

# ARCHAEOLOGICAL IMPACT ASSESSMENT REPORT

FOR THE PROPOSED METALS INDUSTRIAL CLUSTER NEAR KURUMAN,  
NORTHERN CAPE PROVINCE

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## EXECUTIVE SUMMARY

**Site name and location:** The Kuruman Metals Industrial Cluster is planned on Portion 6253 of Erf 1, ~2km south east from the town of Kuruman. The proposed project site (47ha in extent) falls within the Ga-Segonyana Local Municipality and the greater John Taolo Gaetsewe District Municipality.

**1: 50 000 Topographic Map:** 2723 AD.

**EIA Consultant:** Savannah Environmental (Pty) Ltd.

**Developer:** Northern Cape Department of Economic Development and Tourism.

**Heritage Consultant:** Heritage Contracts and Archaeological Consulting CC (HCAC).

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**Date of Report:** 20 July 2016

### **Findings of the Assessment:**

Savannah Environmental (Pty) Ltd, on behalf of the Northern Cape Department of Economic Development and Tourism, appointed Heritage Contracts and Archaeological Consulting CC (HCAC) to conduct an Archaeological Impact Assessment for the proposed Metals Industrial Cluster near Kuruman.

The entire property (i.e. Portion 6253 of Erf 1) was surveyed as the entire extent of the property is proposed to be developed for the Metals Industrial Cluster. The survey took place on foot and by vehicle.

In terms of the archaeological component of Section 35 of the NHRA no sites of archaeological significance were recorded. Similarly no sites of significance were recorded by other studies in the area (e.g. Tobias & George 2012 and Van der Walt 2012). No further mitigation prior to construction is recommended in terms of Section 35 for the proposed development to proceed. In terms of the built environment of the area (Section 34), no standing structures older than 60 years occur within the study area.

In terms of Section 36 of the Act no burial sites were recorded in the study area. However if any graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation. Due to the subsurface nature of archaeological remains and the fact that graves can occur anywhere on the landscape, it is recommended that a chance find procedure is implemented for the project as part of the EMPr.

The study area is surrounded by a township and recreational developments and no significant cultural landscapes or viewsapes were noted during the fieldwork.

Due to the lack of significant heritage features in the study area there is from an archaeological point of view no reason why the development cannot commence based on approval from SAHRA.

**Disclaimer:** *Although all possible care is taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. Heritage Contracts and Archaeological Consulting CC and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

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**ABBREVIATIONS**

AIA: Archaeological Impact Assessment
ASAPA: Association of South African Professional Archaeologists
BIA: Basic Impact Assessment
CRM: Cultural Resource Management
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EIA Practitioner: Environmental Impact Assessment Practitioner
EMPr: Environmental Management Plan
ESA: Early Stone Age
GPS: Global Positioning System
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MPRDA: Mineral and Petroleum Resources Development Act
MSA: Middle Stone Age
NEMA: National Environmental Management Act
PRHA: Provincial Heritage Resource Agency
SADC: Southern African Development Community
SAHRA: South African Heritage Resources Agency

*\*Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations and must be read and interpreted in the context it is used.*

**GLOSSARY**

Archaeological site (remains of human activity over 100 years old)

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

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

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

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

## **1 BACKGROUND INFORMATION**

HCAC (Heritage Contracts and Archaeological Consulting CC) was contracted by Savannah Environmental (Pty) Ltd to conduct an Archaeological Impact Assessment for the proposed Metals Industrial Cluster near Kuruman in the Northern Cape Province (Figure 1).

The aim of the study is to identify cultural heritage sites and document and assess their importance within a local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner. It is also conducted to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

The report outlines the approach and methodology utilised before and during the survey, which includes: Phase 1 - a desktop study (van der Walt 2016) that includes the collection of information from various sources and consultations; Phase 2 - the physical surveying of the study area on foot and by vehicle; Phase 3 - reporting the outcome of the study.

During the survey no heritage significant sites were identified. General site conditions and features on site were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report.

This report must also be submitted to the SAHRA for review.

## 1.1 Terms of Reference

### Field study

Conduct a field study to:

- a) Visit the proposed development footprint to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest;
- b) Record GPS points of identified significant areas; and
- c) Determine the levels of significance of the various types of heritage resources affected by the proposed Metals Industrial Cluster.

