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SATIVA TRAVEL AND ENVIRONMENTAL
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**PHASE 1 ARCHAEOLOGICAL /HERITAGE IMPACT ASSESSMENT REPORT FOR THE
PROPOSED ZANDRIVIERS DRIFT MINING RIGHT APPLICATION IN MADIBENG LOCAL
MUNICIPALITY OF NORTH WEST PROVINCE.**

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DOCUMENT INFORMATION

Item	Description
Proposed development and location	Mining Right Application for Zandrivers Drift Mining Application in the North West Province including the ZRD North Ore Body, ZRD North Overburden Dump Area 1&2, Overburden Dump Road, Haul Road, ZRD South Ore Body, ZRD South Overburden Dump Area, Overburden Dump Road, Haul Road.
Title	Proposed Zandrivers Drift Mining Right Application in Madibeng Local Municipality of North West Province: Archaeological and Heritage Impact Assessment Report.
Purpose of the study	The purpose of this document is an Archaeological and Heritage Impact Assessment report that describes the cultural values and heritage factors that may be impacted on by the proposed mining development.
1:50 000 Topographic Map	2527 BA Assen
Coordinates	See Table 2
Municipalities	Madibeng Local Municipality
Predominant land use of surrounding area	Agricultural, game reserve, mining, road and transport
Developer	PPC Ltd
Heritage Consultant	Sativa Travel and Environmental Consultants (Pty) Ltd (STEC)
Date of Report	Revised Report 24 January 2017
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Authorship: This A/HIA Report has been prepared by Mr Trust Mlilo (Professional Archaeologists). The report is for review of the Heritage Resources Agency (PHRA).

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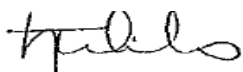
Geographic Co-ordinate Information: Geographic co-ordinates in this report were obtained using a hand-held Garmin GPS. The manufacturer states that these devices are accurate to within +/- 5 m.

Maps: Maps included in this report use data extracted from the NTS Map and Google Earth Pro.

Disclaimer: The Author is not responsible for omissions and inconsistencies that may result from information not available at the time this report was prepared.



The Archaeological and Heritage Impact Assessment Study was carried out within the context of tangible and intangible cultural heritage resources as defined by the SAHRA Regulations and Guidelines as to the authorisation for the proposed development of the ZRD mine and associated infrastructure project being proposed by PPC Ltd.

Signed by



November 2016

REVIEW AND APPROVAL

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ACKNOWLEDGEMENTS

The authors acknowledge GIBB (Pty) Ltd (GIBB), and PPC Ltd for their assistance with project information, and the associated project BID as well as responding to technical queries related to the project.

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EXECUTIVE SUMMARY

This Archaeological and Heritage Impact Assessment (AIA/HIA) Report has been prepared to address requirements of Section 38 of the National Heritage Resources Act, Act 25 of 1999. Sativa Travel and Environmental Consultants (Pty) Ltd (STEC) was appointed by GIBB (Pty) Ltd (GIBB) on behalf of PPC Ltd to undertake this Archaeological and Heritage Impact Assessment (AIA/HIA) Study for the proposed Zandrivers Drift Mining Right application area. The proposed Zandrivers Drift Mining Right application area is located within the Madibeng Local Municipality area of the North West Province. This report includes an impact study on potential archaeological and cultural heritage resources that may be associated with the proposed mining development project area. This study was conducted as part of the specialist input for the Environmental Impact Assessment process. The proposed development consists of the following:

- ZRD North Ore body site
- ZRD North Overburden Dump Area 1&2
- Overburden Dump Road
- Haul road
- ZRD South Ore Body site
- ZRD South Overburden Dump Area
- Overburden Dump Road
- Haul Road

As such, the AIA/HIA Area covers the sites for the proposed mining development. These have been determined by the developer, PPC Ltd and project information has accordingly been passed on to the Sativa research team by the project EAP. Analysis of the archaeological, cultural heritage, environmental and historic contexts of the study area predicted that archaeological sites, cultural heritage sites, burial grounds or isolated artefacts were likely to be present on the affected landscape. A field survey was conducted to test this hypothesis and verify this prediction within the proposed Zandrivers Drift Mining Right application area. The land-use project area is predominantly agriculture and mining.

The report makes the following observations:

- ❖ The findings of this report have been informed by desktop data review, field survey and impact assessment reporting which include recommendations to guide heritage authorities in making decisions with regards to the proposed project.
- ❖ Most sections of the study area was accessible and the field survey was effective enough to cover significant sections of the project receiving environment. The proposed study area is accessible. However, some portions of the study area had limited access because of crops growing in the fields.

- ❖ The land use within the study area is predominantly agricultural.
- ❖ Some sections of the study area are severely degraded from existing developments such as agriculture, access roads and fence.

The report sets out the potential impacts of the proposed mining development on heritage matters and recommends appropriate safeguard and mitigation measures that are designed to minimize the impacts where appropriate. The report makes the following recommendations:

- ❖ Should construction work commence for this project:
 - The mining and construction teams must be inducted on the significance of archaeological resources that may be encountered during subsurface construction work before they work on the area to ensure appropriate treatment and course of action is afforded to any chance finds.
 - If archaeological materials / resources are uncovered, work should cease immediately and the SAHRA must be notified. No activity may resume until appropriate management provisions are put in place.
- ❖ The findings of this report, with approval of the SAHRA, may be classified as accessible to any interested and affected parties within the limits of the legislation.

This report concludes that the impacts of the proposed mining development on the cultural and environmental values are not likely to be significant on the entire mining right application area if the EMP includes recommended safeguard and mitigation measures identified in this report. Therefore, there are no fatal flaws from an AIA/HIA perspective

ABBREVIATIONS

AIA	Archaeological Impact Assessment
DMR	Department of Mineral Resources
ECO	Environmental Control Officer
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EM	Environmental Manager
EMP	Environmental Management Plan
GPS	Global Positioning System device
HIA	Heritage Impact Assessment
LIA	Late Iron Age
NHRA	Nation Heritage Resources Act, Act 25 of 1999
PM	Project Manager
PHRA	Provincial Heritage Resources Agency
PPC	Pretoria Portland Cement (Pty) Ltd
SM	Site Manager
SAHRA	South African Heritage Resources Agency
STEC	Sativa Travel and Environmental Consultants (Pty) Ltd

KEY CONCEPTS AND TERMS

Periodization Archaeologists divide the different cultural epochs according to the dominant material finds for the different time periods. This periodization is usually region-specific, such that the same label can have different dates for different areas. This makes it important to clarify and declare the periodization of the area one is studying. These periods are nothing a little more than convenient time brackets because their terminal and commencement are not absolute and there are several instances of overlap. In the present study, relevant archaeological periods are given below;

Early Stone Age (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

Early Iron Age (~ AD 200 to 1000)

Late Iron Age (~ AD1100-1840)

Historic (~ AD 1840 to 1950, but a Historic building is classified as over 60 years old)

Definitions Just like periodization, it is also critical to define key terms employed in this study. Most of these terms derive from South African heritage legislation and its ancillary laws, as well as international regulations and norms of best-practice. The following aspects have a direct bearing on the investigation and the resulting report:

Cultural (heritage) resources are all non-physical and physical human-made occurrences, and natural features that are associated with human activity. These can be singular or in groups and include significant sites, structures, features, ecofacts and artefacts of importance associated with the history, architecture or archaeology of human development.

Cultural significance is determined by means of aesthetic, historic, scientific, social or spiritual values for past, present or future generations.

Value is related to concepts such as worth, merit, attraction or appeal, concepts that are associated with the (current) usefulness and condition of a place or an object. Although significance and value are not mutually exclusive, in some cases the place may have a high level of significance but a lower level of value. Often, the evaluation of any feature is based on a combination or balance between the two.

Isolated finds are occurrences of artefacts or other remains that are not in-situ or are located apart from archaeological sites. Although these are noted and recorded, but do not usually constitute the core of an impact assessment, unless if they have intrinsic cultural significance and value.

