Phase 1 Archaeological Impact Assesment Report

ATLA MINING RESOURCES (PTY) LTD.: MINE ON ROODERAND PORTION 2, BOJANALA MUNICIPALITY, NORTHWEST PROVINCE

May 2012

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Compiled by N. Kruger

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ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) OF DEMARCATED SURFACE AREAS ON THE FARM ROODERAND PORTION 2, BOJANALA MUNICIPAL DISTRICT NORTHWEST PROVINCE

May 2012

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AGES (Pty) 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, AGES (Pty) 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).

NOTATIONS AND TERMS

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 artifact 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.

^{14}C or radiocarbon dating:
The ^{14}C method determines the absolute age of organic material by studying the radioactivity of carbon. It is reliable for objects not older 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 is 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 artifactual 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 artifacts, in other words artifacts 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 *mfecane* or *difaqane*.

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 in on archaeological sites.

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.

Pre-Phase 1 CRM Assessment:

An initial pre-assessment (scoping) phase, where the specialist establishes the scope of the project and terms of reference for the developer.

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.

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.

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

LIST OF ABBREVIATIONS

Abbreviation	Description
ASAPA	Association for South African Professional Archaeologists
AIA	Archaeological Impact Assessment
BP	Before Present
BCE	Before Common Era
EIA	Early Iron Age (also Early Farmer Period)
EIA	Environnemental Impact Assessment
EFP	Early Farmer Period (also Early Iron Age)
ESA	Earlier Stone Age
GIS	Geographic Information Systems
HIA	Heritage Impact Assessment
K2/Map	K2/Mapungubwe Period
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)
MSA	Middle Stone Age
NHRA	National Heritage Resources Act
SAHRA	South African Heritage Resources Association
YCE	Years before Common Era (Present)

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1 EXECUTIVE SUMMARY

This AIA Report is the result of an Archaeological Impact Assessment (AIA) study of the farm Rooderand Portion 2 in the Bojanala Municipal District, Northwest Province. The study was requested for the further development of open cast mining activities in the area. 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 South African Heritage Resources Agency (SAHRA) and recommendations contained in this document will be reviewed in order to consider the conservation priority of sites located in the area.

A number of archaeological and historical studies have been conducted in the Pilanesberg area. These studies all infer a rich and diverse archaeological landscape. Similarly, during the pedestrian and vehicular survey of the more or less 500ha property, 4 areas of archaeological importance were located in the areas to be impacted by the proposed development.

Stone Age Remains:
Isolated Middle Stone Age material remains were observed in the general area. These minimal surface occurrences are of lesser importance and its scientific relevance is low. No further investigation of these occurrences is required prior to further developments in the area.

Iron Age (Farmer Period) Remains
A large settlement area with occupation phases possibly dating to the early parts of the Later Iron Age (mid-second millennium AD) was located along the entire southern border of the property where the open pit and waste rock dump for the mine are planned. House remains, granary stand structures, diagnostic potsherds, upper and lower grinding stones as well as faunal remains were noted. The site is of medium significance and further Phase 2 studies and mitigation procedures are required to extract comprehensive material samples prior development / destruction.

A section of collapsed stone walling, as well as small stone heaps were identified on the eastern border of the property within the footprint of the proposed tailings dam. Compared to Later Iron Age settlement expressions in the larger Rustenburg landscape, the structures are likely to date to this period, even though no cultural material was found in association with the structures. The structures are of medium significance and limited Phase 2 investigations are recommended in order to establish the temporal and cultural context of the structures.

Historical /Recent Remains
The foundation structures of a rectangular house and a concrete dam were located on the southern border of the property. Glass, metal and plastic found in association with the structures suggest a recent date for the site. As a result, the scientific research value of the structures is probably low and no further studies of these features are required. It is recommended that a destruction permit be obtained prior to any development of the site.