### Reporting

Report on the identification of anticipated and cumulative impacts which the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project; i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with Heritage legislation and the code of ethics and guidelines of ASAPA.

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

## 1.2. Archaeological Legislation and Best Practice

Phase 1, an AIA or a HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of heritage specialist input is to:

- » Identify any heritage resources, which may be affected;
- » Assess the nature and degree of significance of such resources;
- » Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- » Assess the negative and positive impact of the development on these resources; and
- » Make recommendations for the appropriate heritage management of these impacts.

The AIA or HIA, as a specialist sub-section of the EIA, is required under the National Heritage Resources Act NHRA of 1999 (Act 25 of 1999), Section 23(2) (b) of the NEMA and section s.39 (3) (b) (iii) of the MPRDA.

The AIA should be submitted, as part of the EIA, BIA or EMP, to the PHRA if established in the province or to SAHRA. SAHRA will be ultimately responsible for the professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires a Phase 1 AIA report and additional development information, as per the EIA, BIA/EMP, to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level).

Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with SAHRA. ASAPA is based in South Africa, representing professional archaeology in the SADC region. ASAPA is primarily involved in the overseeing of ethical practice and standards regarding the archaeological profession. Membership is based on proposal and secondment by other professional members.

Phase 1 AIAs are primarily concerned with the location and identification of sites situated within a proposed development area. Identified sites should be assessed according to their significance. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by SAHRA, are to be used as guidelines in the developer's decision making process.

Phase 2 archaeological projects are primarily based on salvage/mitigation excavations preceding development destruction or impact on a site. Phase 2 excavations can only be conducted with a permit, issued by SAHRA to the appointed archaeologist. Permit conditions are prescribed by SAHRA and includes (as minimum requirements) reporting back strategies to SAHRA and deposition of excavated material at an accredited repository.

In the event of a site conservation option being preferred by the developer, a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement.

After mitigation of a site, a destruction permit must be applied for from SAHRA by the client before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human

Tissues Act (Act 65 of 1983), and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5]) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation. If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare.

Authorisation for exhumation and reinternment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. To handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

### **1.3 Description of Study Area**

#### ***1.3.1 Location Data***

The Metals Industrial Cluster is proposed to be developed within the whole extent of Portion 6253 of Erf 1, located ~2km south east from the town of Kuruman. The site is directly accessible from a surfaced road that forms the western boundary of the study area (Figure 1) and the N14 located to the north of the site. The study area is relatively flat without any major topographical features. The vegetation is predominantly Kuruman Thornveld in the Savannah biome (Mucina & Rutherford 2006). Historical imagery on Google earth indicates that the land has been fallow for a number of years. The site is located at 27° 27' 53.5329" S, 23° 27' 13.9415" E.

