



An EOH Company

Innovation in  
Sustainability

**DELRON: ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) OF  
AREAS DEMARCTED FOR THE PROPOSED ZANDSPRUIT  
TOWNSHIP ESTABLISHMENT ON PORTIONS OF THE FARM  
ZANDSPRUIT 191-IQ AND HOLDING 43 SONENDAL A.H, CITY  
OF JOHANNESBURG, GAUTENG PROVINCE**

**Archaeological Impact Assessment**



Prepared for: **Delron**

Prepared by: **Exigo Sustainability**



An EOH Company

**Email** info@exigo3.com  
**Tel** +27 012 751 2160  
**Fax** +27 086 607 2406

The Village Office Park (Block E),  
309 Glenwood Road, Faerie Glen,  
Pretoria, 0043

Postnet Suite 74,  
Private Bag X07,  
Arcadia, 0007

Innovation in  
Sustainability

[www.exigo3.com](http://www.exigo3.com)

## **ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) OF AREAS DEMARCTED FOR THE PROPOSED ZANDSPRUITTOWNSHIP ESTABLISHMENT ON PORTIONS 16, 22, 23, 26, 42, 51, 55, 56, 59, 67, 68, 72, 73, 76, 104, 105, 144 AND 160 OF THE FARM ZANDSPRUIT 191-IQ AND HOLDING 43 SONENDAL A.H, CITY OF JOHANNESBURG, GAUTENG PROVINCE**

---

### **Conducted on behalf of:**

Delron Environmental  
Exigo Sustainability

### **Compiled by:**

Nelius Kruger (BA, BA Hons. Archaeology Pret.)

### **Reviewed by:**

Pieter de Lange (EAP – Delron)

### **Document History**

Document Version 1 (Draft) May 2016



An EOH Company

**Email** info@exigo3.com  
**Tel** +27 012 751 2160  
**Fax** +27 086 607 2406

The Village Office Park (Block E),  
309 Glenwood Road, Faerie Glen,  
Pretoria, 0043

Postnet Suite 74,  
Private Bag X07,  
Arcadia, 0007



Innovation in  
Sustainability

[www.exigo3.com](http://www.exigo3.com)

Although Exigo Sustainability exercises due care and diligence in rendering services and preparing documents, Exigo Sustainability accepts no liability, and the client, by receiving this document, indemnifies Exigo Sustainability and its directors, managers, agents and employees against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by Exigo Sustainability and by the use of the information contained in this document.

This document contains confidential and proprietary information equally shared between Exigo Sustainability and Delron, and is protected by copyright in favour of these companies and may not be reproduced, or used without the written consent of these companies, which has been obtained beforehand. This document is prepared exclusively for Delron and is subject to all confidentiality, copyright and trade secrets, rules, intellectual property law and practices of South Africa.

Exigo Sustainability promotes the conservation of sensitive archaeological and heritage resources and therefore uncompromisingly adheres to relevant Heritage Legislation (National Heritage Resources Act no. 25 of 1999, Human Tissue Act 65 of 1983 as amended, Removal of Graves and Dead Bodies Ordinance no. 7 of 1925, Excavations Ordinance no. 12 of 1980). In order to ensure best practices and ethics in the examination, conservation and mitigation of archaeological and heritage resources, Exigo Sustainability follows the Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment as set out by the South African Heritage Resources Agency (SAHRA) and the CRM section of the Association for South African Professional Archaeologists (ASAPA).

---

**DECLARATION**

---

I, Nelius Le Roux Kruger, declare that –

- I act as the independent specialist;
- I am conducting any work and activity relating to the proposed Zandspruit Township Establishment Project in an objective manner, even if this results in views and findings that are not favourable to the client;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have the required expertise in conducting the specialist report and I will comply with legislation, including the relevant Heritage Legislation (National Heritage Resources Act no. 25 of 1999, Human Tissue Act 65 of 1983 as amended, Removal of Graves and Dead Bodies Ordinance no. 7 of 1925, Excavations Ordinance no. 12 of 1980), the Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment (SAHRA, AMAFA and the CRM section of ASAPA), regulations and any guidelines that have relevance to the proposed activity;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this declaration are true and correct.



---

Signature of specialist

**Company:** Exigo Sustainability

**Date:** 10 May 2016

## EXECUTIVE SUMMARY

---

This report details the results of an Archaeological Impact Assessment (AIA) study, subject to an Environmental Impact Assessment (EIA) for the proposed Zandspruit township establishment on Portions 16, 22, 23, 26, 42, 51, 55, 56, 59, 67, 68, 72, 73, 76, 104, 105, 144 and 160 of the Farm Zandspruit 1911Q and Holding 43 in the City of Johannesburg, Gauteng. The owners are planning the development of a residential township consisting of numerous infrastructure elements across a surface area of approximately 550ha. The AIA was conducted subject to requirements as set out by the National Environmental Management Act (Act 107 of 1998), the National Heritage Resources Act (NHRA - Act 25 of 1999). The report includes background information on the area's archaeology, its representation in southern Africa, and the history of the larger area under investigation, survey methodology and results as well as heritage legislation and conservation policies. A copy of the report will be supplied to the provincial heritage agency (EC-PHRA) and recommendations contained in this document will be reviewed.

A large number of archaeological and historical studies have been conducted around this section of Gauteng and these studies all infer a varied and rich heritage landscape. Even though the study area has been altered extensively by recent and historical activities largely sterilising the area of heritage remains, a number of sites of heritage potential were noted in the project area.

- A number of Contemporary Period houses, dwellings, foundation structures and buildings (**Site EXIGO-ZTE-CP01 to Site EXIGO-ZTE-CP09**) as well as a number of religious meeting places possibly associated with the ZCC (**Site EXIGO-ZTE-FT01 to Site EXIGO-ZTE-FT08**) occur within the project area but these sites are of low significance due a more recent temporal context thereof. However, it is recommended that the sites and any activities in its surrounds be monitored in order to avoid the destruction of previously undetected heritage remains. It is suggested that local communities be consulted with regards to religious meeting places in the project area and their possible social meanings. This could form part of the Social impact Assessment (SIA) for the project.
- Three fairly well preserved Historical Period buildings and / or compounds (**Site EXIGO-ZTE-HP01, Site EXIGO-ZTE-HP02, Site EXIGO-ZTE-HP03**) occur within the project area and the sites are of medium significance as they might inform on architectural, settlement and social developments at Zandspruit. It is primarily recommended that the sites be avoided and that a 20m conservation buffer around the structures be implemented. Should impact on the sites by development prove inevitable they should be adequately documented by means of further Phase 2 Specialist Analysis (mapped, photographed and documented, described and contextualised by means of a desktop study) and the necessary destruction permits should be obtained from the relevant Heritage Resources Authorities.
- Two burial sites occurring within the project area (**Site EXIGO-ZTE-BP01, Site EXIGO-ZTE-BP02**) are of high significance and these sites will in all probability be impacted on by the proposed project. Primarily it is recommended that cemeteries be avoided and that a conservation buffer of at least 50m be implemented for the heritage receptors on the condition that the burial sites are monitored frequently by a heritage consultant or informed ECO in order to detect and manage negative impact on the sites. In addition, the sites should be fenced prior to the commencement of construction and strict access control should be applied. A site management plan detailing strict site management conservation measures for these heritage receptors should be compiled prior to the commencement of construction. The developer should carefully liaise with the heritage specialist and SAHRA with regards to the management and monitoring of any human grave or cemetery.

**Should impact on any human burial prove inevitable, full grave relocations are recommended for these burial grounds. This measure should be undertaken by a qualified archaeologist, and in accordance with relevant legislation, permitting, statutory permissions and subject to any local and regional provisions and laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials.**

- A careful watching brief monitoring process is recommended whereby an informed ECO inspect the construction site on regular basis in order to monitor possible impact on heritage resources. Should any subsurface paleontological, archaeological or historical material or heritage resources be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately

A Palaeontological Impact Assessment and / or Desktop Study should be considered for the study area and, should fossil remains such as fossil fish, reptiles or petrified wood be exposed during construction, these objects should carefully safeguarded and the relevant heritage resources authority (SAHRA) should be notified immediately so that the appropriate action can be taken by a professional palaeontologist.

**Zandspruit Township Establishment Project - Documented Site Locations:**

Site Code	Short Description	Coordinate S E	Mitigation Action
Site EXIGO-ZTE-HP01	Historical Period Structures.	S26.04684° E27.91428°	Avoidance, conservation buffer, site monitoring. Phase 2 documentation & destruction permitting if impacted on. General site monitoring by informed ECO.
Site EXIGO-ZTE-HP02		S26.04602° E27.90931°	
Site EXIGO-ZTE-HP03		S26.04525° E27.90825°	
Site EXIGO-ZTE-BP01	Cemeteries.	S26.04631° E27.90927°	Avoidance & redesign layout to avoid the heritage resource, 50m conservation buffer, fence all burial places and apply access control, site monitoring, site management plan implementation. Grave Relocation Alternative: Relocation of burials and documentation of site, full social consultation with affected parties, possible conservation management and protection measures. Subject to authorisations and relevant permitting from heritage authorities and affected parties.
Site EXIGO-ZTE-BP02		S26.06174° E27.91341°	
Site EXIGO-ZTE-CP01	Contemporary Period Features.	S26.04539° E27.91287°	No further heritage action required. General site monitoring by informed ECO.
Site EXIGO-ZTE-CP02		S26.04524° E27.90920°	
Site EXIGO-ZTE-CP03		S26.04742° E27.90866°	
Site EXIGO-ZTE-CP04		S26.04801° E27.90744°	
Site EXIGO-ZTE-CP05		S26.04946° E27.91435°	
Site EXIGO-ZTE-CP06		S26.06815° E27.91048°	
Site EXIGO-ZTE-CP07		S26.06367° E27.91045°	
Site EXIGO-ZTE-CP08		S26.05009° E27.91167°	
Site EXIGO-ZTE-CP09		S26.05573° E27.90858°	

Site EXIGO-ZTE-FT01	Religious meeting place.	S26.06320° E27.91262°	No further heritage action required. It is suggested that local communities be consulted with regards to religious meeting places in the project area and their possible social meanings.
Site EXIGO-ZTE-FT02		S26.06296° E27.91433°	
Site EXIGO-ZTE-FT03		S26.06429° E27.91479°	
Site EXIGO-ZTE-FT04		S26.06349° E27.91599°	
Site EXIGO-ZTE-FT05		S26.06451° E27.91278°	
Site EXIGO-ZTE-FT06		S26.06493° E27.91323°	
Site EXIGO-ZTE-FT07		S26.06640° E27.91267°	
Site EXIGO-ZTE-FT08		S26.06537° E27.91011°	

***Sensitive heritage resources occur inside areas proposed for the Zandspruit Township Establishment development and the mitigation and management of some of these resources are required for the duration of the development. In the opinion of the author of this Archaeological Impact Assessment Report, the proposed Zandspruit Township Establishment Project may proceed from a culture resources management perspective, provided that mitigation measures, endorsed by the relevant Heritage Resources authority, are implemented where applicable, and provided that no subsurface heritage remains are encountered during construction.***

It is essential that cognisance be taken of the larger archaeological and historical landscape of Pretoria in order to avoid the destruction of previously undetected heritage sites. Should any previously undetected heritage resources be exposed or uncovered during construction phases of the proposed project, these should immediately be reported to the SAHRA. Since the intrinsic heritage and social value of graves and cemeteries are highly significant, these resources require special management measures. Should human remains be discovered at any stage, these should be reported to the Heritage Specialist and relevant authorities (EC-PHRA, SAHRA) and development activities should be suspended until the site has been inspected by the Specialist. The Specialist will advise on further management actions and possible relocation of human remains in accordance with the Human Tissue Act (Act 65 of 1983 as amended), the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the National Heritage Resources Act (Act no. 25 of 1999) and any local and regional provisions, laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials.

This report details the methodology, limitations and recommendations relevant to these heritage areas, as well as areas of proposed development. It should be noted that recommendations and possible mitigation measures are valid for the duration of the development process, and mitigation measures might have to be implemented on additional features of heritage importance not detected during this Phase 1 assessment (e.g. uncovered during the construction process).

---

## NOTATIONS AND TERMS/TERMINOLOGY

---

**Absolute dating:**

Absolute dating provides specific dates or range of dates expressed in years.

**Archaeology:**

The study of the human past through its material remains.

**Archaeological record:**

The archaeological record minimally includes all the material remains documented by archaeologists. More comprehensive definitions also include the record of culture history and everything written about the past by archaeologists.

**Artefact:**

Entities whose characteristics result or partially result from human activity. The shape and other characteristics of the artefact are not altered by removal of the surroundings in which they are discovered. In the southern African context examples of artefacts include potsherds, iron objects, stone tools, beads and hut remains.

**Assemblage:**

A group of artefacts recurring together at a particular time and place, and representing the sum of human activities.

**<sup>14</sup>C or radiocarbon dating:**

The <sup>14</sup>C method determines the absolute age of organic material by studying the radioactivity of carbon. It is reliable for objects not older than 70 000 years by means of isotopic enrichment. The method becomes increasingly inaccurate for samples younger than ±250 years.

**Ceramic Facies:**

In terms of the cultural representation of ceramics, a facies is denoted by a specific branch of a larger ceramic tradition. A number of ceramic facies thus constitute a ceramic tradition.

**Ceramic Tradition:**

In terms of the cultural representation of ceramics, a series of ceramic units constitutes as ceramic tradition.

**Context:**

An artefact's context usually consists of its immediate *matrix*, its *provenience* and its *association* with other artefacts. When found in *primary context*, the original artefact or structure was undisturbed by natural or human factors until excavation and if in *secondary context*, disturbance or displacement by later ecological action or human activities occurred.

**Culture:**

A contested term, "culture" could minimally be defined as the learned and shared things that people have, do and think.

**Cultural Heritage Resource:**

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

**Cultural landscape:**

A cultural landscape refers to a distinctive geographic area with cultural significance.

**Cultural Resource Management (CRM):**

A system of measures for safeguarding the archaeological heritage of a given area, generally applied within the framework of legislation designed to safeguard the past.

**Ecofact:**

Non artefactual material remains that has cultural relevance which provides information about past human activities. Examples would include remains or evidence of domesticated animals or plant species.



**Excavation:**

The principal method of data acquisition in archaeology, involving the systematic uncovering of archaeological remains through the removal of the deposits of soil and the other material covering and accompanying it.

**Feature:**

Non-portable artefacts, in other words artefacts that cannot be removed from their surroundings without destroying or altering their original form. Hearths, roads, and storage pits are examples of archaeological features

**GIS:**

Geographic Information Systems are computer software that allows layering of various types of data to produce complex maps; useful for predicting site location and for representing the analysis of collected data within sites and across regions.

**Historical archaeology:**

Primarily that aspect of archaeology which is complementary to history based on the study of written sources. In the South African context it concerns the recovery and interpretation of relics left in the ground in the course of Europe's discovery of South Africa, as well as the movements of the indigenous groups during, and after the "Great Scattering" of Bantu-speaking groups – known as the *mfecane* or *difaqane*.

**Impact:** A description of the effect of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

**Iron Age:**

Also known as "Farmer Period", the "Iron Age" is an archaeological term used to define a period associated with domesticated livestock and grains, metal working and ceramic manufacture.

**Lithic:**

Stone tools or waste from stone tool manufacturing found on archaeological sites.

**Management / Management Actions:**

Actions – including planning and design changes - that enhance benefits associated with a proposed development, or that avoid, mitigate, restore, rehabilitate or compensate for the negative impacts.

**Matrix:**

The material in which an artefact is situated (sediments such as sand, ashy soil, mud, water, etcetera). The matrix may be of natural origin or human-made.

**Megalith:**

A large stone, often found in association with others and forming an alignment or monument, such as large stone statues.

**Midden:**

Refuse that accumulates in a concentrated heap.

**Microlith:**

A small stone tool, typically knapped of flint or chert, usually about three centimetres long or less.

**Monolith:**

A geological feature such as a large rock, consisting of a single massive stone or rock, or a single piece of rock placed as, or within, a monument or site.

**Oral Histories:**

The historical narratives, stories and traditions passed from generation to generation by word of mouth.

**Phase 1 CRM Assessment:**

An Impact Assessment which identifies archaeological and heritage sites, assesses their significance and comments on the impact of a given development on the sites. Recommendations for site mitigation or conservation are also made during this phase.

**Phase 2 CRM Study:**

In-depth studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or

auger sampling is required. Mitigation / Rescue involves planning the protection of significant sites or sampling through excavation or collection (in terms of a permit) at sites that may be lost as a result of a given development.

**Phase 3 CRM Measure:**

A Heritage Site Management Plan (for heritage conservation), is required in rare cases where the site is so important that development will not be allowed and sometimes developers are encouraged to enhance the value of the sites retained on their properties with appropriate interpretive material or displays.

**Prehistoric archaeology:**

That aspect of archaeology which concerns itself with the development of humans and their culture before the invention of writing. In South Africa, prehistoric archaeology comprises the study of the Early Stone Age, the Middle Stone Age and the greater part of the Later Stone Age and the Iron Age.

**Probabilistic Sampling:**

A sampling strategy that is not biased by any person’s judgment or opinion. Also known as statistical sampling, it includes systematic, random and stratified sampling strategies.

**Provenience**

Provenience is the three-dimensional (horizontal and vertical) position in which artefacts are found. Fundamental to ascertaining the provenience of an artefact is *association*, the co-occurrence of an artefact with other archaeological remains; and *superposition*, the principle whereby artefacts in lower levels of a matrix were deposited before the artefacts found in the layers above them, and are therefore older.

**Random Sampling:**

A probabilistic sampling strategy whereby randomly selected sample blocks in an area are surveyed. These are fixed by drawing coordinates of the sample blocks from a table of random numbers.

**Relative dating:**

The process whereby the relative antiquity of sites and objects are determined by putting them in sequential order but not assigning specific dates.

**Remote Sensing:**

The small or large-scale acquisition of information of an object or phenomenon, by the use of either recording or real-time sensing device(s) that is not in physical or intimate contact with the object (such as by way of aircraft, spacecraft or satellite). Here, ground-based geophysical methods such as Ground Penetrating Radar and Magnetometry are often used for archaeological imaging.

**Rock Art Research:**

Rock art can be "decoded" in order to inform about cultural attributes of prehistoric societies, such as dress-code, hunting and food gathering, social behaviour, religious practice, gender issues and political issues.

**Scoping Assessment:**

The process of determining the spatial and temporal boundaries (i.e. extent) and key issues to be addressed in an impact assessment. The main purpose is to focus the impact assessment on a manageable number of important questions on which decision making is expected to focus and to ensure that only key issues and reasonable alternatives are examined. The outcome of the scoping process is a Scoping Report that includes issues raised during the scoping process, appropriate responses and, where required, terms of reference for specialist involvement.

**Sensitive:**

Often refers to graves and burial sites although not necessarily a heritage place, as well as ideologically significant sites such as ritual / religious places. *Sensitive* may also refer to an entire landscape / area known for its significant heritage remains.

**Site (Archaeological):**

A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity. These include surface sites, caves and rock shelters, larger open-air sites, sealed sites (deposits) and river deposits. Common functions of archaeological sites include living or habitation sites, kill sites, ceremonial sites, burial sites, trading, quarry, and art sites,

**Slag:**

The material residue of smelting processes from metalworking.

**Stone Age:**

An archaeological term used to define a period of stone tool use and manufacture.

**Stratigraphy:**

This principle examines and describes the observable layers of sediments and the arrangement of strata in deposits

**Stratified Sampling:**

A probabilistic sampling strategy whereby a study area is divided into appropriate zones – often based on the probable location of archaeological areas, after which each zone is sampled at random.

**Systematic Sampling:**

A probabilistic sampling strategy whereby a grid of sample blocks is set up over the survey area and each of these blocks is equally spaced and searched.

**Tradition:**

Artefact types, assemblages of tools, architectural styles, economic practices or art styles that last longer than a phase and even a horizon are describe by the term *tradition*. A common example of this is the early Iron Age tradition of Southern Africa that originated ± 200 AD and came to an end at about 900 AD.

