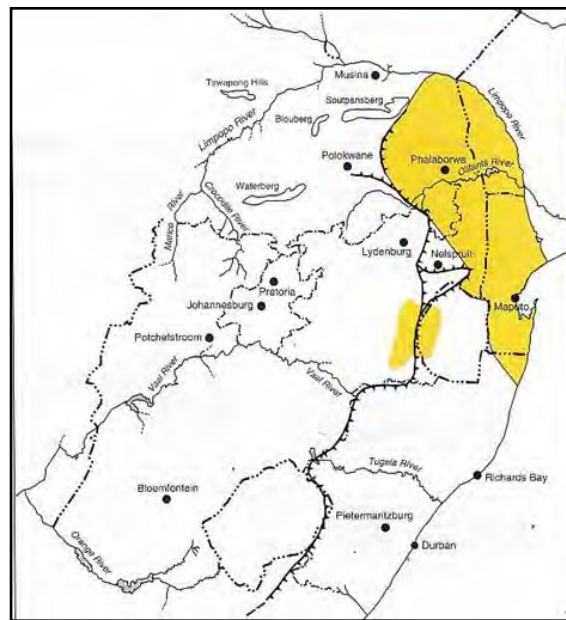
<sup>9</sup> Phillipson, D. W. 2005. *African Archaeology*. Cambridge: University of Cambridge Press: 249.

<sup>10</sup> Evers, T. M. 1988. *Recognition of Groups in the Iron Age of Southern Africa*. Unpublished PhD Thesis, University of Witwatersrand. Huffman 2007. *A Handbook on the Iron Age*. Scottsville: UKZN Press

- Bambata facies, AD 150 – 650

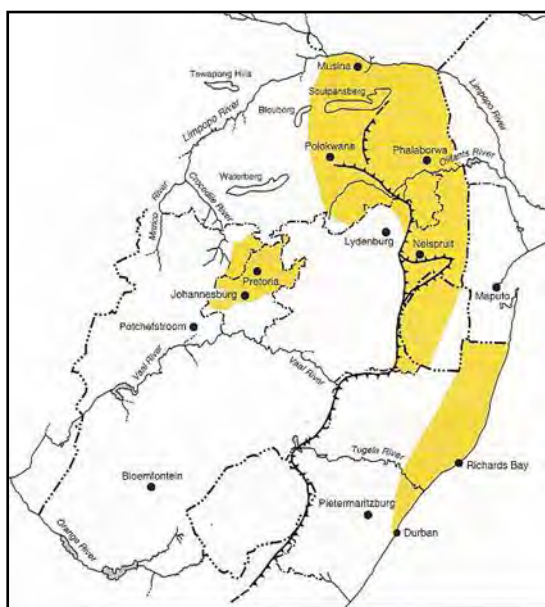
Happy Rest Sub-branch:

- Happy Rest, AD 500 – 750
- Malapati facies, AD 750 – 1030



Spread of the Kalundu & Urewe Traditions in Southern Africa (Huffman 2007: 122)

Matola (Silver Leaves) Facies of the Urewe-Kwale Tradition (Huffman 2007: 123)



Broederstroom facies (later than Matola)

(Huffman 2007: 127)

### *The Later Iron Age[1000 AD to the 19<sup>th</sup> Century AD]*

Various LIA facies have been identified on the basis of pottery typology and radiocarbon dates.

- Moloko (Sotho-Tswana) Branch
- Icon facies, AD 1300 – 1500: This pottery is associated with the Sotho Tswana people
- Eiland facies, AD 1000 – 1300
- Mapungubwe facies, AD 1250 – 1300
- Mutamba facies, AD 1250 – 1450
- Khami facies, AD 1430 – 1680
- Thavhatshena facies, AD 1450 – 1600
- Letaba facies, AD 1600 – present

Letaba pottery is associated with modern day Venda people and can be found in any Venda village.

Around the turn of the first Millennium AD, Archaeologists have noticed the growing importance of Cattle in the economy of farmers as houses and grain bins were arranged around a central area for cattle. This settlement behaviour dubbed the “Central Cattle Pattern” commonly occurs in South Africa, with sites usually sited near water and good soils that could be cultivated with an iron hoe. The growing importance of Cattle in defining social and economic rank is seen at K2 at the confluence of the Shashi and Limpopo Rivers. Subsequently and nearby at Mapungubwe (approx. 80km from the Project Area) further transformation in the spatial organisation of settlements occurred where the “Central Cattle Pattern” changed into the Zimbabwe Pattern which defines political elites.

Various factors contributed to these cultural and settlement changes, but important was the surplus wealth from the East Coast Gold and Ivory trade and the intensive cultivation of the Limpopo flood plains. From about 1300 AD, there is evidence of

Venda, and Northern Sotho settlement in the area North of the Soutpansberg. They are recognised by their distinctive pottery, known after the farm Icon where the pottery was first found. After 1400 AD, there appear to have been movements from across the Limpopo River introducing the Zimbabwe-Khami culture. Early Venda history is a subject of on-going debate and research (Nemaheni, pers. com). There appear to be three chronological layers representing intrusions by the Ngoni, Lembethu/Mbedzi/Thavhatsindi and Singo groups, possibly all coming from across the Limpopo River in that order.

Machema Ruins is 18km Northwest of the Project area. The site is believed to represent early Venda settlement typologically belonging to the Khami group as exemplified by the presence of the check pattern and bi-chrome effect of alternating course of black stones (schist) and brown sandstones.<sup>11</sup> They are historically associated with the Machema people said to have been subordinated to the higher political order at Mapungubwe. These ruins are on a private farm on the West side of the Sand River.<sup>12</sup> Dzata, which dates to the 18<sup>th</sup> century, appears to be the youngest of the Zimbabwe type settlements, and is located approximately 40km to the East of the Chapudi Project Area.<sup>13</sup>

---

<sup>11</sup>Huffman, T. N. 2007. *A handbook of the Iron Age*. Kwazulu Natal Press, p.