1.3.2. Location Map

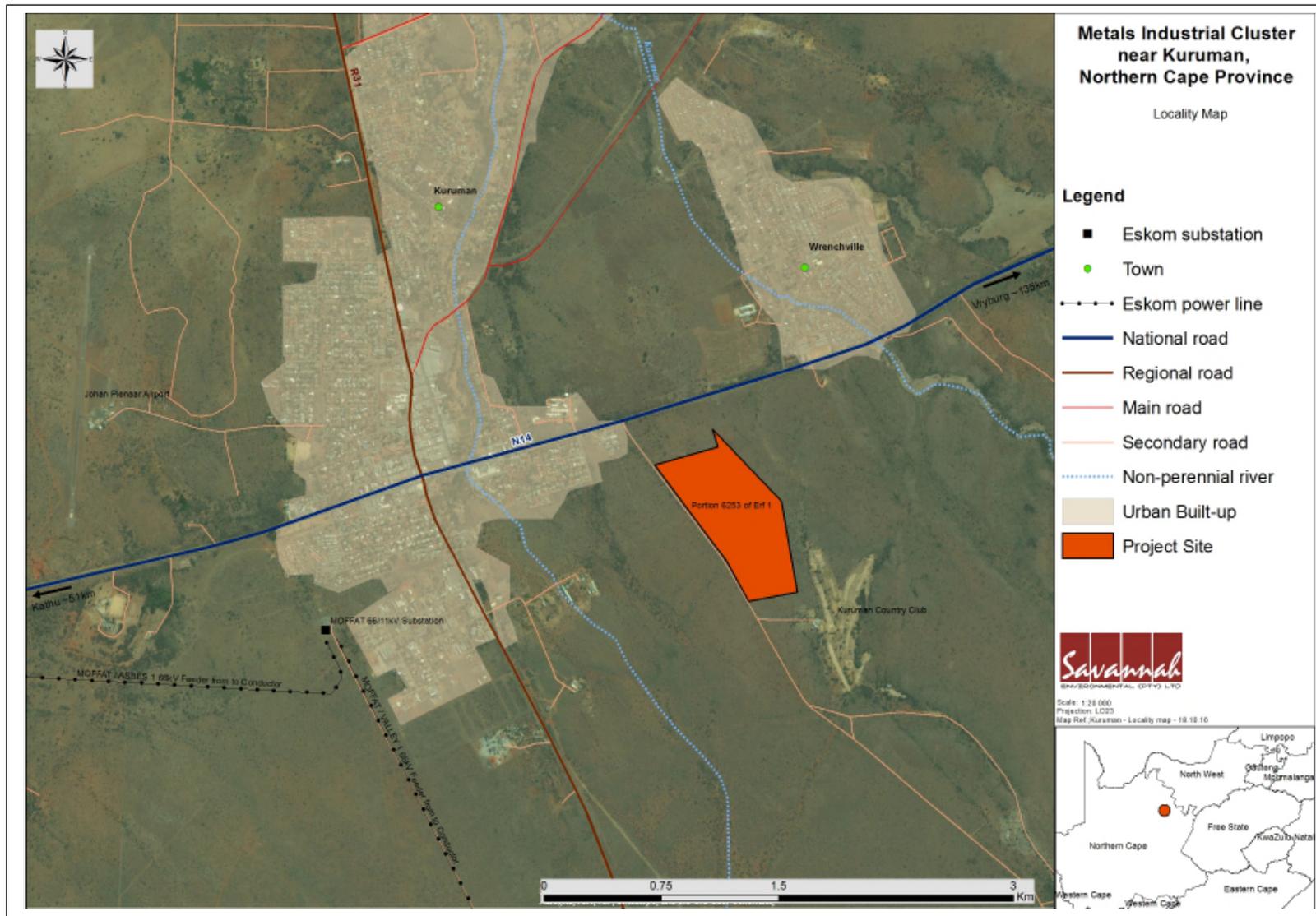


Figure 1: Location map provided by the client (i.e. Savannah Environmental).

## **2. APPROACH AND METHODOLOGY**

The aim of the study is to cover archaeological databases to compile a background of the archaeology that can be expected in the study area followed by field verification; this was accomplished by means of the following phases.

### **2.1 Phase 1 - Desktop Study**

The first phase comprised a scoping study, scanning existing records for archaeological sites, historical sites, graves, architecture (structures older than 60 years) of the area (van der Walt 2016). The following approaches were followed for the compilation of the scoping report.

#### **2.1.1 Literature Search**

Utilising data for information gathering stored in the national archives and published reports relevant to the area. The aim of this is to extract data and information on the area in question.

#### **2.1.2 Information Collection**

SAHRIS was consulted to collect data from previously conducted CRM projects in the region to provide a comprehensive account of the history of the study area.

#### **2.1.3 Consultation**

No public consultation was done during the study as this was done as part of the EIA.

#### **2.1.4 Google Earth and Mapping Survey**

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located.

#### **2.1.5 Genealogical Society of South Africa**

The database of the Genealogical Society was consulted to collect data on any known graves in the area.

### **2.2 Phase 2 - Physical Surveying**

A field survey of the study area was conducted. The survey focussed on the development footprint (i.e. the whole extent of Portion 6253 of Erf 1) and access routes. The field survey for the Kuruman Metals Industrial Cluster was conducted by means of vehicle and extensive surveys on foot on 16 July 2016. The survey was aimed at covering the proposed project site, but also focused on specific areas on the landscape that would be more likely to contain archaeological and/or other heritage remains like drainage lines, rocky outcrops as well as slight elevations in the natural topography. These areas were searched more

intensively, but many other areas were walked in order to confirm expectations in those areas. Track logs of the areas covered were taken (Figure 2).



Figure 2. Track logs of the areas surveyed indicated in black dashed line.