Graves
Two stone heaps or cairns were found in association with the assumed Later Iron Age collapsed stone wall section on the eastern border of the property at the site of the proposed tailings dam. It is impossible to identify the exact nature and function of the structures at this stage but they do resemble later Farmer Period graves. If

the structures prove to be burial places, an accordingly high significance rating will require mitigation measures and full grave relocation if the site is to be impacted by the proposed development. Grave relocation should however, always be regarded as a last resort and the provisional conservation of the site should be a primary consideration, especially where graves are older than 60 years and therefore, archaeological in nature Here, it is recommended that a 100m conservation buffer zone be maintained around the graves (?) during all phases of development.

Iron Smelting Area

A rich iron smelting site was identified on the south-western perimeter of the property, more or less where the mining pit will be situated. Even though no iron smelting furnaces could be identified, tuyere fragments and iron smelting residue are scattered over a large area. Considering the abundance of Later Iron Age iron smelting sites in the trans-Vaal landscape, the site probably dates to this period. The site is of medium significance and Phase 2 investigations are recommended in order to establish a temporal and cultural context of the structures and in to systematically extract as much cultural material from the site as possible.

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 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).

2 BACKGROUND

2.1 Scope and Motivation

AGES was commissioned by Atla Mining Resources (Pty) Ltd. for an Archaeological Impact Assessment (AIA) Study of the demarcated surface areas on the farm Rooderand Portion 2 where an expansion of existing open cast mining activities is planned. The rationale of the study was to determine the presence of heritage resources such as archaeological and historical sites and features, graves and places of religious and cultural significance; 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.

2.2 Project Direction

AGES's expertise ensures that all projects be conducted to the highest international ethical and professional standards. As archaeological specialist for AGES, Mr Neels Kruger acted as field director for the project; responsible for the assimilation of all information, the compilation of the final 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.

2.3 Project Description

Atla Mining Resources (Pty) Ltd. is planning the mining of a platinum resource on the farm Rooderand Portion 2, directly north of the Pilanesberg Nature Reserve in the Northwest Province.

Mining infrastructure and associated developments for the site include (see Figure 2-1):

- **Mining Plant**
- **Site Offices**
- **Open Mining Pits**
- **Lower Grade Stockpiles**
- **Waste Rock Dumps**
- **A Return Water Dam**
- **Tailings Dam Facility**