**Trigger:** A particular characteristic of either the receiving environment or the proposed project which indicates that there is likely to be an *issue* and/or potentially significant *impact* associated with that proposed development that may require specialist input. Legal requirements of existing and future legislation may also trigger the need for specialist involvement.

**Tuyère:**

A ceramic blow-tube used in the process of iron smelting / reduction.

**LIST OF ABBREVIATIONS**

<b>Abbreviation</b>	<b>Description</b>
ASAPA	Association for South African Professional Archaeologists
AIA	Archaeological Impact Assessment
BP	Before Present
BCE	Before Common Era
CRM	Culture Resources Management
EIA	Early Iron Age (also Early Farmer Period)
EIA	Environmental Impact Assessment
EFP	Early Farmer Period (also Early Iron Age)
ESA	Earlier Stone Age
GIS	Geographic Information Systems
HIA	Heritage Impact Assessment
ICOMOS	International Council on Monuments and Sites
K2/Map	K2/Mapungubwe Period
KZNHA	KwaZulu-Natal Heritage Act of 2008
LFP	Later Farmer Period (also Later Iron Age)
LIA	Later Iron Age (also Later Farmer Period)
LSA	Later Stone Age
MIA	Middle Iron Age (also Early later Farmer Period)
MRA	Mining Right Area
MSA	Middle Stone Age
NHRA	National Heritage Resources Act No.25 of 1999, Section 35
PFS	Pre-Feasibility Study
PHRA	Provincial Heritage Resources Authorities
SAFA	Society for Africanist Archaeologists
SAHRA	South African Heritage Resources Association
YCE	Years before Common Era (Present)

**TABLE OF CONTENTS**

---

<b>EXECUTIVE SUMMARY .....</b>	<b>4</b>
<b>1 BACKGROUND.....</b>	<b>15</b>
1.1 SCOPE AND MOTIVATION .....	15
1.2 PROJECT DIRECTION .....	15
1.3 PROJECT BRIEF .....	15
1.4 TERMS OF REFERENCE .....	18
1.5 CRM: LEGISLATION, CONSERVATION AND HERITAGE MANAGEMENT.....	18
1.5.1 <i>Legislation regarding archaeology and heritage sites</i> .....	18
1.5.2 <i>Background to HIA and AIA Studies</i> .....	20
<b>2 REGIONAL CONTEXT.....</b>	<b>21</b>
2.1 AREA LOCATION .....	21
2.2 AREA DESCRIPTION: RECEIVING ENVIRONMENT .....	21
2.3 SITE DESCRIPTION.....	21
<b>3 METHOD OF ENQUIRY.....</b>	<b>25</b>
3.1 SOURCES OF INFORMATION .....	25
3.1.1 <i>Desktop Study</i> .....	25
3.1.2 <i>Aerial Representations and Survey</i> .....	25
3.1.3 <i>Mapping of sites</i> .....	25
3.1.4 <i>Field Survey</i> .....	29
3.2 LIMITATIONS.....	29
3.2.1 <i>Access</i> .....	29
3.2.2 <i>Visibility</i> .....	29
3.2.3 <i>Limitations and Constraints Summary</i> .....	34
3.3 IMPACT ASSESSMENT .....	34
<b>4 ARCHAEO-HISTORICAL CONTEXT.....</b>	<b>35</b>
4.1 THE ARCHAEOLOGY OF SOUTHERN AFRICA.....	35
4.1.1 <i>The Stone Ages</i> .....	35
4.1.2 <i>The Iron Age Farmer Period</i> .....	37
4.1.3 <i>Pastoralism and the last 2000 years</i> .....	38
4.1.4 <i>Historical and Colonial Times and Recent History</i> .....	38
4.2 THE JOHANNESBURG TOWNSHIPS: HISTORICAL PERSPECTIVE.....	39
4.2.1 <i>The Stone Ages</i> .....	39
4.2.2 <i>Iron Age / Farmer Period</i> .....	39
4.2.3 <i>Later History and Colonial Period: The development of informal settlements in Gauteng and Zandspruit</i> .....	40
4.2.4 <i>Burial Sites / Human Remains</i> .....	45
<b>5 RESULTS: ARCHAEOLOGICAL SURVEY .....</b>	<b>46</b>
5.1 THE STONE AGE .....	46
5.2 THE IRON AGE FARMER PERIOD .....	46
5.3 HISTORICAL / COLONIAL PERIOD .....	46
5.4 RECENT / CONTEMPORARY PERIOD .....	51
5.5 GRAVES / HUMAN BURIALS .....	56
5.6 OTHER FEATURES .....	59
<b>6 RESULTS: STATEMENT OF SIGNIFICANCE AND IMPACT RATING .....</b>	<b>63</b>

---

6.1	POTENTIAL IMPACTS AND SIGNIFICANCE RATINGS .....	63
6.1.1	<i>General assessment of impacts on resources</i> .....	63
6.1.2	<i>Direct impact rating</i> .....	63
6.2	EVALUATION IMPACTS .....	65
6.2.1	<i>Archaeology</i> .....	65
6.2.2	<i>Built Environment</i> .....	65
6.2.3	<i>Cultural Landscape</i> .....	65
6.2.4	<i>Graves / Human Burials Sites</i> .....	66
6.3	MANAGEMENT ACTIONS .....	66
<b>7</b>	<b>RECOMMENDATIONS</b> .....	<b>69</b>
<b>8</b>	<b>GENERAL COMMENTS AND CONDITIONS</b> .....	<b>70</b>
<b>9</b>	<b>BIBLIOGRAPHY</b> .....	<b>72</b>
<b>10</b>	<b>ADDENDUM A: HERITAGE LEGISLATION BACKGROUND</b> .....	<b>74</b>
10.1	CRM: LEGISLATION, CONSERVATION AND HERITAGE MANAGEMENT.....	74
10.1.1	<i>Legislation regarding archaeology and heritage sites</i> .....	74
10.1.2	<i>Background to HIA and AIA Studies</i> .....	75
10.2	ASSESSING THE SIGNIFICANCE OF HERITAGE RESOURCES.....	77
	- CATEGORIES OF SIGNIFICANCE .....	77
<b>11</b>	<b>ADDENDUM B: GRAVE RELOCATION AND SITE MANAGEMENT: STATUTORY MANDATE</b> .....	<b>80</b>
11.1	ARCHAEOLOGY, GRAVES AND THE LAW .....	80
11.2	GRAVES: NECESSARY PROCEDURES .....	80
<b>12</b>	<b>ADDENDUM C: CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE</b> .....	<b>82</b>
12.1	SITE SIGNIFICANCE MATRIX .....	82
12.2	IMPACT ASSESSMENT CRITERIA.....	82
12.3	DIRECT IMPACT ASSESSMENT CRITERIA .....	84
12.4	MANAGEMENT AND MITIGATION ACTIONS.....	85

**LIST OF FIGURES**

Figure 1-1: Aerial image indicating the infrastructure layout proposed for the Zandspruit Township Establishment Project ..... 17

Figure 2-1: 1:50 00 Map representation of the location of the Zandspruit Township Establishment Project Area (sheet 2627BB)..... 22

Figure 2-2: Aerial representation of the regional setting for the Zandspruit Township Establishment Project area ..... 23

Figure 2-3: Map of farm portions subject to the ZandspruitTownship Establishment Project area. .... 24

Figure 3-1: A series of historical topographic maps indicating the position of the study area in the past 70 years (black line). The images date as follows from left to right: 1942, 1953, 1968 and 1995..... 26

Figure 3-2: A series of historical aerial imagery indicating the position of the study area in the past 70 years (yellow line). The images date as follows from left to right: 1941, 1986 and 2015. .... 27

Figure 3-3: Aerial photo analysis of the Zandspruit site (red line): the periphery of the current Zandspruit settlement is indicated in white dotted line, buildings and structures are encircled in blue, dumping sites is indicated in black lines and historical and current agricultural areas are indicated in shaded yellow. .... 28

Figure 3-4: View of grassland in a northern section of the project area..... 29

Figure 3-5: Foundation structures prevalent throughout the project area. .... 30

Figure 3-6: The remains of a shack dwelling and a mealie field in a northern section of the project area. .... 30

Figure 3-7: Large foundations structural remains of a factory in a central part of the project area. .... 30

Figure 3-8: High grasses around farm houses in a central part of the project area. .... 31

Figure 3-9: View of a gravel road along the western periphery of the project area at Zandspruit ..... 31

Figure 3-10: House remains along the eastern periphery of the project area, looking west. .... 31

Figure 3-11: View of more pristine areas along the south of the project area. .... 32

Figure 3-12: A catchment dam in the Sand Spruit to the south of the project area. .... 32

Figure 3-13: View of transformed surroundings in the project area. .... 32

Figure 3-14: View of vegetation along the eastern periphery of the predict area..... 33

Figure 3-15: High grasses in the project area. The current Zandspruit settlement is visible in the distance. .... 33

Figure 3-16: Informal housing and storage along the eastern boundary of the project area. .... 33

Figure 3-17: Houses and informal dwellings in the current Zandspruit settlement..... 34

Figure 4-1: View of a street in the Zandspruit township in the 1970's. .... 45

Figure 5-1: A small Historical Period house at Site EXIGO-ZTE-HP01..... 47

Figure 5-2: Another small Historical Period house at Site EXIGO-ZTE-HP01..... 47

Figure 5-3: Aerial imagery dating to 1942, possibly indicating the presence of Historical houses at Site EXIGO-ZTE-HP01. .... 47

Figure 5-4: A small rondavel at the compound demarcated as Site EXIGO-ZTE-HP02..... 48

Figure 5-5: A cylindrical structure, possibly a grain storage container at Site EXIGO-ZTE-HP02..... 48

Figure 5-6: An old Historical Period farmhouse at Site EXIGO-ZTE-HP02..... 49

Figure 5-7: Aerial imagery dating to 1968 indicating the presence of the farmstead compound at Site EXIGO-ZTE-HP02..... 49

Figure 5-8: View of a large Historical Period house at Site EXIGO-ZTE-HP03..... 50

Figure 5-9: The veranda of a Historical Period farmhouse at Site EXIGO-ZTE-HP03. Note roof windows..... 50

Figure 5-10: Aerial imagery dating to 1968 indicating the presence of the house at Site EXIGO-ZTE-HP03..... 51

Figure 5-11: A Contemporary Period residence at Site EXIGO-ZTE-CP01..... 51

Figure 5-12: Foundation structures at Site EXIGO-ZTE-CP02..... 52

Figure 5-13: A modern Contemporary Period residence at Site EXIGO-ZTE-CP03..... 53

Figure 5-14: A Contemporary Period residence at Site EXIGO-ZTE-CP04..... 53

Figure 5-15: A Contemporary Period residence at the compound demarcated by EXIGO-ZTE-CP05..... 54

Figure 5-16: Contemporary Period rondavels at the compound demarcated by EXIGO-ZTE-CP05..... 54

Figure 5-17: Multi-room hostels and an access road at Site EXIGO-ZTE-CP06..... 55

Figure 5-18: A factory building at EXIGO-ZTE-CP07..... 55

Figure 5-19: A partially constructed shed building Site EXIGO-ZTE-CP08..... 56

Figure 5-20: An upright stone indicating the presence of a grave at Site EXIGO-ZTE-BP01..... 57

Figure 5-21: View of dense surroundings at Site EXIGO-ZTE-BP01..... 57

Figure 5-22: A burial indicated by a stone cairn at Site EXIGO-ZTE-BP02..... 58

Figure 5-23: Densely overgrown burials indicated by stone heaps at Site EXIGO-ZTE-BP02..... 58

Figure 5-24: A burial indicated by a stone cairn at Site EXIGO-ZTE-BP02..... 58

Figure 5-25: A poorly preserved painted concrete cross as headstone of a burial at Site EXIGO-ZTE-BP02..... 59

Figure 5-26: A burial indicated by a stone cairn, a heastone and a foot stone at Site EXIGO-ZTE-BP02..... 59

Figure 5-27: View of a recent period clearing, possibly a religious meeting place in the project area..... 60

Figure 5-28: Topographic map indicating the location of heritage sites discussed in the text..... 61

Figure 5-29: Aerial map indicating the location of heritage sites discussed in the text..... 62

## 1 BACKGROUND

### 1.1 Scope and Motivation

Exigo Sustainability was commissioned by Delron for an Archaeological Impact Assessment (AIA) study subject to an Environmental Impact Assessment (EIA) process for the proposed Zandspruit Township Establishment on Portions of the farm Zandspruit 191IQ and the farm Holding 43 in the City of Johannesburg, Gauteng Province. The rationale of this AIA is to determine the presence of heritage resources such as archaeological and historical sites and features, graves and places of religious and cultural significance in previously unstudied areas; to consider the impact of the proposed project on such heritage resources, and to submit appropriate recommendations with regard to the cultural resources management measures that may be required at affected sites / features.

### 1.2 Project Direction

Exigo Sustainability's expertise ensures that all projects be conducted to the highest international ethical and professional standards. As archaeological specialist for Exigo Sustainability, Mr Neels Kruger acted as field director for the project; responsible for the assimilation of all information, the compilation of the final consolidated AIA report and recommendations in terms of heritage resources on the demarcated project areas. Mr Kruger is an accredited archaeologist and Culture Resources Management (CRM) practitioner with the Association of South African Professional Archaeologists (ASAPA), a member of the Society for Africanist Archaeologists (SAFA) and the Pan African Archaeological Association (PAA) as well as a Master's Degree candidate in archaeology at the University of Pretoria.

### 1.3 Project Brief

The City of Johannesburg is planning the formalisation of a township on Portions 16, 22, 23, 26, 42, 51, 55, 56, 59, 67, 68, 72, 73, 76, 104, 105, 144 AND 160 of the farm Zandspruit 191IQ and Holding 43 Sonendal A.H, for the proposed Zandspruit Township Establishment project. More specifically, the following Portions and properties occur in the project area:

No.	Property Description	Area
1.	Portion 16 of the Farm Zandspruit 191-IQ	60 780.96
2.	Portion 22 of the Farm Zandspruit 191-IQ	326 133.4
3.	Portion 23 of the Farm Zandspruit 191-IQ	278 776.89
4.	Portion 26 of the Farm Zandspruit 191-IQ	
5.	Portion 42 of the Farm Zandspruit 191-IQ	178 923.02
6.	Portion 51 of the Farm Zandspruit 191-IQ	43 117.14
7.	Portion 55 of the Farm Zandspruit 191-IQ	66 618.4
8.	Portion 56 of the Farm Zandspruit 191-IQ	43 704.34
9.	Portion 59 of the Farm Zandspruit 191-IQ	50 640.83
10.	Portion 67 of the Farm Zandspruit 191-IQ	75 075.75



11.	Portion 68 of the Farm Zandspruit 191-IQ	49 891.88
12.	Portion 72 of the Farm Zandspruit 191-IQ	41 532.56
13.	Portion 73 of the Farm Zandspruit 191-IQ	39 303.5
14.	Portion 76 of the Farm Zandspruit 191-IQ	39 829.33
15.	Portion 104 of the Farm Zandspruit 191-IQ	61 464.18
16.	Portion 105 of the Farm Zandspruit 191-IQ	60 837.95
17.	Portion 144 of the Farm Zandspruit 191-IQ	152 489.92
18.	Portion 160 of the Farm Zandspruit 191-IQ	63 895.1
19.	Holding 43	39 483.81
		1,672,498.96

The development of the residential township will consist of the following infrastructure elements as planned per area:

- Residential units over **485.12ha**.
- Business units over **13.68ha**
- Educational facilities over **7.38ha**
- Community Facilities over **2.92ha**
- Municipal Services over **4.3ha**
- Public Open Spaces

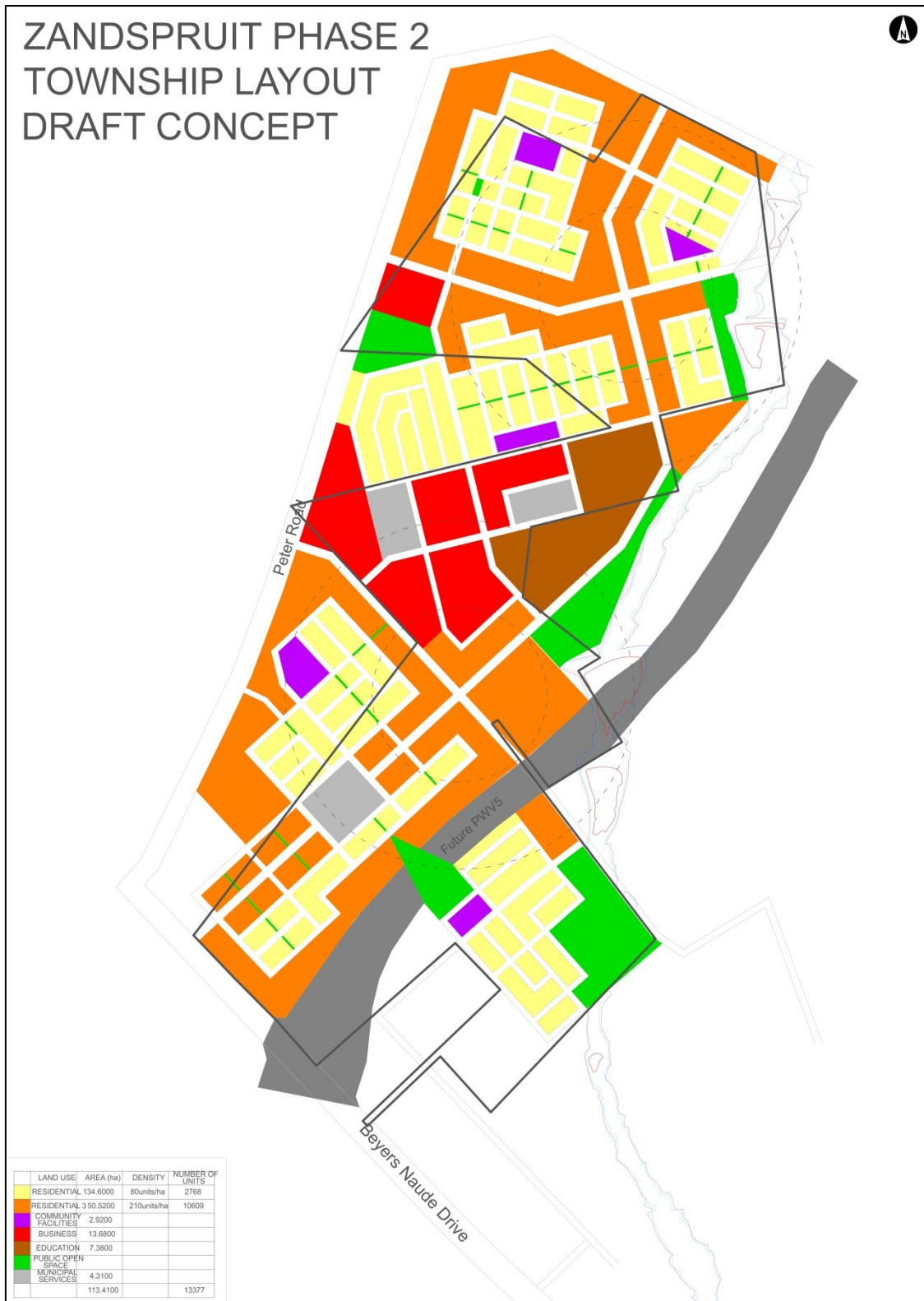


Figure 1-1: Aerial image indicating the infrastructure layout proposed for the Zandspruit Township Establishment Project.

#### 1.4 Terms of Reference

Heritage specialist input into the Environmental Impact Assessment (EIA) process is essential to ensure that through the management of change, developments still conserve our heritage resources. Heritage specialist input in EIA processes can play a positive role in the development process by enriching an understanding of the past and its contribution to the present. It is also a legal requirement for certain development categories which may have an impact on heritage resources (Refer to Section 2.5.2).

Thus, EIAs should always include an assessment of Heritage Resources. The heritage component of the EIA is provided for in the **National Environmental Management Act, (Act 107 of 1998)** and endorsed by section 38 of the **National Heritage Resources Act (NHRA - Act 25 of 1999)**. In addition, the NHRA protects all structures and features older than 60 years, archaeological sites and material and graves as well as burial sites. The objective of this legislation is to ensure that developers implement measures to limit the potentially negative effects that the development could have on heritage resources.

