

**PHASE 1 ARCHAEOLOGICAL AND HERITAGE
IMPACT ASSESSMENT FOR THE PROPOSED RIVERBANK
REHABILITATION OF 52 MAIN STREET, BODEREAUX
WITHIN THE CITY OF JOHANNESBURG METROPOLITAN
MUNICIPALITY IN GAUTENG PROVINCE.**

NOVEMBER 2020

DOCUMENT SYNOPSIS (EXECUTIVE SUMMARY)

Item	Description
Proposed development and location	Proposed riverbank rehabilitation of 52 Main Street, Bodereaux within the City of Johannesburg Metropolitan, Gauteng Province.
Purpose of the study	Phase 1 Archaeological Impact Assessment to determine the presence of cultural heritage sites and the impact of the proposed project on these resources within the area demarcated for the proposed development.
Coordinates	26° 05' 58.54"S and 28° 01' 2.08"E
Municipalities	City of Johannesburg Metropolitan Municipality
Predominant land use of surrounding area	Commercial, residential, social, powerlines, road and transport
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Date of Report	25 November 2020

This document serves to inform and guide the developer and contractors about the potential impacts that the Proposed riverbank rehabilitation of 52 Main Street, Bodereaux within the City of Johannesburg Metropolitan, Gauteng Province may have on heritage resources (if any) located in the study area. In the same light, the document must also inform South African heritage authorities (SAHRA/PHRA-G) about the presence, absence and significance of heritage resources located in the study area. As required by South African heritage legislation, developments such as this require pre-development assessment by a competent heritage practitioner to identify, record and if necessary, salvage the irreplaceable heritage resources that may be impacted upon by the development. In compliance with these laws Organic Minds Solutions (Pty) Ltd (OMS) appointed Integrated Specialist Services (Pty) Ltd (ISS) to conduct a Phase 1 Archaeological and Heritage Impact Assessment (A/HIA) of the proposed riverbank rehabilitation of 52 Main Street, Bodereaux in the City of Johannesburg Metropolitan, Gauteng Province. Desktop studies, drive-throughs and field walking were conducted in order to identify heritage landmarks on and around the proposed development site. The project site is not on pristine ground, having seen significant transformations owing to residential developments and infrastructure and roads. Although the area is known for historical and LIA occurrences, no archaeological resources were identifiable on the surface due to extensive settlement developments. In terms of the built environment of the project area, structures younger than 60 years of age occur within the project area. No mitigation is required prior to rehabilitation in terms of the archaeology of the area under study. Nonetheless, sub-surface archaeological material and unmarked graves may still exist and when encountered during development construction, work must be stopped forth-with and the finds must be reported to the South African Heritage Resource Agency (SAHRA) or the heritage practitioner. This report must also be submitted to the SAHRA or PHRA-G for review.

DECLARATION OF INDEPENDENCE

In terms of Chapter 5 of the National Environmental Management Act of 1998 specialists involved in Impact Assessment processes must declare their independence.

I, **Trust Mlilo**, do hereby declare that I am financially and otherwise independent of the client and their consultants, and that all opinions expressed in this document are substantially my own, notwithstanding the fact that I have received fair remuneration from the client for preparation of this report.

Expertise:

Trust Mlilo, MA. (Archaeology), BA Hons, PDGE and BA & (Univ. of Pretoria) ASAPA (affiliation member) and more than 15 years of experience in archaeological and heritage impact assessment and management. Mlilo is an accredited member of the Association for Southern African Professional Archaeologists (ASAPA), Amafa akwaZulu Natali and Eastern Cape Heritage Resources Agency (ECPHRA). He has conducted more than hundred AIA/HIA Studies, heritage mitigation work and heritage development projects over the past 15 years of service. The completed projects vary from Phase 1 and Phase 2 as well as heritage nomination work for government, parastatals (Eskom) and several private companies such as BHP Billiton and Rhino Minerals.

Independence

The views expressed in this document are the objective, independent views of Mr Trust Mlilo and the survey was carried out under Organic Minds Solutions. ISS has no business, personal, financial or other interest in the proposed development apart from fair remuneration for the work performed.

Conditions relating to this report

The content of this report is based on the author's best scientific and professional knowledge as well as available information. ISS reserves the right to modify the report in any way deemed fit should new, relevant or previously unavailable or undisclosed information become known to the author from on-going research or further work in this field or pertaining to this investigation.

This report must not be altered or added to without the prior written consent of the author and ROMH Consulting. This also refers to electronic copies of the report which are supplied for the purposes of inclusion as part of other reports, including main reports. Similarly, any recommendations, statements or conclusions drawn from or based on this report must make reference to this report. If these form part of a main report

relating to this investigation or report, this report must be included in its entirety as an appendix or separate section to the main report.

Authorship: This AIA/HIA Report has been prepared by Mr Trust Mlilo (Professional Archaeologist). The report is for the review of the Heritage Resources Agency (PHRA-G).

Geographic Co-ordinate Information: Geographic co-ordinates in this report were obtained using a hand-held Garmin Global Positioning System device. 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 Authors are 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 of the proposed riverbank rehabilitation on 52 Main street, Bordeaux within the City of Johannesburg Metropolitan, Gauteng Province being proposed by Johannesburg Road Agency.

Signed by



25/ 11/ 2020

ACKNOWLEDGEMENTS

The author acknowledges Organic Minds Solutions (Pty) Ltd for their assistance with project information, and the associated project BID as well as responding to technical queries related to the project.

TABLE OF CONTENTS

DOCUMENT SYNOPSIS (EXECUTIVE SUMMARY)	<i>i</i>
TABLE OF CONTENTS	5
ABBREVIATIONS	viii
KEY CONCEPTS AND TERMS	ix
Periodization	ix
Definitions	ix
Assumptions and disclaimer	xi
1. INTRODUCTION	- 12 -
1.1. Terms of Reference (ToR)	- 12 -
1.2. Project Location	- 13 -
1.3. Project Background and description	- 16 -
2. LEGISLATIVE CONTEXT	- 17 -
3. METHODOLOGY	- 20 -
3.1. The Fieldwork survey	- 20 -
3.2. Visibility and Constraints	- 20 -
3.3. Consultations	- 21 -
4. ARCHAEOLOGICAL CONTEXT	- 25 -
4.1. Iron Age Archaeology and Historical Period	- 26 -
4.2. Intangible Heritage	- 28 -
4.3. SAHRIS Data Base and Impact Assessment Reports in the project area	- 28 -
5. RESULTS OF THE FIELD STUDY	- 29 -
5.1. Archaeology	- 29 -
5.2. Burial grounds and Graves	- 29 -
5.3. Public Monuments and Memorials	- 30 -
5.4. Buildings and Structures that are older than 60 years	- 30 -
5.5. Assessment of construction impacts	- 31 -
5.6. Impact Statement	34
5.7. Cumulative Impacts	34
5.8. Mitigation	36
6. ASSESSING SIGNIFICANCE	36
6.1. Aesthetic Value	36
6.2. Historic Value	36
6.3. Scientific value	37
6.4. Social Value	37
7. DISCUSSION	37
8. RECOMMENDATIONS	38
9. CONCLUSION	39
10. REFERENCES	40