<sup>12</sup>Soutpansberg Tourism Office Brochure

<sup>13</sup>[https://en.wikipedia.org/wiki/Dzata\\_ruins](https://en.wikipedia.org/wiki/Dzata_ruins) (please supply date when website was accessed)



Machema Ruins (Huffman 2007: 420)

Six (6) stonewalled sites have been confirmed one in the Chapudi Project Area, all located on Bushy Rise Farm. From a typological perspective these sites fall within the Mapungubwe-Thulamela-Dzata continuum.

## **4.2. Other Heritage Concepts**

### **4.2.1. Historical Archaeology**

The frame of archaeological application is extended to cover the historical period. Archaeological evidence can be used to complement the large corpus of historical and oral data. One archaeologist has noted that one of the rules of historical archaeology “is that documentary and archaeological data are kept distinct to avoid circular arguments as one is tested against the other”.<sup>14</sup> In other words written and oral documents are seen as independent sources of data.

The coming of the Voortrekkers in the area and the introduction of commercial farming in the 19<sup>th</sup> and early 20<sup>th</sup> centuries has a strong archaeological footprint in the Chapudi Project Area. We have noted a prevalence of house remains associated with pioneer commercial farmers and shifting semi-permanent dwellings of farm workers. Several graves both with inscriptions and “anonymous” mostly

---

<sup>14</sup> Little, Barbara. 2006. Historical Sources. In Balme, Jane & Alistair Paterson (eds). 2010. *Archaeology in Practice*: Oxford: Blackwell Publishing.

associated with pioneer farmers or their workers were also recorded. Thus the Archaeology of the historical and industrial periods brings forth new terminology – Historical Archaeology and Industrial Archaeology - to denote emerging sub-disciplines which find relevant application to this study, even if to complement the corpus of written records (Pikirayi 1993).

#### **4.2.2. Cultural Landscapes**

Over the past twenty years a territorial approach to heritage has shifted emphasis from sites to the recognition of broad territorial attributes of heritage. Within the international discourse which has ensued, a genre of heritage called Cultural Landscapes has emerged. Article 47 of the *Operational Guidelines for the Implementation of the World Heritage Convention* (2005) defines Cultural Landscapes as:

*Cultural landscapes are cultural properties that represent the "combined works of nature and of man" designated in Article 1 of the World Heritage Convention. They are illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal.*

Broadly, the Chapudi Project Area, which is approximately 80km Southeast of Mapungubwe, may be considered as part of the Greater Mapungubwe Cultural Landscape. The following genres of cultural landscapes have been encountered in the Chapudi Project Area:

***Organically evolved cultural landscapes*** result from an initial social, economic, administrative, and/or religious imperative and have developed its present form by association with and in response to its natural environment. Such landscapes reflect that process of evolution in their form and component features. They fall into two sub-categories:

- *A relict (or fossil) landscape is one in which an evolutionary process came to an end at sometime in the past, either abruptly or over a period. Its significant distinguishing features are, however, still visible in material form; and*

- *A continuing landscape is one which retains an active social role in contemporary society closely associated with the traditional way of life, and in which the evolutionary process is still in progress. At the same time it exhibits significant material evidence of its evolution over time.*

***Associative cultural landscapes*** have powerful religious, artistic or cultural associations of the natural elements rather than material cultural evidence, which may be insignificant or even absent.

#### **4.2.3. Intangible Cultural Heritage**

The elevation of Intangible Cultural Heritage has evolved out of a post-colonial discourse largely nurtured in the developing world. South Africa has participated actively in the debates which culminated in the UNESCO Intangible Heritage Convention passed in 2003.

*The “intangible cultural heritage” means the practices, representations, expressions, knowledge, skills – as well as the instruments, objects, artefacts and cultural spaces associated therewith – that communities, groups and, in some cases, individuals recognize as part of their cultural heritage. This intangible cultural heritage, transmitted from generation to generation, is constantly recreated by communities and groups in response to their environment, their interaction with nature and their history, and provides them with a sense of identity and continuity, thus promoting respect for cultural diversity and human creativity. Intangible values give meaning to heritage sites.*

The study deals with intangible heritage in so far as it relates to tangible heritage resources in the area.

## **5. FINDINGS**

### **5.1. Current Conservation Status of Heritage Resources in the Project Area**

The Chapudi Project Area is under various land use systems including commercial farming (cattle ranching, game farming and crop irrigation). While it is noted that archaeological sites under irrigation fields have been disturbed, these new activities

create a cultural landscape layer of heritage value. Cattle and game farming are practised and we note that archaeological sites tend to remain stable under such activities. The Chapudi Area still retains good natural woodlands some of which are fine examples of forest product harvest cultural landscapes.

## 5.2. Assessment of Impacts Using a Risk Ranking System

The following ranking system has been used to isolate sites that will need attention before or during the operation phase of the project. As stated earlier, four risk categories are used to advise on the nature intervention and mitigation. A colour scheme is used to highlight the categories. Twenty-nine (29) heritage sites have been prioritized under Categories 1 and 2 as deserving the highest attention before or during the operation phase of the project.