### **2.3. Assumptions and Limitations**

Due to the fact that most cultural remains may occur below surface, the possibility exists that some features or artefacts may not have been discovered / recorded during the survey. Low ground visibility of parts of the study area is due to sand cover and vegetation, and the possible occurrence of unmarked graves and other cultural material cannot be excluded. The property was surveyed as indicated in the location map. This study does not claim to have recorded every artefact cluster due the size of the study area.

This study did not assess living or intangible heritage or the impact on the palaeontology of the area. Although HCAC surveyed the area as thoroughly as possible, it is incumbent upon the developer to stop operations and inform the relevant heritage agency should further cultural remains, such as stone tool scatters, artefacts, bones or fossils, be exposed during the process of development.

### **3. NATURE OF THE DEVELOPMENT**

The development comprises the construction of a Metals Industrial Cluster. Steel manufacturing will be the main focus while it allows for other metals related industries to locate in the cluster. The cluster will focus on the manufacturing component of the minerals beneficiation value chain. The proposed cluster will start as a developmental initiative, driven strongly by a Cluster Management Company (CMC). The proposed development will extend over 20 years and will transition into 4 phases.

## **4. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND OF THE STUDY AREA**

A detailed scoping report was compiled for this project (van der Walt 2016). The scoping comprised a complete desktop study and below is a short summary of the findings.

### **4.1 Databases Consulted**

#### ***SAHRA Report Mapping Project***

Three previous heritage studies were conducted close to the study area by D Morris (2010) and A Pelser (2012 a ,b). Both authors conducted their studies to the south west of the study area in Kuruman. Both these studies recorded very sparse MSA artefacts scattered over the landscape. Approximately 12 km to the west of the study area a study by van der Walt (2012) recorded no sites of significance similar to a study (Coetzee & George 2013) conducted adjacent to the current study area on Erf 5529. A Survey of 2000ha to the west of the current study area (Mogoma 2013) noted no archaeological material south of the R31.

#### ***Genealogical Society and Google Earth Monuments***

Neither the Genealogical Society nor the monuments database at Google Earth (Google Earth also include some archaeological sites and historical battlefields) have any recorded sites in the study area.

### **4.2. A Brief History of Human Settlement in the Study Area**

Southern African archaeology is broadly divided into the Early, Middle and Later Stone Ages; Early, Middle and Later Iron Ages; and Historical or Colonial Periods. Relevant to the study area is the Stone Age.

South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, the Middle Stone Age and the Earlier Stone Age. Each of these phases contains sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. For Cultural Resources Management (CRM) purposes it is often only expected / possible to identify the presence of the three main phases.

Yet sometimes the recognition of cultural groups, affinities or trends in technology and/or subsistence practices, as represented by the sub-phases or industrial complexes, is achievable (Lombard 2011). The three main phases can be divided as follows;

- » Later Stone Age; associated with Khoi and San societies and their immediate predecessors. Recently to ~30 thousand years ago.
- » Middle Stone Age; associated with Homo sapiens and archaic modern humans. 30-300 thousand years ago.
- » Earlier Stone Age; associated with early Homo groups such as Homo habilis and Homo erectus. 400 000-> 2 million years ago.

The Northern Cape has a wealth of heritage sites (Beaumont & Morris 1990; Morris & Beaumont 2004). Archaeological sites include the world renowned Wonderwerk Cave and the major Tswana town and the LIA stone-walled settlements at Dithakong 40 km north of Kuruman (De Jong 2010). Other important sites in the larger area include Tsantsabane, an ancient specularite working site on the eastern side of Postmasburg and Doornfontein, another specularite working site north of Beeshoek.

Sotho-Tswana and Nguni societies, the descendants of the LIA mixed farming communities, found the region already sparsely inhabited by the Late Stone Age (LSA) Khoisan groups, the so-called 'first people'. Most of them were eventually assimilated by LIA communities and only a few managed to survive, such as the Korana and Griqua. This period of contact is referred to as the Ceramic Late Stone Age (De Jong 2010) and is represented by the Blinkklipkop specularite mine near Postmasburg and a cluster of important finds at Kathu Pan. Additional specularite workings with associated Ceramic Later Stone Age material and older Fauresmith sites (early Middle Stone Age) are known from Lylyfeld, Demaneng, Mashwening, King, Rust & Vrede, Paling, Gloucester and Mount Huxley to the north. Rock engraving sites are known from Beeshoek and Bruce (Morris 2005: 3).