11. APPENDIX 1: CHANCE FIND PROCEDURE FOR THE PROPOSED RIVERBANK REHABILITATION OF 52 MAIN STREET, BODEREAUX WITHIN THE CITY OF JOHANNESBURG METROPOLITAN MUNICIPALITY IN GAUTENG PROVINCE.....	45
<i>CHANCE FIND PROCEDURE</i>	46
<i>INTRODUCTION</i>	46
<i>DEFINITIONS</i>	46
<i>BACKGROUND</i>	46
<i>PURPOSE</i>	47
<i>CHANCE FIND PROCEDURE</i>	47
<i>MANAGEMENT OF CHANCE FINDS</i>	49
12. APPENDIX 2: HERITAGE MANAGEMENT PLAN INPUT INTO THE PROPOSED RIVERBANK REHABILITATION SITE	- 51 -
13. APPENDIX 3: HERITAGE MITIGATION MEASURES TABLE.....	- 52 -
14. APPENDIX 4: LEGAL PRINCIPLES OF HERITAGE RESOURCES MANAGEMENT IN SOUTH AFRICA	- 53 -

TABLE OF PLATES [PHOTOGRAPHS]

Plate 1: Plate 2: Photo A . View of canal to be rehabilitated	- 21 -
Plate 3: Photo B : Project area is within a builtup area.	- 21 -
Plate 4: Photo C . View of area close to the project area.	- 22 -
Plate 5: Plate 6: Photo D Showing abandoned bridge within the project area.	- 22 -
Plate 7: Photo E . showing project area is within electricity distribution servitude	- 23 -
Plate 8: Photo F showing park within the project area	- 23 -
Plate 9: Photo G , showing project site is within a built up area.	- 24 -
Plate 10: Photo H , Photo H Project area is within a degraded area as evidenced by the powerlines.	- 24 -

TABLE OF FIGURES

Figure 1: Locality Map of the proposed project site (ISS 2020)	- 14 -
Figure 2: Map of the proposed project site (ISS 2020)	- 15 -

LIST OF TABLES

Table 1: Evaluation of the proposed development as guided by the criteria in NHRA and NEMA	- 19 -
Table 2: Summary of Findings.....	- 30 -
Table 3: Criteria Used for Rating of Impacts.....	- 31 -

Table 4: Criteria for Rating of Classified Impacts - 32 -
Table 5: Impact Assessment Matrix - 33 -

ABBREVIATIONS

AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
EIA	Environmental Impact Assessment
EIA	Early Iron Age (<i>EIA refers to both Environmental Impact Assessment and the Early Iron Age but in both cases the acronym is internationally accepted. This means that it must be read and interpreted within the context in which it is used.</i>)
EIAR	Environmental Impact Assessment Report
ESA	Early Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
ICOMOS	International Council of Monuments and Sites
ISS	Integrated Specialist Services (Pty) Ltd
LIA	Late Iron Age
LFC	Late Farming Community
LSA	Late Stone Age
MIA	Middle Iron Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act 107 of 1998
NHRA	National Heritage Resources Act 25 of 1999
OMS	Organic Minds Solutions
SAHRA	South African Heritage Resources Agency
ToR	Terms of Reference

KEY CONCEPTS AND TERMS

Periodization

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

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 material 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.

Assumptions and disclaimer

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 borne in mind that archaeological deposits (including graves and traces of mining heritage) usually occur below the ground level. Should artefacts or skeletal material be revealed within the proposed development site during construction, such activities should be halted immediately, and a competent heritage practitioner, SAHRA must be notified 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 applicant 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. ISS assumes no responsibility for compliance with conditions that may be required by SAHRA in terms of this report.

1. INTRODUCTION

ISS was requested by Organic Minds Solution (Pty) Ltd to carry out a Phase 1 AIA/ HIA of the proposed riverbanks rehabilitation on 52 Main Street, Bordeaux, Johannesburg. The study area is located within the City of Johannesburg Metropolitan Municipality of Gauteng Province. As stipulated by the NHRA, an AIA/HIA is a pre-requisite for any development of this nature which has potential to destroy heritage resources. The overall purpose of this heritage report is to identify, assess any heritage resources that may be located in the study area and evaluate the positive and negative impacts of the proposed development on these resources in order to make recommendations for their appropriate management. To achieve this, we conducted background research of published literature, maps and databases (desktop studies) which was then followed by ground-truthing by means of drive-through surveys and field walking. Desktop studies had shown historical sites were a possibility in the study area, but no such sites were recorded during ground-truthing. While heritage resources may have been located in the study area, subsequent developments such as infrastructure development work have either obliterated these materials or reduced them to isolated finds that can only be identifiable as chance finds during rehabilitation. If the recommendations of this report are adopted, there is no archaeological reason why rehabilitation cannot proceed, taking full cognizance of clear procedures to follow in the event of chance findings.

1.1. Terms of Reference (ToR)

The author was requested by Organic Minds Solutions (Pty) Ltd to conduct an AIA/HIA study addressing the following issues:

- Archaeological and heritage potential of the proposed development site including any known data on affected areas;
- Provide details on methods of study; potential and recommendations to guide the SAHRA to make an informed decision in respect of authorisation of the proposed riverbank rehabilitation
- Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located along/within the proposed development site.
- Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
- Describe the possible impacts of the proposed riverbank rehabilitation on these cultural remains, according to a standard set of conventions.
- Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources; and
- Review applicable legislative requirements.

1.2. Project Location

The proposed project is located on 52 Main Street Bordeaux within the City of Johannesburg Metropolitan Municipality, Gauteng Province (see map below)