	Ranking	Explanation	No of sites
1	Very high	23 burials (Section 36 of NHRA) require stakeholder consultations before relocation or other mitigation measures are considered. 5 ruins have high cultural and architectural significance; these must not be disturbed	28
2	High	Substantial archaeological deposits (1 site).It requires mitigation	1
3	Medium	Archaeological deposits (4 sites); Cultural landscapes (Mopani, commercial farmsteads) (9); and 1 small ruin. They may require mitigation	19
4	Low	Heritage sites deemed of less importance. These are mostly sites with pottery but belonging to the relatively recent commercial farming period. Decisions on mitigation will be made by a heritage expert including options of destruction with or without salvage	46
		<b>TOTAL</b>	<b>94</b>



### 5.3. Summary Data on Heritage Resources

	<b>HERITAGE TYPOLOGY</b>	<b>QUANTITY/DESCRIPTION</b>
1	Grave Sites	23
2	Stone Age Archaeological Sites	1
3	Later Iron Age Archaeological Sites	18
4	Later Iron Age Stonewalled Sites	6
5	Sites of the commercial farming period (historical archaeology)	37
6	Cultural Landscapes (forest products)	9
	<b>TOTAL NUMBER OF SITES</b>	<b>94</b>

### 5.4. Nature and Location of Mine Operations

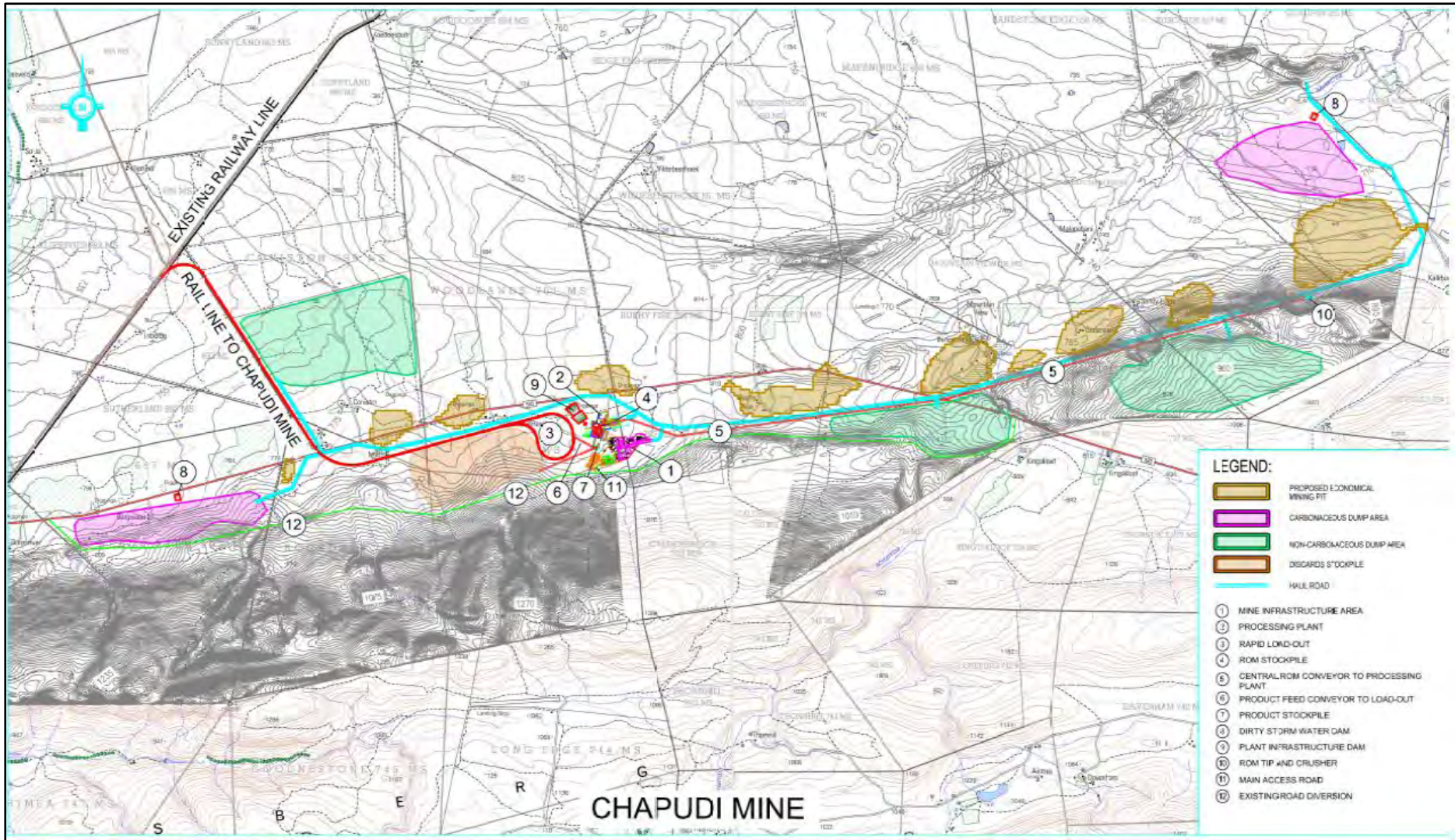
The table below is a summary of the potential impacts of each operational activity shown in the map below.