In-situ refers to material culture and surrounding deposits in their original location and context, for example an archaeological site that has not been disturbed by farming.

Archaeological site/materials are remains or traces of human activity that are in a state of disuse and are in, or on, land and which are older than 100 years, including artefacts, human and hominid remains, and artificial features and structures. According to the National Heritage Resources Act (NHRA) (Act No. 25 of 1999), no archaeological artefact, assemblage or settlement (site) and no historical building or structure older than 60 years may be altered, moved or destroyed without the necessary authorisation from the South African Heritage Resources Agency (SAHRA) or a provincial heritage resources authority.

Historic materials are remains resulting from human activities, which are younger than 100 years, but no longer in use, including artefacts, human remains and artificial features and structures.

Chance finds means archaeological artefacts, features, structures or historical remains accidentally found during development.

A grave is a place of interment (variably referred to as burial) and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place. A grave may occur in isolation or in association with others where upon it is referred to as being situated in a cemetery (contemporary) or burial ground (historic).

A site is a distinct spatial cluster of artefacts, structures, organic and environmental remains, as residues of past human activity.

Heritage Impact Assessment (HIA) refers to the process of identifying, predicting and assessing the potential positive and negative cultural, social, economic and biophysical impacts of any proposed project, which requires authorisation of permission by law and which may significantly affect the cultural and natural heritage resources. Accordingly, an HIA must include recommendations for appropriate mitigation measures for minimising or circumventing negative impacts, measures enhancing the positive aspects of the proposal and heritage management and monitoring measures.

Impact is the positive or negative effects on human well-being and / or on the environment.

Mitigation is the implementation of practical measures to reduce and circumvent adverse impacts or enhance beneficial impacts of an action.

Mining heritage sites refer to old, abandoned mining activities, underground or on the surface, which may date from the prehistorical, historical or the relatively recent past.

Study area or 'project area' refers to the area where the developer wants to focus its development activities (refer to plan).

Phase I studies refer to surveys using various sources of data and limited field walking in order to establish the presence of all possible types of heritage resources in any given area.

1. INTRODUCTIONS

Background

This Archaeological and Heritage Impact Assessment (AIA/HIA) Report has been prepared by Sativa Travel and Environmental Consultants (Heritage Division) for the purpose of the Environmental Impact Assessment (EIA) being conducted by GIBB (Pty) Ltd (GIBB) on behalf of PPC Ltd. PPC proposes to undertake a mining right application for the proposed development of the Zandrivers Drift mine. This report details the field study, results of the study as well as discussion on the anticipated impacts of the proposed Zandrivers Drift Mining Right Application area as is required by Section 38 of the National Heritage Resources Act, Act 25 of 1999. It focuses on identifying and assessing potential impacts on archaeological resources as well as on other physical cultural properties including historical heritage resources in relation to the proposed mining development. Sativa heritage specialists undertook the assessments, research and consultations required for the preparation of the report comprising archaeological and heritage impacts to ensure that the cultural environmental values are taken into consideration and reported into the EIA processes.

The study was designed to ensure that any significant archaeological or cultural physical property or sites are located and recorded, and site significance is evaluated to assess the nature and extent of expected impacts from the proposed development. The assessment includes recommendations to manage the expected impact of the mining development. The report includes recommendations to guide heritage authorities in making appropriate decision with regards to approval process for the proposed mining development. The report concludes with detailed recommendations on heritage management associated with the proposed mining development work. Sativa, an independent consulting firm, conducted the assessment; research and consultations required for the preparation of the AIA/HIA report in accordance with its obligations set in the NHRA as well as the environmental management legislations.

In line with SAHRA guidelines, this report, not necessarily in that order, provides:

- 1) Management summary
- 2) Methodology
- 3) Results of desktop study
- 4) Maps and relevant geo images and data
- 5) GPS co-ordinates
- 6) Description and Location of the development site
- 7) Site description and interpretation of the cultural area where the project will take place
- 8) Management details, description of affected cultural environment, photographic records of the project area

9) Recommendations regarding the significance of the site and recommendations regarding further monitoring of the site

10) Conclusions.

Location and description of proposed development

PPC Ltd (PPC) intends to develop the Zandrivers Drift mine in the North West Province. The proposed development will be situated on three (3) additional properties and associated reserves into the Beestekraal Mining Right. The Beestekraal mine currently supplies limestone to the Hercules Cement Factory in Pretoria with the limestone making up approximately 95% of the raw materials consumed to produce cement. The remaining life of mine for Beestekraal is less than 5 years and the additional reserves are required to ensure continued supply to the Hercules factory. The existing infrastructure on the Beestekraal property will service the new mining areas.

PPC has appointed GIBB (Pty) Ltd (GIBB) as the independent environmental assessment practitioner to facilitate the environmental authorisation application process for the proposed Zandrivers Drift (ZRD) Mining Right Application to the Department of Mineral Resources (DMR), within the North West Province. The proposed mining operation is an open cast limestone mine. It is envisaged that the proposed project will mine 250 000 tonnes/year of limestone and this limestone from the ore bodies, where the limestone will then be transported to an existing Beestekraal mine within the area for further processing. For the purposes of this assessment, the following aspects of the project have been assessed:

- ZRD North Ore Body
- ZRD North Overburden Dump Area 1 & 2
- Overburden Dump Road
- Haul road
- ZRD South Ore Body
- ZRD South Overburden Dump Area
- Overburden Dump Road
- Haul road