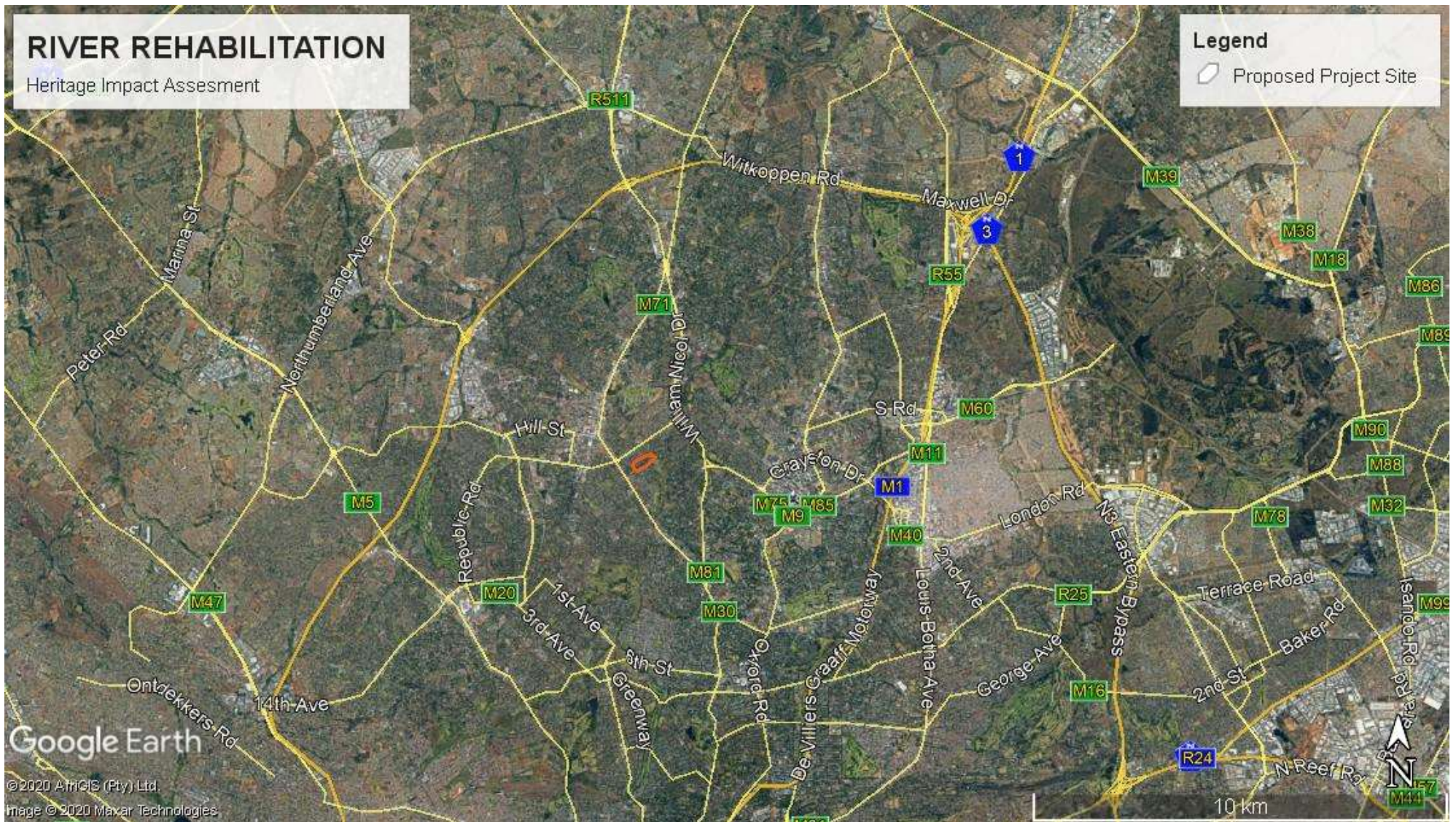


Figure 1: Locality Map of the proposed project site (ISS 2020)



Figure 2: Map of the proposed project site (ISS 2020)

1.3. Project Background and description

The need for this project arose from a complaint laid through the JRA complaints register by the property owner at 52 Main Street Bordeaux, citing a collapsed boundary wall and escalating property damage by stormwater. The property boundary is located adjacent to a major culvert outlet. ROMH Consulting has been appointed by the JRA to assess the condition of the culvert outlet adjacent to the affected property and to tailor a long-lasting solution to mitigate erosion and further floodwater damage. For this project, the JRA has emphasised the need for exploring a green (environmentally friendly) solution to the problem, as far as reasonably possible, in order to preserve the existing ecosystem in the watercourse in a sustainable manner. In this regard, the JRA has also urged ROMH Consulting to engage the Environmental and Infrastructure Services Department (EISD) in the planning and investigation process.

2. LEGISLATIVE CONTEXT

In terms of the National Environmental Management Act (Act 107 of 1998) (NEMA) and its promulgated EIA Regulations of 2017 (GNR 327, 325, and 324) the construction activities require an Environmental Authorisation. Activity 20 under Government Notice 327 (Listing Notice 1) is triggered by the proposed riverbanks rehabilitation. Accordingly, GNR 327 activities are subject to a Basic Assessment Process. In addition, under the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) an AIA or HIA is required as a specialist sub-section of the Basic Assessment (BA) Process.

Heritage management and conservation in South Africa is governed by the NHRA and falls under the overall jurisdiction of the SAHRA and its PHRAs. There are different sections of the NHRA that are relevant to this study. The present proposed development is a listed activity in terms of Section 38 of the NHRA which stipulates that the following development categories require an HIA to be conducted by an independent heritage management consultant:

- Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length
- Construction of bridge or similar structure exceeding 50m in length
- Development or other activity that will change the character of a site -
 - ❖ Exceeding 5000 sq m
 - ❖ Involving three or more existing erven or subdivisions
 - ❖ Involving three or more erven or divisions that have been consolidated within past five years
 - ❖ Rezoning of site exceeding 10 000 sq m
 - ❖ The costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority
- Any other development category, public open space, squares, parks, recreation grounds

Thus, any person undertaking any development in the above categories, 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 38 (2) (a) of the same act also requires the submission of a heritage impact assessment report for authorization purposes to the responsible heritage resources agencies (SAHRA/PHRAs). Because the proposed development will change the character of a site exceeding 5000 sq m, then an HIA is required according to this section of the Act.

Related to Section 38 of the NHRA are Sections 34, 35, 36 and 37. Section 34 stipulates that no person may **alter damage, destroy and relocate any building or structure older than 60 years, without a permit issued by SAHRA or a provincial heritage resources authority**. This section may not apply to present study since none

were identified. Section 35 (4) of the NHRA stipulates that no person may, without a permit issued by SAHRA, destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object. This section may apply to any significant archaeological sites that may be discovered before or during construction. This means that any chance find must be reported to the heritage practitioner or SAHRA, who will assist in investigating the extent and significance of the finds and inform about further actions. Such actions may entail the removal of material after documenting the find site or mapping of larger sections before destruction. Section 36 (3) of the NHRA also stipulates that no person may, without a permit issued by the South African Heritage Resources Agency (SAHRA), destroy, damage, alter, exhume or 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. This section may apply in case of the discovery of chance burials, which is unlikely. The procedure for reporting chance finds also applies to the unlikely discovery of burials or graves by the applicant or his contractors. Section 37 of the NHRA deals with public monuments and memorials but this may not apply to this study because no protected monument will be physically affected by the proposed riverbank rehabilitation.

In addition, the EIA Regulations of 2014 (as amended in 2017) promulgated in terms of NEMA (Act 107 of 1998) stated that environmental assessment reports will include cultural (heritage) issues. The new regulations in terms of Chapter 5 of the NEMA provide for an assessment of development impacts on the cultural (heritage) and social environment and for Specialist Studies in this regard. The end purpose of such a report is to alert the applicant, the environmental consultant (Organic Minds Solutions), SAHRA/PHRA-G and interested and affected parties about existing heritage resources that may be affected by the proposed riverbank rehabilitation, and to recommend mitigatory measures aimed at reducing the risks of any adverse impacts on these heritage resources.

Table 1: Evaluation of the proposed development as guided by the criteria in NHRA and NEMA

ACT	Stipulation for developments	Requirement details
NHRA Section 38	Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	Yes
	Construction of bridge or similar structure exceeding 50m in length	No
	Development exceeding 5000 sq m	No
	Development involving three or more existing erven or subdivisions	No
	Development involving three or more erven or divisions that have been consolidated within past five years	No
	Rezoning of site exceeding 10 000 sq m	No
	Any other development category, public open space, squares, parks, recreation grounds	Yes
NHRA Section 34	Impacts on buildings and structures older than 60 years	None older than 60 years
NHRA Section 35	Impacts on archaeological and palaeontological heritage resources	Subject to identification during Phase 1
NHRA Section 36	Impacts on graves	Subject to identification during Phase 1
NHRA Section 37	Impacts on public monuments	Subject to identification during Phase 1
Chapter 5 (21/04/2006) NEMA	HIA is required as part of an EIA	Yes
Section 39(3)(b) (iii) of the MPRDA	AIA/HIA is required as part of an EIA	No

3. METHODOLOGY

This document falls under the Basic assessment phase of the AIA/HIA and therefore aims at providing an informed heritage-related opinion about the proposed riverbank rehabilitation on 52 Main Street, Bordeaux, City of Johannesburg, Gauteng Province. This is usually achieved through a combination of a review of any existing literature and a basic site inspection. As part of the desktop study, published literature and cartographic data, as well as archival data on heritage legislation, the history and archaeology of the area were studied. The desktop study was followed by field surveys. The field assessment was conducted according to generally accepted AIA/HIA practices and aimed at locating all possible objects, sites and features of cultural significance on the development footprint. Initially a drive-through was undertaken around the proposed development site as a way of acquiring the archaeological impression of the general area. This was then followed by a walk down survey in the study area, with a handheld Global Positioning System (GPS) for recording the location/position of each possible site. Detailed photographic recording was also undertaken where relevant. The findings were then analysed in view of the proposed development in order to suggest further action. The result of this investigation is a report indicating the presence/absence of heritage resources and how to manage them in the context of the proposed development.