	<b>ACTIVITY</b>	<b>POTENTIAL IMPACTS</b>
1	Mineral extraction	Stripping of top soil and mineral extraction opencast methods will represent the most extensive excavation of the area and earthmoving. Total destruction of heritage sites
2	Non-carbonaceous material Dump	Overlaying (and destruction) of heritage sites.
3	Carbonaceous damp	Overlaying (and destruction) of heritage sites
4	Stockpiles (topsoil & discards)	Overlaying (and destruction) of heritage sites
5	Mine infrastructure/Plant, Jutland	Total destruction of heritage resources. Visuals impacts on cultural landscapes
6	Main Access Road, Rail & Conveyor Belt	Total destruction and visual impacts

7	Emulsion and explosion areas	Destruction, vibration, pollution
---	------------------------------	-----------------------------------

Studying the above tables in conjunction with the consolidated table of heritage sites, we form a picture of likely negative impacts. The following a thematic assessment of potential impacts:

The area of high impact from mining is roughly a belt running in an East-west along the R523 Road. The map below which shows the geographical spread of mine activities.



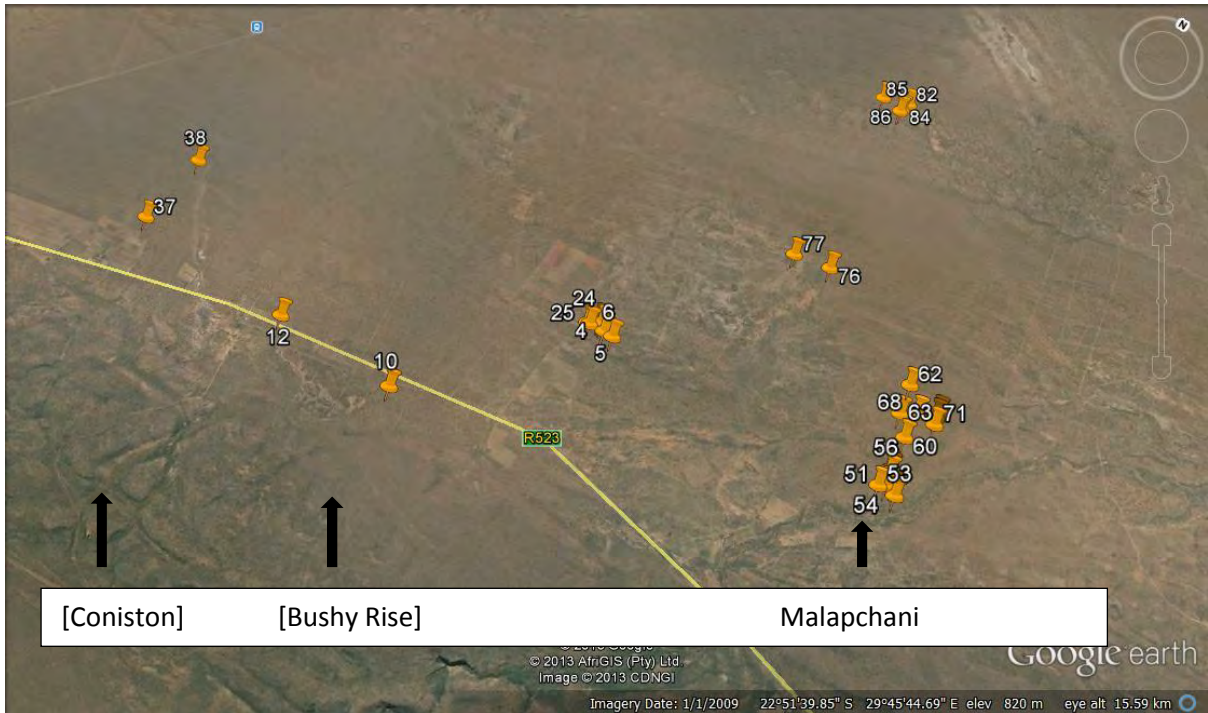
A farm by farm distribution of operational activities is summarised in the table below.

	Farm	Mining area	Carbonaceous material	Non-carbonaceous material	Stockpiles (topsoil & discards)	Mine Plant	Emulsion & explosion	Road Rail C- belt	Heritage sites
1	Sutherland								5
2	Consiton								12
3	Woodlands								5
4	Bushy Rise <sup>15</sup>								31
5	Malapchani <sup>16</sup>								40
6	Ekland								1
								<b>TOTAL</b>	<b>94</b>

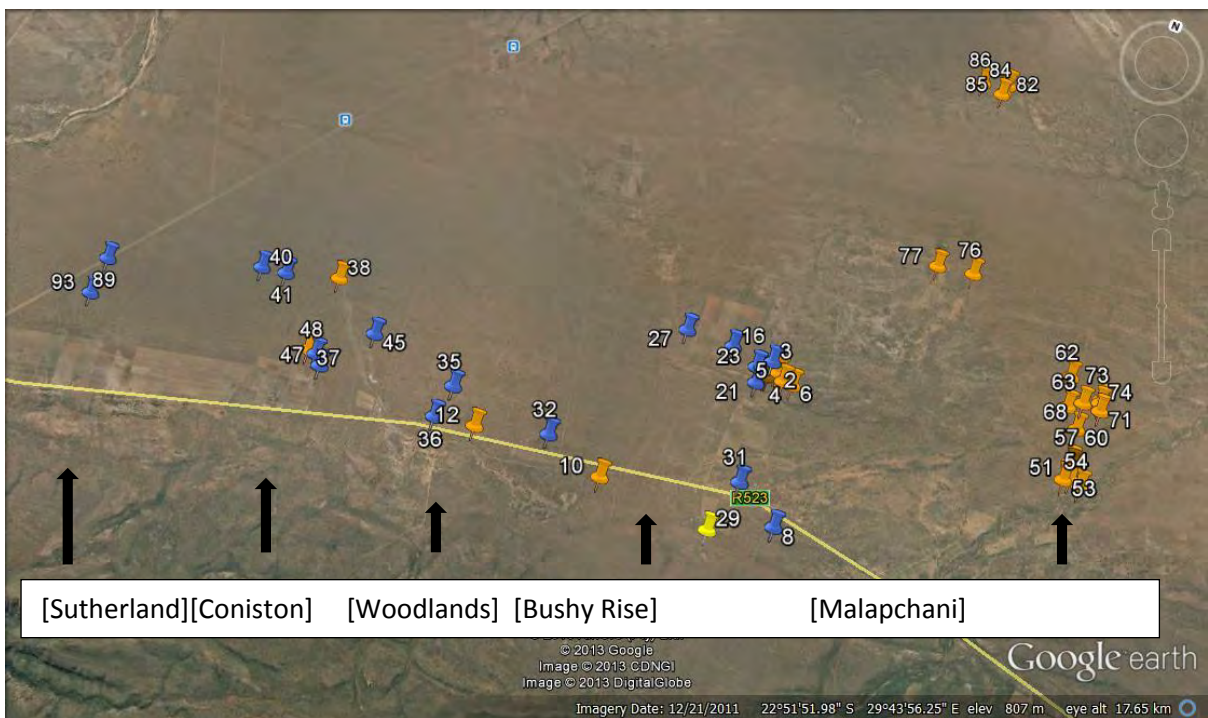
<sup>15</sup>Bushy Rise consists of Bushy Rise Farm and Blackstone Farm.