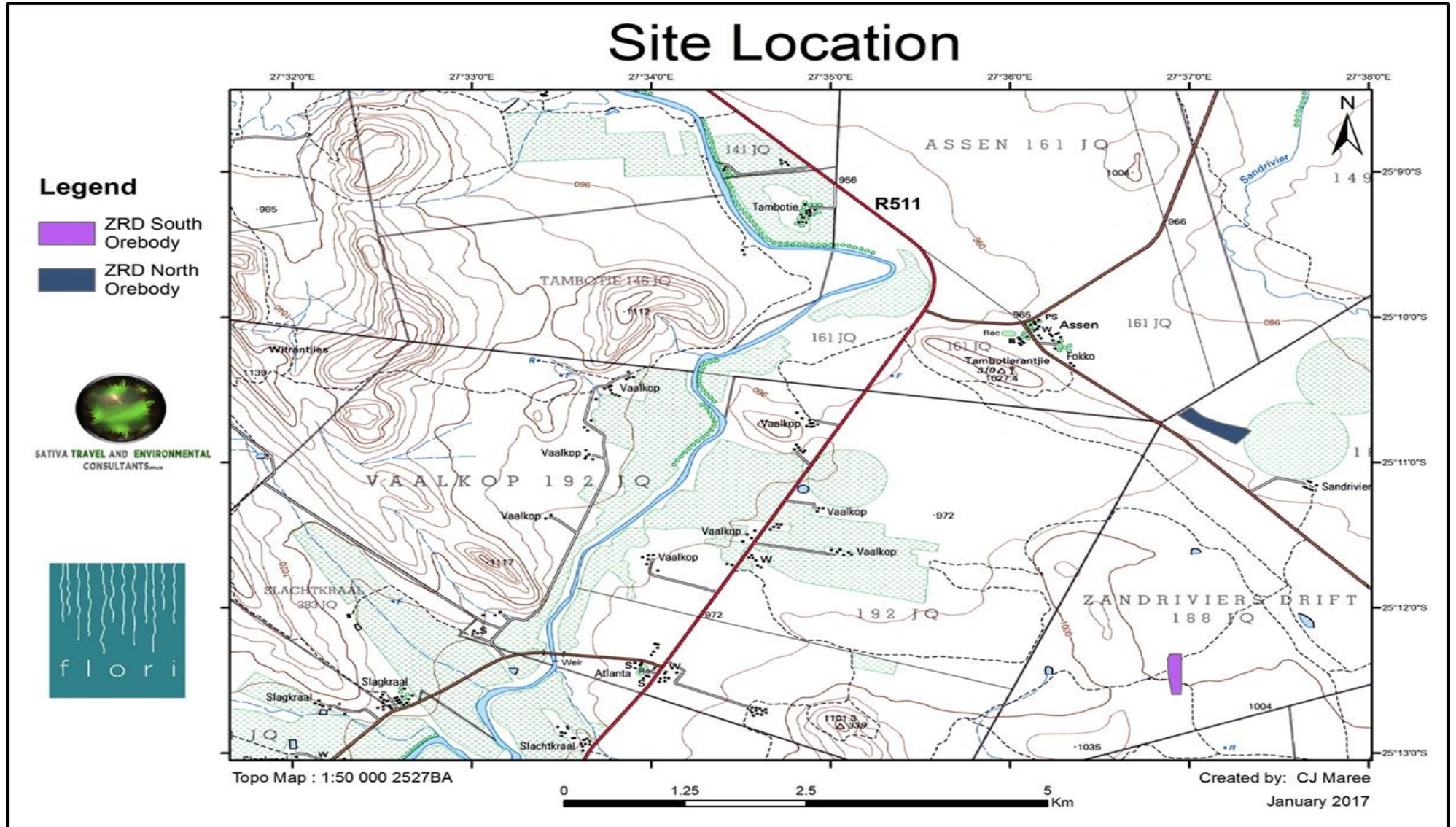


Figure 1: Topographic Map showing Zandrivers Drift Mining Right Application area and associated infrastructure development sites.

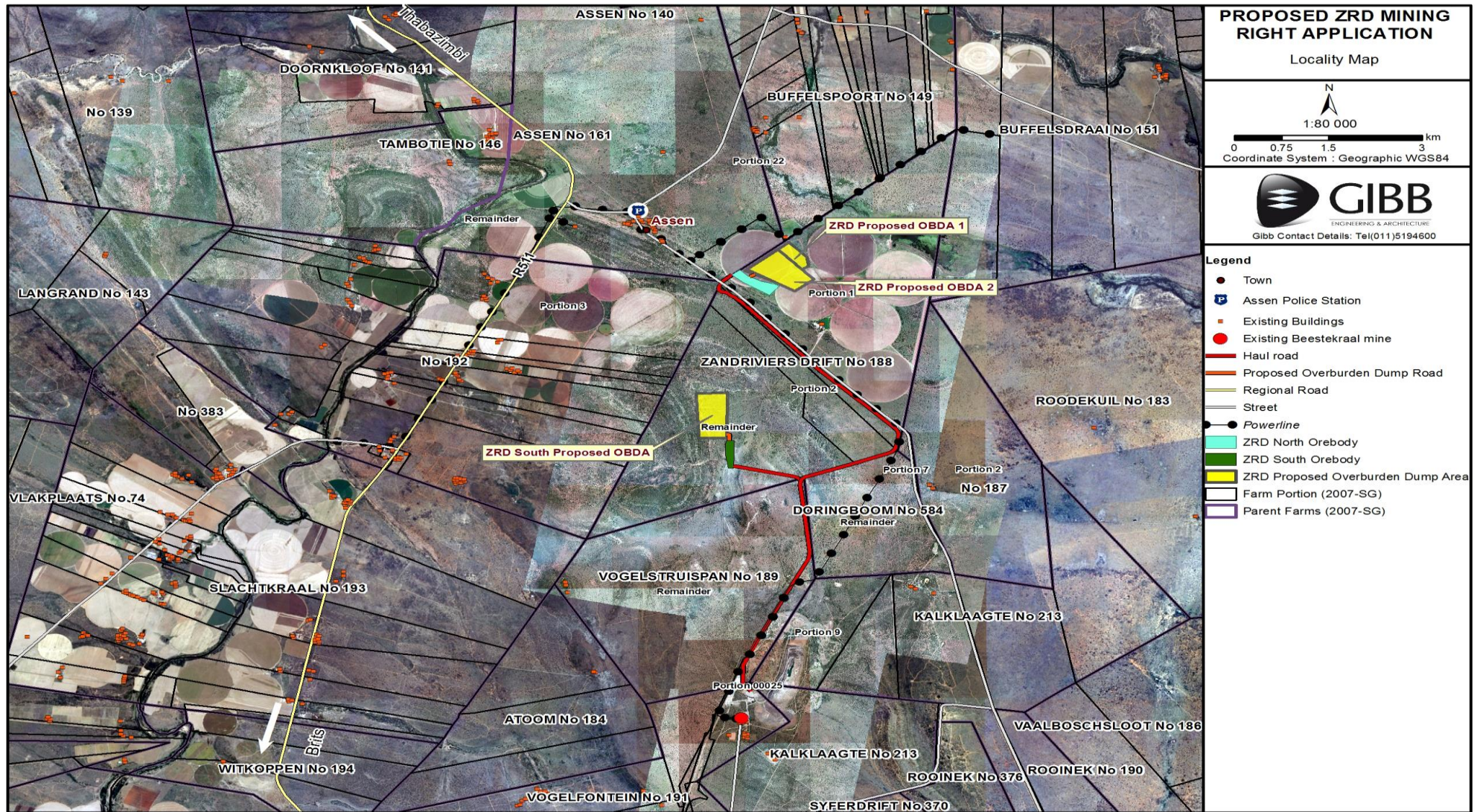


Figure 2: Orthographic map showing the Zandrivers Drift Mining Right Application area and associated infrastructure development sites.

2 LEGAL REQUIREMENTS

This AIA/HIA report is a component of a broader EIA Report and addresses the requirements of section 38 of the NHRA Act 25 of 1999 and EIA Terms of Reference in relation to the assessment of impacts of the proposed development on the cultural and heritage resources associated with the receiving environment. The statutory mandate of heritage impact assessment studies is to encourage and facilitate the protection and conservation of archaeological and cultural heritage sites, in accordance with the provisions of the National Heritage Resources Act, Act 25 of 1999 and auxiliary regulations. Therefore, in pre-development context, heritage impact assessment study is conducted to fulfil the requirements of Section 38 (1) of the National Heritage Resources Act (No 25 of 1999).

The legislations require that when constructing a linear development exceeding 300m in length or developing an area exceeding 5000 m² in extent, the developer must notify the responsible heritage authority of the proposed development and they in turn must indicate within 14 days whether an impact assessment is required. The NHRA Act notes that “any comments and recommendations of the relevant heritage resources authority regarding such development have been considered prior to the granting of the consent”, the heritage authority here being Provincial Authority (PHRA).

Both the national legislations and provincial provisions provide protection for the following categories of heritage resources:

- Landscapes, cultural or natural;
- Buildings or structures older than 60 years;
- Archaeological Sites, palaeontological material and meteorites;
- Burial grounds and graves;
- Public monuments and memorials;
- Living heritage (defined as including cultural tradition, oral history, performance, ritual, popular memory, skills and techniques, indigenous knowledge systems and the holistic approach to nature, society and social relationships) (Also see Appendix 4).

TERMS OF REFERENCE

The author was asked to conduct an AIA/HIA study addressing the following issues:

- Archaeological and heritage potential of the Zandrivers Drift Mining Right Application area including any known data on affected areas;
- Provide details on methods of study; potential and recommendations to guide the (PHRA) provincial authority to make an informed decision with regards to authorization of the proposed development.

PICTORIAL PRSENTATION OF THE PROJECT AREA



Plate 1: Photo 1: View of centre of ZRD South ore body site. Note the thick vegetation cover (Photograph © by Author 2016).



Plate 2: Photo 2: View of some of the overgrazed sections of the ore body site (Photograph © by Author 2016).



Plate 3: Photo 3: View of over grazed sections of the ZRD South ore body site. Over grazed sections were targeted for possible archaeological remains exposed by erosion and over grazing (Photograph © by Author 2016).



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Plate 5: Photo 5: View of the northern end of the proposed ZRD South ore body site © by Author 2016).