More locally, the two shelters on the northern and southern faces of GaMohaana (in the Kuruman Hills north west of the town) contain Later Stone Age remains and rock paintings.

Studies done by Kusel (2009) and by Pelsler & Van Vollenhoven (2011) at Black Rock and Gloria Mines near Hotazel, also revealed a number of Early to Later Stone Age artefacts and sites in the area.

The Difaqane coincided with the penetration of the interior of South Africa by white traders, hunters, explorers and missionaries. The first was PJ Truter's and William Somerville's journey of 1801, which reached Dithakong at Kuruman. They were followed by Cowan, Donovan, Burchell and Campbell and resulted in the establishment of a London Mission Society station near Kuruman in 1817 by James Read. Robert Moffat and his wife Mary came to Kuruman in 1820 and the mission has been known as The Moffat Mission Station ever since.

The 'Eye' and the water course springing from it have been a focus of utilisation and settlement and it was in its immediate vicinity that Kuruman, as town, evolved from the late nineteenth century. Kuruman's name is thought to be derived from the name of an 18th century San leader Kudumane. A fair amount of information on the general history of Kuruman and the Moffat Mission Station is available.

## 5. HERITAGE SITE SIGNIFICANCE AND MITIGATION MEASURES

The presence and distribution of heritage resources define a 'heritage landscape'. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area, or a representative sample, depending on the nature of the project. In the case of the proposed Metals Industrial Cluster the local extent of its impact necessitates a representative sample and only the footprint of the areas demarcated for development were surveyed (i.e. the whole extent of the affected property). In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface.

This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The following criteria were used to establish site significance:

- » The unique nature of a site;
- » The integrity of the archaeological/cultural heritage deposits;
- » The wider historic, archaeological and geographic context of the site;
- » The location of the site in relation to other similar sites or features;
- » The depth of the archaeological deposit (when it can be determined/is known);
- » The preservation condition of the sites; and
- » The potential to answer present research questions.

Furthermore, the National Heritage Resources Act (Act No 25 of 1999, Sec 3) distinguishes nine criteria for places and objects to qualify as 'part of the national estate' if they have cultural significance or other special value. These criteria are:

- » Its importance in/to the community, or pattern of South Africa's history;
- » Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- » Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- » Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- » Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- » Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- » Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;

- » Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
- » Sites of significance relating to the history of slavery in South Africa.

### 5.1. Field Rating of Sites

Site significance classification standards prescribed by SAHRA (2006), and acknowledged by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for the site should be read in conjunction with section 7 of this report.

<b>FIELD RATING</b>	<b>GRADE</b>	<b>SIGNIFICANCE</b>	<b>RECOMMENDED MITIGATION</b>
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

## 5.2 Impact Rating of Assessment

The criteria below are used to establish the impact rating of sites as per the impact rating methodology employed by Savannah environmental:

- » The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.
- » The **extent**, wherein it will be indicated whether the impact will be local (limited to the immediate area or site of development) or regional, and a value between 1 and 5 will be assigned as appropriate (with 1 being low and 5 being high):
  - \* the lifetime of the impact will be of a very short duration (0-1 years), assigned a score of 1;
  - \* the lifetime of the impact will be of a short duration (2-5 years), assigned a score of 2;
  - \* medium-term (5-15 years), assigned a score of 3;
  - \* long term (> 15 years), assigned a score of 4; or
  - \* permanent, assigned a score of 5;
- » The **magnitude**, quantified on a scale from 0-10 where; 0 is small and will have no effect on the environment, 2 is minor and will not result in an impact on processes, 4 is low and will cause a slight impact on processes, 6 is moderate and will result in processes continuing but in a modified way, 8 is high (processes are altered to the extent that they temporarily cease), and 10 is very high and results in complete destruction of patterns and permanent cessation of processes.
- » The **probability of occurrence**, which shall describe the likelihood of the impact actually occurring. Probability will be estimated on a scale of 1-5 where; 1 is very improbable (probably will not happen), 2 is improbable (some possibility, but low likelihood), 3 is probable (distinct possibility), 4 is highly probable (most likely) and 5 is definite (impact will occur regardless of any prevention measures).
- » The **significance**, which shall be determined through a synthesis of the characteristics described above and can be assessed as low, medium or high; and
- » the **status**, which will be described as either positive, negative or neutral.
- » the degree to which the impact can be reversed.