<sup>16</sup>Malapchani is a combination of several farms (Malapchani, Mapani Ridge, Sandstone Edge and Driehoek). It constitutes the largest area.





Map of the Area showing the location Category 1 Heritage Sites



Map of the area showing the location of Categories 1, 2 & 3 Heritage Sites

## 5.5. Specific Assessment of Impacts

The geographical data provided above has been used for specific determination of potential adverse impacts on identified heritage resources:

### 5.5.1. National and Provincial Heritage Sites (Monuments)

CATEGORY	NO OF SITES
National Monuments	NIL
Provincial Sites	NIL

To our knowledge there are no proclaimed Grade 1 sites in the Chapudi Project Area. Machema Ruins is situated West of the Sand River outside the Project Area (its status is yet to be ascertained).

According to the South African Heritage Resources Agency (SAHRA) the largest Baobab Tree in the Vhembe District which is located near Tshipise, Southeast of Musina has been proclaimed a National Monument (Grade 1) under the NHRA, 25 of 1999: South African Heritage Resource Agency Identification (SAHRA ID) 9/2/240/0003. There are many Baobab trees in the Project Area as the fieldwork results attest. Only two Baobabs have been selected and illustrated in the catalogue to highlight their heritage significance.

#### *Assessment of Impacts*

Polluting mine dust driven by SE trade winds can possibly reach the Machema ruins given their position West of the Project Area. This is only a possibility which will need to be monitored when mining has commenced.

### 5.5.2. Stone Age Sites

SITE NO	FARM	POTENTIAL THREATS
27	Bushy Rise	No direct threats, outside operational areas

Only one (1) Stone Age site was encountered during the survey. As a general rule they are rare. One would not expect to find structures left by Stone Age people; other artefacts of this period apart from the stone artifacts have a poor chance of surviving through several millennia since discarded. Our finding is consistent with general archaeological experience in the area.

*Assessment of impacts*

Since Stone Ages sites are rare they deserve to be further investigated as mitigation for loss if they occur in activity areas.



Site 27, Bushy Rise Farm, Stone Age scraper.

**5.5.3. Later Iron Age sites**

SITE NO	FARM	POTENTIAL THREATS
29	Bushy Rise	Mineral extraction
45	Coniston	Mineral extraction

Preliminary examination of ceramics found at LIA sites in the project area does not give a definitive picture on specific facies. Incised lines and stamps were seen.



### Assessment of Impacts

Two (2) sites have been selected for further investigations in the next phase of the project.



Site 27 Bushy Rise Farm, from L to R: wide view of site, decorated potsherd, ditto, and stone circle.

#### 5.5.4. Later Iron Stonewalled sites

SITE NO	FARM	POTENTIAL THREATS
2	Bushy Rise	No direct threat. Potential dust pollution
5	Bushy Rise	No direct threat. Potential dust pollution
6	Bushy Rise	No direct threat. Potential dust pollution
21	Bushy Rise	No direct threat. Potential dust pollution
24	Bushy Rise <sup>17</sup>	No direct threat. Potential dust pollution
25	Bushy Rise	No direct threat. Potential dust pollution

<sup>17</sup>This is a small site compared to the others.



Six (6) stonewalled (Zimbabwe type) sites are situated on Bushy Rise Farm. These sites are situated on a ridge outside the limits of the mining zone (to the North).

*Assessment of Impacts*

The sites may be affected by dust pollution. This is a strong possibility given that they are within 3km of the mining area. As population is expected to increase in the mining area, inadvertent destruction may result from ignorance. Educational programmes will be necessary.



Site 2, Bushy Rise Farm, low stone wall



Site 5, Bushy Rise Farm, short stone wall.



Site 6, Bushy Rise Farm, the largest Zimbabwe type site in the area.





Site 21, Bushy Rise, minor wall.



Site 24, Bushy Rise Farm, circular enclosure.



Site 25, Bushy Rise Farm, the 2<sup>nd</sup> largest stonewalled site in the area.