3.1. The Fieldwork survey

The fieldwork survey was undertaken on the 23rd of November 2020. The main focus of the survey involved a pedestrian survey which was conducted within the proposed development site. The pedestrian survey focused on parts of the project area where it seemed as if disturbances may have occurred in the past, for example bald spots in the grass veld; stands of grass which are taller than the surrounding grass veld; the presence of exotic trees; evidence for building rubble, and ecological indicators such as invader weeds.

The literature survey suggests that prior to the 20th century modern residential and on-going infrastructure developments; the general area where the proposed development is located would have been a rewarding region to locate heritage resources related to Stone Age and particularly Iron Age and historical sites (Bergh 1999: 4). However, the situation today is completely different. The study area now lies on a clearly modified landscape that has previously been cleared of vegetation but is now dominated by a continuous sweep of tall grass and shrubs that limit ground visibility (Plates 1-9).

3.2. Visibility and Constraints

The project site is accessible making it easier to identify archaeological resources in their original places. In addition, due to the subterranean nature of cultural remains this report should not be construed as a record of all archaeological and historic sites in the area.

3.3. Consultations

The study team consulted residents about any heritage resources in the project area. The EIA Public Participation Process invited and addressed comments from affected communities and any registered heritage bodies on any matter related to the proposed project including heritage concerns that may arise as a result of the project. The issues raised by the public with respect to the proposed development will also be included in the Final Basic Assessment Report.

The following photographs illuminate the nature and character of the Project Area.



Plate 1: Plate 2: Photo A. View of canal to be rehabilitated



Plate 3: Photo B: Project area is within a builtup area.



Plate 4: Photo **C**. View of area close to the project area.



Plate 5: Plate 6: Photo **D** Showing abandoned bridge within the project area.



Plate 7: Photo E. showing project area is within electricity distribution servitude



Plate 8: Photo F showing park within the project area



Plate 9: Photo **G**, showing project site is within a built up area.



Plate 10: Photo **H**, Photo **H** Project area is within a degraded area as evidenced by the powerlines.

4. ARCHAEOLOGICAL CONTEXT

Gauteng area has yielded evidence of human settlement extending into hundreds of thousands of years of prehistory that include the Stone Age, Iron Age, Historical period and contemporary communities. The palaeontological human-evolution record is rich in palaeoanthropological relics that were found in Sterkfontein and Maropeng areas that are popularly known as the Cradle of Mankind that is also a World Heritage Site. Although there are no well-known Stone Age sites located in the Gauteng area there is evidence of the use of the larger area by Stone Age communities for example along the Kliprivier where ESA and MSA tools were recorded. LSA material is recorded along ridges to the south of the current study area (Huffman 2008). Petroglyphs occur at Redan as well as along the Vaal River (Berg 1999). Records indicate that stone tools dating to the Early and Middle Stone Age and especially the Later Stone Age occurred all over, for example in the Jukskei River area at Glenferness shelter, excavated by Professor. Revil Mason (1969).

Iron Age people started to settle in southern Africa c. AD 300, with one of the oldest known sites at Broederstroom south of Hartebeespoort Dam dating to AD 470. Having only had cereals (sorghum, millet) that need summer rainfall, Early Iron Age (EIA) people did not move outside this rainfall zone, and neither did they occupy the central interior highveld area. The occupation of the larger geographical area (including the study area) did not start much before the 1500s. By the 16th century things changed, with the climate becoming warmer and wetter, creating conditions that allowed Late Iron Age (LIA) farmers to occupy areas previously unsuitable, for example the Witwatersrand in the region of Klipriviersberg and the Magaliesberg to the north (Horn 1996).

A distinction between the Iron Age and the LSA is drawn on the basis and on the fact that the Iron Age communities occupied the foothills and valley lands introducing sedentary life, domesticated livestock, crop production and the use of iron (Maggs 1984a; 1984b; Huffman 2007, van Schalkwyk, 2007). Stonewalls are one of the major characteristics of the Iron Age people. Cattle dung, both vitrified and unvitrified, is also one of the Iron Age traits (see Huffman (1982). He also includes pits and burials, with some located inside the cattle kraals. This would have varied from cultures to cultures and traditions to traditions. For example, alongside the Urewe Tradition is the second group called the Kalundu Tradition whose EIA archaeological sites have been recorded in most of South Africa's northern and central regions. These are therefore some of the important Iron Age traditions in the EIA. Iron Age sites associated with the ancestors of the modern Sotho-Tswana and Ndebele speaking communities are widespread in the region. 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. Today most of the land is used for commercial, mining, agricultural activities and industrial activities. It is within this cultural landscape that the project area is located.

Archaeologically, the Gauteng is associated with Late Iron Age Sotho Tswana communities and has yielded four ceramic sequences of the Urewe tradition: Ntsuanatsatsi (1450-1650), Olifantspoort (AD 1500 -1700) and

Uitkomst (AD 1700-1850) and Buispoort (1700-1840) [Huffman 2007: 443]. This area was historically occupied by predominantly Sotho Tswana -speaking groups before Mzilikazi's Ndebele briefly dominated it during the Mfecane. Around the 1830s, the region also witnessed the massive movements associated with the Mfecane ('wandering hordes'). The causes and consequences of the Mfecane are well documented elsewhere (e.g. Hamilton 1995; Cobbing 1988). The area was partitioned into commercial settler farms during the colonial period.

Melville Koppies is most well documented site in the project area. The site was excavated by Professor Mason from the Department of Archaeology of WITS in the 1980's. Extensive Stone walled sites are also recorded at Klipriviers Berg Nature reserve belonging to the Late Iron Age period. A large body of research is available on this area. These sites (Taylor's Type N, Mason's Class 2 & 5) are now collectively referred to as Klipriviersberg (Huffman 2007). These settlements are complex in that aggregated settlements are common, the outer wall sometimes includes scallops to mark back courtyards, there are more small stock kraals, and straight walls separate households in the residential zone. These sites date to the 18th and 19th centuries and were built by people in the Fokeng cluster.

In this area the Klipriviersberg walling probably ended around AD 1823, when Mzilikazi entered the area (Rasmussen 1978). This settlement type may have lasted longer in other areas because of the positive interaction between Fokeng and Mzilikazi. Prior to the Gauteng region being incorporated into the colonial administration of the Transvaal, the region experienced several episodes of white settler migration and settler settlements as well as the associated colonial wars such as the Anglo-Boer War, which ended in 1902.