- » the degree to which the impact may cause irreplaceable loss of resources.
- » the *degree* to which the impact can be mitigated.

The **significance** is calculated by combining the criteria in the following formula:

$$S=(E+D+M)P$$

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are as follows:

- » < 30 points: Low (i.e., where this impact would not have a direct influence on the decision to develop in the area),
- » 30-60 points: Medium (i.e., where the impact could influence the decision to develop in the area unless it is effectively mitigated),
- » > 60 points: High (i.e., where the impact must have an influence on the decision process to develop in the area).

## 6. BASELINE STUDY-DESCRIPTION OF SITES

The study area is relatively flat characterised by windblown sand and low grass cover with knee high bushes (Figure 3). No archaeological material was identified during the survey. This is not surprising as similar observations have been made to the east of the study area for example Pelser (2012a,b), Morris (2010), Morris & Msawula (2010) and van der Walt (2012), where limited Stone Age material or no archaeological material was recorded at all. However, well to the west of the study area close to Black Rock and Hotazel higher frequencies of Stone Age material have been recorded dating from the Early to Later Stone Age (Kusel 2009; Pelser & Van Vollenhoven 2011). There are also two shelters on the northern and southern faces of GaMohaana that contain Later Stone Age remains and rock paintings (also to the west of the current study area).

From an archaeological perspective the study area is considered to be of a low archaeological significance, conforming to other studies adjacent to the study area (Coetzee & George 2013). This could be due to the lack of shelters or pans in the study area that would have attracted humans in antiquity.

No permanent structures occur in the study area, there is however a temporary shelter and kraal (Figure 4) located in the south western portion of the study area (27° 28' 03.8266" S, 23° 27' 15.9104" E) for the goat and cattle herder.





Figure 3: General site conditions.



Figure 4: Temporary kraal and shelter

### 6.1. Impact evaluation of the proposed project on heritage resources

<b>Nature:</b> During the construction phase activities resulting in disturbance of surfaces and/or sub-surfaces may destroy, damage, alter, or remove from its original position archaeological material or objects.		
	<b>Without mitigation</b>	<b>With mitigation (Preservation/ excavation of site)</b>
<b>Extent</b>	Regional (4)	Regional (4)
<b>Duration</b>	Permanent (5)	Permanent (5)
<b>Magnitude</b>	Low (4)	Low (3)
<b>Probability</b>	Not probable (2)	Not Probable (2)
<b>Significance</b>	<b>26 (Low)</b>	<b>24 (Low)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Not reversible	Not reversible
<b>Irreplaceable loss of resources?</b>	Yes	Yes unless sites can be preserved.
<b>Can impacts be mitigated?</b>	Yes	Through preservation or excavation of sites.
<b>Mitigation:</b> Due to the lack of apparent significant archaeological resources no further mitigation is required prior to construction.		
<b>Cumulative impacts:</b> A Chance Find Procedure should be followed to report any sites identified during the construction process.		
<b>Residual Impacts:</b> If sites are destroyed this results in the depletion of archaeological record of the area. However, if sites are recorded and preserved or mitigated this adds to the record of the area.		

## 6.2. Cumulative Assessment

Through CRM studies for developments in the area heritage sites are identified and protected from accidental damage, this can be regarded as a positive impact as it adds to the heritage database of the area.

In terms of the cumulative impact of this and other developments in the Kuruman area, as there are numerous developments of varying natures (i.e. urban development) in the area the impact on the heritage landscape and sites of low heritage significance is increased as these sites area destroyed through development.

Action trigger	Development impact
Is the proposed action one of several similar past, present or future actions in the same geographic area?	Yes
Do other activities (whether state or private) in the region have environmental effects similar to those of the proposed action?	Yes
Will the proposed action (in combination with other planned activities) affect any natural resources, cultural resources, socio or economic units, or ecosystems of local, regional or national concern?	No
Have any recent heritage studies of similar actions identified important adverse or beneficial cumulative effects issues?	Data on the heritage resources on the area is being collected through systematic surveys and identified resources are recorded and managed through mitigation.
Has the impact been historically significant, such that the importance of the resource is defined by past loss, gain or investments to restore resources?	No
Does the proposed action involve any of the following? <ul style="list-style-type: none"> <li>» Loss of natural habitats or historic character through residential, commercial and industrial development</li> <li>» Social, economic or cultural effects on marginalised communities resulting from ongoing development</li> </ul>	Currently the area is not inhabited. The social benefits of the project have been classified as beneficial in terms of economic growth including the creation of employment opportunities.