### 5.5.5. Historical archaeology

FARM	NO OF SITES	POTENTIAL THREATS
Bushy Rise	7	Disposable
Coniston	2	Disposable
Malapchani	18	Disposable
Sutherland	2	Disposable
Woodlands	2	Disposable

A majority of “archaeological” sites represent a young layer of abandoned farm workers dwellings. These are foundations of circular and rectangular buildings of stone and mud (Dhaka) plaster. The accompanying ceramics are particularly significant as they appear to form a continuum with the pre-colonial LIA traditions in the area. This is an interesting archaeological finding which is worth investigating further – how the LIA traditions interface with and influence the commercial farming period. It appears that farm workers adopted pre-existing pottery technology and/or acquired pottery from neighbouring communal lands through trade.

#### *Assessment of impacts*

A “pottery tradition” associated with commercial farm workers is a new discovery which presents opportunities to add a dimension to archaeological discourse on the supposed “end” of the African Iron Age and the beginning of the Industrial Age. It may be necessary to collect samples from a few sites as mitigation for loss where they occur in mining areas.

### 5.5.6. Buildings and structures older than 60 years

No buildings were confirmed to be more than 60 years old. Section 34 of the NHRA provides for automatic protection for structures older than 60 years as sites of potential heritage value, unless it can be confirmed otherwise (through investigations).

### *Assessment of Impacts*

No buildings were confirmed to fall in the Section 34 category.

#### **5.5.7. Modern Commercial Farmsteads**

<b>SITE NO</b>	<b>FARM</b>	<b>THREAT</b>
35	Woodlands	Mineral extraction/Plant/Dump
36	Woodlands	Mineral extraction/Plant/Dump
47	Coniston	Mineral extraction
48	Coniston	Mineral extraction/Discards
93	Sutherland	Carbonaceous dump

The focal point of all commercial farms is a farmstead complex usually consisting of several buildings. This is normally the residence of the farm owner, which also doubles up as the farm headquarters where farm operations are managed. The centrepiece is usually a simple gabled building. The farmstead in particular therefore defines a cultural landscape which is strongly represented in the Chapudi Project Area. However none of the buildings were confirmed to be more than 60 years, and hence deserving provisional protection under Section 34 of NHRA.

### *Assessment of impacts*

A number of farmsteads were recorded to illustrate the significance of this youngest cultural landscape layer. The buildings can be easily adapted for other uses during the mining phase.





Site 35, Bushy Rise Farm, modern farmstead

#### 5.5.8. Graves and Burial Grounds

SITE NO	FARM	THREAT
10	Bushy Rise	Mineral extraction/Plant
12	Woodlands	Mineral extraction/Plant
37	Coniston	Non-carbonaceous dump
57, 60, 62, 68, 71, 73	Malapchani	Proximity of carbonaceous dump

Twenty-three (23) burial sites have been recorded. They occur either as single or multiple graves. In this section we flag those that will be directly affected by the mining. A distinction may be made between graves with inscriptions and those which are “anonymous”. Those graves carrying inscriptions tend to be properly built and finished using either cement or polished granite dressing and inscribed headstones, while those without these tend to be marked generally by heaped stone cairns. Headstones are also placed on some of the roughly marked graves. All graves are in the first priority of ranking.

### *Assessment of Impacts*

At least 2 burialsites will be directly affected by the development. Development imperatives often make it practically impossible to protect and preserve all graves in their original positions, i.e. *in situ*. Legislation allows exhumation but advises a cautious approach and consultation with communities who might have strong feelings for protection in original positions. Section 36 of the NHRA provides for Graves and Burial Grounds of victims of conflict. It also implies that development projects may warrant exhumations and relocation of burials.



Site 10, Bushy Rise, graves pointed to us by informant





Site 12, Woodlands Farm, Burials site with many individual graves



Site 37, Coniston Farm, dressed grave



Site 62, Malapchani Farm 8 graves of which 6 are visible.



Site 73, Malapchani Farm, grave marked with stones.

### 5.5.9. Cultural Landscapes of Heritage Value



The following cultural landscape layers have been identified in the Chapudi Project Area

#### 5.4.1.0. Mopane Vegetation Systems

SITE NO	FARM	POTENTIAL THREATS
16	Bushy Rise	Mineral extraction/Plant/Dump

Mopane ecosystem has provided subsistence to human communities for thousands of years. In particular it is a seasonal source of Mopane worms (*Gonimbrasia belina*, Mashonzha). "The "Mopane worm/Mashonzha" is probably the most important insect in Southern Africa from a cultural point of view." Its exploitation seems to be largely environmental friendly as a non-timber forest product (NTFP), and has persisted in the same way from time immemorial into the industrial era. Mopane worms have been commercialised to meet demand in urban areas. Commercial farmers have cashed in on the high demand and charge a premium price to harvesters. The worm is a highly nutritious insect larva with high protein content of about 66%. Its short seasonal occurrence between November and January may have bridged a possible nutritional gap from the dry season to earliest summer harvest of pumpkins, cowpeas and round-nuts. The harvest of Mashonzha is one of forest foraging practices which have been inherited from an ancient past. Mopane woodland is a prime example of an organically evolved cultural landscape.

#### *Assessment of Impacts*

The Chapudi Project Area possesses few good stands of Mopane woodland and these are Site 16 (**Bushy Rise Farm**), Site 29 (**Woodlands Farm**) and Site 65 (**Malapchani Farm**) are worthy of selection for preservation. The stand on Bushy Rise Farm is located in the mineral extraction zone.



Site 16, Bushy Rise Farm, Isolated Mopane stand

#### 5.4.11. Baobab Trees

Site No	Farm	Threat
3	Bushy Rise	No direct threat
76	Malapchani	No direct threat

The Chapudi Project Area has a scatter of Baobab trees as with other parts of the Limpopo lowveld area. The Baobab is a special tree, protected since it is universally respected on the African continent with associated cosmological beliefs. Cosmology in the anthropological sense refers to knowledge and belief systems and interpretations and practices of society about their place and existence in the world. Old Baobab trees particularly those with cavities in their trunk would have served as burial sites, rainmaking shrines or temporary or permanent homes. As has been mentioned a Baobab tree in the Musina area has been proclaimed a National Monument. The Order of the Baobab is one of the three highest National Honours conferred by the State President on the occasion of Freedom Day to citizens who

have distinguished themselves in the field of business, the Economy, Science, Medicine, Technology and Community service.