Based hereon, this project functioned according to the following **terms of reference for** heritage specialist input:

- *Provide detailed updated description of all additional archaeological artefacts, structures (including graves) and settlements which may be affected, if any.*
- *Assess the nature and degree of significance of such resources within the area.*
- *Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance.*
- *Assess any possible impact on the archaeological and historical remains within the area emanating from the proposed development activities.*
- *Propose possible heritage management measures provided that such action is necessitated by the development.*
- *Obtain a comment from the Gauteng-PHRA.*

#### 1.5 CRM: Legislation, Conservation and Heritage Management

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

##### 1.5.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and their provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

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

According to the National Heritage Resources Act of 1999 a historical site is any identifiable building or part

thereof, marker, milestone, gravestone, landmark or tell older than 60 years. This clause is commonly known as the “60-years clause”. Buildings are amongst the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Iron Age settlements. “Tell” refers to the evidence of human existence which is no longer above ground level, such as building foundations and buried remains of settlements (including artefacts).

The Act identifies heritage objects as:

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

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

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

and

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

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

and

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

- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;*

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

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

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

**1.5.2 Background to HIA and AIA Studies**

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

**A detailed guideline of statutory terms and requirements is supplied in Addendum 1.**

## 2 REGIONAL CONTEXT

---

### 2.1 Area Location

The Zandspruit Township Establishment Project study area is located north-west of Johannesburg on Portions 16, 22, 23, 26, 42, 51, 55, 56, 59, 67, 68, 72, 73, 76, 104, 105, 144 and 160 of the Farm Zandspruit 191IQ and Holding 43. The project area is situated directly east of Zandspruit at the intersection of the M5 road with Marina Street. The site is bordered to the north by S Africa Drive and the Jackal Creek Gold Estate occurs to the east. The study areas appear on 1:50000 map sheet 2627BB (see Figure 2-1) and coordinates for the proposed project are as follows:

- **North-western periphery: S26.04537° E27.90715°**
- **North-eastern periphery: S26.04506° E27.91581°**
- **South-western periphery: S26.06217° E27.90315°**
- **South-western periphery: S26.06361° E27.91757°**

### 2.2 Area Description: Receiving Environment

The development site lies within the Savanna biome which is the largest biome in Southern Africa. It is characterized by a grassy ground layer and a distinct upper layer of woody plants (trees and shrubs). The most recent classification of the area by Mucina & Rutherford shows that the site is classified as Savanna Thornveld. The project area is characterised by slightly undulating to flat plains with the Sand Spruit bisecting to project area from south to north. The topography across the site is slightly undulating. The study area is drained mainly by surface run-off with surface water flowing into the Sand Spruit.

### 2.3 Site Description

The Zandspruit Township Establishment Project study area is located on Portions of the Farm Zandspruit 191IQ and Holding 43. Certain portions of the study have been disturbed and transformed where farmsteads, pits and a quarries and refuse dumping occurs. General site modification as a result of topsoil removal and agriculture are prevalent throughout. However portions of the surface and vegetation remain intact along the Sand Spruit which bisects the site from south to north. A number of contemporary foundations structures and dumped rubble heaps also occur in the study area. The west of the project area is bordered by the Zandspruit settlement. Here, informal or unplanned township settlements are visually characterized by temporary structures, characteristic of shantytowns. Informal settlements refer to the housing structure, settlements resulting from land invasions, settlements with temporary legal rights or transit areas and formally planned and laid out site-and-services schemes (Huchzermeyer 2003:592).

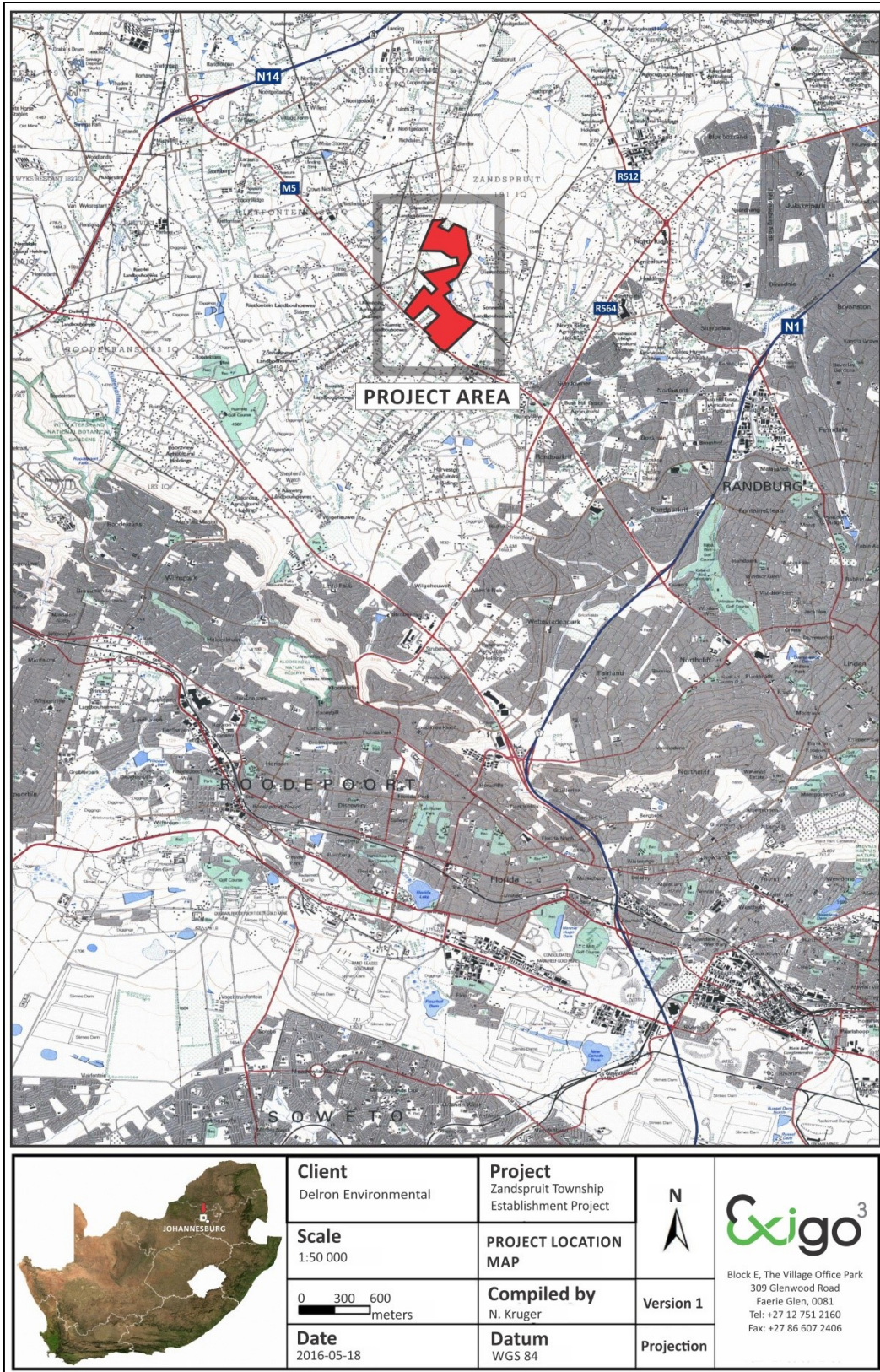


Figure 2-1: 1:50 00 Map representation of the location of the Zandspruit Township Establishment Project Area (sheet 2627BB).

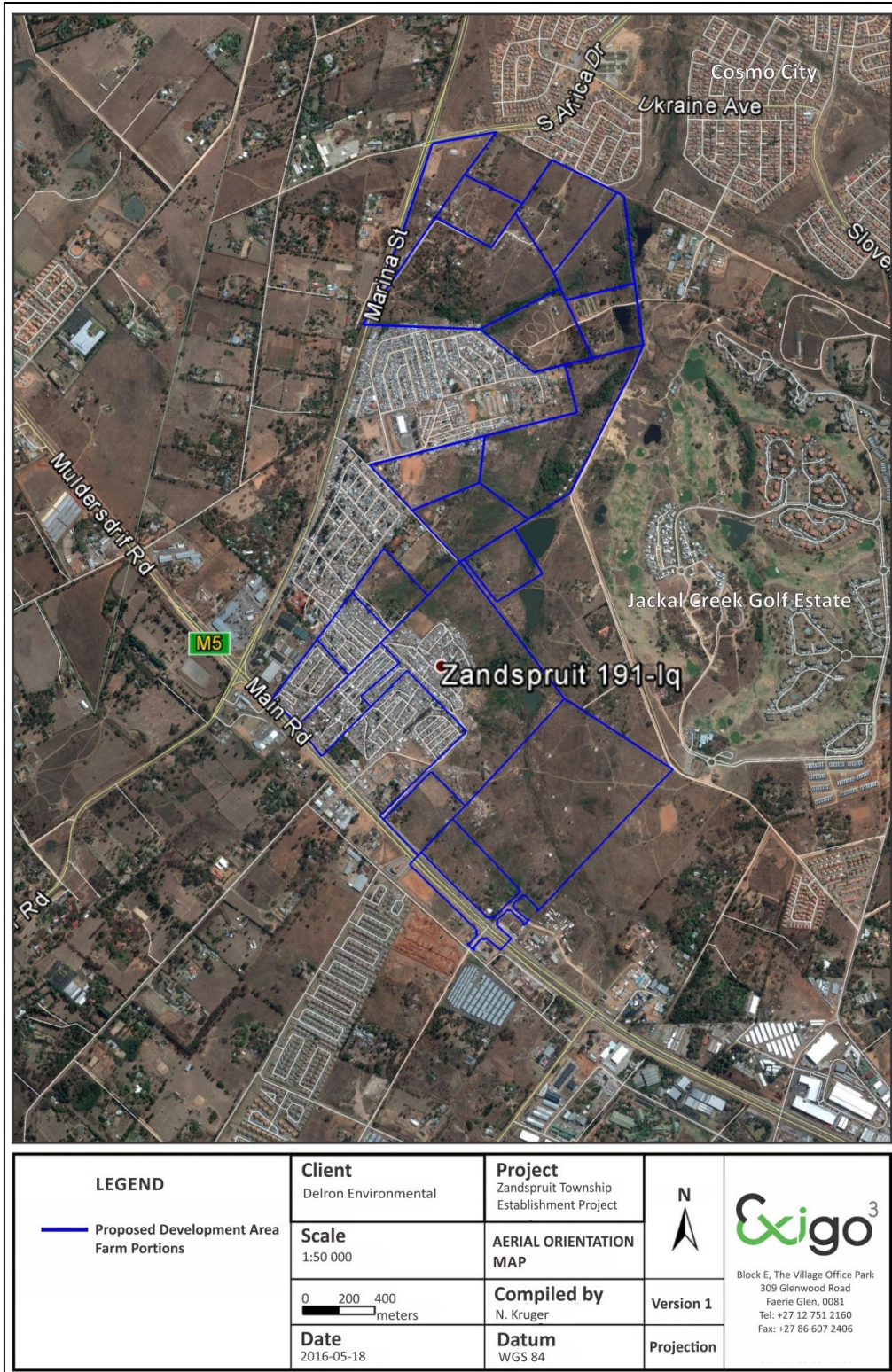


Figure 2-2: Aerial representation of the regional setting for the Zandspruit Township Establishment Project area.





### 3 METHOD OF ENQUIRY

---

#### 3.1 Sources of Information

Data from detailed desktop, aerial and field studies were employed in order to sample surface areas systematically and to ensure a high probability of heritage site recording.

##### 3.1.1 Desktop Study

The larger landscape in and around Pretoria has been well documented in terms of its archaeology and history. A desktop study was prepared in order to contextualize the proposed project within a larger historical milieu. The study focused on relevant previous studies, archaeological and archival sources, aerial photographs, historical maps and local histories, all pertaining to the Zandspruit area and the larger landscape of this section of the Gauteng Province.

##### 3.1.2 Aerial Representations and Survey

Aerial photography is often employed to locate and study archaeological sites, particularly where larger scale area surveys are performed. This method was applied to assist the foot site survey where depressions, variation in vegetation, soil marks and landmarks were examined. Specific attention was given to shadow sites (shadows of walls or earthworks which are visible early or late in the day), crop mark sites (crop mark sites are visible because disturbances beneath crops cause variations in their height, vigour and type) and soil marks (e.g. differently coloured or textured soil (soil marks) might indicate ploughed-out burial mounds). Attention was also given to moisture differences, as prolonged dampening of soil as a result of precipitation frequently occurs over walls or embankments. By superimposing historical photographs, high frequency aerial photographs with images generated with Google Earth, potential sensitive areas were subsequently identified, geo-referenced and transferred to a handheld GPS device. These areas served as referenced points from where further vehicular and pedestrian surveys were carried out.

From the aerial survey it is evident that surface areas subject to the Zandspruit Township Establishment Project have been subjected to more recent disturbances and impacts as a result of natural agents as well as agriculture and urbanisation (see Figure 3-1 and Figure 3-2).

##### 3.1.3 Mapping of sites

By merging data generated during the desktop study and the aerial survey areas of heritage potential were plotted on 1:50 000 topographic maps of the border areas using ArcGIS 9.3. These maps were then superimposed on high definition aerial representations in order to graphically demonstrate the geographical locations and distribution of sensitive areas. Information on areas with dense clusters of heritage sites were expanded employing academic and research based literature. In addition, known heritage areas mapped and incorporated in the Environmental Potential Atlas (ENPAT) were included.

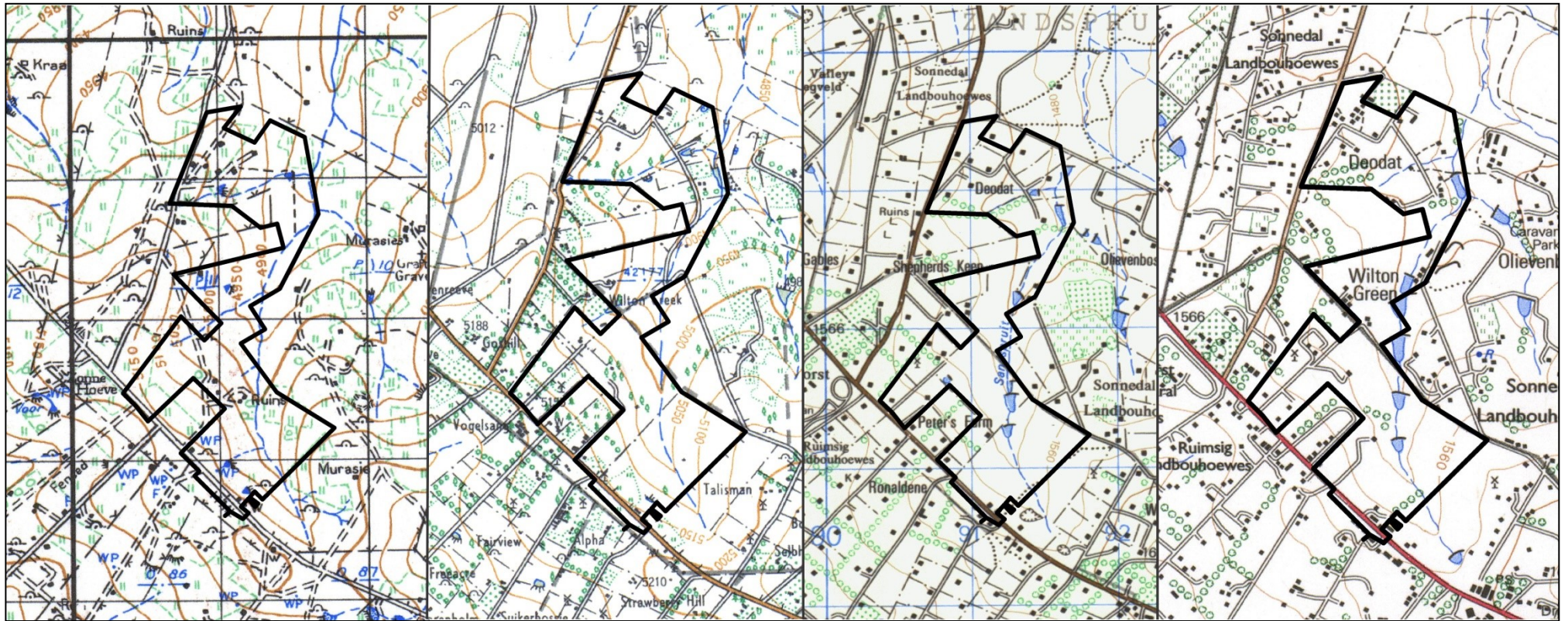


Figure 3-1: A series of historical topographic maps indicating the position of the study area in the past 70 years (black line). The images date as follows from left to right: 1942, 1953, 1968 and 1995.



Figure 3-2: A series of historical aerial imagery indicating the position of the study area in the past 70 years (yellow line). The images date as follows from left to right: 1941, 1986 and 2015.

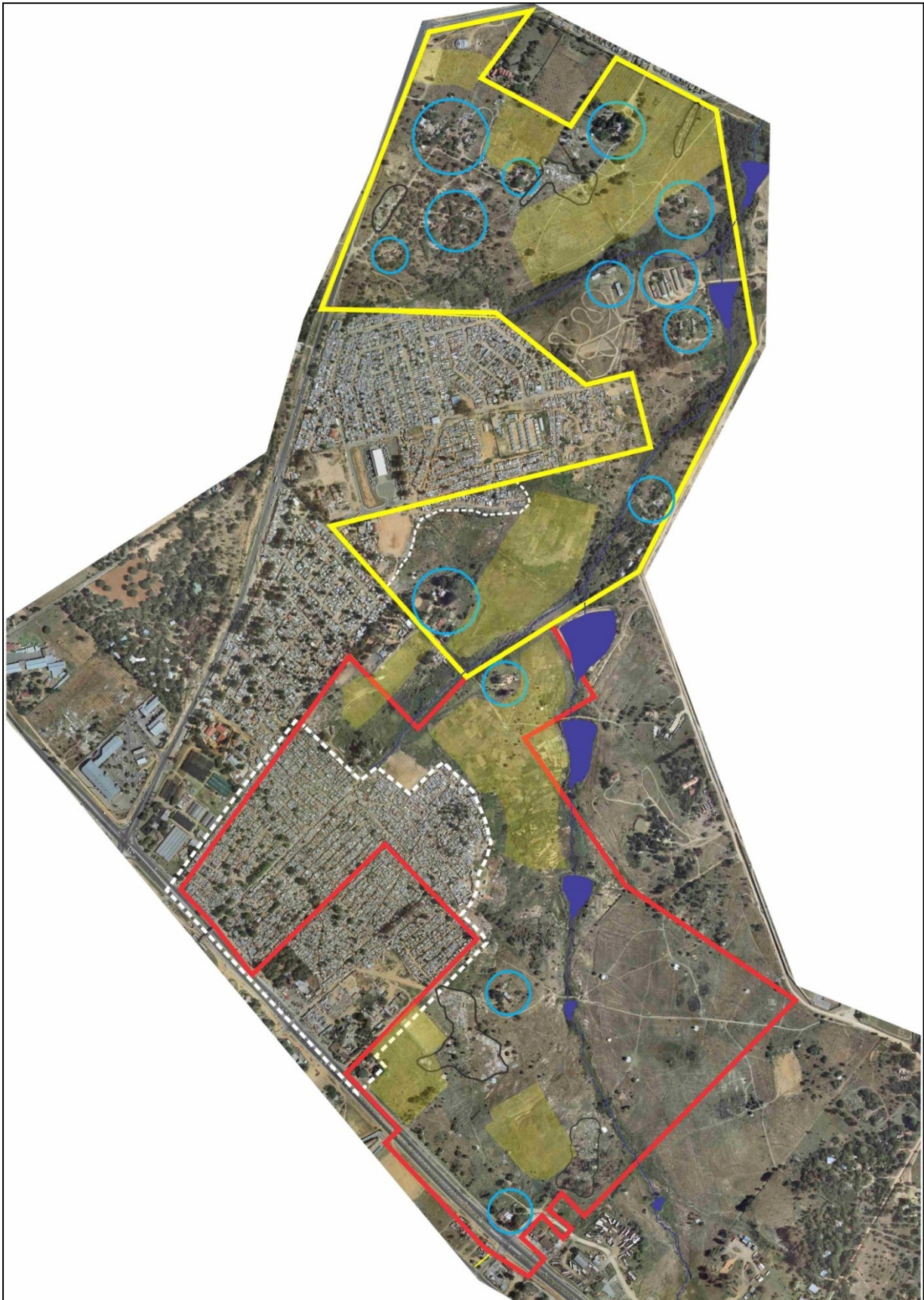


Figure 3-3: Aerial photo analysis of the Zandspruit site (red line): the periphery of the current Zandspruit settlement is indicated in white dotted line, buildings and structures are encircled in blue, dumping sites is indicated in black lines and historical and current agricultural areas are indicated in shaded yellow.