### Cumulative Impact Assessment

<b>Nature:</b> Heritage cumulative impacts associated with the development on the archaeology of the area		
	<b>Overall impact of the proposed project considered in isolation</b>	<b>Cumulative impact of the project and other projects in the area</b>
<b>Extent</b>	Local (2)	Local (2)
<b>Duration</b>	Permanent (5)	Permanent (5)
<b>Magnitude</b>	Low (4)	Low (4)
<b>Probability</b>	Not probable (2)	Not Probable (2)
<b>Significance</b>	<b>22 (Low)</b>	<b>22 (Low)</b>
<b>Status (positive or negative)</b>	Negative	Negative
<b>Reversibility</b>	Not reversible	Not reversible
<b>Irreplaceable loss of resources?</b>	Yes	Yes unless sites can be preserved.
<b>Can impacts be mitigated?</b>	Yes	Through preservation or excavation of sites.
<b>Mitigation:</b> No mitigation required. Implementation of Chance Find Procedures in the EMPr.		

## 7. CONCLUSIONS AND RECOMMENDATIONS

HCAC (Heritage Contracts and Archaeological Consulting CC) was contracted by Savannah Environmental (Pty) Ltd to conduct an Archaeological Impact Assessment for the proposed Metals Industrial Cluster near Kuruman in the Northern Cape Province.

The entire property (i.e. Portion 6253 of Erf 1) was surveyed as the entire extent of the property is proposed to be developed for the Metals Industrial Cluster. The survey took place on foot and by vehicle.

In terms of the archaeological component of Section 35 of the NHRA no raw material suitable for stone tool manufacturing occurs in the study area and no ceramics or stone walls attributed to the Iron Age were recorded. Similarly no sites of archaeological significance were recorded by other studies adjacent to the current study area (e.g. Coetzee & George 2013). No further mitigation prior to construction is recommended in terms of Section 35 for the proposed development to proceed.

In terms of the built environment of the area (Section 34), no standing structures older than 60 years occur within the study area.

In terms of Section 36 of the Act no burial sites were recorded in the study area. However if any graves are located in future they should ideally be preserved in-situ or alternatively relocated according to existing legislation. Due to the subsurface nature of archaeological remains and the fact that graves can occur anywhere on the landscape, it is recommended that a chance find procedure is implemented for the project as part of the EMPr.

The study area is surrounded by recreational and township developments and no significant cultural landscapes or viewsapes were noted during the fieldwork.

Due to the lack of significant heritage features in the study area there is from an archaeological point of view no reason why the development cannot commence, based on approval from SAHRA, if a chance finds procedure is included within the EMPr as detailed below.

## Chance find procedure

This procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.

- » If during the pre-construction phase, construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or rock engraving, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- » It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area.
- » The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

No cultural landscape elements were noted and visual impacts to scenic routes and sense of place are also considered to be low from a heritage perspective as the project site is located within the urban edge. In terms of the built environment (Section 34 of the NHRA), no standing buildings of significance were recorded.

### 7.1 Reasoned Opinion

From a heritage perspective the development of the Metals Industrial Cluster is considered to be acceptable, if the above recommendations are adhered to and based on approval from SAHRA. HCAC is of the opinion that the development can continue.

If during the pre-construction phase or during construction, any archaeological finds are made (e.g. graves, stone tools, and skeletal material), the operations must be stopped, and an archaeologist must be contacted for an assessment of the finds. Due to the subsurface nature of archaeological material and graves the possibility of the occurrence of unmarked or informal graves and subsurface finds cannot be excluded.

## **8. PROJECT TEAM**

Jaco van der Walt, Project Manager

## **9. STATEMENT OF COMPETENCY**

I (Jaco van der Walt) am a member of ASAPA (no 159), and accredited in the following fields of the CRM Section of the Association: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation. This accreditation is also valid for/acknowledged by SAHRA and AMAFA.

I have been involved in research and contract work in South Africa, Botswana, Zimbabwe, Mozambique, Tanzania and the DRC; having conducted more than 300 AIA's since 2000.

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