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Plate 11: Photo 11: View of eastern side of the proposed ore body site (Photograph © by Author 2016)



Plate 12: Photo 12: View of thickly vegetated sections of the proposed ore body site (Photograph © by Author 2016)



Plate 13: Photo 13: View of ZRD North Ore body site under irrigation (Photograph © by Author 2016)



Plate 14: Photo 14: View of Overburden Dump site (Photograph © by Author 2016)

3 METHODOLOGY

The proposed Zandrivers Drift Mining Right area requires clearance and authorisation from government compliance agencies including the heritage authority of SAHRA. Key A/HIA objectives for this project are to:

- Fulfil the statutory requirements of the National Heritage Resources Act, 1999 (Act No. 25 of 1999).
- Identify and describe, (in terms of their conservation and / or preservation importance) sites of cultural and archaeological importance that may be affected by the proposed road and mining development project.
- Assess the significance of the resources where they are identified.
- Evaluate the impact thereon with respect to the socio-economic opportunities and benefits that would be derived from the proposed mining development.
- Provide guidelines for protection and management of identified heritage sites and places (including associated intangible heritage resources management that may apply).
- Consult with the affected and other interested parties, where applicable, regarding the impact on the heritage resources in the project's receiving environment.
- Make recommendations on mitigation measures with the view to reduce specific adverse impacts and enhance specific positive impacts on the heritage resources.
- Take responsibility for communicating with the SAHRA and other authorities to obtain the relevant permits and authorization regarding heritage aspects.

In order to meet the objectives of the AIA/HIA Phase 1 study, the following tasks were conducted: 1) site file search, 2) limited literature review, 3) consultations with the affected communities, 4) completion of a field survey and assessment and 5) analysis of the acquired data and report production. The following tasks were undertaken:

- Preparation of a predictive model for archaeological heritage resources in the study area.
- A review and gap analysis of archaeological, historical and cultural background information, including possible previous heritage consultant reports specific to the affected project area, the context of the study area and previous land use history as well as a site search;
- Field survey of sampled sections of the proposed mining site within the study area, to test the predictive model regarding that heritage sites in the area;
- Physical cultural property recording of any identified sites or cultural heritage places;
- Identification of heritage significance; and
- Preparation of AIA/HIA report with recommendation, planning constraints and opportunities associated with the proposed development.

Walking surveys were conducted to identify and document archaeological and cultural sites in the areas affected by the proposed Zandrivers Drift Mining Right Application. Farm settlements, cornfields, grazing lands; farm and main road infrastructures, mining infrastructure, existing transmission and distribution and other auxiliary

infrastructures dominate the general project area. The entire project area was accessible through a network of district roads and farm tracks used to access the settlements. Although some sections of ground surface were covered with grass and thick bushes, this did not hinder identification of possible archaeological sites in surveyed areas particularly those earmarked for the road development. Geographic coordinates were obtained with a handheld Garmin GPS global positioning unit. Photographs were taken as part of the documentation process during field study.

3.1 Assumptions and Limitations

The investigation has been influenced by the unpredictability of buried archaeological remains (absence of evidence does not mean evidence of absence) and the difficulty in establishing intangible heritage values. It should be remembered that archaeological deposits (including graves and traces of archaeological heritage) usually occur below the ground level. Should artefacts or skeletal material be exposed at the site during construction, such activities should be halted immediately, and a competent heritage practitioner, SAHRA or PHRA must be notified in order for an investigation and evaluation of the find(s) to take place (see NHRA (Act No. 25 of 1999), Section 36 (6). Recommendations contained in this document do not exempt the developer from complying with any national, provincial and municipal legislation or other regulatory requirements, including any protection or management or general provision in terms of the NHRA. The author assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report

The field survey did not include any form of subsurface inspection beyond the inspection of burrows, road cut sections, and the sections exposed by erosion or field ploughing. Some assumptions were made as part of the study and therefore some limitations, uncertainties and gaps in information would apply. It should however, be noted that these do not invalidate the findings of this study in any significant way:

- The proposed mining development will be limited to specific right of corridors as detailed in the development layout (Figure 2 & 3).
- The construction team to provide link and access to the road servitude and service sites will use the existing access roads and there will be no construction without any major deviations.
- No excavations or sampling were undertaken, since a permit from heritage authorities is required to disturb a heritage resource. As such the results herein discussed are based on superficially observed indicators. However, these surface observations concentrated on exposed sections such as road cuts and clear farmland.
- This study did not include any ethnographic and oral historical studies nor did it investigate the settlement history of the area.

3.2 Consultation

The farm manager was consulted regarding the existence of archaeological sites in the project area. The EIA Public Participation Process invited comments from affected municipalities and other interested parties on any archaeological heritage matter related to the proposed development and their inputs will be added to the final report.

4 CULTURE HISTORY BACKGROUND OF THE PROJECT AREA

The project area is located near Assen in the Madibeng Local Municipality of North West Province. The project area is in the North West Province of South Africa that boasts a rich traditional homeland of the contemporary Western Sotho-Tswana including Hurutshe, Kwena, and Kgatla (Huffman 2007, Coetzee 2010). Archaeological and heritages studies in the region indicate that the area is of high pre-historic and heritage significance. It is in fact a cultural landscape where palaeontological, Stone Age, Iron Age and Historical period sites contribute the bulk of the cultural heritage of the region (also Calebrese 1996; Huffman, 2007; Murimbika, 2006; Schoeman, 2006; Meyer, 2000; van Doornum, 2008).

Stone Age sites are general identifiable by stone artefacts found scattered on the ground surface, as deposits in caves and rock shelters as well as in eroded gully or river sections. Archaeological sites recorded in the project region confirms the existence of Stone Age sites that conform to the generic SA periodization split into the Early Stone Age (ESA) (2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA) (250 000 years ago to 22 000 years ago) and the Late Stone Age (LSA) (22 000 years ago to 300 years ago). Stone Age sites in the region are also associated with rock painting sites. Cave sites also exist on the landscape south west of the project area.

Concentrations of **Early Stone Age (ESA)** sites are usually present on the flood-plains of perennial rivers and may date to over 2 million years ago. These ESA open sites may contain scatters of stone tools and manufacturing debris and secondly, large concentrated deposits ranging from pebble tool choppers to core tools such as hand axes and cleavers. The earliest hominids who made these stone tools, probably not always actively hunted, instead relying on the opportunistic scavenging of meat from carnivore fill sites.

Middle Stone Age (MSA) sites also occur on flood plains, but are also associated with caves and rock shelters (overhangs). Sites usually consist of large concentrations of knapped stone flakes such as scrapers, points and blades and associated manufacturing debris. Tools may have been hafted but organic materials, such as those used in hafting, seldom preserve. Limited drive-hunting activities are also associated with this period.

Sites dating to the **Later Stone Age (LSA)** are better preserved in rock shelters, although open sites with scatters of mainly stone tools can occur. Well-protected deposits in shelters allow for stable conditions that result in the preservation of organic materials such as wood, bone, hearths, ostrich eggshell beads and even bedding material.

By using San (Bushman) ethnographic data a better understanding of this period is possible. South African rock art is also associated with the LSA.

In the northern regions of South Africa at least three settlement phases have been distinguished for early prehistoric agropastoralist settlements during the **Early Iron Age** (EIA). Diagnostic pottery assemblages can be used to infer group identities and to trace movements across the landscape. The first phase of the Early Iron Age, known as **Happy Rest** (named after the site where the ceramics were first identified), is representative of the Western Stream of migrations, and dates to AD 400 - AD 600. The second phase of **Diamant** is dated to AD 600 - AD 900 and was first recognized at the eponymous site of Diamant in the western Waterberg. The third phase, characterised by herringbone-decorated pottery of the **Eiland** tradition, is regarded as the final expression of the Early Iron Age (EIA) and occurs over large parts of the North West Province, Limpopo Province, Gauteng and Mpumalanga (Huffman 2007, Coetzee 2010). The Eiland tradition occurs over large areas in North West Province. The Eiland tradition has been regarded as the last expression of Early Iron Age that has been date to AD 900 – 1200. This phase has been dated to about AD 900 - AD 1200. These sites are usually located on low-lying spurs close to water.