*Assessment of Impacts*

We deemed it unnecessary to record all the Baobab Trees in the Project area. Furthermore we note that it will be practically impossible to save all the Baobab trees from destruction given the scale of mining and the fact that surface methods of extraction are used. Multidisciplinary consultation during the implementation phase can better inform case by case approach judgements on which individuals to save and to destroy.



Site 76, Malapchani Farm, one of the largest Baobab trees in the area

**5.4.12. Marula Trees**

Site No	Farm	Threat
32	Woodlands	Mining
40	Coniston	Non-carbonaceous dump
41	Coniston	Non-carbonaceous dump

The prevalence of Marula trees (*Sclerocarya birrea*, subspecies *caffra*) adds to the rich tapestry of cultural landscapes in the Project area. Marula seeds appears in

archaeological deposits dating back 10 000 BC; 24 million seeds recovered from Pomongwe Cave in the Matobo Hills, south-western Zimbabwe exemplify forest resource exploitation in prehistory.<sup>18</sup> The fruit produces white or grey nuts which are rich in minerals and vitamins. The tree has multiple uses - the wood (carving), bark, leaves (medicinal), fruit, nut and kernel (food). The fruit is much favoured by Elephants which are known to move from one tree to the next when it is in season. Domestic animals such as Cattle, Sheep and Goats also eat the fruit. Large caterpillars (Saturniid ) are gathered from the Marula tree during the wet season.

The fruit is treasured for the acid juice which can be taken raw, or is fermented into a wine – *Mukumbi* - widely consumed in Southern African countries. In Phalaborwa in the Limpopo Province, a Marula festival takes place during September, and has been annually scheduled to coincide with Heritage Month, in which elderly Venda and Shangaan/Tsonga women brew and serve *Mukumbi/Vukanya* in large drums (Silidi, Pers. com). Today South Africa is the source of Marula-flavoured wine and cream by the same name, commercially produced for a growing global market.

#### *Assessment of Impacts*

We have observed that dense Marula colonies rarely occur, but individuals are ubiquitous interspersed with other lowveld treespecies. The best stand was recorded on Woodland (Site 32). This is likely to be affected by mining activities.

---

<sup>18</sup>[http://www.krugerpark.co.za/africa\\_marula.html](http://www.krugerpark.co.za/africa_marula.html) (supply date when website was accessed).



Site 32, Woodlands Farm, Marula stand on the side of the R523 Road

## 5.5. ASSESSEMENT OF IMPACTS USING THE HERITAGE IMPACT ASSESSMENT STATUTORY FRAMEWORK

### 5.5.1. Section 3(3) of the NHRA

Firstly we assess the value of the identified heritage resources in terms of Section 3 of the NHRA which defines the National Estate.

*(3) Without limiting the generality of subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of—*

	<b>STATUTORY REFERENCE</b>	<b>OBSERVATIONS</b>
(a)	Its importance in the community, or pattern of South Africa's history	Large archaeological deposits may shed light on the development of LIA facies. LIA pottery traditions may have continued into commercial farming period
(b)	Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage	None
(c)	Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage	Large archaeological deposits may shed light on the development of LIA facies. LIA pottery traditions may have continued into commercial farming period
(d)	Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects	Mopane and Marula stands, and baobab, and farmsteads constitute cultural landscapes of value.



(e)	Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group	None
(f)	Its importance in demonstrating a high degree of creative or technical achievement at a particular period	There are six (6) stone walled sites in the area. Although they are not directly affected by the Mining, they may be exposed to dust pollution. Increased population may bring in other unforeseen human factors which might threaten the sites.
(g)	Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	There are many graves mostly of commercial farm workers
(h)	Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa	None
(i)	Sites of significance relating to the history of slavery in South Africa.	None



### **5.5.2. Section 38 of the NHRA**

Section 38 (Subsection 3) of the National Heritage Resources Act also provides a schedule of tasks to be undertaken in an HIA process:

*Section 38(3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:*

***(a) The identification and mapping of all heritage resources in the area affected***

Ground survey was carried out and a total of 94 heritage sites were recorded. The sites were classified according to the following heritage typologies: Stone Ages Sites, Later Iron Age Archaeological sites, LIA stonewalled sites, sites of the commercial farming period, graves/burial grounds and cultural landscapes.

***(b) An assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7***

In the foregoing the sites have been ranked into 4 categories in terms of perceived value in case they are affected by the mining operations.

***(c) An assessment of the impact of the development on such heritage resources***

The risk ranking system is broad definition of potential risks. Furthermore some sites have been flagged as directly threatened by the proposed development.

***(i) An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development***

The mining project will bring about much needed economic development through employment, and through social corporate projects. General improvement in the quality of livelihoods in the local communities and the country at large is expected.

***(j) The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources***

N/A

***(f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives***

Where possible alternative plans will be considered in the implementation phase of the project. These may include location of plant infrastructure, routing of rail/roads/conveyor belts where they are not likely to affect heritage resources.

***(g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.***

Before implementation archaeological excavations will be conducted and relocation of some of the graves done.