### 3.1.4 Field Survey

Archaeological survey implies the systematic procedure of the identification of archaeological sites. An archaeological survey of the proposed Zandspruit Township Establishment Project area was conducted in March 2016 and May 2016. The process encompassed a systematic field survey in accordance with standard archaeological practice by which heritage resources are observed and documented. In order to sample surface areas systematically and to ensure a high probability of site recording, the site was systematically surveyed on foot, GPS reference points were visited and random spot checks were made (see detail in previous section). Using a Garmin E-trex Legend GPS objects and structures of archaeological / heritage value were recorded and photographed with a Canon 450D Digital camera. Real time aerial orientation, by means of a mobile Google Earth application was also employed to investigate possible disturbed areas during the survey. As most archaeological material occur in single or multiple stratified layers beneath the soil surface, special attention was given to disturbances, both man-made such as roads and clearings, as well as those made by natural agents such as burrowing animals and erosion.

## 3.2 Limitations

### 3.2.1 Access

Zandspruit is accessed directly via the M5 road to the south and Marina Road to the west with smaller dirt roads providing access within the site. Access control is not applied to the properties relevant to this assessment and no restrictions were encountered during the site visit.

### 3.2.2 Visibility

The surrounding vegetation in the study area is mostly comprised out of mixed grasslands, trees and riverine bush. Even though large sections of the surroundings have been altered as a result of agriculture and urbanization, areas to the south and east of the study area is more densely overgrown by pioneering species and natural vegetation. Generally, the visibility at the time of the AIA site inspection (March 2016 and May 2016) was moderate (see Figures 3-3 to 3-17). In single cases during the survey sub-surface inspection was possible. Where applied, this revealed no archaeological deposits.



Figure 3-4: View of grassland in a northern section of the project area..



Figure 3-5: Foundation structures prevalent throughout the project area.



Figure 3-6: The remains of a shack dwelling and a mealie field in a northern section of the project area.



Figure 3-7: Large foundations structural remains of a factory in a central part of the project area.



Figure 3-8: High grasses around farm houses in a central part of the project area.



Figure 3-9: View of a gravel road along the western periphery of the project area at Zandspruit .



Figure 3-10: House remains along the eastern periphery of the project area, looking west.





Figure 3-11: View of more pristine areas along the south of the project area.



Figure 3-12: A catchment dam in the Sand Spruit to the south of the project area.



Figure 3-13: View of transformed surroundings in the project area.



Figure 3-14: View of vegetation along the eastern periphery of the predict area.



Figure 3-15: High grasses in the project area. The current Zandspruit settlement is visible in the distance..



Figure 3-16: Informal housing and storage along the eastern boundary of the project area.



Figure 3-17: Houses and informal dwellings in the current Zandspruit settlement.

### 3.2.3 Limitations and Constraints Summary

The foot and vehicular site survey for the Zandspruit Township Establishment Project AIA primarily focused around areas tentatively identified as sensitive and of high heritage probability (i.e. those noted during the aerial survey) as well as areas of high human settlement catchment. The following constraints were encountered:

- **Survey Time and Extent:** Survey time proved to be a constraint due to the relatively large surface extent of the footprint area. Therefore, pedestrian site surveys focused around areas tentatively identified as sensitive (i.e. along drainage lines and those noted during the aerial survey) during aerial surveys.
- **Visibility:** Visibility proved to be a constraint in areas with denser surface cover, as well as portions where vegetation is more pristine.

Even though it might be assumed that survey findings are representative of the heritage landscape of the project area, it should be stated that the possibility exists that individual sites could be missed due to the localised nature of some heritage remains as well as the possible presence of sub-surface archaeology. Therefore, maintaining due cognisance of the integrity and accuracy of the archaeological survey, it should be stated that the heritage resources identified during the study do not necessarily represent all the heritage resources present in the project area. The subterranean nature of some archaeological sites, dense vegetation cover and visibility constraints sometimes distort heritage representations and any additional heritage resources located during consequent development phases must be reported to the Heritage Resources Authority or an archaeological specialist.

### 3.3 Impact Assessment

For consistency among specialists, impact assessment ratings by AGES Specialist are generally done using the Plomp<sup>1</sup> impact assessment matrix scale supplied by AGES. According to this matrix scale, each heritage receptor in the study area is given an impact assessment. A cumulative assessment for the proposed project is also included.

<sup>1</sup> Plomp, H.,2004

## 4 ARCHAEO-HISTORICAL CONTEXT

### 4.1 The archaeology of Southern Africa

Archaeology in southern Africa is typically divided into two main fields of study, the **Stone Age** and the **Iron Age** or **Farmer Period**. The following table provides a concise outline of the chronological sequence of periods, events, cultural groups and material expressions in Southern African pre-history and history.

**Table 1 Chronological Periods across southern Africa**

Period	Epoch	Associated cultural groups	Typical Material Expressions
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominins: <i>Australopithecines</i> <i>Homo habilis</i> <i>Homo erectus</i>	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First <i>Homo sapiens</i> species	Typically smaller stone tools such as scrapers, blades and points.
Late Stone Age 20 000 BC – present	Pleistocene / Holocene	<i>Homo sapiens sapiens</i> including San people	Typically small to minute stone tools such as arrow heads, points and bladelets.
Early Iron Age / Early Farmer Period 300 – 900 AD	Holocene	First Bantu-speaking groups	Typically distinct ceramics, bead ware, iron objects, grinding stones.
Middle Iron Age (Mapungubwe / K2) / early Later Farmer Period 900 – 1350 AD	Holocene	Bantu-speaking groups, ancestors of present-day groups	Typically distinct ceramics, bead ware and iron / gold / copper objects, trade goods and grinding stones.
Late Iron Age / Later Farmer Period 1400 AD -1850 AD	Holocene	Various Bantu-speaking groups including Venda, Thonga, Sotho-Tswana and Zulu	Distinct ceramics, grinding stones, iron objects, trade objects, remains of iron smelting activities including iron smelting furnace, iron slag and residue as well as iron ore.
Historical / Colonial Period ±1850 AD – present	Holocene	Various Bantu-speaking groups as well as European farmers, settlers and explorers	Remains of historical structures e.g. homesteads, missionary schools etc. as well as, glass, porcelain, metal and ceramics.

#### 4.1.1 The Stone Ages

##### - The Earlier Stone Age (ESA)

The Earlier Stone Age from between 1.5 million and 250 000 years ago refers to the earliest that *Homo sapiens sapiens* predecessors began making stone tools. The earliest stone tool industry was referred to as the Olduvai Industry originating from stone artefacts recorded at Olduvai Gorge, Tanzania. The Acheulian Industry, the predominant southern African Early Stone Age Industry, replaced the Olduvai Industry approximately 1.5 million years ago, is attested to in diverse environments and over wide geographical areas. The hallmark of the Acheulian Industry is its large cutting tools (LCTs or bifaces), primarily handaxes and cleavers. Bifaces emerged in East Africa more than 1.5 million years ago but have been reported from a wide range of areas, from South Africa to northern Europe and from India to the Iberian coast. Earlier Stone Age deposits typically occur on the flood-plains of perennial rivers. These ESA open sites sometimes contain stone tool scatters and manufacturing debris ranging from pebble tool choppers to core tools such as handaxes and cleavers. These groups seldom actively hunted and relied heavily on the opportunistic scavenging of meat from carnivore kill sites. The most well-known Early Stone Age site in southern Africa is

Amanzi Springs, situated about 10km north-east of Uitenhage, near Port Elizabeth (Deacon 1970). In a series of spring deposits a large number of stone tools were found in situ to a depth of 3-4m. Wood and seed material preserved remarkably very well within the spring deposits, and possibly date to between 800 000 to 250 000 years old.

#### - **The Middle Stone Age (MSA)**

The Middle Stone Age (MSA) spans a period from 250 000-30 000 years ago and focuses on the emergence of modern humans through the change in technology, behaviour, physical appearance, art and symbolism. Various stone artefact industries occur during this time period, although less is known about the time prior to 120 000 years ago, extensive systemic archaeological research is being conducted on sites across southern Africa dating within the last 120 000 years (Thompson & Marean 2008). The large handaxes and cleavers were replaced by smaller stone artefacts called the MSA flake and blade industries. Surface scatters of these flake and blade industries occur widespread across southern Africa although rarely with any associated botanical and faunal remains. It is also common for these stone artefacts to be found between the surface and approximately 50-80cm below ground. Fossil bone may in rare cases be associated with MSA occurrences (Gess 1969). These stone artefacts, like the Earlier Stone Age handaxes are usually observed in secondary context with no other associated archaeological material. The MSA is distinguished from the ESA by the smaller-sized and distinctly different stone artefacts and chaîne opératoire (method) used in manufacture, the introduction of other types of artefacts and evidence of symbolic behaviour. The prepared core technique was used for the manufacture of the stone artefacts which display a characteristic faceted striking platform and includes mainly unifacial and bifacial flake blades and points. The Howiesons Poort Industry (80 000-55 000 years ago) is distinguished from the other MSA stone artefacts: the size of tools are generally smaller, the range of raw materials include finer-grained rocks such as silcrete, chalcedony, chert and hornfels, and include segments, backed blades and trapezoids in the stone toolkit which were sometimes hafted (set or glued) onto handles. In addition to stone artefacts, bone was worked into points, possibly hafted, and used as tools for hunting (Deacon & Deacon 1999). Other types of artefacts that have been encountered in archaeological excavations include tick shell beads, the rim pieces of ostrich eggshell (OES) water flasks, ochre-stained pieces of ostrich eggshell and engraved and scratched ochre pieces, as well as the collection of materials for purely aesthetic reasons. The majority of MSA sites occur on flood plains and sometimes in caves and rock shelters. Sites usually consist of large concentrations of knapped stone flakes such as scrapers, points and blades and associated manufacturing debris. Tools may have been hafted but organic materials, such as those used in hafting, seldom remain preserved in the archaeological record. Limited drive-hunting activities are associated with the MSA.

#### - **The Later Stone Age (LSA)**

The Later Stone Age (LSA) spans the period from about 20 000 years ago until the colonial era, although some communities continue making stone tools today. The period between 30 000 and 20 000 years ago is referred to as the transition from the MSA to LSA; although there is a lack of crucial sites and evidence that represent this change. By the time of the Later Stone Age the genus *Homo*, in southern Africa, had developed into *Homo sapiens sapiens*, and in Europe, had already replaced *Homo neanderthalensis*. The LSA is marked by a series of technological innovations, new tools and artefacts, the development of economic, political and social systems, and core symbolic beliefs and rituals. The stone toolkits changed over time according to time-specific needs and raw material availability, from smaller microlithic Robberg, Wilton Industries and in between, the larger Albany/Oakhurst and the Kabeljous Industries. Bored stones used as part of digging sticks, grooved stones for sharpening and grinding and stone tools fixed to handles with mastic also become more common. Fishing equipment such as hooks, gorges and sinkers also appear within archaeological excavations. Polished bone tools such as eyed needles, awls, linkshafts and arrowheads also become a more common occurrence. Most importantly bows and arrows revolutionized the hunting economy. It was only within the last 2000

years that earthenware pottery was introduced, before then tortoiseshell bowls were used for cooking and ostrich eggshell (OES) flasks were used for storing water. Decorative items like ostrich eggshell and marine/fresh water shell beads and pendants were made. Hunting and gathering made up the economic way of life of these communities; therefore, they are normally referred to as hunter-gatherers. Hunter-gatherers hunted both small and large game and gathered edible plant foods from the veld. For those that lived at or close the coast, marine shellfish and seals and other edible marine resources were available for the gathering. The political system was mainly egalitarian, and socially, hunter-gatherers lived in bands of up to twenty people during the scarce resource availability dispersal seasons and aggregated according to kinship relations during the abundant resource availability seasons. Symbolic beliefs and rituals are evidenced by the deliberate burial of the dead and in the rock art paintings and engravings scattered across the southern African landscape. Sites dating to the LSA are better preserved in rock shelters, although open sites with scatters of mainly stone tools can occur. Well-protected deposits in shelters allow for stable conditions that result in the preservation of organic materials such as wood, bone, hearths, ostrich eggshell beads and even bedding material. By using San (Bushman) ethnographic data a better understanding of this period is possible. South African rock art is also associated with the LSA.

#### **4.1.2 The Iron Age Farmer Period**

##### **- Early Iron Age (Early Farming Communities)**

The Early Iron Age (also Early Farmer Period) marks the movement of Bantu speaking farming communities into South Africa at around 200 A.D. These groups were agro-pastoralists that settled in the vicinity of water in order to provide subsistence for their cattle and crops. Artefact evidence from Early Farmer Period sites is mostly found in the form of ceramic assemblages and the origins and archaeological identities of this period are largely based upon ceramic typologies and sequences, where diagnostic pottery assemblages can be used to infer group identities and to trace movements across the landscape. Early Farmer Period ceramic traditions are classified by some scholars into different “streams” or trends in pot types and decoration that, over time emerged in southern Africa. These “streams” are identified as the Kwale Branch (east), the Nkope Branch (central) and the Kalundu Branch (west). More specifically, in the northern regions of South Africa at least three settlement phases have been distinguished for prehistoric Bantu-speaking agropastoralists. The first phase of the Early Iron Age, known as Happy Rest (named after the site where the ceramics were first identified), is representative of the Western Stream of migrations, and dates to AD 400 - AD 600. The second phase of Diamant is dated to AD 600 - AD 900 and was first recognized at the eponymous site of Diamant in the western Waterberg. The third phase, characterised by herringbone-decorated pottery of the Eiland tradition, is regarded as the final expression of the Early Iron Age (EIA) and occurs over large parts of the North West Province, Northern Province, Gauteng and Mpumalanga. This phase has been dated to about AD 900 - AD 1200. Early Farmer Period ceramics typically display features such as large and prominent inverted rims, large neck areas and fine elaborate decorations. The Early Iron Age continued up to the end of the first millennium AD.

##### **- Middle Iron Age / K2 Mapungubwe Period (early Later Farming Communities)**

The onset of the middle Iron Age dates back to ±900 AD, a period more commonly known as the Mapungubwe / K2 phase. These names refer to the well known archaeological sites that are today the pinnacle of South Africa’s Iron Age heritage. The inhabitants of K2 and Mapungubwe, situated on the banks of the Limpopo, were agriculturalists and pastoralists and were engaged in extensive trade activities with local and foreign traders. Although the identity of this Bantu-speaking group remains a point of contestation, the Mapungubwe people were the first state-organized society southern Africa has known. A considerable amount of golden objects, ivory, beads (glass and gold), trade goods and clay figurines as well as large amounts of potsherds were found at these sites and also appear in sites dating back to this phase of the Iron Age. Ceramics of this tradition take the form of beakers with upright sides and decorations around the base (K2) and shallow-shouldered bowls with decorations as well as globular pots with long

necks. (Mapungubwe). The site of Mapungubwe was deserted at around 1250 AD and this also marks the relative conclusion of this phase of the Iron Age.

- **Later Iron Age (Later Farming Communities)**

The late Iron Age of southern Africa marks the grouping of Bantu speaking groups into different cultural units. It also signals one of the most influential events of the second millennium AD in southern Africa, the difaqane. The difaqane (also known as “the scattering”) brought about a dramatic and sudden ending to centuries of stable society in southern Africa. Reasons for this change was essentially the first penetration of the southern African interior by Portuguese traders, military conquests by various Bantu speaking groups primarily the ambitious Zulu King Shaka and the beginning of industrial developments in South Africa. Different cultural groups were scattered over large areas of the interior. These groups conveyed with them their customs that in the archaeological record manifest in ceramics, beads and other artefacts. This means that distinct pottery typologies can be found in the different late Iron Age groups of South Africa.

- **Bantu Speaking Groups in the South African interior**

*It should be noted that terms such as “Nguni”, “Sotho”, “Venda” and others refer to broad and comprehensive language groups that demonstrated similarities in their origins and language. It does not imply that these Nguni / Sotho groups were homogeneous and static; they rather moved through the landscape and influenced each other in continuous processes marked by cultural fluidity.*

Ethnographers generally divide major Bantu-speaking groups of southern Africa into two broad linguistic groups, the Nguni and the Sotho with smaller subdivisions under these two main groups. Nguni groups were found in the eastern parts of the interior of South Africa and can be divided into the northern Nguni and the southern Nguni. The various Zulu and Swazi groups were generally associated with the northern Nguni whereas the southern Nguni comprised the Xhosa, Mpondo, Thembu and Mpondomise groups. The same geographically based divisions exist among Sotho groups where, under the western Sotho (or Tswana), groups such as the Rolong, Hurutshe, Kwena, Fokeng and Kgatla are found. The northern Sotho included the Pedi and amalgamation of smaller groups united to become the southern Sotho group or the Basutho. Other smaller language groups such as the Venda, Lemba and Tshonga Shangana transpired outside these major entities but as time progressed they were, however to lesser or greater extent influenced and absorbed by neighbouring groups.

#### **4.1.3 Pastoralism and the last 2000 years**

Until 2000 years ago, hunter-gatherer communities traded, exchanged goods, encountered and interacted with other hunter-gatherer communities. From about 2000 years ago the social dynamics of the southern African landscape started changing with the immigration of two 'other' groups of people, different in physique, political, economic and social systems, beliefs and rituals. One of these groups, the Khoekhoe pastoralists or herders entered southern Africa with domestic animals, namely fat-tailed sheep and goats, travelling through the south towards the coast. They also introduced thin-walled pottery common in the interior and along the coastal regions of southern Africa. Their economic systems were directed by the accumulation of wealth in domestic stock numbers and their political make-up was more hierarchical than that of the hunter-gatherers.

#### **4.1.4 Historical and Colonial Times and Recent History**

The Historical period in southern Africa encompass the course of Europe's discovery of South Africa and the spreading of European settlements along the East Coast and subsequently into the interior. In addition, the formation stages of this period are marked by the large scale movements of various Bantu-speaking groups in the interior of South Africa, which profoundly influenced the course of European settlement. Finally, the final retreat of the San and Khoekhoen groups into their present-day living areas also occurred

in the Historical period in southern Africa.

#### **4.2 The Johannesburg Townships: Historical Perspective**

The cultural landscape of the eastern Gauteng area encompasses a period of time that spans millions of years, covering human cultural development from the Stone Ages up to recent times. It depicts the interaction between the first humans and their adaptation and utilization to the environment, the migration of people, technological advances, warfare and contact and conflict. Contained in its archaeology are traces of conquests by Bantu-speakers, Europeans and British imperialism encompassing the struggle for land, resources and political power. The majority of the informal settlements are located on the peripheral edges of urbanisation and far from employment opportunities and services. They are often situated in environmentally hazardous conditions associated with dangers, such as floodplains. The illegal status of informal settlements does not attract public sector investments and lack government funded social amenities and economic infrastructure. The persistence of informal settlements and their continued growth, despite extensive government subsidised housing since 1994, has increasingly received national attention. The Informal Settlement Upgrading Programme calls for a paradigm shift in relation to informal settlement intervention (Huchzermeyer and Karam 2006:41). One of the United Nations Millennium Development Goals is to achieve a significant improvement in the lives of at least 100 million slum dwellers by 2020 (UN 2000:5). This was grouped as Target 11 under the Millennium Development Goal (MDG) 7. "Slum" was later defined as any area lacking basic services, or with inadequate building structures, overcrowding, unhealthy and hazardous conditions, insecure tenure, and poverty and exclusion

##### **4.2.1 The Stone Ages**

The Highveld areas of Gauteng were inhabited by humans since the Earlier Stone Age (ESA) times and stone tools dating to this period, typically found in the vicinity of watercourses, are abundantly scattered in the landscape. A significant ESA site has been documented on the farm Kaalfontein (366JR) near the Willem Prinsloo Agricultural Museum where an Earlier Stone Age habitation site occurs about 1m sub-surface. The site yielded some of the oldest and largest Stone Age implements found in South Africa. The Middle Stone Age (MSA) marked the occupation of formerly unoccupied areas on the Highveld near water sources and tools belonging to this period mostly occur in the open or in erosion dongas. Later Stone Age (LSA) people displayed advanced technologies and therefore occupied larger and more diverse environments. Most LSA sites are found in association with rock shelters and caves with material found across the Magaliesberg, to the north and east of Mamelodi and scattered throughout Pretoria's surroundings).