The North West Province region hosts some of southern Africa's most important Late Iron Age archaeological remains. The Iron Age in southern Africa is associated with the recent peopling of South Africa since the arrival of Bantu-speaking mixed farmers who practised food and metal production and sedentarism that stretch as far back at the 5th Century AD (Berg 1999). Stonewalled enclosures situated on hilltops are characteristic of the Late Iron Age (LIA) settlements that are dated between AD 1640-1830 widely found across the affected landscape. These include sites dating to AD 1500 - AD 1700 represented by the Olifantspoort and Madikwe facies of the Urewe tradition (Huffman, 2007). Other LIA sites in the area date to AD 1650 - AD 1840 and include the Uitkomst, Rooiberg, and Buispoort facies of the Urewe tradition (Huffman, 2007). Between AD 1700 and AD 1750 the Kgafela settled in Pilanesberg area named after Chief Pilane ruler of the Kgafela people who reigned between AD 1825 and AD 1859. From AD 1600 to AD 1800 various Sotho-Tswana speaking communities settled in and around the Brits area (Berg, 1999; Pistorius, 2009). These communities included the Kwena, Kgatla, Fokeng and Po and had small farm style settlements throughout the area (Berg, 1999). The Fokeng were very active in this area during the early 19th century and also built their capital at Phokeng. Various Sotho-Tswana sites in the district of Brits have been excavated and yielded faunal remains. These sites include Boitsemagano, Molokwane and Mabjanamatshwana (Plug and Baderhorst, 2006). Some of the sites that are linked to this are found in the neighbouring Waterberg regions.

The province is also endowed with ancient copper mines that date back to pre-colonial times in the Dwarsberg. Grant and Huffman (2007) found 20 homesteads with pottery assemblages belonging to Moloko cluster. According to Grant et al, (2007) Moloko is the archaeological name for the styles of pottery produced by Sotho-Tswana speakers. The facies called Madikwe belongs to the middle phase of the sequence dating between AD 1500 and

1700. Prehistoric copper production was also practiced in the province as is evidenced by copper ore, slag and tuyeres. The North West Province also is host to the Vredofort Dom, which is a meteorite impact site. It is South Africa's one of the eight World Heritage Sites. Also important is the Cradle of Human kind area which also a World Heritage Site.

From the late 1700s, trade in supply of meat to passing ships on the east coast had increased substantially to an extent that by 1800 meat trade is estimated to have surpassed ivory trade. At the same time population was booming following the increased food production that came with the introduction of maize that became the staple food. These changes promoted further westwards movement by the Nguni farming communities. Naturally, there were signs that population groups had to compete for resources and at time move out of region, which may have been under stress. KwaZulu Natal, east of the North West Province has a special place in the history of the region and country at large. This relates to the most referenced Mfecane (wandering hordes) period of tremendous insecurity and military stress. Around the 1805, the region was witnessing the massive movements, which later came to be associated with the Mfecane. The causes and consequences of the Mfecane are well documented elsewhere (e.g. Hamilton 1995; Cobbing 1988).

In recent colonial history, the area played host to different competing local settler communities. The area was a scene of series of colonial wars. By the end of the 19th century, the region was placed under British rule and the local people displaced. This part of North West and Gauteng was scene of the most recorded colonial war, the Anglo-Boer War 1899-1902. At the end of these wars, the colonial era of the Union of South Africa and the subsequent apartheid regimes on the Republic of South Africa, some areas were reserved for African settlements often referred to as Bantu homelands such as the Bophuthatswana (Tswana Home land).

Intangible Heritage

As defined in terms of the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage (2003) intangible heritage includes oral traditions, knowledge and practices concerning nature, traditional craftsmanship and rituals and festive events, as well as the instruments, objects, artefacts and cultural spaces associated with group(s) of people. Thus, intangible heritage is better defined and understood by the particular group of people that uphold it. In the present study area, very little intangible heritage remains because no historically known groups occupied the study area and most of the original settler descendants moved away from the area.

SAHRIS Database and Impact assessment reports in the proposed project area

Several AIA/HIA studies were conducted in the general vicinity of the study area. The studies include powerline, substation and mining projects completed by Pistorius (2000, 2005, 2006a, 2006b, 2006c, 2009, 2010, 2011a, 2011b, 2011c, 2012a, 2012b, 2013a, 2013b), Van Sschalkwyk (2007, 2013), Pistorius, J.C.C. & Miller, S. (2011), Tomose (2015), Kusel (2011), Roodt, F. (2005), Roodt, F& H (2006) and Birkholtz (2007). The studies confirm the occurrence of stone walled Late Iron Age sites in the general Madibeng area. The reports also mention the existence of structures older than 60 years in the Madibeng area.

5 RESULTS OF THE ARCHAEOLOGICAL/HERITAGE ASSESSMENT STUDY

The proposed Zandrivers Drift Mining Right area has been established through consideration of biophysical, social, technical and cultural aspects. The Scoping an Environmental Impact Reporting (S&EIR) process will aim to provide a final site assessment of the Zandrivers Drift Mining Right area based on biophysical, social, cultural and technical considerations. The following section presents results of the archaeological and heritage survey conducted within the proposed Zandrivers Drift Mining Right area.

Geographical co-ordinates

Site	Coordinates	Brief Description	Comment relating to proposed development and Mitigation Measures
ZRD South Ore body	25°12'27.45"S; 27°36'55.64"E.	ZRD South Ore body is with bushveld and is situated within a private game farm area belonging to PPC Ltd.	No heritage significant
ZRD North Ore body	25°10'35.5"S; 27°36'43.38"E.	ZRD North Ore body is within agriculture fields.	No heritage significant
Farm structure	25°10'17.67"S; 27°37'24.48"E.	Farm structure near ZRD Ore body site	No heritage significant
ZRD North Overburden site	25°10'44.30"S; 27°37'09.84"E.	ZRD North Ore body is within agriculture fields.	No heritage significant

5.1 PROPOSED ZRD SOUTH ORE BODY

Archaeological and Heritage Site

The proposed ZRD South Ore body site did not yield any confirmable archaeological sites or material. Some sections of the affected landscape are heavily degraded from previous and current agricultural land use and from game reserve infrastructure developments. There are farm infrastructures, commercial agricultural fields, grazing land, roads and other associated infrastructures around the general project area. As such the proposed mining development, will be an additional development on the project area. It is assumed that the chances of recovering significant archaeological materials were seriously compromised and limited due to destructive land use patterns such as deep ploughing, road works, game reserve infrastructure and mine exploration work. However, the study concluded that the proposed mining activities have the potential to damage archaeological remains buried underground.

Historical and Recent sites

The proposed ZRD South Ore body site did not yield any historical sites.

Burial grounds and graves

The field survey did not identify any burial sites within the proposed ZRD South Ore Body site. Although the possibility of encountering previously unidentified burial sites is low on the proposed mine development site, should such sites be identified during subsurface construction work, they are still protected by applicable legislations and they should be protected (also see Appendixes for more details).

Historical Monuments

There are no listed historical monuments within the proposed ZRD South Ore Body site footprint. However, it should be noted that there are several Historical Monuments listed on SAHRIS Data base in the North West region. The proposed mine development will not impact on any listed heritage sites in the project area.

5.2 PROPOSED ZRD SOUTH OVERBURDEN DUMP AREA

Archaeological and Heritage Site

Similarly the proposed ZRD South Overburden Dump area did not yield any confirmable archaeological sites or material. Some sections of the affected landscape are heavily degraded from previous and current agricultural land use, mining and from game reserve infrastructure developments. It is assumed that the chances of recovering significant archaeological materials were seriously compromised and limited due to destructive land use patterns such as deep ploughing, road works, game reserve infrastructure and mine exploration work.

Historical and Recent sites

The proposed ZRD Overburden Dump area site did not yield any historical sites.