## 6. CONCLUSIONS

### 6.1. GENERAL OBSERVATIONS

- (i) Twenty-nine(29) heritage sites have been prioritized under Categories 1 and 2 as deserving the highest attention before or during the operation phase of the project. These are five (5) sites of the Zimbabwe Tradition, 23 graves and One (1)Late Iron Age settlement which may require consultation with local communities and other stakeholders before any action on them is considered. The fate of Baobab trees in the mineral extraction areas must be decided in consultation with SAHRA and other stakeholders.
- (ii) Nineteen(19) heritage sites are considered to be of medium significance. These include 2cultural landscapes exemplifying non-timber forest product exploitation.
- (iii) Forty-six(46) sitesare considered to be of less importance. As they have been recorded as minimum requirement, they may be disposed of with or without salvage.

### 6.2. SPECIFIC OBSERVATIONS

The area of high impact from mining is roughly a belt running in an East-West along the R523 Road. The following is a summary of specific threats:

SITE NO	HERITAGE TYPOLOGY	FARM	POTENTIAL THREATS
27	SA Site	Bushy Rise	No direct threats, outside operational areas
29	LIA Site	Bushy Rise	Mineral extraction
45	LIA Site	Coniston	Mineral extraction
2	Ruins	Bushy Rise	No direct threat. Potential dust pollution
5	Ruins	Bushy Rise	No direct threat. Potential dust pollution
6	Ruins	Bushy Rise	No direct threat. Potential dust pollution
21	Ruins	Bushy Rise	No direct threat. Potential dust pollution

24	Ruins <sup>19</sup>	Bushy Rise	No direct threat. Potential dust pollution
25	Ruins	Bushy Rise	No direct threat. Potential dust pollution
10	Graves	Bushy Rise	Mineral extraction/Plant
12	Graves	Woodlands	Mineral extraction/Plant
37	Graves	Coniston	Non-carbonaceous dump
57, 60, 62, 68, 71, 73	Graves	Malapchani	Proximity of carbonaceous dump
16	Mopane Stand	Bushy Rise	Mineral extraction/Plant/Dump
35	Farmsteads	Woodlands	Mineral extraction/Plant/Dump
36	Farmsteads	Woodlands	Mineral extraction/Plant/Dump
47	Farmsteads	Coniston	Mineral extraction
48	Farmsteads	Coniston	Mineral extraction/Discards
93	Farmsteads	Sutherland	Carbonaceous dump
32	Marula stand	Woodlands	Mining
40	Marula Stand	Coniston	Non-carbonaceous dump
41	Marula Stand	Coniston	Non-carbonaceous dump

**Our conclusions are that:**

- (i) A number of heritage sites located along the mining belt which roughly runs along the R523 will be directly affected by the mining operations. These include Later Iron Age ruins, graves and stands of Marula trees which require Phase II assessment. Salvage operations will be carried out in Phase II, and where possible locations of plants/dumps/discards may be reviewed.
- (ii) Six (6) stonewalled sites lie to the North of the mining belt. They are considered to be safe, but may be affected by dust pollution. Furthermore as population is expected to increase in the mining area, inadvertent destruction may result from ignorance and other human factors. Educational programmes will be necessary.

---

<sup>19</sup>This is a small site with rough walling which has been classified as medium in significance.

## 7. REFERENCES

**David, A. 2006.** "Archaeological Prospection." In Blame, J. & A Paterson. *Archaeology in Practice*. Victoria (Australia): Blackwell.

**Deacon, H.J. & Deacon, J. 1999.** Human Beginnings in South Africa. Cape Town: David Philip.

**Deacon, J. and N. Lancaster. 1986.** *Later Quaternary Palaeo-environments of Southern Africa*. Oxford: Oxford University Press.

**Evers, T. M. 1988.** *Recognition of Groups in the Iron Age of Southern Africa*. Unpublished PhD Thesis, University of Witwatersrand.

**Huffman, T. N. 2007.** *A Handbook on the Iron Age The Archaeology of Precolonial Farming Societies in Southern Africa.*:Scottsville: UKZN Press

**Jacana Environmental cc. 2011.** Environmental Impact Assessment: Sheldrake Game Ranch, Voorburg 503 MS. Unpublished report.

**Jacana Environmental. 2012** Makadho EIA-EMP Report Section 1 Final Submission Sep 2012

**Jacana Environmental. 2012.** Makadho EIA-EMP Report Section 2 Final Submission Sep 2012

**Little, B. 2006.** Historical Sources. In Balme, Jane & Alistair Paterson (Eds). 2010. *Archaeology in Practice*: Oxford: Blackwell Publishing.

**Loubser, J. 1991.** The Ethno-archaeology of Venda Speakers in Southern Africa. *Navorsinge van die Nasionale Museum, Bloemfontein* 7(8): 145-164.

**Pikirayi, I. 1993.** *The Archaeological Identity of the Mutapa State: Towards an Historical Archaeology of Northern Zimbabwe*. Studies in African Archaeology 6. Uppsala: Societas Archaeologica Upsaliensis.

**Phillipson, D. W. 2005.** *African Archaeology*. Cambridge: University of Cambridge Press: 249.

**Soutpansberg Tourism Office Brochure**

### **Legislation and Policy**

National Heritage Resources Act (No 25: 1999)

**World Archaeological Congress (WAC).** 1989. Vermillion Accord on Human Remains

<http://archaeology.about/od/bterms/g/bordercave.htm> (state date website accessed)

[http://www.krugerpark.co.za/africa\\_marula.html](http://www.krugerpark.co.za/africa_marula.html) (state date website accessed)

[https://en.wikipedia.org/wiki/Dzata\\_ruins](https://en.wikipedia.org/wiki/Dzata_ruins)(state date website accessed)