##### **4.2.2 Iron Age / Farmer Period**

Because of their specific technology and economy, Iron Age people preferred to settle on the alluvial soils near rivers for agricultural purposes and other resources. Remains of Early Iron Age occupation on the Highveld is scarce, with isolated sites occurring in the Magaliesberg, e.g. at Broederstroom. Large scale occupation of the larger Gauteng area by Bantu speaking farming communities occurred only in the second millennium AD. The 16<sup>th</sup> century was marked by a warmer and wetter climate, providing conditions favourable for Later Iron Age (LIA) farmer occupation in areas in the Witwatersrand, the Free State and the Mpumalanga escarpment. This, in turn resulted in increased food production with expanding populations on the central Highveld by the 19<sup>th</sup> century. Due to ever expanding territories and resulting conflict situations these Later Iron Age farmers preferred protective mountain slopes close to areas fit for cattle grazing. A number of Later Iron Age stone-walled archaeological sites, conventionally associated with Tswana and Ndebele speakers occur, in amongst other areas, across the Pienaars River around Wallmannsthal, Roodeplaat dam and southwards across the N4 Highway. Large concentration of Later Iron



Age sites in the larger Pienaarspoort area have been documented on the farms Downbern 494JR, Elandshoek 337JR, Leeuwkloof 258 JR, the Windybrow Game Farm and Buffelskloof 281JR.

#### **4.2.3 Later History and Colonial Period: The development of informal settlements in Gauteng and Zandspruit**

The discovery of diamonds and gold brought about fundamental changes in the economy and society of Johannesburg and the countryside. Only small parts of South Africa had been transformed into settler societies before the 1870's. The development of the diamond fields at Kimberley and the gold mines of the Witwatersrand transformed South African society. These developments spawned new industrial towns and created new demands for labour and agrarian produce. After 1876 stricter controls over African workers were put into effect by the larger mining companies. Registration passes and fixed contract terms were enforced to limit the ability of labourers to play off one employer against another. Closed compounds were introduced, modelled initially on the compounds used by the De Beers Company at Kimberley, for the housing of convict labour. The advantages to the employers were direct control over the workers and wage savings that could be made by the provision of cheap accommodation and food. These policies were transferred to Johannesburg. Increasing numbers of Africans in the towns led to central state interventions. Prior to the 1920s, the housing and administration of Africans were left in the hands of the municipal authorities. In Johannesburg areas of freehold black property ownership, such as Sophiatown, also existed. Increasing numbers of Africans were migrating permanently to the towns. These pressures led to the establishment of the Stallard Commission, whose recommendations were adopted in the Urban Areas Act of 1923. This empowered municipalities throughout the country to enforce residential segregation. It also prohibited the further granting of freehold property rights to Africans, because they were not permanent urban residents. Any permanent African presence in the towns was deemed undesirable and they were only permitted within municipal areas in so far and for as long as their presence were demanded. Johannesburg was a more complex urban society than Kimberley and grew into a city of over a quarter of a million people by 1914. Pass law controls were introduced in 1896 and controls were used to minimise labour mobility and to prevent desertion. In less than thirty years, a republic founded on a modest agricultural economy was transformed into a colony boasting the world's largest and most technologically sophisticated gold-mining industry. This transition was overseen by four different governments, punctuated by an attempted coup, and completely halted by a war lasting two and a half years.

In 1886 when gold was discovered on the Rand, the new industry produced only 0,16 percent of the world's gold output. By 1898 it produced no less than 27 percent of the world's gold and by 1913 the Witwatersrand mining colossus produced no less than 40 percent of the world's gold output. Within 10 years of finding the first gold nuggets in 1886, the original camp population of 3000 grew to over 100000 people. By this time almost 60000 Africans were employed on the mines and the gold output was worth £20 million a year (Bonner and Segal 1998:11). Both blacks and whites arrived in search of short-term financial rewards. The social life reflected the temporary character of the population. Virtually the entire population of male miners lived first in tents and then in crude corrugated iron structures. It was only in the early 1900s that Johannesburg acquired a more stable and settled character. This happened after it became clear that there were large reserves of gold deep underground. Capital investment grew to £75 million in 1899 and £125 million by 1914 (Richardson and Van Helton 1980:18-19). It was on gold that Johannesburg was built and developed. The Transvaal transferred its economic weight from agriculture to industrial production over a short period of 30 years. The Witwatersrand over a length of 65km along the line of the reef, from Springs in the east to Krugersdorp in the west, caused an urban sponge of mining compounds and towns. Urbanisation had to absorb the ever-increasing numbers of black and white miners

who made their way to the new goldfields. Almost exactly half-way along the line of reef outcrop lay the social, political and economic nerve centre of the new order, Johannesburg (Van Onselen 1882:2). Initially all settlements were of an informal nature, because of the uncertain lifespan of the gold industry.

According to Van Onselen (1882:2) the tented diggers' camp of the 1880s soon gave way to the corrugated iron structures of the mining town of the mid-nineties. This developed into more substantial brick buildings of the industrial city with suburban homes during the first decade of the twentieth century (Van Onselen 1882:2). By 1896 the 3000 diggers of the original mining camp were lost in a town of 100000 residents. By 1914 these 100000 were in turn becoming harder to find in a city with over a quarter of a million inhabitants. The inexorable pressure exerted by people, houses, shops, offices and factories pushed back the municipal boundaries from 5 square miles in 1898, to 9 square miles in 1901, and to 82 square miles in 1903. Johannesburg was rocked by class conflict during this period ranging from white workers against black, skilled miners against the mine owners and the landlords against the state (Van Onselen 1882:2). These turbulent events, the city's cosmopolitan immigrant population and the all-consuming worship of wealth, prompted the visiting Australian journalist in 1910 to comment that "Ancient Nineveh and Babylon have been revived. Johannesburg is their twentieth century prototype. It is a city of unbridled squander and unfathomable squalor" (Pratt 1913:166; Van Onselen 1882:2). Johannesburg's early growth was marked by significant uneven development. Johannesburg's immigrant miners were for many years reluctant to commit their wives and children to a settled life on the Witwatersrand. The expense and difficulty of getting to the Transvaal, before the rail link with the Cape was established in January 1893, also meant that early Johannesburg was largely devoid of working-class family life. The skilled white miners from England took up residence in numerous boarding-houses, while the unskilled black workers were pushed into the repressive conformity of the mine compounds (Van Onselen 1882:5-7). The large majority of the Rand's boarding houses were located either on the mining property or in Jeppe in the East and Fordsburg in the west. The mine compounds for black workers were situated on mining property without exception. Most working-class accommodation extended along the east west axis of the Witwatersrand. Most workers lived as close as possible to the point of production, with the shortest distance between the place of residence and the place of work.

Black miners entered into short-term labour contracts of between 6 and 18 months. They left their wives and families behind in the rural areas while they worked underground. Life on the mines was tough for black labourers, while they lived on the mining property in tightly controlled single-sex barracks. Migrant labourers were forced to carry an identity document, which detailed their work contracts and enabled the authorities to exert control over their movements (Bonner and Segal 1998:11). African labourers also worked as domestic workers, shop workers, engineering labourers, brick makers and washer men as Johannesburg grew. Most of the employers had neither the resources nor the interest to house their staff. The workers were forced to seek their own accommodation in one of the three locations provided for the Africans, Indians and Muslims near the city centre by the Kruger government in the late 1890s (Bonner and Segal 1998:12). Others were moved to inner-city areas where rows of crude structures were erected in yards or along the perimeter of a factory that was rented by the landlords who were intent on making money. Prostitution and drinking grew out of the male culture that was rooted in the boarding-houses and the mine compounds. This also helped to shape the limited economic opportunities which existed outside the mining industry (Van Onselen 1882:7). Evicted from the white farms and driven out of over-crowded and drought stricken reserves, thousands of Africans had moved into the cities by 1939. However, those hoping for a better life were soon disappointed. For the majority conditions in the urban slum yards were as poor as they had been in the countryside. Out of the seemingly hopeless situation rose the spirit of resistance which culminated in the Soweto riots (Oakes 1989:354). A belt of slums sprang up from the east to the west across central Johannesburg (Oakes 1989:355).

With the exception of a few mining and industrial areas that developed at a later stage, the broad pattern of black urbanisation had been laid as early as 1904. The foundations of a permanent black urban population were also laid by 1947 (Mears 1997:606). Since then, urban growth was partially the result of ruralurban migration, but mainly a consequence of the natural rate of population growth in these areas. The Anglo-Boer War broke out in 1899 between the Boers of the Transvaal and the British colonialists who were intent on gaining control of the newly found gold wealth of the Rand. This severely disrupted gold production until 1902 when the British administration took direct control over the Transvaal and its mines (Bonner and Segal 1998:12). Johannesburg's population grew rapidly after the Anglo-Boer War. An estimated 10000 poor white Afrikaners immigrated from their farms, which had virtually been laid waste by the "scorched earth policy" of the British during the war. Poor blacks also arrived in increasing numbers to escape poverty and shortages in the rural areas. Both black and white immigrants took up residence in the increasingly crowded and squalid inner city slums. Although conditions were often unfit for human habitation, slumlords charged high rentals for rooms which were usually simple sub-divisions of old sheds, stores, workshops or outbuildings (Bonner and Segal 1998:12). The First World War brought a wave of industrialisation and with it the need for African labour. Pimville was the only existing location, but was ten miles from the centre of Johannesburg. A definite need existed for another location a little more conveniently cited. The Western Native Township with accommodation for some three thousand families was built. A tall iron fence was erected all around it. This meant that Sophiatown was situated in an area where the non-Europeans were in the majority. Tobiansky, who developed and named the town after his wife Sophia, started selling his land to Africans, Coloureds and Asiatics. Under one of President Kruger's laws he was perfectly safeguarded for doing so. When Tobiansky sold freehold properties to Africans, he was in fact establishing a unique situation by creating a non-white suburb in Johannesburg (Huddleston 1956:119-120). As Johannesburg expanded, so did its need for African labour. Apart from the squalid slums in Vrededorp and the distant corrugated-iron location in Pimville, there was nowhere for the people to live except the Western Native Township and the suburbs of Sophiatown, Martindale and Newclare, which surrounded it. By 1920 it had become obvious that this area belonged by right of possession to the non-Europeans of Johannesburg. Sophiatown had matured and had an atmosphere and character of its own (Huddleston 1956:120-121).

During the war years (1939-1945) the construction of new houses for Africans almost came to a halt, with only 750 units built in 1941 and 1942 and none in 1943 and 1944. Faced with a major housing crisis, the Johannesburg City Council began to issue more and more permits to allow households to take in sub-tenants. This pushed more people into Pimville which had only 63 water taps for more than 15000 people. In March 1944 thousands of Africans moved out of their overcrowded hovels and began setting up homes on any vacant piece of land (Oakes 1989:356). Squatting had become a means of survival and some settlements became a no-go area for white officialdom. It was cheaper than council-built dwellings and nearer to places of employment (Oakes 1989:357). It cut down on transport costs and offered some protection against the many laws aimed at African urban dwellers. The state was far from beaten and by 1950 it had virtually crushed the squatter movements and had pushed them into large housing estates which would later become known as Soweto. Future government policy on urban Africans meant greater control of both housing and labour. New suburbs for white artisans developed west of Ferreirastown, namely, Brixton, Newlands and Westdene and encircled the non-European area. By 1937 the first sounds of battle were heard, and by 1939 a city councillor demanded the total removal of Sophiatown and all non-European settlements in the Western Areas (Huddleston 1956:185-186). The total failure of the City Council to build houses fast enough anywhere in Johannesburg to meet the needs of the African labour force combined with the demands made on South Africa by the Second World War, was the main reason why nothing was done. In 1944 the City Council approved in principle the removal of all Africans and Coloureds from the areas surrounded by white suburbs.

When the Malan government was returned to power in 1948 the City Council was ordered to get a move on and to implement its recommendations of 1944. The removal was never discussed with the people who were going to be removed (Huddleston 1956:187). During the period 1944 to 1949 the shantytowns emerged and the number of African families without proper homes expanded rapidly. The idea of uprooting 60000 people who had a roof over their heads in Sophiatown was ludicrous in view of the large number of homeless people. These people had to make do with shacks and shanties all around the western perimeter of the city. The basic problem was that white Johannesburg had encroached on black Johannesburg and therefore black Johannesburg had to move on (Huddleston 1956:186). Huddleston was concerned mainly with the hardships caused by Verwoerd's clearance of slums and slum dwellers without provision of substitute accommodation. Although Ernest Oppenheimer could not initially believe that Huddleston gave a fair reflection of the position, he went to see for himself (Hocking 1973:323). Ernest had to confess on his return home that Huddleston was right. He was shocked that the Johannesburg City Council had refused to initiate new housing schemes for Africans. The city's African population had grown significantly, with the surplus forced to seek shelter in emergency breezeblock huts or shanties they built themselves from waste materials. The city council was expected to clear the "black spots" in white areas, before it could attend to the problems of the slums (Hocking 1973:323). Even with government loans at its disposal the city council could only build a maximum of 3000 houses a year. However, 17800 houses were required for the 100000 Africans jammed into the breeze-block shelters at Orlando and the emergency shanty camp at Moroka. Although the government had initiated its own housing scheme, it was inadequate and only catered for Africans driven out of white areas (Hocking 1973:323). To increase the pace of removals from Johannesburg, Verwoerd instructed the council to concentrate on a new scheme of "site-and-services". The illegal squatters in the city were moved to "serviced" sites in African locations well out of the way. They were expected to assemble their own shacks until they or the municipality had money to build houses. The services included vacant plots equipped with water taps and closets as their sole amenities (Hocking 1973:324). The council could not even keep pace with the provision of "site-and-services".

Harry Oppenheimer was an opponent of apartheid and attacked Verwoerd in parliament in 1954 to show what the world of business could lose through this policy. He showed that only about a third of the Native population lived in the reserves. The industrial development on which South Africa depended for everything required the co-operation of Black and White. Harry explained that no policy will be successful unless it can carry with it the goodwill of the Native people. "We cannot have peace and security if the bulk of the people are dissatisfied" (Hocking 1973:306). A loan of £3 million was secured by Ernest Oppenheimer from the seven great mining groups in 1956. After many delays this was used to provide decent housing with all reasonable amenities (Hocking 1973:325-326). The shanty town responded to the new activity. Although there were still shacks by the ten thousands in the sprawling slum areas, the sight of so many new houses going up somewhere raised the spirits of the whole community. The difference was immediately apparent with those who moved into new houses. Ernest justified his efforts as "enlightened self-interest". In 1954 the Natives Resettlement Act gave the state the power to override local municipalities and to forcibly remove Africans to separate townships. One of the first casualties was the African freehold areas of western Johannesburg in Sophiatown, whose inhabitants were relocated to the new township at Soweto in 1955. Most of Soweto was built within a short space of time in the 1950s and early 1960s. Although the area was only given its present name in 1963, the first African township in modern Soweto was established in 1905. Initially called Klipspruit it subsequently changed to Pimville, the name that the original township of Soweto is known today (Bonner and Segal 1998:10).

Although Sophiatown was a slum housing 70000 instead of 30000, the word slum was grossly misleading according to Huddleston (1956:121-122). The decision to destroy all the properties built there, and to

transplant the whole population to Meadowlands, four miles further away from the city, was taken by people who had no firsthand knowledge of the township. It presented the authorities with a sound native policy of freehold rights and permanence in a living community. Firstly, Sophiatown was not a location, but a suburb in the residential area of Johannesburg (Huddleston 1956:123-126). It was utterly free from monotony, in its location, in its buildings and in its people. Secondly, the people of Sophiatown made it a community or living organisation which had developed through the years. It was cosmopolitan with an atmosphere which was unique. They lived ordinary lives in extraordinary conditions and were the Christian community in Sophiatown (Huddleston 1956:134). The beginning of the end for Sophiatown started on 10 February 1955 (Huddleston 1956:179-183). On this day the great removal began of 60000 people to Meadowlands. The removal took place 50 years after the first Africans occupied Sophiatown. It was 40 years since Newclare was established and whites were specifically restricted from residing in the Township. By 1920 no one would have questioned the fact that Sophiatown, Martindale and Newclare were and always would be black areas. Sophiatown with its 1800 stands cracked at its seams with the growing population (Huddleston 1956:185). Informal settlements were strictly controlled during this period, but it increased again after the mid-1980s. Although it was well managed and controlled, the problem of housing was not addressed, but rather suppressed. The pent-up demand for mobility and migration to Johannesburg increased significantly during the late 1980s and during the 1990s. The relaxed management and control led to the rapid increase of informal settlements, sadly also at cross-roads and along the highways in Gauteng. The policies, forced removal of black people and resettlements are discussed in a case study of Whittlesea in Ciskei (Mears 2005:83-108). The forced removal of indigenous peoples and temporary sojourner status in the urban areas, with no access to ownership, was the position until the mid-1980s (Royston and Narsoo 2006:3). The change in the 1980s was the result of large resistance in the urban areas. This led to the widespread land invasions fuelled by the increased urbanisation process. The urbanisation process was managed by influx control and by segregation of living areas, particularly for African people. However, as these measures broke down and urbanisation gained momentum, large backlogs emerged in water, sanitation and related services. The large pentup demand for migration led to informal settlements, which were strictly regulated for most of the period 1948 to 1993.

Today, in Johannesburg, 215000 households live in informal settlements and backyard shacks. The City's master plan for housing is coordinated to create opportunities for the homeless by 2009 (Royston and Narsoo 2006:8). Informal settlements are not unique to Johannesburg or sub-Saharan Africa, because local land arrangements and demand far exceed formal market and/or public supply. The national strategy emphasises markets and assets. However, very little is known about the existence of local or informal land markets. For example, the Zandspruit informal settlement consists of the following three areas. A transit camp, which is not to be temporary, of 1200 households, four privately owned pieces of land that house another 3600 households which invaded the land, and an official site and service project of 440 households. This, however, does not include all the inhabitants of Zandspruit 1 to 7, which already accommodated more households than this in 2005 (COURC 2005:56-61). Zandspruit has been the scene of numerous protests against apathy and incompetence on the part of the local municipal authority, and failure of Eskom, the State-owned utility, to provide electricity to the shanty dwellers.



Figure 4-1: View of a street in the Zandspruit township in the 1970's.

#### 4.2.4 Burial Sites / Human Remains

Human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, 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 observed when they are exposed through erosion. In some instances packed stones or rocks may indicate the presence of informal pre-colonial 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).

## 5 RESULTS: ARCHAEOLOGICAL SURVEY

---

In terms of heritage resources, the landscape around the project area is primarily well known for some Historical Period occurrences but the study area has generally been transformed by recent and historical activities largely sterilising the area of heritage remains. However, certain parts of the project area remain pristine and a number of heritage occurrences and features were noted in the project infrastructure footprint areas. These occurrences were uniquely coded **EXIGO-ZTE-HPxx** (Exigo Zandspruit Township Establishment Historical Period xx), **EXIGO-ZTE-CPxx** (Exigo Zandspruit Township Establishment Contemporary Period xx) and **EXIGO-ZTE-FTxx** (Exigo Zandspruit Township Establishment Feature xx).

### 5.1 The Stone Age

No Stone Age scatters or occurrences were observed in any of the survey area.

### 5.2 The Iron Age Farmer Period

No Iron Age (Farmer Period) occurrences were observed in any of the survey area.