Burial grounds and graves

The field survey did not identify any burial sites within the proposed ZRD South Overburden Dump site. Although the possibility of encountering previously unidentified burial sites is low on the proposed mine development site, should such sites be identified during subsurface construction work, they are still protected by applicable legislations and they should be protected (also see Appendixes for more details).

Historical Monuments

There are no listed historical monuments within the proposed ZRD South Overburden Dump site footprint. The proposed mine development will not impact on any listed heritage sites in the project area.

5.3 PROPOSED ZRD SOUTH OVERBURDEN DUMP ROAD

Archaeological and Heritage Site

The proposed ZRD South Overburden Dump Road did not yield any confirmable archaeological sites or material. Similarly, some sections of the affected landscape are heavily degraded from previous and current agricultural land use and from game farming infrastructure developments.

Historical and Recent sites

The proposed overburden road servitude did not yield any historical sites.

Burial grounds and graves

The field survey did not identify any burial sites along the proposed overburden dump road servitude. Although the possibility of encountering previously unidentified burial sites is low on the proposed mine development site, should such sites be identified during subsurface construction work, they are still protected by applicable legislations and they should be protected (also see Appendixes for more details).

Historical Monuments

There are no listed historical monuments along the proposed road servitude.

5.4 PROPOSED ZRD SOUTH HAUL ROAD

Archaeological and Heritage Site

The proposed ZRD South Haul Road servitude did not yield any confirmable archaeological sites or material. Some sections of the affected landscape are heavily degraded from previous and current agricultural land use, mining

and from game reserve infrastructure developments. It is assumed that the chances of recovering significant archaeological materials were seriously compromised and limited due to destructive land use patterns such as deep ploughing, road works, game reserve infrastructure and mine exploration work.

Historical and Recent sites

The proposed ZRD South Haul Road servitude did not yield any historical sites.

Burial grounds and graves

The field survey did not identify any burial sites along the proposed ZRD South haul road servitude. Although the possibility of encountering previously unidentified burial sites is low on the proposed mine development site, should such sites be identified during subsurface construction work, they are still protected by applicable legislations and they should be protected (also see Appendixes for more details).

Historical Monuments

There are no listed historical monuments along the proposed ZRD South haul road servitude.

5.5 PROPOSED ZRD NORTH ORE BODY

Archaeological and Heritage Site

The proposed ZRD North Ore body site did not yield any confirmable archaeological sites or material. The entire site is within agriculture fields under pivot irrigation. Similarly most sections of the affected landscape are heavily degraded from previous and current agricultural land use and game farming infrastructure developments. There are farm dwellings, mining infrastructures, commercial agricultural fields, grazing land, roads and other associated infrastructures around the general project area (see figure 2). It is assumed that the chances of recovering significant archaeological materials were seriously compromised and limited due to destructive land use patterns such as deep ploughing, road works, game reserve infrastructure and mine exploration work.

Historical and Recent sites

The proposed ZRD North Ore body site did not yield any historical sites.

Burial grounds and graves

The field survey did not identify any burial sites within the proposed ZRD North Ore Body site. Although the possibility of encountering previously unidentified burial sites is low on the proposed mine development site, should such sites be identified during subsurface construction work, they are still protected by applicable legislations and they should be protected (also see Appendixes for more details).

Historical Monuments

There are no listed historical monuments within the proposed ZRD North Ore Body south site. The proposed mine development will not impact on any listed heritage sites in the project area.

5.6 PROPOSED ZRD NORTH OVERBURDEN DUMP AREA

Archaeological and Heritage Site

The proposed ZRD North Overburden Dump area did not yield any confirmable archaeological sites or material. Some sections of the affected landscape are heavily degraded from previous and current agricultural land use, mining and from game reserve infrastructure developments (see figure 2). It is assumed that the chances of recovering significant archaeological materials were seriously compromised and limited due to destructive land use patterns such as deep ploughing, road works, game reserve infrastructure and mine exploration work.

Historical and Recent sites

The proposed ZRD North Overburden site did not yield any historical sites.

Burial grounds and graves

The field survey did not identify any burial sites within the proposed ZRD North Overburden site. Although the possibility of encountering previously unidentified burial sites is low on the proposed mine development site, should such sites be identified during subsurface construction work, they are still protected by applicable legislations and they should be protected (also see Appendixes for more details).

Historical Monuments

There are no listed historical monuments within the proposed ZRD North Overburden area.

5.7 PROPOSED ZRD NORTH OVERBURDEN DUMP ROAD AND HAUL ROAD

Archaeological and Heritage Site

The proposed ZRD North Overburden Dump road and Haul road routes did not yield any comprehensible archaeological sites or material. The study concluded that the proposed development of auxiliary roads has the potential to damage archaeological remains buried underground.

Historical and Recent sites

The proposed ZRD North overburden dump road and haul road servitudes did not yield any historical sites.

Burial grounds and graves

The field survey did not identify any burial sites within the proposed road servitudes. Although the possibility of encountering previously unidentified burial sites is low on the proposed mine development site, should such sites be identified during subsurface construction work, they are still protected by applicable legislations and they should be protected (also see Appendixes for more details).

Historical Monuments

There are no listed historical monuments along the proposed road servitude.

6 DISCUSSION

Several Phase 1AIA/HIA studies were conducted in the Madibeng area since year 2000. The studies were conducted for various infrastructure developments such as powerlines and substations, pipelines and residential developments. These studies recorded stone walled sites which are characteristic of the LIA in the North West Region for example van Schalkwyk (2007 & 2009), Huffman (2007), Pistorius (2000, 2005, 2006, 2009, 2010, 2011, 2012, 2013), and Tomose (2015). However, the Zandriviërs Drift Mining Right Application area did not yield any heritage resources. The lack of confirmable archaeological sites recorded during the current survey is thought to be a result of three primary interrelated factors:

1. That proposed Mining Right Application area is located within a heavily degraded area, and have reduced sensitivity for the presence of high significance physical cultural site remains, be they archaeological, historical or burial sites, due to previous earth moving disturbances resulting from developments and other land uses in the project area.
2. That the survey focused on sample sections that had high potential to yield possible archaeological sites. Due to the size of the mine development site, it was impractical to cover every inch of the project area. As such, there is the possibility that low to medium archaeological sites exist in the project area whereas the sampled sections fell outside sections with potential distinct archaeological sites.
3. Limited ground surface visibility on sections of all the proposed Mining Right Application area that were not cleared at the time of the study may have impeded the detection of other physical cultural heritage site remains or archaeological signatures immediately associated with the mine development. This factor is exacerbated by the fact that the study was limited to general survey without necessarily conducting any detailed inspection of specific locations that will be affected by the proposed mine development.

The absence of confirmable and significant archaeological cultural heritage site is not evidence in itself that such sites did not exist in the proposed mining development area. It may be that, given the dense development in most sections of the development site, if such sites existed before, changing earth-moving activities may have destroyed their evidence on the surface. Furthermore, some sections were not accessible due to thick vegetation cover. Significance of the site of Interest is not limited to presence or absence of physical archaeological sites.

Chance finds procedures

It has already been highlighted that sub-surface materials may still be lying hidden from surface surveys. Therefore, absence (during surface survey) is not evidence of absence all together. The following monitoring and reporting procedures must be followed in the event of a chance find, in order to ensure compliance with heritage laws and policies for best-practice. This procedure applies to the developer's permanent employees, its subsidiaries,

contractors and subcontractors, and service providers. Accordingly, all construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds.

- If during the construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance, work must cease at the site of the find and this person must report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- The site Manager must then make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area before informing STEC.
- The developer will then contact a professional archaeologist for an assessment of the finds who will in turn inform SAHRA/PHRA.

7 CULTURAL HERITAGE SITE ASSESSMENT OF SIGNIFICANCE

The appropriate management of cultural heritage resources is usually determined on the basis of their assessed significance as well as the likely impacts of any proposed developments. Cultural significance is defined in the Burra Charter as meaning aesthetic, historic, scientific or social value for past, present or future generations (Article 1.2). Social, religious, cultural and public significance are currently identified as baseline elements of this assessment, and it is through the combination of these elements that the overall cultural heritage values of the site of interest, associated place or area are resolved.