4.1. Iron Age Archaeology and Historical Period

The Late Iron Age Nguni communities engaged in the Indian Ocean Trade exporting ivory and importing consumables such as cloth and glass beads. The exporting point was Delagoa. This brought the Nguni speaking community in touch with the Indo-Asian and first Europeans (Portuguese). It was the arrival of the Dutch and the English traders that opened up Delagoa Bay to more trade and the Nguni engaged in extensive trade with the international traders (Huffman 2007). From the late 1700s, trade in supply of meat to passing ship 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. Naturally, there were signs that population groups had to compete for resources especially along the east coastal regions. The KwaZulu Natal coastal region 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 which eventually affected the entire Southern Africa including the modern-day Gauteng area. Around the 1830s, the region also witnessed the massive movements associated with the Mfecane. The causes and consequences of the Mfecane are well documented elsewhere (e.g., Hamilton 1995; Cobbing 1988). In this context new African kingdoms emerged such as the Zulu Kingdom under Shaka in the second quarter of the 1800s AD. Military pressure from Zululand spilled onto the highveld by at least 1821. Various marauding groups of

displaced Sotho-Tswana moved across the plateau in the 1820s. Mzilikazi raided the plateau extensively between 1825 and 1837. And throughout this time settled communities of Tswana people also attacked each other. As a result of this troubled period, Sotho-Tswana people concentrated into large towns for defensive purposes. Their settlements were built of stone because of the lack of trees in the project area. These stone-walled villages were almost always located near cultivatable soil and a source of water. Such sites are known to occur near Kriel (e.g. Pelsler, *et al* 2006).

White settlers moved into the Gauteng area during the first half of the 19th century. Within Gauteng Province and our study area the settlers are dated to 1840s. Palestrant (1986) places the date for the Voortrekker's in the Witwatersrand to 1830 and a date of 1842 for one of the earliest established farms which later became Johannesburg: "The part of the Highveld which was eventually to become Johannesburg had at the time few established farms. One of the earliest was situated at Klipriviersdale and belonged to the Meyer's family who had settled there in 1842. Their nearest white neighbours were miles away – the Marais, beyond Heidelberg and the Erasmus and Strydoms families, near Olifantsfontein (Palestrant, 1986: 8). European settlers of Dutch descent – the Afrikaans communities established earliest colonial settlements after they Trekked from the then Cape Colony to avoid British Administration in the 1830s and 1840s. They fall within what was then called the Transvaal -direct translation for "across the Vaal River". During the Great Trek these Afrikaans communities, commonly referred to as the Boers (farmers), who left the British Administration of the Cape Colony (i.e., a former Dutch colony in 1795 and again in 1806) established several republics north and north-west of the British Colonies - these republics included the Boer Republics of the Orange Free State (1845) and the Transvaal across the Vaal River were the study area is located. The Transvaal which had different autonomous and separate states which were later united to form what became known as the Zuid Afrikaanse Republiek (South African Republic) the ZAR (Celliers, 2010).

During the historical period the availability of natural resources also played a pivotal role in the choice of settlement of people, based not only from a subsistence point of view but also driven by commerce or commercial gains resulting from the exploitation of available natural resources such as gold discovered within the Witwatersrand particularly after the discovery of gold in 1884. The founding of Johannesburg (the study area) is a direct consequence of the discovery of gold. The same is true for the establishment and the development of the railway industry within the Witwatersrand, Gauteng Province, South Africa. The settlers were largely self-sufficient, basing their survival on cattle/sheep farming and hunting. They established large farms which were later subdivided into a number of small properties. These units do not have their economic base in traditional agriculture but are sustained by a variety of land uses and economic activities with strong urban associations. This phenomenon happened in the past thirty years. Therefore, most of the built fabric, date from this period. The result was that any historic farmsteads older than 60 years that may have existed have either disappeared or have been 'upgraded'. The oldest physical remains in these areas usually are planted vegetation such as lanes and tall trees in mature gardens,

cemeteries, the remains of portions of farm and farmstead walling (dry stacked stone walls erected to demarcate the boundaries of a farmstead, an orchard or cattle kraal) farm roads, weirs (in the river) and water furrows.

4.2. 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.

4.3. SAHRIS Data Base and Impact Assessment Reports in the project area.

Several archaeological and heritage studies were conducted within the City of Johannesburg and its vicinity since 2005 and these presents the nature and heritage character of the area. The HIA conducted in the area also provide some predictive evidence regarding the types and ranges of heritage resources to be expected in the proposed project area: (see reference list for HIA reports). The studies include housing, infrastructure developments, water pipeline and powerline projects completed by Van Schalkwyk (2005, 2007, 2008, 2009, 2010, 2011, 2013, 2014), Kusel 2009, 2010, 2011, 2013, 2014), Tomose 2013, Jaco Van der Walt 2013 and Mlilo 2018). No sites were recorded by these studies. Van Schalkwyk and Udo Kusel did extensive work in the project area mostly for infrastructure developments. The authors note that the entire region was subjected to urbanization and industrial activities, which would have destroyed any pre-colonial or early colonial heritage features that might have occurred in the past, and that the only heritage sites known from the region are a number of historical buildings older than 60 years, municipal cemeteries, which are all located well outside the area of the proposed development. No sites or objects of cultural heritage significance have been identified in the study area.

5. RESULTS OF THE FIELD STUDY

5.1. Archaeology

The proposed development site did not yield any verifiable archaeological sites or material. The affected landscape is heavily degraded from previous and current land use such as road construction, bulk water supply infrastructure, powerlines and from commercial and residential. This limited the chance developments of encountering significant in situ archaeological sites.

Based on the field study results and field observations, the author concluded that the receiving environment for the proposed development is low to medium potential to yield previously unidentified archaeological sites during subsurface excavations and construction work associated with the proposed development. This observation is supported by the fact that no Iron Age sites are indicated in a historical atlas around the area; however, this may be an indication of a lack of research. Literature review also revealed that no Stone Age sites are shown on a map contained in a historical atlas of this area.

5.2. Burial grounds and Graves

Human remains and burials are commonly found close to archaeological sites and abandoned settlements; they may be found in abandoned and neglected burial sites or occur sporadically anywhere as a result of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface. Human remains are usually identified when they are exposed through erosion, earth moving activities and construction. In some instances, packed stones or bricks may indicate the presence of informal burials. If any human bones are found during the course of construction work, then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist. Where human remains are part of a burial, they would need to be exhumed under a permit from either SAHRA (for pre-colonial burials as well as burials later than about AD 1500) or Department of Health for graves younger than 60 years.

The field survey did not record any burial site within the proposed development site. It should, however, be noted that burial grounds and gravesites are accorded the highest social significance threshold (see Appendix 3). They have both historical and social significance and are considered sacred. Wherever they exist or not, they may not be tempered with or interfered with without a permit from SAHRA. It should also be borne in mind that the possibility of encountering human remains during subsurface earth moving works anywhere on the landscape is ever present. Although the possibility of encountering previously unidentified burial sites is low within the proposed development site, should such sites be identified during construction, they are still protected by applicable legislations and they should be protected.

5.3. Public Monuments and Memorials

The study did not record any public memorials and monuments within the proposed development site.

5.4. Buildings and Structures that are older than 60 years

The study did not record any buildings on the direct path of the proposed riverbank rehabilitation. The age of the existing bridge could not be established during the survey, but it is most likely that it is younger than 60 years and has gone through maintenance alterations over the years (see Plate 4). It is the considered opinion of the author that the structure is of low heritage significance. Therefore, the proposed development does not trigger Section 34 of NHRA.

Table 2: Summary of Findings

Heritage resource	Status/Findings
Buildings, structures, places and equipment of cultural significance	None recorded
Areas to which oral traditions are attached or which are associated with intangible heritage	None exists
Historical settlements and townscapes	None survives in the proposed area
Landscapes and natural features of cultural significance	None
Archaeological and palaeontological sites	None recorded within the proposed development site.
Graves and burial grounds	None
Movable objects	None
Overall comment	The surveyed area has no confirmable archaeological resources on the surface, but sub-surface chance finds are still possible. The impacts of the proposed development are considered to be low.