### 5.3 Historical / Colonial Period

An historical aerial photographic record of Zandspruit indicates that most of the structures and features currently present on the properties have been established there between 1950 and 1970. In addition, the record suggests that few, if any of the original buildings and features on the properties remain today. However, at least three structures or features which can probably be attributed to historical times, have been noted in the study area. Even though direct temporal contexts for the structures could not be ascertained, it might be assumed that these features date to (at least) the second part of the 20<sup>th</sup> century. These inferences are based on the following observations:

- Even though of low quality and resolution, aerial imagery dating to the late 1940's and 1960's suggests that some structures were present in the landscape at the time.
- Most of the farms in this area were registered and proclaimed in the second part of the 19<sup>th</sup> century. As the establishment of farms always involved the construction of farmstead buildings, remnants thereof frequently remain in the landscape.

- **Site EXIGO-ZTE-HP01 S26.04684° E27.91428°**

Two small houses occur on the farm Zandspruit towards the north-east of the project area. These houses are fairly well preserved and they are currently occupied. The multi-room buildings are rectangular in shape with gables and corrugate iron pitch roofs. The houses have been constructed out of mud brick which was then plastered and painted in white. A clear temporal context for the structures is not known but they seem to appear on aerial imagery dating to 1941. In addition, the architectural style the houses display older buildings methods and as such, the structures are most probably older than 60 years and thus protected heritage resources. The features might add to a better understanding of architectural, settlement and social developments in the Zandspruit area and it is of medium heritage significance. The houses occur within the Zandspruit Township Establishment Project study areas and unmitigated impact on the site is expected to be direct.



Figure 5-1: A small Historical Period house at Site EXIGO-ZTE-HP01.



Figure 5-2: Another small Historical Period house at Site EXIGO-ZTE-HP01.



Figure 5-3: Aerial imagery dating to 1942, possibly indicating the presence of Historical houses at Site EXIGO-ZTE-HP01.



- **Site EXIGO-ZTE-HP02 S26.04602° E27.90931°**

A farmstead with a number of probable Historical Period structures occurs on the farm Zandspruit towards the north of the project area. At the site, a well preserved house which is currently occupied display features of an old farmhouse. The multi-room building is rectangular in shape with a corrugate iron pitch roof. The house was constructed out of mud brick which was then plastered and painted in white. In addition a small thatched brick rondavel and a clayed-up cylindrical structure, possibly an old grain storage container, occur at the site. A clear temporal context for the features is not known but they seem to appear on aerial imagery dating to 1968 but they are absent on earlier 1941 imagery. As such, they were probably constructed in the 1950's and the structures are is most probably older than 60 years and thus protected heritage resources. The architectural styles of the features also display older building methods. The features might add to a better understanding of architectural, settlement and social developments in the Zandspruit area and it is of medium heritage significance. The houses occur within the Zandspruit Township Establishment Project study areas and unmitigated impact on the site is expected to be direct.



Figure 5-4: A small rondavel at the compound demarcated as Site EXIGO-ZTE-HP02.



Figure 5-5: A cylindrical structure, possibly a grain storage container at Site EXIGO-ZTE-HP02.



Figure 5-6: An old Historical Period farmhouse at Site EXIGO-ZTE-HP02.



Figure 5-7: Aerial imagery dating to 1968 indicating the presence of the farmstead compound at Site EXIGO-ZTE-HP02.

- **Site EXIGO-ZTE-HP03 S26.04525° E27.90825°**

A well-preserved Historical Period building occurs along Marina Street on the farm Zandspruit towards the north-west of the project area. The single storey multi-roomed building was built in an “L” shape a steep corrugate iron pitch roof housing a loft with a number of roof windows around the structure. The building has a large veranda on the one side. The house has been constructed out of mud brick which was then plastered and painted in white. The building probably functioned as a farmhouse in the earlier years but later it was used as a meeting hall for an evangelical church and rooms in the house are currently rented out to families residing at the site. An informal car wash and panel beater establishment is operated from the backyard of the property. A clear temporal context for the building is not known but it appears on aerial imagery dating to 1968 but it is absent from earlier 1941 imagery. As such, the structure was probably built in the 1950’s and it is probably older than 60 years and thus protected heritage resources. In addition, the building provides a striking example of Historical Period architecture on farms in the old

Transvaal region. The structure might add to a better understanding of architectural, settlement and social developments in the Zandspruit area and it is of medium heritage significance. The house occurs within the Zandspruit Township Establishment Project study area and unmitigated impact on the site is expected to be direct.



Figure 5-8: View of a large Historical Period house at Site EXIGO-ZTE-HP03.



Figure 5-9: The veranda of a Historical Period farmhouse at Site EXIGO-ZTE-HP03. Note roof windows.



Figure 5-10: Aerial imagery dating to 1968 indicating the presence of the house at Site EXIGO-ZTE-HP03.

#### 5.4 Recent / Contemporary Period

A number of modern houses, dwellings and farmsteads were noted in the project area on Zandspruit.

- **Site EXIGO-ZTE-CP01 S26.04539° E27.91287°**

A multi-room house occurs on the farm Zandspruit towards the north of the project area. The single storey building is located in an enclosed farmyard and it is currently occupied. The building displays modern architectural features and it probably dates to the Contemporary Period and as such, it is of low heritage significance. The house occurs within the Zandspruit Township Establishment Project study area and unmitigated impact on the site is expected to be direct.



Figure 5-11: A Contemporary Period residence at Site EXIGO-ZTE-CP01.

- **Site EXIGO-ZTE-CP02 S26.04524° E27.90920°**

A number of concrete foundation structures on the farm Zandspruit towards the north of the project area. The foundations generally measure approximately 2m x 3m and objects of recent age such as glass, metal, plastic and enamel were noted which suggest that the structures are of recent age. As such, the features are probably not older than 60 years and they are not protected in terms of the NHRA “60 year clause”. In addition, no special cultural or social association for the structures could be established and they are thus of low heritage significance. The structures occur within the Zandspruit Township Establishment Project study area and unmitigated impact on the site is expected to be direct.



Figure 5-12: Foundation structures at Site EXIGO-ZTE-CP02.

- **Site EXIGO-ZTE-CP03 S26.04742° E27.90866°**

A modern multi-room house occurs on the farm Zandspruit towards the north-east of the project area. The single storey building is located in association with other structures on a farmyard and it is currently occupied. The building displays modern architectural features and it probably dates to the Contemporary Period and as such, it is of low heritage significance. The house occurs within the Zandspruit Township Establishment Project study area and unmitigated impact on the site is expected to be direct.



Figure 5-13: A modern Contemporary Period residence at Site EXIGO-ZTE-CP03.

- **Site EXIGO-ZTE-CP04 S26.04801° E27.90744°**

A small multi-room house occurs on the farm Zandspruit towards the north-west of the project area. The single storey brick building is located in an enclosed farmyard and it is currently occupied. The building displays modern architectural features and it probably dates to the Contemporary Period and as such, it is of low heritage significance. The house occurs within the Zandspruit Township Establishment Project study area and unmitigated impact on the site is expected to be direct.



Figure 5-14: A Contemporary Period residence at Site EXIGO-ZTE-CP04.

- **Site EXIGO-ZTE-CP05 S26.04946° E27.91435°**

A deserted large multi-room house with associated features such as a swimming pool and Lapa occurs on the farm Zandspruit in central section of the project area. The double storey building is located in an enclosed farmyard compound and it displays modern architectural features. In addition, a number of interlinked thatched rondavels, currently occupied, occur at the site. The compound probably dates to the Contemporary Period and as such, it is of low heritage significance. The compound occurs within the Zandspruit Township Establishment Project study area and unmitigated impact on the site is expected to

be direct.



Figure 5-15: A Contemporary Period residence at the compound demarcated by EXIGO-ZTE-CP05.



Figure 5-16: Contemporary Period rondavels at the compound demarcated by EXIGO-ZTE-CP05.

- **Site EXIGO-ZTE-CP06 S26.06815° E27.91048°**

A number of multi-room hostels occur on the farm Zandspruit towards the southern periphery of the project area. The single storey buildings are located along the M5 road and they are currently occupied. The buildings display modern architectural features and they probably date to the Contemporary Period. The low heritage significance buildings occur within the Zandspruit Township Establishment Project study area and unmitigated impact on the site is expected to be direct.



Figure 5-17: Multi-room hostels and an access road at Site EXIGO-ZTE-CP06.

- **Site EXIGO-ZTE-CP07 S26.06367° E27.91045°**

A multi-room building occurs in an open field on the farm Zandspruit towards the south-western periphery of the project area. The single storey building has a high pitch roof and it is probably used as factory building. The building displays modern architectural features and it probably date to the Contemporary Period. The low heritage significance buildings occur within the Zandspruit Township Establishment Project study area and unmitigated impact on the site is expected to be direct.



Figure 5-18: A factory building at EXIGO-ZTE-CP07.

- **Site EXIGO-ZTE-CP08 S26.05009° E27.91167°**

A partially constructed shed building occurs next to the existing Zandspruit settlement in a central portion of the project area. The brick building has a high pitch roof with no windows installed. The building displays modern architectural features and it probably date to the Contemporary Period. The low heritage significance buildings occur within the Zandspruit Township Establishment Project study area and unmitigated impact on the site is expected to be direct.





Figure 5-19: A partially constructed shed building Site EXIGO-ZTE-CP08.

- **Site EXIGO-ZTE-CP09 S26.05573° E27.90858°**

A large compound of modern buildings occurs next to the existing Zandspruit settlement in a central portion of the project area. The buildings are constructed out of painted concrete bricks and red bricks. The compound houses the Kingsway House of refuge and displays modern architectural styles. The site is probably not older than 60 years and of low heritage significance. It occurs within the Zandspruit Township Establishment Project study areas and unmitigated impact on the site is expected to be direct.

**5.5 Graves / Human Burials**

At least 2 burial sites were located in the study area on Zandspruit. The burial places hold various numbers of graves, a number of which might be older than 60 years. In the rural areas of Gauteng graves and cemeteries often occur within settlements or around homesteads but they are also randomly scattered around archaeological and historical settlements. The probability of additional and informal human burials encountered during development should thus not be excluded. In addition, human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, 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.

- **Site EXIGO-ZTE-BP01 S26.04631° E27.90927°**

A small informal cemetery containing an unknown number of graves occurs near the Historical Period compound in an open field to the north of the project area. At the site, a singled grave indicated by an upright headstone was pointed out by a local resident but according to the respondent, additional graves occur at the site. The cemetery is not fenced, overgrown and not maintained. The burial site, which is of high heritage significance, occurs within the Zandspruit Township Establishment Project study areas and unmitigated impact on the site is expected to be direct.



Figure 5-20: An upright stone indicating the presence of a grave at Site EXIGO-ZTE-BP01.



Figure 5-21: View of dense surroundings at Site EXIGO-ZTE-BP01.

- **Site EXIGO-ZTE-BP02 S26.06174° E27.91341°**

A small informal cemetery containing an unknown number of burials occurs along a gradual incline on the western periphery of the project area in an open field. At least 10 burials, demarcated by stone cairns and soil heaps were counted at the site. In addition, one grave bears a poorly preserved concrete cross and stone headstones and footstones occur at some of the other burials. The cemetery is not fenced but the site the site is relatively well maintained. The burial site, which is of high heritage significance, occurs within the Zandspruit Township Establishment Project study areas and unmitigated impact on the site is expected to be direct.



Figure 5-22: A burial indicated by a stone cairn at Site EXIGO-ZTE-BP02.



Figure 5-23: Densely overgrown burials indicated by stone heaps at Site EXIGO-ZTE-BP02.



Figure 5-24: A burial indicated by a stone cairn at Site EXIGO-ZTE-BP02.



Figure 5-25: A poorly preserved painted concrete cross as headstone of a burial at Site EXIGO-ZTE-BP02.



Figure 5-26: A burial indicated by a stone cairn, a headstone and a foot stone at Site EXIGO-ZTE-BP02.

**5.6 Other Features**

- Site EXIGO-ZTE-FT01 S26.06320° E27.91262°
- Site EXIGO-ZTE-FT02 S26.06296° E27.91433°
- Site EXIGO-ZTE-FT03 S26.06429° E27.91479°
- Site EXIGO-ZTE-FT04 S26.06349° E27.91599°
- Site EXIGO-ZTE-FT05 S26.06451° E27.91278°
- Site EXIGO-ZTE-FT06 S26.06493° E27.91323°
- Site EXIGO-ZTE-FT07 S26.06640° E27.91267°
- Site EXIGO-ZTE-FT08 S26.06537° E27.91011°

At least 7 clearings, indicated by circular concrete or gravel surfaces, upright stones and surrounding trees occur scattered across a gradual incline in a southern section of the project area. The sites are probably used as religious meeting places, assumedly by members of the Zionist Christian Church (ZCC). The features are of recent age and context but even though they carry a low heritage significance rating, they might

have social value to local residents. The features occur within the Zandspruit Township Establishment Project study areas and unmitigated impact on the site is expected to be direct.



Figure 5-27: View of a recent period clearing, possibly a religious meeting place in the project area.

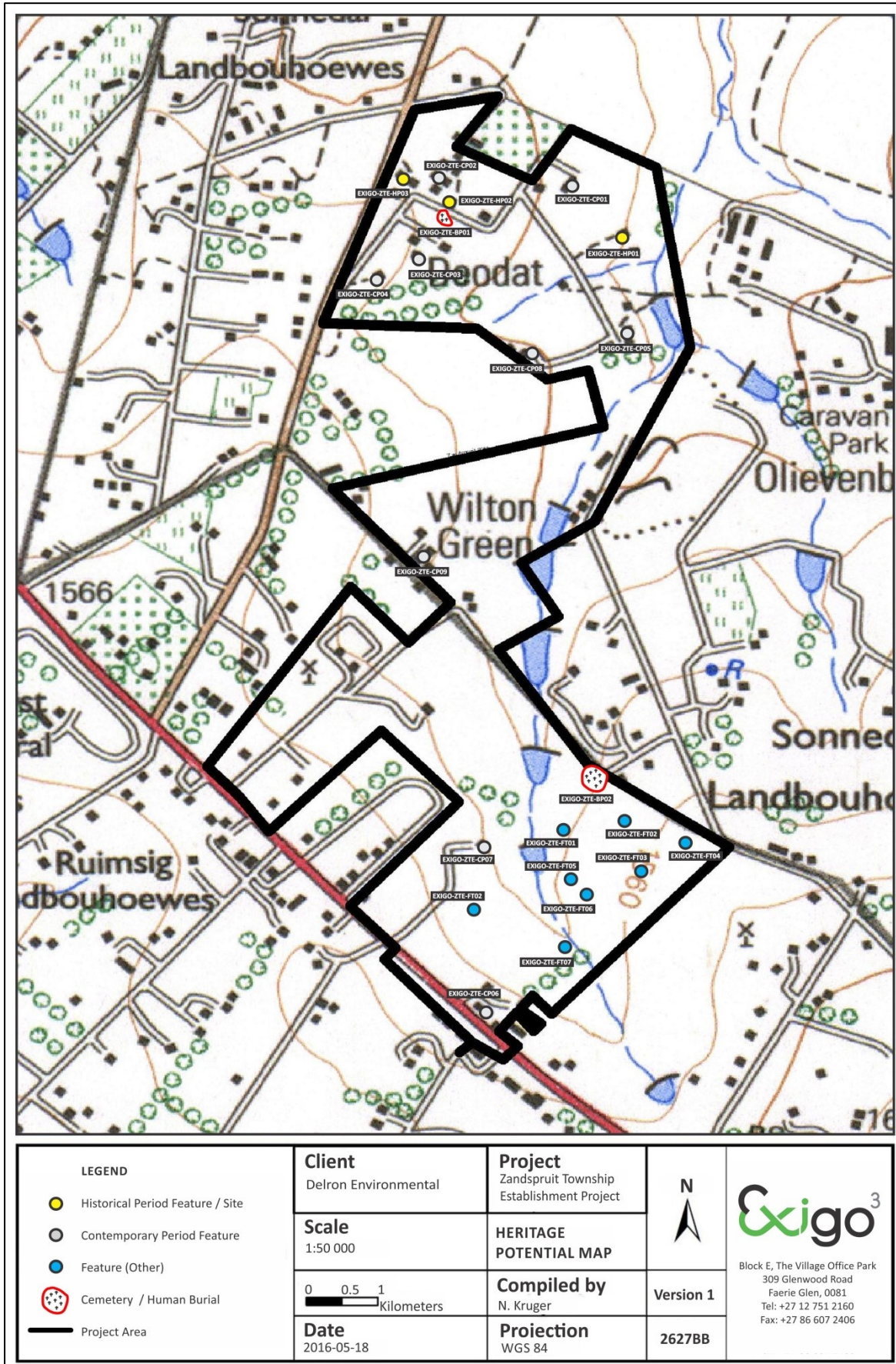


Figure 5-28: Topographic map indicating the location of heritage sites discussed in the text.

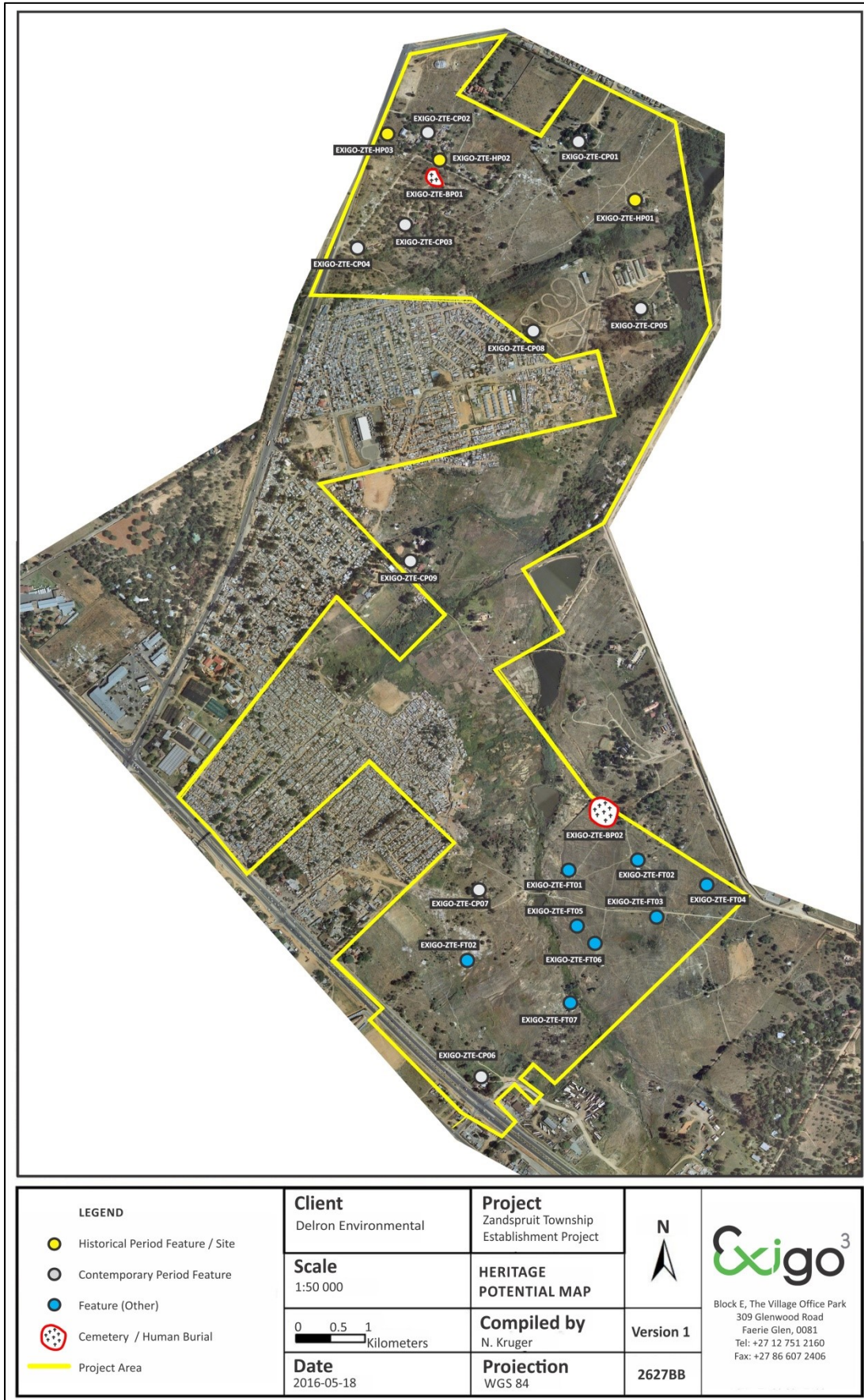


Figure 5-29: Aerial map indicating the location of heritage sites discussed in the text.