Not all sites are equally significant and not all are worthy of equal consideration and management. The significance of a place is not fixed for all time, and what is considered of significance at the time of assessment may change as similar items are located, more research is undertaken and community values change. This does not lessen the value of the heritage approach, but enriches both the process and the long-term outcomes for future generations as the nature of what is conserved and why, also changes over time (Pearson and Sullivan 1995:7). This assessment of the Indigenous cultural heritage significance of the Site of Interest as its environments of the study area is based on the views expressed by the claimant and his community representatives consulted documentary review and physical integrity.

African indigenous cultural heritage significance is not limited to items, places or landscapes associated with pre-European contact. Indigenous cultural heritage significance is understood to encompass more than ancient archaeological sites and deposits, broad landscapes and environments. It also refers to sacred places and story sites, as well as historic sites, including mission sites, memorials, and contact sites. This can also refer to modern sites with resonance to the indigenous community. The site of interest considered in this project falls within this realm of broad significance.

8 ASSESSMENT CRITERIA

The Guidelines to the SAHRA Guidelines and the Burra Charter define the following criterion for the assessment of cultural significance:

Aesthetic Value

Aesthetic value includes aspects of sensory perception for which criteria can and should be stated. Such criteria may include consideration of the form, scale, colour, texture and material of the fabric; sense of place, the smells and sounds associated with the place and its use.

Historic Value

Historic value encompasses the history of aesthetics, science and society, and therefore underlies all the terms set out in this section. A place may have historic value because it has influenced, or has been influenced by, an historic figure, event, phase or activity. It may also have historic value as the site of an important event. For any given place, the significance will be greater where evidence of the association or event survives in situ, or where the settings are substantially intact, than where it has been changed or evidence does not survive. However, some events or associations may be so important that the place retains significance regardless of subsequent treatment.

Scientific value

The scientific or research value of a place will depend upon the importance of the data involved, on its rarity, quality or representativeness, and on the degree to which the place may contribute further substantial information. Scientific value is also enshrined in natural resources that have significant social value. For example, pockets of forests and bushvelds have high ethnobotany value.

Social Value

Social value embraces the qualities for which a place has become a focus of spiritual, religious, political, local, national or other cultural sentiment to a majority or minority group. Social value also extends to natural resources such as bushes, trees and herbs that are collected and harvested from nature for herbal and medicinal purposes.

9 STATEMENT OF SIGNIFICANCE

Aesthetic Value

The aesthetic values of the AIA/HIA Study Area and the overall project area are contained in the valley bushveld environment and landscape typical of this part of the North West Province. The visual and physical relationship between HIA study area and the surrounding historical Cultural Landscape demonstrates the connection of place to the local and oral historical stories of the African communities who populated this region going back into prehistory.

The proposed mining development will be situated within an environment and associated cultural landscape, which, although developed by existing infrastructure, remains representative of the original historical environment and cultural landscape of this part of North West Province. The local communities consider the project area as a cultural landscape linked to their ancestors and history. However, the proposed developments will not alter this aesthetic value in any radical way since it will add to the constantly changing and developing settlements.

Historic Value

The Indigenous historic values of the Sites of Interest and overall study area are contained in the claim of possible historic homesteads being located on the affected area. The history of generations of the Sotho-Tswana and Ndebele clans is tied to this geographical region. Such history goes back to the pre-colonial period, through the colonial era, the colonial wars and subsequent colonial rule up to modern day North West Province.

Scientific value

Past settlements and associated roads, mines and other auxiliary infrastructure developments and disturbance within the AIA/HIA Study Area associated with the proposed PPC mining development have resulted in limited intact landscape with the potential to retain intact large scale or highly significant open archaeological site deposits.

Social Value

The project sites fall within a larger and an extensive North West region cultural landscape that is integrated with the wider inland. The overall area has social value for the local community, as is the case with any populated landscape. Literature review suggests that social value of the overall project area is also demonstrated through local history which associates the area with the rise of Shaka's Zulu Kingdom in the early 1800s from the east coast, the subsequent Mfecane, the African struggle against settler colonialism in the second half of the 1800s and at the end of the 1800s, the colonial wars of resistance, the century long struggle for democracy that followed colonial subjugation. Several generations of communities originate from the project area and continue to call it home. As such, they have ancestral ties to the area. The land also provides the canvas upon which daily socio-cultural activities are painted. All these factors put together confirms the social significance of the project area. However, this social significance is unlikely to be negatively impacted by the proposed mine development especially given the fact that the proposed development will add value to the human settlements and activities already taking place. Sections of the mining development area are covered in thick bushes and vegetation retain social value as sources of important herbs and traditional medicines. As such, they must be considered as significant social value sites.

10 RECOMMENDATIONS

The following recommendations are based on the results of the AIA/HIA research, cultural heritage background review, site inspection and assessment of significance.

Recommendation 1

The Project Public Participation Process (PPP) should ensure that any cultural heritage related matters for this project are given due attention whenever they arise and are communicated to PHRA throughout the proposed project development. This form of extended community involvement would pre-empt any potential disruptions that may arise from previously unknown cultural heritage matter that may have escaped the attention of this study.

Recommendation 2

Location of mining infrastructure should be restricted to minimum footprint impact especially where such infrastructure falls within bushy area. Such bushy sections have local ethno-botany significance as sources of traditional herbs and medicines. As such disruption and vegetation clearance should be minimal. Preserved bushveld areas should be protected for ethnobotany significance. As such this development, should avoid excessive vegetation clearance during the development.

Recommendation 3

The foot print impact of the mine development should be kept to minimal to limit the possibility of encountering chance finds within servitude.

Recommendation 4

In situations where unpredicted impacts occur (such as accidentally disturbing a previously unknown grave), construction activities should be stopped and the heritage authority notified immediately. In the unlikely event of chance archaeological material or previously unknown human remains being disturbed during subsurface construction, the finds should be left in situ subject to further instruction from the project archaeologist or heritage authorities (refer to Appendixes 1 - 4 for additional details). The overriding objective, where remedial action is warranted, is to minimize disruption in construction scheduling while recovering archaeological and any affected cultural heritage data as stipulated by the PHRA and NHRA regulations.

Recommendation 5

Although the possibility of conflict between the community and the proposed development related to culture heritage is unlikely, PHRA should acknowledge on behalf of the community, that the project area is situated in a culturally significant landscape associated with African local history and cultural activities. PHRA may also acknowledge that such significance is not tied to physical sites or archaeological sites only, but to intangible heritage such as popular memories, oral history, ancestral remembrance, religious rituals, aesthetic

appreciations, living experiences and folklores. As such, the community retains the right to have their constitutionally guaranteed cultural heritage rights respected and protected without being limited to existence of physical evidence such as archaeological sites. Should such issues arise in association with this proposed development, the proponent, PHRA and community should devote adequate attention to address them.

11 CONCLUDING REMARKS

The literature review and field research confirmed that the project area is situated within a contemporary cultural landscape dotted with settlements with long local history. The field survey established that the affected project area is degraded by existing developments. Although the area is degraded, there is a possibility that the AIA/HIA Study Area is part of a wider archaeological and historical site within and significant cultural landscape. This report concludes that the proposed mine development may be approved by SAHRA to proceed as planned subject to recommendations herein made. The measures are informed by the results of the AI/HIA study and principles of heritage management enshrined in the NHRA, Act 25 of 1999.