5.5. Assessment of construction impacts

The significance of the impacts will be assessed considering the following descriptors:

Table 3: Criteria Used for Rating of Impacts

Nature of the impact (N)		
Positive	+	Impact will be beneficial to the environment (a benefit).
Negative	-	Impact will not be beneficial to the environment (a cost).
Neutral	0	Where a negative impact is offset by a positive impact, or mitigation measures, to have no overall effect.
Magnitude(M)		
Minor	2	Negligible effects on heritage or social functions / processes. Includes areas / environmental aspects which have already been altered significantly and have little to no conservation importance (negligible sensitivity*).
Low	4	Minimal effects on heritage or social functions / processes. Includes areas / environmental aspects which have been largely modified, and / or have a low conservation importance (low sensitivity*).
Moderate	6	Notable effects on heritage or social functions / processes. Includes areas / environmental aspects which have already been moderately modified and have a medium conservation importance (medium sensitivity*).
High	8	Considerable effects on heritage or social functions / processes. Includes areas / environmental aspects which have been slightly modified and have a high conservation importance (high sensitivity*).
Very high	10	Severe effects on biophysical or social functions / processes. Includes areas / environmental aspects which have not previously been impacted upon and are pristine, thus of very high conservation importance (very high sensitivity*).
Extent (E)		
Site only	1	Effect limited to the site and its immediate surroundings.
Local	2	Effect limited to within 3-5 km of the site.
Regional	3	Activity will have an impact on a regional scale.
National	4	Activity will have an impact on a national scale.
International	5	Activity will have an impact on an international scale.
Duration (D)		
Immediate	1	Effect occurs periodically throughout the life of the activity.
Short term	2	Effect lasts for a period 0 to 5 years.
Medium term	3	Effect continues for a period between 5 and 15 years.
Long term	4	Effect will cease after the operational life of the activity either because of natural process or by human intervention.
Permanent	5	Where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.
Probability of occurrence (P)		
Improbable	1	Less than 30% chance of occurrence.
Low	2	Between 30 and 50% chance of occurrence.
Medium	3	Between 50 and 70% chance of occurrence.

High	4	Greater than 70% chance of occurrence.
Definite	5	Will occur, or where applicable has occurred, regardless or in spite of any mitigation measures.

Once the impact criteria have been ranked for each impact, the significance of the impacts will be calculated using the following formula:

$$\text{Significance Points (SP)} = (\text{Magnitude} + \text{Duration} + \text{Extent}) \times \text{Probability}$$

The significance of the ecological impact is therefore calculated by multiplying the severity rating with the probability rating. The maximum value that can be reached through this impact evaluation process is 100 SP (points). The significance for each impact is rated as High (SP≥60), Medium (SP = 31-60) and Low (SP<30) significance as shown in the below.

Table 4: Criteria for Rating of Classified Impacts

Significance of predicted NEGATIVE impacts		
Low	0-30	Where the impact will have a relatively small effect on the environment and will require minimum or no mitigation and as such have a limited influence on the decision
Medium	31-60	Where the impact can have an influence on the environment and should be mitigated and as such could have an influence on the decision unless it is mitigated.
High	61-100	Where the impact will definitely have an influence on the environment and must be mitigated, where possible. This impact will influence the decision regardless of any possible mitigation.
Significance of predicted POSITIVE impacts		
Low	0-30	Where the impact will have a relatively small positive effect on the environment.
Medium	31-60	Where the positive impact will counteract an existing negative impact and result in an overall neutral effect on the environment.
High	61-100	Where the positive impact will improve the environment relative to baseline conditions.

Table 5: Impact Assessment Matrix

Impacts and Mitigation measures relating to the construction during Operational Phase														
Activity/Aspect	Impact /	Aspect	Nature	Magnitude	Extent	Duration	Probability	Significance before mitigation	Mitigation measures	Magnitude	Extent	Duration	Probability	Significance after mitigation
Clearing and construction	Destruction of archaeological remains	Cultural heritage	-	2	1	1	1	4	<ul style="list-style-type: none"> None required because no archaeological remains were recorded Use chance find procedure to cater for accidental finds 	2	1	1	1	4
	Disturbance of graves	Cultural heritage	-	2	1	1	1	4	<ul style="list-style-type: none"> None required 	2	1	1	1	4
	Disturbance of buildings and structures older than 60 years old	Operational	-	4	1	2	2	14	<ul style="list-style-type: none"> None required 	4	1	2	2	14
Movement of equipment	Destruction public monuments and plaques	Operational	-	2	1	1	1	4	<ul style="list-style-type: none"> Mitigation is not required because there are no public monuments within the mining right application site 	2	1	1	4	4

5.6. Impact Statement

The main cause of impacts to archaeological sites is direct, physical disturbance of the archaeological remains themselves and their contexts. It is important to note that the heritage and scientific potential of an archaeological site is highly dependent on its geological and spatial context. This means that even though, for example a deep excavation may expose buried archaeological sites and artefacts, the artefacts are relatively meaningless once removed from their original position. The primary impacts are likely to occur during clearance and excavation of riverbank for rehabilitation, indirect impacts may occur during movement of construction vehicles.

Similarly, the clearing of access roads will impact material that lies buried in the edges of the riverbank. Since heritage sites, including archaeological sites, are non-renewable, it is important that they are identified, and their significance assessed prior to construction. It is important to note that due to the localised nature of archaeological resources, that individual archaeological sites could be missed during the survey, although the probability of this is very low within the proposed project area. Further, archaeological sites and unmarked graves may be buried beneath the surface and may only be exposed during construction. The purpose of the AIA/HIA is to assess the sensitivity of the area in terms of archaeology and to avoid or reduce the potential impacts of the proposed riverbank rehabilitation by means of mitigation measures (see appended Chance Find Procedure). The study concludes that the impacts will be negligible since the development site has previously been cleared and eroded significantly. The following section presents results of the archaeological and heritage survey conducted within the proposed riverbank rehabilitation site. Based on the impact rating, the main impact will be on heritage resources buried beneath the surface. Although the potential of encountering significant heritage resources during construction, these are covered by the appended Chance Find Procedure.

5.7. Cumulative Impacts

The European Union Guidelines define cumulative impacts as: "Impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. Therefore, the assessment of cumulative impacts for the proposed project considered the total impact associated with the proposed project when combined with other past, present, and reasonably foreseeable future developments projects. An examination of the potential for other projects to contribute cumulatively to the impacts on heritage resources from this proposed project was undertaken during the preparation of this report. The total impact arising from the proposed project (under the control of the developer), other activities (that may be

under the control of others, including other developers, local communities, government) and other background pressures and trends which may be unregulated. The project's impact is therefore one part of the total cumulative impact on the environment. The analysis of a project's incremental impacts combined with the effects of other projects can often give a more accurate understanding of the likely results of the project's presence than just considering its impacts in isolation. The impacts of the proposed project were assessed by comparing the post-project situation to a pre-existing baseline. Where projects can be considered in isolation this provides a good method of assessing a project's impact. However, in this case there are several infrastructure developments including residential developments and bulk water supply infrastructure where baselines have already been affected, the proposed project will continue to add to the impacts in the area, it was deemed appropriate to consider the cumulative effects of proposed development.