**6 RESULTS: STATEMENT OF SIGNIFICANCE AND IMPACT RATING**

**6.1 Potential Impacts and Significance Ratings<sup>2</sup>**

The following section provides a background to the identification and assessment of possible impacts and alternatives, as well as a range of risk situations and scenarios commonly associated with heritage resources management. A guideline for the rating of impacts and recommendation of management actions for areas of heritage potential within the study area is supplied in Section 10.2 of the Addendum.

**6.1.1 General assessment of impacts on resources**

Generally, the value and significance of archaeological and other heritage sites might be impacted on by any activity that would result immediately or in the future in the destruction, damage, excavation, alteration, removal or collection from its original position, any archaeological material or object (as indicated in the National Heritage Resources Act (No 25 of 1999)). Thus, the destructive impacts that are possible in terms of heritage resources would tend to be direct, once-off events occurring during the initial construction period. However, in the long run, the proximity of operations in any given area could result in secondary indirect impacts. The EIA process therefore specifies impact assessment criteria which can be utilised from the perspective of a heritage specialist study which elucidates the overall extent of impacts.

**6.1.2 Direct impact rating**

**Direct or primary effects** on heritage resources occur at the same time and in the same space as the activity, e.g. loss of historical fabric through demolition work. **Indirect effects or secondary effects** on heritage resources occur later in time or at a different place from the causal activity, or as a result of a complex pathway, e.g. restriction of access to a heritage resource resulting in the gradual erosion of its significance, which is dependent on ritual patterns of access (refer to Section 10.3 in the Addendum for an outline of the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected).

Heritage receptors were found in the **Zandspruit Township Establishment Project area** and potential impacts to heritage resources is foreseen.

The following table summarizes impacts to **Site EXIGO-ZTE-CP01 to Site EXIGO-ZTE-CP09 and Site EXIGO-ZTE-FT01 to Site EXIGO-ZTE-FT08** of **low** significance located within the project area.

<b>NATURE OF IMPACT:</b> Impacts could involve displacement or destruction of structures or features in the proposed Project area.		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>EXTENT</b>	Local	Local
<b>DURATION</b>	Permanent	Permanent
<b>MAGNITUDE</b>	Minor	Minor
<b>PROBABILITY</b>	Definite	Negligible
<b>SIGNIFICANCE</b>	Low	Low
<b>STATUS</b>	Negative	Neutral

<sup>2</sup> Based on: Winter, S. & Baumann, N. 2005. *Guideline for involving heritage specialists in EIA processes: Edition 1.*



<b>REVERSIBILITY</b>	Non-reversible	Non-reversible
<b>IRREPLACEABLE LOSS OF RESOURCES?</b>	Yes	No
<b>CAN IMPACTS BE MITIGATED?</b>	N.A	
<b>MITIGATION:</b> Site monitoring by ECO.		
<b>CUMULATIVE IMPACTS:</b> No cumulative impact is anticipated.		
<b>RESIDUAL IMPACTS:</b> n/a		

The following table summarizes impacts to **Site EXIGO-ZTE-HP01, Site EXIGO-ZTE-HP02 and Site EXIGO-ZTE-HP03** of **medium** significance located within the project area.

<b>NATURE OF IMPACT:</b> Impacts could involve displacement or destruction of heritage structures or features in the project area.		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>EXTENT</b>	Local	Local
<b>DURATION</b>	Permanent	Permanent
<b>MAGINITUDE</b>	Major	Minor
<b>PROBABILITY</b>	Definite	Negligible
<b>SIGNIFICANCE</b>	Medium	Low
<b>STATUS</b>	Negative	Neutral
<b>REVERSIBILITY</b>	Non-reversible	Non-reversible
<b>IRREPLACEABLE LOSS OF RESOURCES?</b>	Yes	No
<b>CAN IMPACTS BE MITIGATED?</b>	N.A	
<b>MITIGATION:</b> Avoidance, Site documentation, site monitoring by ECO, destruction permitting.		
<b>CUMULATIVE IMPACTS:</b> No cumulative impact is anticipated.		
<b>RESIDUAL IMPACTS:</b> n/a		

The following table summarizes impacts to **Site EXIGO-ZTE-BP01 and Site EXIGO-ZTE-BP02** of **high** significance located within the project area.

<b>NATURE OF IMPACT:</b> Impacts could involve displacement or destruction of heritage structures or features in the project area.		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>EXTENT</b>	Local	Local
<b>DURATION</b>	Permanent	Permanent
<b>MAGINITUDE</b>	Major	Minor
<b>PROBABILITY</b>	Definite	Negligible
<b>SIGNIFICANCE</b>	Medium	Low

<b>STATUS</b>	Negative	Neutral
<b>REVERSIBILITY</b>	Non-reversible	Non-reversible
<b>IRREPLACEABLE LOSS OF RESOURCES?</b>	Yes	No
<b>CAN IMPACTS BE MITIGATED?</b>	N.A	
<b>MITIGATION:</b> Avoidance, site monitoring by ECO, management, grave relocation.		
<b>CUMULATIVE IMPACTS:</b> No cumulative impact is anticipated.		
<b>RESIDUAL IMPACTS:</b> n/a		

**6.2 Evaluation Impacts**

Previous studies conducted in the larger Pretoria area suggest a rich and diverse archaeological landscape. However, the proposed Zandspruit Township Establishment Project area situated in expanding urban and peri-urban zones which have seen long-term human impact. As such, these areas have largely been sterilised of potential heritage resources, especially those dating to pre-Colonial and prehistoric times. Cognisance should nonetheless be taken of archaeological material that might be present in surface and sub-surface deposits.

**6.2.1 Archaeology**

The study has not identified any archaeological which will be directly impacted by the proposed project. For the rest of the project area, the general landscape at Zandspruit has limited significance in terms of archaeological receptors as the landscape has generally been transformed by past and more recent urbanization. No impact on archaeological heritage is therefore anticipated. However, subsurface archaeological remains may occur in the area where the clearing of topsoil during development activities frequently exposes archaeological deposits.

**6.2.2 Built Environment**

The project area is situated north of Johannesburg and its northern suburbs where a number of Historical Period buildings and features, monuments and heritage sites are to be found. However, in its direct surrounds are informal settlements, industrial buildings and residential developments. Three buildings dating to the Historical Period occur in the project area footprint and these features are of medium heritage value. The potential impact on the resources is considered to be MODERATE but this impact rating can be limited to a NEGLIBLE impact by the implementation of mitigation measures (site monitoring, Phase 2 Analysis, destruction permitting) for the sites, if / when required.

**6.2.3 Cultural Landscape**

Even though the larger Gauteng area comprises a rich cultural landscape, the landscape surrounding the proposed project area has been transformed by industrialization and human settlement. Further away from the project area, the landscape is typical of central Gauteng with large flat parcels with occasional undulating hills and flatter plains in-between. This landscape has been transformed by urbanization and the proposed project is unlikely to result in a significant impact on the cultural landscape. A number of religious meeting places in the project area might have social meaning to local residents and church groups.

**6.2.4 Graves / Human Burials Sites**

At least 2 burial sites were located in the project area. These receptors are of high significance for their social and cultural value. The potential impact on the resources is HIGH but this impact rating can be limited to a NEGLIBLE impact by the implementation of mitigation measures (avoidance, site management, site monitoring / grave relocation) for the sites, if / when required. In the rural areas of Gauteng graves and cemeteries often occur around farmsteads in family burial grounds but they are also randomly scattered around archaeological and historical settlements. The probability of informal human burials encountered during development should thus not be excluded. In addition, human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, 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 observed when they are exposed through erosion. In some instances packed stones or rocks may indicate the presence of informal pre-colonial 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). Should any unmarked human burials/remains be found during the course of construction, work in the immediate vicinity should cease and the find must immediately be reported to the archaeologist, or the South African Heritage Resources Agency (SAHRA). Under no circumstances may burials be disturbed or removed until such time as necessary statutory procedures required for grave relocation have been met

***Sensitive heritage resources occur inside areas proposed for the Zandspruit Township Establishment development and the mitigation and management of some of these resources are required for the duration of the development. In the opinion of the author of this Archaeological Impact Assessment Report, the proposed Zandspruit Township Establishment Project may proceed from a culture resources management perspective, provided that mitigation measures, endorsed by the relevant Heritage Resources authority, are implemented where applicable, and provided that no subsurface heritage remains are encountered during construction.***

**6.3 Management actions**

Recommendations for relevant heritage resources management actions are vital to the conservation of heritage resources. A general guideline for recommended management actions is included in Section 10.4 of the Addendum. The following management measures would be required during implementation of the proposed Zandspruit Township Establishment Project.

**OBJECTIVE:** prevent unnecessary disturbance and/or destruction of previously undetected heritage receptors.

*For the Contemporary Period houses, dwellings, foundation structures and buildings (Site EXIGO-ZTE-CP01 to Site EXIGO-ZTE-CP09) as well as a number of religious meeting places (Site EXIGO-ZTE-FT01 to Site EXIGO-ZTE-FT08) within the project area the following are required in terms of heritage management and mitigation:*

<b>PROJECT COMPONENT/S</b>	All phases of construction.
<b>POTENTIAL IMPACT</b>	Damage/disturbance of previously undetected heritage remains.
<b>ACTIVITY RISK/SOURCE</b>	Digging foundations and trenches into sensitive deposits that are not

	visible at the surface.
<b>MITIGATION: TARGET/OBJECTIVE</b>	To adequately document the historic fabric of previously undetected heritage remains as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.
<b>MITIGATION: ACTION/CONTROL</b>	<b>RESPONSIBILITY</b>
<b>TIMEFRAME</b>	
Fixed Mitigation Procedure ( <b>required</b> )	
<b>Site Monitoring:</b> Regular examination of trenches and excavations. <b>Social Consultation:</b> It is suggested that local communities be consulted with regards to religious meeting places in the project area and their possible social meanings.	ECO
	Monitor as frequently as practically possible.
<b>PERFORMANCE INDICATOR</b>	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.
<b>MONITORING</b>	Successful location of sites by person/s monitoring.

For the three Historical Period buildings and / or compounds (**Site EXIGO-ZTE-HP01, Site EXIGO-ZTE-HP02, Site EXIGO-ZTE-HP03**) within the project area the following are required in terms of heritage management and mitigation:

<b>PROJECT COMPONENT/S</b>	All phases of construction and operation.	
<b>POTENTIAL IMPACT</b>	Damage/destruction of sites.	
<b>ACTIVITY RISK/SOURCE</b>	Digging foundations and trenches into sensitive deposits that are not visible at the surface.	
<b>MITIGATION: TARGET/OBJECTIVE</b>	To locate previously undetected heritage remains / graves as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.	
<b>MITIGATION: ACTION/CONTROL</b>	<b>RESPONSIBILITY</b>	<b>TIMEFRAME</b>
Fixed Mitigation Procedure ( <b>required</b> )		
<b>Site Monitoring:</b> Regular examination of trenches and excavations in order to detect and preserve previously undocumented heritage receptors.	ECO, HERITAGE ASSESSMENT PRACTITIONER	Monitor as frequently as practically possible.
Preferred Mitigation Procedure		
<b>Avoidance:</b> Implement a heritage conservation buffer of at least 20m around the heritage resource; avoid the heritage resource and the proposed conservation buffer.	DEVELOPER	Prior to the commencement of construction and earth-moving.
Alternative Mitigation Procedure ( <b>if preferred mitigation procedure is not feasible</b> )		
Phase 2 Specialist Analysis and documentation of sites (mapping, desktop study), site sampling (if required). Permitting if and when required.	HERITAGE ASSESSMENT PRACTITIONER	Prior to the commencement of construction and earth-moving.
<b>PERFORMANCE INDICATOR</b>	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.	
<b>MONITORING</b>	Successful location of sites by person/s monitoring.	

For the highly significant burial sites (*Site EXIGO-ZTE-BP01, Site EXIGO-ZTE-BP02*) occurring within the project area the following are required in terms of heritage management and mitigation:

<b>PROJECT COMPONENT/S</b>	All phases of construction and operation.		
<b>POTENTIAL IMPACT</b>	Damage/disturbance to subsurface burials and surface burial features.		
<b>ACTIVITY RISK/SOURCE</b>	Digging foundations and trenches into sensitive deposits that are not visible at the surface.		
<b>MITIGATION: TARGET/OBJECTIVE</b>	To locate human burials as soon as possible after disturbance so as to maximize the chances of successful rescue/mitigation work.		
<b>MITIGATION: ACTION/CONTROL</b>	<b>RESPONSIBILITY</b>	<b>TIMEFRAME</b>	
<b>Preferred Mitigation Procedure</b>			
<b>Avoidance:</b> Implement a strict heritage conservation buffer of at least 50m around the graves / cemeteries, if necessary redesign township layout to avoid the heritage resources and the proposed conservation buffer. Fence all burial places and apply access control. Strict and continuous monitoring of the heritage sites during construction, implementation of a site management plan detailing strict site management conservation measures.	DEVELOPER QUALIFIED HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving, monitoring during construction.	
<b>Alternative Mitigation Procedure (if preferred mitigation procedure is not feasible)</b>			
<b>Grave Relocation:</b> Relocation of burials and documentation of site, full social consultation with affected parties, possible conservation management and protection measures. Subject to authorisations and relevant permitting from heritage authorities and affected parties.	QUALIFIED HERITAGE SPECIALIST	Prior to the commencement of construction and earth-moving.	
<b>Fixed Mitigation Procedure (required)</b>			
<b>Site Monitoring:</b> Regular examination of trenches and excavations in this area in order to avoid the destruction of previously undetected burials or heritage remains. If burials were to be retained with no infrastructure redesign a strict site management and monitoring protocol will be required (planning, construction phases).	ECO	Monitor as frequently as practically possible.	
<b>PERFORMANCE INDICATOR</b>	Archaeological sites are discovered and mitigated with the minimum amount of unnecessary disturbance.		
<b>MONITORING</b>	Successful location of sites by person/s monitoring.		

## 7 RECOMMENDATIONS

---

The larger landscape in this part of Gauteng is rich in pre-historical and historical remnants, significantly so Colonial sites associated material remains. In terms of heritage resources, the landscape around the project area has been altered extensively by recent and historical activities largely sterilising the area of heritage remains. The following recommendations are made based on general observations in the proposed Zandspruit Township Establishment Project Area:

- A Palaeontological Desktop Study should be considered for the development. Should fossil remains such as fossil fish, reptiles or petrified wood be exposed during construction, these objects should carefully safeguarded and the relevant heritage resources authority (SAHRA) should be notified immediately so that the appropriate action can be taken by a professional palaeontologist.
- A number of Contemporary Period houses, dwellings, foundation structures and buildings (**Site EXIGO-ZTE-CP01 to Site EXIGO-ZTE-CP09**) as well as a number of religious meeting places possibly associated with the ZCC (**Site EXIGO-ZTE-FT01 to Site EXIGO-ZTE-FT08**) occur within the project area but these sites are of low significance due a more recent temporal context thereof. However, it is recommended that the sites and any activities in its surrounds be monitored in order to avoid the destruction of previously undetected heritage remains. It is suggested that local communities be consulted with regards to religious meeting places in the project area and their possible social meanings. This could form part of the Social impact Assessment (SIA) for the project.
- Three fairly well preserved Historical Period buildings and / or compounds (**Site EXIGO-ZTE-HP01, Site EXIGO-ZTE-HP02, Site EXIGO-ZTE-HP03**) occur within the project area and the sites are of medium significance as they might inform on architectural, settlement and social developments at Zandspruit. It is primarily recommended that the sites be avoided and that a 20m conservation buffer around the structures be implemented. Should impact on the sites by development prove inevitable they should be adequately documented by means of further Phase 2 Specialist Analysis (mapped, photographed and documented, described and contextualised by means of a desktop study) and the necessary destruction permits should be obtained from the relevant Heritage Resources Authorities.
- Two burial sites occurring within the project area (**Site EXIGO-ZTE-BP01, Site EXIGO-ZTE-BP02**) are of high significance and these sites will in all probability be impacted on by the proposed project. Primarily it is recommended that cemeteries be avoided and that a conservation buffer of at least 50m be implemented for the heritage receptors on the condition that the burial sites are monitored frequently by a heritage consultant or informed ECO in order to detect and manage negative impact on the sites. In addition, the sites should be fenced prior to the commencement of construction and strict access control should be applied. A site management plan detailing strict site management conservation measures for these heritage receptors should be compiled prior to the commencement of construction. The developer should carefully liaise with the heritage specialist and SAHRA with regards to the management and monitoring of any human grave or cemetery.  
**Should impact on any human burial prove inevitable, full grave relocations are recommended for these burial grounds. This measure should be undertaken by a qualified archaeologist, and in accordance with relevant legislation, permitting, statutory permissions and subject to any local and regional provisions and laws and by-laws pertaining to human remains. A full social consultation process should occur in conjunction with the mitigation of cemeteries and burials (see Addendum B).**
- A careful watching brief monitoring process is recommended whereby an informed ECO inspect the construction site on regular basis in order to monitor possible impact on heritage resources.

Should any subsurface paleontological, archaeological or historical material or heritage resources be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately

- It is essential that cognisance be taken of the larger archaeological landscape of the area in order to avoid the destruction of previously undetected heritage sites. Should any subsurface paleontological / archaeological / historical material and /or graves/human remains be uncovered, all activities should be suspended and the archaeological specialist should be alerted immediately.
- It should be noted that mitigation measures are valid for the duration of the development process, and mitigation measures might have to be implemented on additional features of heritage importance not detected during this Phase 1 assessment (e.g. uncovered during the construction process).

In addition to these site-specific recommendations, careful cognisance should be taken of the following:

- As Palaeontological remains occur where bedrock has been exposed, all geological features should be regarded as sensitive.
- Water sources such as drainage lines, fountains and pans would often have attracted human activity in the past. As Stone Age material the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits.

## 8 GENERAL COMMENTS AND CONDITIONS

---

This AIA report serves to confirm the extent and significance of the heritage landscape of the proposed Zandspruit Township Establishment Project Development area. The larger heritage horizon encompasses rich and diverse archaeological landscapes and cognisance should be taken of heritage resources and archaeological material that might be present in surface and sub-surface deposits. If, during construction, any possible archaeological material culture discoveries are made, the operations must be stopped and a qualified archaeologist be contacted for an assessment of the find. Such material culture might include:

- Formal Earlier Stone Age stone tools.
- Formal Middle Stone Age stone tools.
- Formal Later Stone Age stone tools.
- Potsherds
- Iron objects.
- Beads made from ostrich eggshell and glass.
- Ash middens and cattle dung deposits and accumulations.
- Faunal remains.
- Human remains/graves.
- Stone walling or any sub-surface structures.
- Historical glass, tin or ceramics.
- Fossils.

If such sites or material remains were to be encountered or impacted by any proposed developments, recommendations contained in this report, as well as endorsement of mitigation measures as set out by SAHRA, the National Resources Act and the CRM section of ASAPA will be required.

It must be emphasised that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/features and may not therefore, represent the area's complete archaeological legacy. Many sites/features may be covered by soil and vegetation and might only be located during sub-surface investigations. If subsurface archaeological deposits, artefacts or skeletal material were to be recovered in the area during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately (**cf. NHRA (Act No. 25 of 1999), Section 36 (6)**).

It must also be clear that Archaeological Specialist Reports will be assessed by the relevant heritage resources authority (SAHRA).