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13 APPENDIX 1: HERITAGE MANAGEMENT PLAN INPUT INTO THE PPC MINING DEVELOPMENT PROJECT EMP

Objective	<ul style="list-style-type: none"> • Protection of archaeological sites and land considered to be of cultural value; • Protection of known physical cultural property sites against vandalism, destruction and theft; and • The preservation and appropriate management of new archaeological finds should these be discovered during construction. 							
No.	Activity	Mitigation Measures	Duration	Frequency	Responsibility	Accountable	Contacted	Informed
Pre-Construction Phase								
1	Planning	Ensure all known sites of cultural, archaeological, and historical significance are demarcated on the site layout plan, and marked as no-go areas.	Throughout Project	Weekly Inspection	Contractor [C] CECO	SM	ECO	EA EM PM
Construction Phase								
1	Emergency Response	Should any archaeological or physical cultural property heritage resources be exposed during excavation for the purpose of construction, construction in the vicinity of the finding must be stopped until heritage authority has cleared the development to continue.	N/A	Throughout	C CECO	SM	ECO	EA EM PM
		Should any archaeological, cultural property heritage resources be exposed during excavation or be found on development site, a registered heritage specialist or PHRA official must be called to site for inspection.		Throughout	C CECO	SM	ECO	EA EM PM
		Under no circumstances may any archaeological, historical or any physical cultural property heritage material be destroyed or removed from site;		Throughout	C CECO	SM	ECO	EA EM PM
		Should remains and/or artefacts be discovered on the development site during earthworks, all work will cease in the area affected and the Contractor		When necessary	C CECO	SM	ECO	EA EM PM

		will immediately inform the Construction Manager who in turn will inform PHRA.						
		Should any remains be found on site that is potentially human remains, the PHRA and South African Police Service should be contacted.		When necessary	C CECO	SM	ECO	EA EM PM
Rehabilitation Phase								
		Same as construction phase.						
Operational Phase								
		Same as construction phase.						

14 APPENDIX 2: HERITAGE MITIGATION MEASURE TABLE

SITE REF	HERITAGE ASPECT	POTENTIAL IMPACT	MITIGATION MEASURES	RESPONSIBLE PARTY	PENALTY	METHOD STATEMENT REQUIRED
Chance Archaeological and Burial Sites	General area where the proposed project is situated is a historic landscape, which may yield archaeological, cultural property, remains. There are possibilities of encountering unknown archaeological sites during subsurface construction work which may disturb previously unidentified chance finds.	<p>Possible damage to previously unidentified archaeological and burial sites during construction phase.</p> <ul style="list-style-type: none"> • Unanticipated impacts on archaeological sites where project actions inadvertently uncovered significant archaeological sites. • Loss of historic cultural landscape; • Destruction of burial sites and associated graves • Loss of aesthetic value due to construction work • Loss of sense of place 	<p>In situations where unpredicted impacts occur construction activities must be stopped and the heritage authority should be notified immediately.</p> <p>Where remedial action is warranted, minimize disruption in construction scheduling while recovering archaeological data. Where necessary, implement emergency measures to mitigate.</p> <ul style="list-style-type: none"> • Where burial sites are accidentally disturbed during construction, the affected area should be demarcated as no-go zone by use of fencing during construction, and access thereto by the construction team must be denied. • Accidentally discovered burials in development context should be salvaged and rescued to safe sites as may be directed by relevant heritage authority. The heritage officer responsible should secure relevant heritage and health authorities permits 	<ul style="list-style-type: none"> • Contractor / • Project Manager • Archaeologists • Project EO 	Fine and or imprisonment under the PHRA Act & NHRA	<p>Monitoring measures should be issued as instruction within the project EMP.</p> <p>PM/EO/Archaeologists Monitor construction work on sites where such development projects commence within the farm.</p>

		Loss of intangible heritage value due to change in land use	for possible relocation of affected graves accidentally encountered during construction work.			
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15 APPENDIX 3: LEGAL PRINCIPLES OF HERITAGE RESOURCES MANAGEMENT IN SOUTH AFRICA

Extracts relevant to this report from the National Heritage Resources Act No. 25 of 1999, (Sections 5, 36 and 47):

General principles for heritage resources management

5. (1) All authorities, bodies and persons performing functions and exercising powers in terms of this Act for the management of heritage resources must recognise the following principles:

- (a) Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and as they are valuable, finite, non-renewable and irreplaceable they must be carefully managed to ensure their survival;
- (b) every generation has a moral responsibility to act as trustee of the national heritage for succeeding generations and the State has an obligation to manage heritage resources in the interests of all South Africans;
- (c) heritage resources have the capacity to promote reconciliation, understanding and respect, and contribute to the development of a unifying South African identity; and
- (d) heritage resources management must guard against the use of heritage for sectarian purposes or political gain.

(2) To ensure that heritage resources are effectively managed—

- (a) the skills and capacities of persons and communities involved in heritage resources management must be developed; and
- (b) provision must be made for the ongoing education and training of existing and new heritage resources management workers.

(3) Laws, procedures and administrative practices must—

- (a) be clear and generally available to those affected thereby;
- (b) in addition to serving as regulatory measures, also provide guidance and information to those affected thereby; and
- (c) give further content to the fundamental rights set out in the Constitution.

(4) Heritage resources form an important part of the history and beliefs of communities and must be managed in a way that acknowledges the right of affected communities to be consulted and to participate in their management.

(5) Heritage resources contribute significantly to research, education and tourism and they must be developed and presented for these purposes in a way that ensures dignity and respect for cultural values.

(6) Policy, administrative practice and legislation must promote the integration of heritage resources conservation in urban and rural planning and social and economic development.

(7) The identification, assessment and management of the heritage resources of South Africa must—

- (a) take account of all relevant cultural values and indigenous knowledge systems;
- (b) take account of material or cultural heritage value and involve the least possible alteration or loss of it;
- (c) promote the use and enjoyment of and access to heritage resources, in a way consistent with their cultural significance and conservation needs;
- (d) contribute to social and economic development;
- (e) safeguard the options of present and future generations; and
- (f) be fully researched, documented and recorded.

Burial grounds and graves

36. (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.

(5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—

(a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and

(b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

(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.

(7) (a) SAHRA must, over a period of five years from the commencement of this Act, submit to the Minister for his or her approval lists of graves and burial grounds of persons connected with the liberation struggle and who died in exile or as a result of the action of State security forces or agents provocateur and which, after a process of public consultation, it believes should be included among those protected under this section.

(b) The Minister must publish such lists as he or she approves in the Gazette.

(8) Subject to section 56(2), SAHRA has the power, with respect to the graves of victims of conflict outside the Republic, to perform any function of a provincial heritage resources authority in terms of this section.

(9) SAHRA must assist other State Departments in identifying graves in a foreign country of victims of conflict connected with the liberation struggle and, following negotiations with the next of kin, or relevant authorities, it may re-inter the remains of that person in a prominent place in the capital of the Republic.

General policy

47. (1) SAHRA and a provincial heritage resources authority—

(a) must, within three years after the commencement of this Act, adopt statements of general policy for the management of all heritage

resources owned or controlled by it or vested in it; and

(b) may from time to time amend such statements so that they are adapted to changing circumstances or in accordance with increased knowledge; and

(c) must review any such statement within 10 years after its adoption.

(2) Each heritage resources authority must adopt for any place which is protected in terms of this Act and is owned or controlled by it or vested in it, a plan for the management of such place in accordance with the best environmental, heritage conservation, scientific and educational principles that can reasonably be applied taking into account the location, size and nature of the place and the resources of the authority concerned, and may from time to time review any such plan.

(3) A conservation management plan may at the discretion of the heritage resources authority concerned and for a period not exceeding 10 years, be operated either solely by the heritage resources authority or in conjunction with an environmental or tourism authority or under contractual arrangements, on such terms and conditions as the heritage resources authority may determine.

(4) Regulations by the heritage resources authority concerned must provide for a process whereby, prior to the adoption or amendment of any statement of general policy or any conservation management plan, the public and interested organisations are notified of the availability of a draft statement or plan for inspection, and comment is invited and considered by the heritage resources authority concerned.

(5) A heritage resources authority may not act in any manner inconsistent with any statement of general policy or conservation management plan.

(6) All current statements of general policy and conservation management plans adopted by a heritage resources authority must be available for public inspection on request.