This section considers the cumulative impacts that would result from the combination of the proposed development project. There are existing infrastructure developments and massive residential developments in the project area. As such increased development in the project area will have a number of cumulative impacts on heritage resource whether known or covered in the ground. For example, during rehabilitation phase they will be increase in human activity and movement of heavy construction equipment and vehicles that could change, alter or destroy heritage resources that may be buried beneath the surface. Cumulative impacts that could result from a combination of the proposed project and other actual or proposed future developments in the broader study area include site clearance and the removal of topsoil could result in damage to or the destruction of heritage resources that have not previously been recorded. Heritage resources such as burial grounds and graves and archaeological and historical sites are common occurrences within the greater study area. These sites are often not visible and as a result, can be easily affected or lost. In addition, increased human activity during construction phase allows increased access to nearby heritage resources. In addition, vibration from traffic has the potential to impact buildings and features of architectural and cultural significance. A potential interaction between archaeology, architectural and cultural heritage and landscape and visual during both the construction and operational phase of the proposed project is identified.

No specific paleontological resources were found in the project area during the time of this study; however, this does not preclude the fact that paleontological resources may exist within the greater study area. As such, the proposed development has the potential to impact on possible paleontological resources in the area. Sites of archaeological, paleontological, or architectural significance were not specifically identified,

and cumulative effects are not applicable. The nature and severity of the possible cumulative effects may differ from site to site depending on the characteristics of the sites and variables.

Cumulative impacts that need attention are related to the impacts of access roads and impacts to buried heritage resources. Allowing the impact of the proposed development to go beyond the surveyed area would result in a significant negative cumulative impact on sites outside the surveyed area. Movement of heavy construction vehicles must be monitored to ensure that they do not drive beyond the approved site. No significant cumulative impacts, over and above those already considered in the impact assessment, are foreseen at this stage of the assessment process. Cumulative impacts can be significant, if construction vehicles are not monitored to avoid driving through undetected heritage resources.

5.8. Mitigation

Mitigation is not required for the proposed rehabilitation; however, the appended chance find procedure applies in case of any accidental finds.

6. ASSESSING SIGNIFICANCE

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

6.1. 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.

6.2. Historic Value

Historic value encompasses the history of aesthetics, science and society, and therefore to a large extent underlies all of 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.

6.3. 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.

6.4. 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.

7. DISCUSSION

Various specialists conducted several Phase 1 Archaeological/ Heritage studies for various infrastructure developments in the project area since 2000. The current study should be read in conjunction with previous Phase 1 Impact Studies conducted in the proposed project area. The studies include housing, infrastructure developments, water pipeline and powerline projects completed by Van Schalkwyk (2005, 2007, 2008, 2009, 2010, 2011, 2013, 2014), Kusel (2009, 2010, 2011, 2013, 2014), Tomose (2013), Jaco Van der Walt (2013) and Mlilo (2018). These studies recorded sites of varying types and significance; however, none were recorded within the proposed development site. The lack of confirmable archaeological sites recorded during the current survey is thought to be a result of the following factor:

1. That proposed development site is located within a 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 disturbances resulting from developments and other land uses in the project area.

It should be borne in mind that the absence of confirmable and significant archaeological cultural heritage site is not evidence in itself that such sites did not exist within the proposed project site. Based on the significance assessment criterion employed for this report, the proposed development site was rated **low** because no archaeological and heritage resources were identified during the survey. It should be noted that significance of the sites of Interest is not limited to presence or absence of physical archaeological sites.

Significant archaeological remains may be unearthed during clearance and construction. (see appended chance find procedure).

8. RECOMMENDATIONS

1. From a heritage perspective supported by the findings of this study, the proposed riverbank rehabilitation is feasible. The proposed development may be approved to proceed as planned under observation that the development dimensions do not extend beyond the proposed site.
2. The footprint impact of the proposed development and associated infrastructure should be kept to minimal to limit the possibility of encountering chance finds.
3. Should chance archaeological materials or human remains be exposed during subsurface construction work on any section of the proposed development laydown sites, work should cease on the affected area and the discovery must be reported to the heritage authorities immediately so that an investigation and evaluation of the finds can be made. 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-G and NHRA regulations.
4. Subject to the recommendations herein made and the implementation of the mitigation measures and adoption of the project EMP, there are no significant cultural heritage resources barriers to the proposed development. The Heritage authority may approve the proposed riverbank rehabilitation to proceed as planned with special commendations to implement the recommendations herein made.

9. CONCLUSION

In compliance with South African heritage legislation and other environmental legislation, Integrated Specialist Services (Pty) Ltd was appointed by Organic Minds Solutions (Pty) Ltd to carry out an HIA for the proposed riverbanks rehabilitation on 52 Main Street Bordeaux, within the City of Johannesburg, Gauteng Province. The proposed development does not lie on pristine ground, but no known archaeological sites were reported along the riverbank rehabilitation site. In terms of the archaeology and heritage in respect of the riverbank rehabilitation site, there are no obvious 'Fatal Flaws' or 'No-Go' areas. No archaeological sites were recorded within the riverbank rehabilitation site. The field survey established that the affected project area is degraded by previous destructive land use activities. This report concludes that the proposed development may be approved by SAHRA/PHRA-G to proceed as planned subject to recommendations herein made (See Appendices 1, 2 &3). The measures are informed by the results of the study and principles of heritage management enshrined in the NHRA, Act 25 of 1999. However, the potential for chance finds, remains and the developer and contractors are advised to be diligent and observant during excavation. The procedure for reporting chance finds has clearly been laid out and if this report is adopted by SAHRA, then there are no archaeological reasons why the proposed project cannot be allowed to proceed.

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11. APPENDIX 1: CHANCE FIND PROCEDURE FOR THE PROPOSED RIVERBANK REHABILITATION OF 52 MAIN STREET, BODEREAUX WITHIN THE CITY OF JOHANNESBURG METROPOLITAN MUNICIPALITY IN GAUTENG PROVINCE

November 2020

ACRONYMS

BGG	Burial Grounds and Graves
CFPs	Chance Find Procedures
ECO	Environmental Control Officer
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
NHRA	National Heritage Resources Act (Act No. 25 of 1999)
SAHRA	South African Heritage Resources Authority
SAPS	South African Police Service
UNESCO	United Nations Educational, Scientific and Cultural Organisation

CHANCE FIND PROCEDURE

INTRODUCTION

An Archaeological Chance Find Procedure (CFP) is a tool for the protection of previously unidentified cultural heritage resources during construction. The main purpose of a CFP is to raise awareness of all construction workers and management on site regarding the potential for accidental discovery of cultural heritage resources and establish a procedure for the protection of these resources. Chance Finds are defined as potential cultural heritage (or paleontological) objects, features, or sites that are identified outside of or after Heritage Impact studies, normally as a result of construction monitoring. Chance Finds may be made by any member of the project team who may not necessarily be an archaeologist or even visitors. Appropriate application of a CFP on development projects has led to discovery of cultural heritage resources that were not identified during archaeological and heritage impact assessments. As such, it is considered to be a valuable instrument when properly implemented. For the CFP to be effective, the site manager must ensure that all personnel on the proposed development site understand the CFP and the importance of adhering to it if cultural heritage resources are encountered. In addition, training or induction on cultural heritage resources that might potentially be found on site should be provided. In short, the Chance find procedure details the necessary steps to be taken if any culturally significant artefacts are found during construction.

DEFINITIONS

In short the term 'heritage resource' includes structures, archaeology, meteors, and public monuments as defined in the South African National Heritage Resources Act (Act No. 25 of 1999) (NHRA) Sections 34, 35, and 37. Procedures specific to burial grounds and graves (BGG) as defined under NHRA Section 36 will be discussed separately as this require the implementation of separate criteria for CFPs.