## 9 BIBLIOGRAPHY

---

- Acocks, J.P.H. 1988. Veld types of South Africa (3<sup>rd</sup> edition). Memoirs of the Botanical Survey of South Africa 57: 1-146
- Bergh, J.S. 1999. Geskiedenisatlas van Suid-Afrika: die vier noordelike provinsies. Pretoria: J.L. van Schaik.
- Breul, H. 1948. The Earlier Stone Age or Old Palaeolithic Industries in the Vaal River Basin. Archaeological Survey. Archaeological Series No. VI:8-18.
- Bonner, P. & Segal, L. 1998. Soweto: A History. Cape Town: Maskew Longman.
- City of Johannesburg. 2006. Integrated Development Plan 2006/11. Johannesburg: City of Johannesburg.
- Deacon, J. 1996. Archaeology for Planners, Developers and Local Authorities. National Monuments Council. Publication no. P021E.
- Deacon, J. 1997. Report: Workshop on Standards for the Assessment of Significance and Research Priorities for Contract Archaeology. In: Newsletter No 49, Sept 1998. Association for Southern African Archaeologists.
- Esterhuysen, A., 2007. The Earlier Stone Age. In Bonner, P., Esterhuysen, A., Jenkins, T. (eds.): A Search for Origins: Science, History and South Africa's 'Cradle of Humankind'. Johannesburg: Wits University Press. Pg 110 -121.
- Evers, T.M. 1988. The recognition of Groups in the Iron Age of Southern Africa. PhD thesis. Johannesburg: University of the Witwatersrand.
- Hall, M. 1987. The Changing Past: Farmers, Kings & Traders in Southern Africa 200 – 1860 Cape Town, Johannesburg: David Philip
- Hamilton, C. (Ed.) 1995. The Mfecane Aftermath. Johannesburg: Wits U.P.
- Huchzermeyer, M. 2003. A Legacy of Control? The Capital Subsidy for Housing and Informal Settlement Intervention in South Africa. International Journal of Urban and Regional Research. Vol. 23.3. September 2003: 591-612.
- Huffman, T.N. 2007. Handbook to the Iron Age. Pietermaritzburg: University of Kwazulu-Natal Press
- Maggs, T.M.O. 1976. Iron Age Communities of the Southern Highveld. Pietermaritzburg: University of Natal Press.
- Mason, R.J. 1962. The Prehistory of the Transvaal. Johannesburg: University of the Witwatersrand Press.
- Oakes, D. 1989. Readers Digest Illustrated History of South Africa: The Real Story. Cape Town: The Readers Digest Association South Africa (Pty) Ltd.
- Pratt, A. 1913. The Real South Africa. Indianapolis: Bobbs-Merrill
- Raper, P.E. 2004. South African place names. Johannesburg: Jonathan Ball Publishers

Richardson, P. & Van Helton, J.J. 1980. The Gold-Mining Industry in the Transvaal, 1886-1899. In Warwick, P. (ed.). The South African War. 1980. London.

Schlüter, T. 2005. Geological Atlas of Africa, with Notes on Stratigraphy, Tectonics, Economic Geology, Geohazards and Geosites of Each Country. London: Springer

Shorten, J.R. 1970. Die Verhaal van Johannesburg. Johannesburg Voortrekkers

Swanepoel, N. et al (Eds.) 2008. Five hundred years rediscovered. Johannesburg: Wits University Press

Van Onselen, C. 1982. Studies in the Social and Economic History of the Witwatersrand 1886–1914. Vol 1: New Babylon, Vol 2: New Nineveh. Longman: London; Johannesburg: Ravan.

Van Warmelo N.J. 1935. A Preliminary Survey of the Bantu Tribes of South Africa. Ethnographic Publications No. 5. Pretoria: Government Printer.

Worden, N. 1994. The Making of Modern South Africa: Conquest, Segregation and Apartheid. Blackwell: Oxford.

Thackeray, A.I. 1992. The Middle Stone Age south of the Limpopo River. Journal of World Prehistory 6(4):385-440.

Human Tissue Act and Ordinance 7 of 1925, Government Gazette, Cape Town

National Resource Act No.25 of 1999, Government Gazette, Cape Town

SAHRA, 2005. Minimum Standards for the Archaeological and the Palaeontological Components of Impact Assessment Reports, Draft version 1.4.

<http://csg.dla.gov.za/index.html>

Accessed 2016-05-30

## 10 ADDENDUM A: HERITAGE LEGISLATION BACKGROUND

---

### 10.1 CRM: Legislation, Conservation and Heritage Management

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

#### 10.1.1 Legislation regarding archaeology and heritage sites

The South African Heritage Resources Agency (SAHRA) and their provincial offices aim to conserve and control the management, research, alteration and destruction of cultural resources of South Africa. It is therefore vitally important to adhere to heritage resource legislation at all times.

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

According to the National Heritage Resources Act of 1999 a historical site is any identifiable building or part thereof, marker, milestone, gravestone, landmark or tell older than 60 years. This clause is commonly known as the "60-years clause". Buildings are amongst the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Iron Age settlements. "Tell" refers to the evidence of human existence which is no longer above ground level, such as building foundations and buried remains of settlements (including artefacts).

The Act identifies heritage objects as:

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

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

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

and

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

- (d) *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (e) *destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*

- (f) *trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or*
- (g) *bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58)."*

and

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

- (h) *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;*
- (i) *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;*
- (j) *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60)."*

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

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

##### **10.1.2 Background to HIA and AIA Studies**

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the National Heritage Resources Act (Act No 25 of 1999, section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority. Heritage sites are frequently threatened by development projects and both the environmental and heritage legislation require impact assessments (HIAs & AIAs) that identify all heritage resources in areas to be developed. Particularly, these assessments are required to make recommendations for protection or mitigation of the impact of the sites. HIAs and AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of developed and (b) make recommendations for protection or mitigation of the impact on the sites.

The National Heritage Resources Act (Act No. 25 of 1999, section 38) provides guidelines for Cultural Resources Management and prospective developments:

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

*development categorised as:*

- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*
- (b) the construction of a bridge or similar structure exceeding 50m in length;*
- (c) any development or other activity which will change the character of a site:*
  - (i) exceeding 5 000 m<sup>2</sup> in extent; or*
  - (ii) involving three or more existing erven or subdivisions thereof; or*
  - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or*
  - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;*
- (d) the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent; or*
- (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,*

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

And:

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

- (k) The identification and mapping of all heritage resources in the area affected;*
- (l) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;*
- (m) an assessment of the impact of the development on such heritage resources;*
- (n) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;*
- (o) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;*
- (p) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and*
- (q) plans for mitigation of any adverse effects during and after the completion of the proposed development (38. [3] 1999:64)."*

**Consequently, section 35 of the Act requires Heritage Impact Assessments (HIAs) or Archaeological Impact Assessments (AIAs) to be done for such developments in order for all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual, linguistic or technological value or significance to be protected. Thus any assessment should make provision for the**

**protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects. Heritage resources management and conservation**

## 10.2 Assessing the Significance of Heritage Resources

Archaeological sites, as previously defined in the National Heritage Resources Act (Act 25 of 1999) are places in the landscape where people have lived in the past – generally more than 60 years ago – and have left traces of their presence behind. In South Africa, archaeological sites include hominid fossil sites, places where people of the Earlier, Middle and Later Stone Age lived in open sites, river gravels, rock shelters and caves, Iron Age sites, graves, and a variety of historical sites and structures in rural areas, towns and cities. Palaeontological sites are those with fossil remains of plants and animals where people were not involved in the accumulation of the deposits. The basic principle of cultural heritage conservation is that archaeological and other heritage sites are valuable, scarce and *non-renewable*. Many such sites are unfortunately lost on a daily basis through development for housing, roads and infrastructure and once archaeological sites are damaged, they cannot be re-created as site integrity and authenticity is permanently lost. Archaeological sites have the potential to contribute to our understanding of the history of the region and of our country and continent. By preserving links with our past, we may not be able to revive lost cultural traditions, but it enables us to appreciate the role they have played in the history of our country.

### - Categories of significance

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

#### - *Aesthetic value:*

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

#### - *Historic value:*

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

#### - *Scientific value:*

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

#### - *Social value:*

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

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

**Formally protected sites:**

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

**Generally protected sites:**

- Human burials older than 60 years.
- Archaeological and palaeontological sites.
- Shipwrecks and associated remains older than 70 years.
- Structures older than 60 years.

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

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

Furthermore, the significance of archaeological sites was based on six main criteria:

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

**A fundamental aspect in assessing the significance and protection status of a heritage resource is often whether or not the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and mitigated in order to gain data / information, which would otherwise be lost.**



## 11 ADDENDUM B: GRAVE RELOCATION AND SITE MANAGEMENT: STATUTORY MANDATE

---

### 11.1 Archaeology, graves and the law

Note that four categories of graves can be identified. These are:

- Graves younger than 60 years;
- Graves older than 60 years, but younger than 100 years;
- Graves older than 100 years; and
- Graves of victims of conflict or of individuals of royal descent

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant 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 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; or
- (c) bring onto or use at a burial ground or grave referred to in paragraph (a) Or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Human remains that are less than 60 years old are subject to provisions of the Human Tissues Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the Ordinance on Excavations (Ordinance no. 12 of 1980) (replacing the old Transvaal Ordinance no. 7 of 1925). Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated) before exhumation can take place.

A registered undertaker can only handle human remains or an institution declared under the Human Tissues Act (Act 65 of 1983 as amended).

Unidentified/unknown graves are also handled as older than 60 until proven otherwise.

Summary of applicable legislation and legal requirements:

- Human Tissue Act (Act 65 of 1983 as amended).
- Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925)
- Ordinance on Excavations (Ordinance no. 12 of 1980)
- Local and regional provisions, laws and by-laws
- National Heritage Resources Act (Act no. 25 of 1999)
- Permit from SAHRA for removal of human remains

### 11.2 Graves: necessary procedures

When graves are located in an area demarcated for development, the following mitigation options might be considered:

- **Conservation:** The establishment of a 50 meter buffer zone around the burial place which is fenced off and, maintained and conserved. *This option is generally recommended as the relocation of burial places is an extremely complicated, time consuming and sensitive process.*

- **Mitigation and relocation:** In the event where impact on the burial place will occur, mitigation measures may entail full grave relocation. Such a relocation process must be undertaken by suitably qualified individuals with a proven track record. The relocation must also be undertaken in full cognisance of all relevant legislation, including the specific requirements of the National Heritage Resource Act (Act no. 25 of 1999). Furthermore, a concerted effort must also be made to identify all buried individuals and to contact their relatives and descendants. Other legislative measures which may be of relevance include the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), the Human Tissues Act (Act no. 65 of 1983, as amended), the Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws that may be in place.

*Methodology for grave relocations:*

- **Documentation:** Physical documentation of graves and determining context of graves prior to exhumation: Photographic, GPS, Site Map, Historical Background.
- **Public Notices:** In order to locate and notify descendant families, notices (in compliance with the National Heritage Resources Act) must be placed on the site/s, indicating the intent of relocation. These notices, translated into at least 3 languages, have to remain in place for a minimum of 60 days. Additionally, newspaper adverts and notices on local radio stations announcements are required.
- **Social consultation:** If any descendant families were located during initial consultation/public participation phases, a full social consultation action will be lodged.
- **Permit application:** Application for a permit from SAHRA can only be obtained after all necessary consent documents from descendant families, landowners and relevant authorities have been secured.
- **Exhumation & relocation**

The exhumation, investigation and reburial of the burial place may commence after SAHRA has issued relevant permits and permissions

**12 ADDENDUM C: CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE**

**12.1 Site Significance Matrix**

According to the NHRA, Section 2(vi) the **significance** of heritage sites and artefacts is determined by its aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these. The following matrix is used for assessing the significance of each identified site/feature.

2. SITE EVALUATION			
2.1 Heritage Value (NHRA, section 2 [3])	High	Medium	Low
It has importance to the community or pattern of South Africa’s history or pre-colonial history.			
It possesses unique, uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage.			
It has potential to yield information that will contribute to an understanding of South Africa’s natural and cultural heritage.			
It is of importance in demonstrating the principle characteristics of a particular class of South Africa’s natural or cultural places or objects.			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).			
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.			
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			
It has significance relating to the history of slavery in South Africa.			
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.			
2.2 Field Register Rating			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
2.3 Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Local			
Specific community			

**12.2 Impact Assessment Criteria**

The following table provides a guideline for the rating of impacts and recommendation of management actions for sites of heritage potential.

**Significance of the heritage resource**

This is a statement of the nature and degree of significance of the heritage resource being affected by the activity. From a heritage management perspective it is useful to distinguish between whether the significance is embedded in the physical fabric or in associations with events or persons or in the experience of a place; i.e. its visual and non-visual qualities. This statement is a primary informant to the nature and degree of significance of an impact and thus needs to be thoroughly considered. Consideration needs to be given to the significance of a heritage resource at different scales (i.e. sitespecific, local, regional, national or international) and the relationship between the heritage resource, its setting and its associations.

**Nature of the impact**

This is an assessment of the nature of the impact of the activity on a heritage resource, with some indication of its positive and/or negative effect/s. It is strongly informed by the statement of resource significance. In other words, the nature of the impact may be historical, aesthetic, social, scientific, linguistic or architectural, intrinsic, associational or contextual (visual or non-visual). In many cases, the nature of the impact will include more than one value.

**Extent**

Here it should be indicated whether the impact will be experienced:

- On a site scale, i.e. extend only as far as the activity;
- Within the immediate context of a heritage resource;
- On a local scale, e.g. town or suburb
- On a metropolitan or regional scale; or
- On a national/international scale.

**Duration**

Here it should be indicated whether the lifespan of the impact will be:

- Short term, (needs to be defined in context)
- Medium term, (needs to be defined in context)
- Long term where the impact will persist indefinitely, possibly beyond the operational life of the activity, either because of natural processes or by human intervention; or
- Permanent where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.

Of relevance to the duration of an impact are the following considerations:

- Reversibility of the impact; and
- Renewability of the heritage resource.

**Intensity**

Here it should be established whether the impact should be indicated as:

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

**Probability**

This should describe the likelihood of the impact actually occurring indicated as:

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

**Confidence**

This should relate to the level of confidence that the specialist has in establishing the nature and degree of impacts. It relates to the level and reliability of information, the nature and degree of consultation with I&AP's and the dynamic of the broader socio-political context.

- High, where the information is comprehensive and accurate, where there has been a high degree of consultation and the socio-political context is relatively stable.

- Medium, where the information is sufficient but is based mainly on secondary sources, where there has been a limited targeted consultation and socio-political context is fluid.
- Low, where the information is poor, a high degree of contestation is evident and there is a state of socio-political flux.

**Impact Significance**

The significance of impacts can be determined through a synthesis of the aspects produced in terms of the nature and degree of heritage significance and the nature, duration, intensity, extent, probability and confidence of impacts and can be described as:

- Low; where it would have a negligible effect on heritage and on the decision
- Medium, where it would have a moderate effect on heritage and should influence the decision.
- High, where it would have, or there would be a high risk of, a big effect on heritage. Impacts of high significance should have a major influence on the decision;
- Very high, where it would have, or there would be high risk of, an irreversible and possibly irreplaceable negative impact on heritage. Impacts of very high significance should be a central factor in decision-making.

**12.3 Direct Impact Assessment Criteria**

The following table provides an outline of the relationship between the significance of a heritage context, the intensity of development and the significance of heritage impacts to be expected

HERITAGE CONTEXT	TYPE OF DEVELOPMENT			
	CATEGORY A	CATEGORY B	CATEGORY C	CATEGORY D
<b>CONTEXT 1</b> High heritage Value	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected	Very high heritage impact expected
<b>CONTEXT 2</b> Medium to high heritage value	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected	Very high heritage impact expected
<b>CONTEXT 3</b> Medium to low heritage value	Little or no heritage impact expected	Minimal heritage impact expected	Moderate heritage impact expected	High heritage impact expected
<b>CONTEXT 4</b> Low to no heritage value	Little or no heritage impact expected	Little or no heritage impact expected	Minimal heritage value expected	Moderate heritage impact expected

**NOTE: A DEFAULT "LITTLE OR NO HERITAGE IMPACT EXPECTED" VALUE APPLIES WHERE A HERITAGE RESOURCE OCCURS OUTSIDE THE IMPACT ZONE OF THE DEVELOPMENT.**

HERITAGE CONTEXTS	CATEGORIES OF DEVELOPMENT
<p><b>Context 1:</b> Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources</p> <p><b>Context 2:</b> Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources.</p> <p><b>Context 3:</b> Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources</p> <p><b>Context 4:</b> Of little or no intrinsic, associational or contextual heritage value due to disturbed, degraded conditions or extent of irreversible damage.</p>	<p><b>Category A: Minimal intensity development</b></p> <ul style="list-style-type: none"> <li>- No rezoning involved; within existing use rights.</li> <li>- No subdivision involved.</li> <li>- Upgrading of existing infrastructure within existing envelopes</li> <li>- Minor internal changes to existing structures</li> <li>- New building footprints limited to less than 1000m2.</li> </ul> <p><b>Category B: Low-key intensity development</b></p> <ul style="list-style-type: none"> <li>- Spot rezoning with no change to overall zoning of a site.</li> <li>- Linear development less than 100m</li> <li>- Building footprints between 1000m2-2000m2</li> <li>- Minor changes to external envelop of existing structures (less than 25%)</li> <li>- Minor changes in relation to bulk and height of immediately adjacent structures (less than 25%).</li> </ul> <p><b>Category C: Moderate intensity development</b></p> <ul style="list-style-type: none"> <li>- Rezoning of a site between 5000m2-10 000m2.</li> </ul>

	<ul style="list-style-type: none"> <li>- Linear development between 100m and 300m.</li> <li>- Building footprints between 2000m2 and 5000m2</li> <li>- Substantial changes to external envelop of existing structures (more than 50%)</li> <li>- Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 50%)</li> </ul> <p><b>Category D: High intensity development</b></p> <ul style="list-style-type: none"> <li>- Rezoning of a site in excess of 10 000m2</li> <li>- Linear development in excess of 300m.</li> <li>- Any development changing the character of a site exceeding 5000m2 or involving the subdivision of a site into three or more erven.</li> <li>- Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 100%)</li> </ul>
--	--

### 12.4 Management and Mitigation Actions

The following table provides a guideline of relevant heritage resources management actions is vital to the conservation of heritage resources.

<p><b>No further action / Monitoring</b></p> <p>Where no heritage resources have been documented, heritage resources occur well outside the impact zone of any development or the primary context of the surroundings at a development footprint has been largely destroyed or altered, no further immediate action is required. Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation in order to ensure that no undetected heritage\ remains are destroyed.</p> <p><b>Avoidance</b></p> <p>This is appropriate where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. Mitigation is not acceptable or not possible. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources.</p> <p><b>Mitigation</b></p> <p>This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated to a degree of medium to low significance, e.g. the high to medium impact of a development on an archaeological site could be mitigated through sampling/excavation of the remains. Not all negative impacts can be mitigated.</p> <p><b>Compensation</b></p> <p>Compensation is generally not an appropriate heritage management action. The main function of management actions should be to conserve the resource for the benefit of future generations. Once lost it cannot be renewed. The circumstances around the potential public or heritage benefits would need to be exceptional to warrant this type of action, especially in the case of where the impact was high.</p> <p><b>Rehabilitation</b></p> <p>Rehabilitation is considered in heritage management terms as a intervention typically involving the adding of a new heritage layer to enable a new sustainable use. It is not appropriate when the process necessitates the removal of previous historical layers, i.e. restoration of a building or place to the previous state/period. It is an appropriate heritage management action in the following cases:</p> <ul style="list-style-type: none"> <li>- The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation.</li> <li>- Where rehabilitation implies appropriate conservation interventions, i.e. adaptive reuse, repair and maintenance, consolidation and minimal loss of historical fabric.</li> <li>- Where the rehabilitation process will not result in a negative impact on the intrinsic value of the resource.</li> </ul> <p><b>Enhancement</b></p> <p>Enhancement is appropriate where the overall heritage significance and its public appreciation value are improved. It does not imply creation of a condition that might never have occurred during the evolution of a place, e.g. the tendency to sanitize the past. This management action might result from the removal of previous layers where these layers are culturally of low significance and detract from the significance of the resource. It would be appropriate in a range of heritage contexts and applicable to a range of resources. In the case of formally protected or significant resources, appropriate enhancement action should be encouraged. Care should, however, be taken to ensure that the process does not have a negative impact on the character and context of the resource. It would thus have to be carefully monitored</p>
---