BACKGROUND

The proposed riverbank rehabilitation in the Gauteng Province is subject to heritage survey and assessment at planning stage in accordance with the NHRA. These surveys are based on surface indications alone and it is therefore possible that sites or significant archaeological remains can be missed during surveys because they occur beneath the surface. These are often accidentally exposed in the course of construction or any associated construction work and hence the need for a Chance Find Procedure to deal with accidental finds. In this case an extensive Archaeological Impact Assessment was completed by Mlilo (2020) on the proposed project site. The AIA/HIA conducted was very comprehensive covering the entire site. The current study (Mlilo

2020) did not record any significant archaeological or heritage resources within the proposed development site.

PURPOSE

The purpose of this Chance Find Procedure is to ensure the protection of previously unrecorded heritage resources within the proposed development site. This Chance Find Procedure intends to provide the applicant and contractors with appropriate response in accordance with the NHRA and international best practice. The aim of this CFP is to avoid or reduce project risks that may occur as a result of accidental finds whilst considering international best practice. In addition, this document seeks to address the probability of archaeological remains finds and features becoming accidentally exposed during digging of foundations and movement of construction equipment. The proposed riverbank rehabilitation activities have the potential to cause severe impacts on significant tangible and intangible cultural heritage resources buried beneath the surface or concealed by tall grass cover. ISS heritage specialists developed this Chance Find Procedure to define the process which govern the management of Chance Finds during construction. This ensures that appropriate treatment of chance finds while also minimizing disruption of the construction schedule. It also enables compliance with the NHRA and all relevant regulations. Archaeological Chance Find Procedures are to promote preservation of archaeological remains while minimizing disruption of construction scheduling. It is recommended that due to the low to moderate archaeological potential of the project area, all site personnel and contractors be informed of the Archaeological Chance Find procedure and have access to a copy while on site. This document has been prepared to define the avoidance, minimization and mitigation measures necessary to ensure that negative impacts to known and unknown archaeological remains as a result of project activities and are prevented or where this is not possible, reduced to as low as reasonably practical during prospection.

Thus, this Chance Finds Procedure covers the actions to be taken from the discovering of a heritage site or item to its investigation and assessment by a professional archaeologist or other appropriately qualified person to its rescue or salvage.

CHANCE FIND PROCEDURE

General

The following procedure is to be executed in the event that archaeological material is discovered:

- All riverbank rehabilitation activities in the vicinity of the accidental find/feature/site must cease immediately to avoid further damage to the find site.
- Briefly note the type of archaeological materials you think you have encountered, and their location, including, if possible, the depth below surface of the find
- Report your discovery to your supervisor or if they are unavailable, report to the project ECO who will provide further instructions.
- If the supervisor is not available, notify the Environmental Control Officer immediately. The Environmental Control Officer will then report the find to the Site Manager who will promptly notify the project archaeologist and SAHRA.
- Delineate the discovered find/ feature/ site and provide 25m buffer zone from all sides of the find.
- Record the find GPS location, if able.
- All remains are to be stabilised *in situ*.
- Secure the area to prevent any damage or loss of removable objects.
- Photograph the exposed materials, preferably with a scale (a yellow plastic field binder will suffice).
- The project archaeologist will undertake the inspection process in accordance with all project health and safety protocols under direction of the Health and Safety Officer.
- **Finds rescue strategy:** All investigation of archaeological soils will be undertaken by hand, all finds, remains and samples will be kept and submitted to a Museum as required by the heritage legislation. In the event that any artefacts need to be conserved, the relevant permit will be sought from the SAHRA.
- An on-site office and finds storage area will be provided, allowing storage of any artefacts or other archaeological material recovered during the monitoring process.
- In the case of human remains, in addition to the above, the SAHRA Burial Ground Unit will be contacted and the guidelines for the treatment of human remains will be adhered to. If skeletal remains are identified, an archaeologist will be available to examine the remains.
- The project archaeologist will complete a report on the findings as part of the permit application process.
- Once authorisation has been given by SAHRA, the Applicant will be informed when construction activities can resume.

MANAGEMENT OF CHANCE FINDS

Should the Heritage specialist conclude that the find is a heritage resource protected in terms of the NRHA (1999) Sections 34, 36, 37 and NHRA (1999) Regulations (Regulation 38, 39, 40), ISS will notify SAHRA and/or PHRA-G on behalf of the applicant. SAHRA/PHRA-G may require that a search and rescue exercise be conducted in terms of NHRA Section 38, this may include rescue excavations, for which ISS will submit a rescue permit application having fulfilled all requirements of the permit application process.

In the event that human remains are accidentally exposed, SAHRA Burial Ground Unit or ISS Heritage Specialist must immediately be notified of the discovery in order to take the required further steps:

- a. Heritage Specialist to inspect, evaluate and document the exposed burial or skeletal remains and determine further action in consultation with the SAPS and Traditional authorities:
- b. Heritage specialist will investigate the age of the accidental exposure in order to determine whether the find is a burial older than 60 years under the jurisdiction of SAHRA or that the exposed burial is younger than 60 years under the jurisdiction of the Department of Health in terms of the Human Tissue Act.
- c. The local SAPS will be notified to inspect the accidental exposure in order to determine where the site is a scene of crime or not.
- d. Having inspected and evaluated the accidental exposure of human remains, the project Archaeologist will then track and consult the potential descendants or custodians of the affected burial.
- e. The project archaeologist will consult with the traditional authorities, local municipality and SAPS to seek endorsement for the rescue of the remains. Consultation must be done in terms of NHRA (1999) Regulations 39, 40, 42.
- f. Having obtained consent from affected families and stakeholders, the project archaeologist will then compile a Rescue Permit application and submit to SAHRA Burial Ground and Graves Unit.

- g. As soon as the project archaeologist receives the rescue permit from SAHRA he will in collaboration with the company/contractor arrange for the relocation in terms of logistics and appointing of an experienced undertaker to conduct the relocation process.
- h. The rescue process will be done under the supervision of the archaeologist, the site representative and affected family members. Retrieval of the remains shall be undertaken in such a manner as to reveal the stratigraphic and spatial relationship of the human skeletal remains with other archaeological features in the excavation (e.g., grave goods, hearths, burial pits, etc.). A catalogue and bagging system shall be utilised that will allow ready reassembly and relational analysis of all elements in a laboratory. The remains will not be touched with the naked hand; all Contractor personnel working on the excavation must wear clean cotton or non-powdered latex gloves when handling remains in order to minimise contamination of the remains with modern human DNA. The project archaeologist will document the process from exhumation to reburial.
- i. Having fulfilled the requirements of the rescue/burial permit, the project archaeologist will compile a mitigation report which details the whole process from discovery to relocation. The report will be submitted to SAHRA and to the company.

Note that the relocation process will be informed by SAHRA Regulations and the wishes of the descendants of the affected burial.

12. APPENDIX 2: HERITAGE MANAGEMENT PLAN INPUT INTO THE PROPOSED RIVERBANK REHABILITATION SITE

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-G 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 will immediately inform the Construction Manager who in turn will inform PHRA-G.		When necessary	C CECO	SM	ECO	EA EM PM
		Should any remains be found on site that is potentially human remains, the PHRA-G 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.						

13. APPENDIX 3: HERITAGE MITIGATION MEASURES 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>Loss of intangible heritage value due to change in land use</p>	<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 for possible relocation of affected graves accidentally encountered during construction work. 	<ul style="list-style-type: none"> • Contractor / • Project Manager • Archaeologist • Project EO 	Fine and or imprisonment under the 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>

14. APPENDIX 4: 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