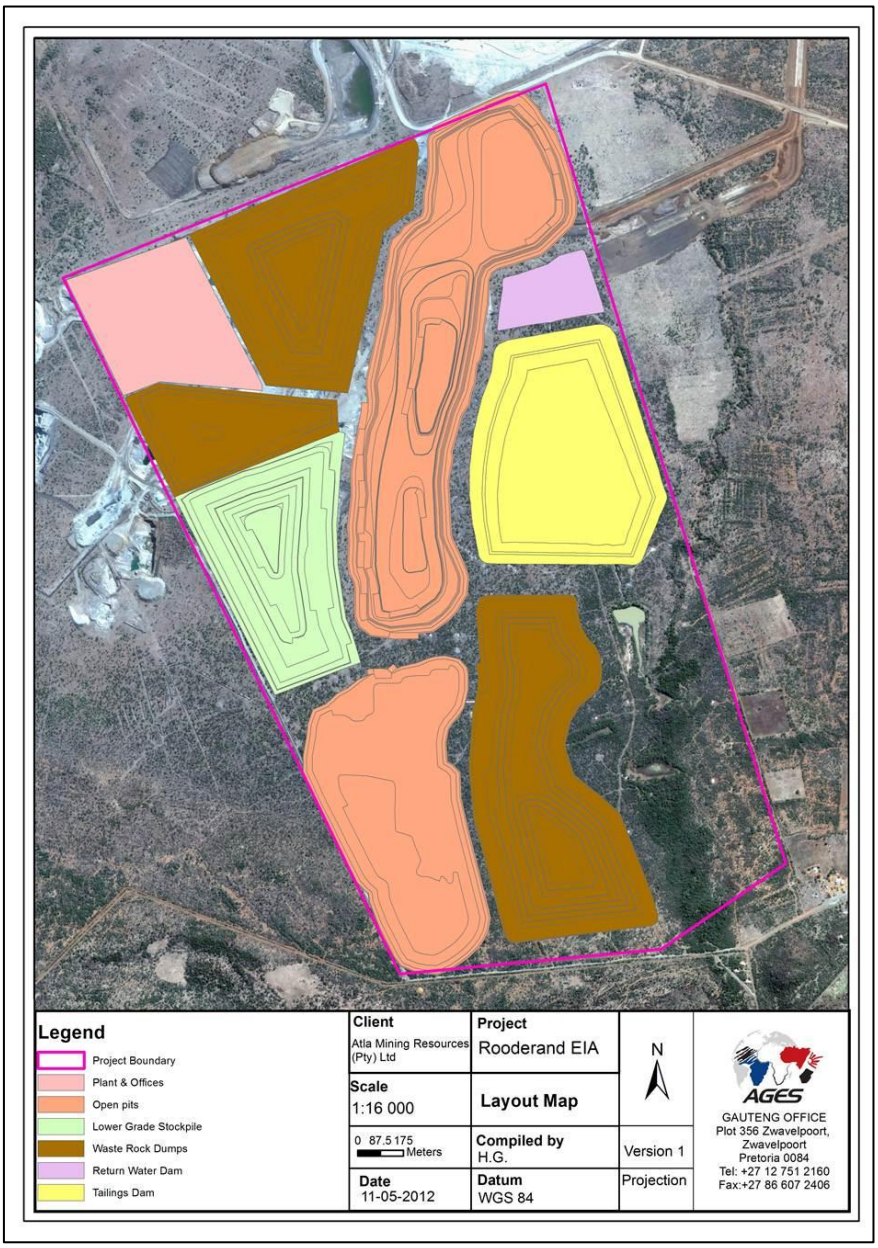


Figure 2-1: 1:50 00 Map representation of Rooderand Portion 2 indicating positions of mining infrastructure.

2.4 Terms of Reference

Environmental Impact Assessments (EIA's) should, in all cases, include the 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 (see Section 34), archaeological sites and material (see Section 35) and graves as well as burial sites (see Section 36). The objective of this legislation is to enable and to facilitate developers to employ measures to limit the potentially negative effects that the development could have on heritage resources. Based hereon, this proposed project draws on the following **terms of reference:**

- *Provide a detailed description of all archaeological artefacts, structures (including graves) and settlements, if any.*

- *Estimate the level of significance/importance of the archaeological remains within the area.*
- *Assess any possible impact on the archaeological and historical remains within the area emanating from the proposed development activities.*
- *Propose possible mitigation measures provided that such action is necessitated by the development.*
- *Liaise and consult with the South African Heritage Resources Agency (SAHRA).*

2.5 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.

2.5.1 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 contained in the Government Gazette of the Republic of South Africa at all times.

- *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 tears 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)."

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

Graves 60 years or older fall under the jurisdiction of the Human Tissues Act of 1983 and the National Heritage Resources Act, as these sites areas are heritage resources. 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 protect graves younger than 60 years. 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.

2.5.2 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 of 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 50 m in length;

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

(i) exceeding 5 000 m^2 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^2 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:

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

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

(c) an assessment of the impact of the development on such heritage resources;

(d) 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;

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

(f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and

(g) 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.

3 REGIONAL CONTEXT

3.1 Area Location

The study area consists of Portion 2 of the farm Rooderand in the Bojanala Municipal District, Northwest Province. It is situated directly north of the Pilanesberg Nature Reserve, generally at **S25°08'24.73" E27°00'45.72"** and shares its southern fence line with this well-known conservation area.

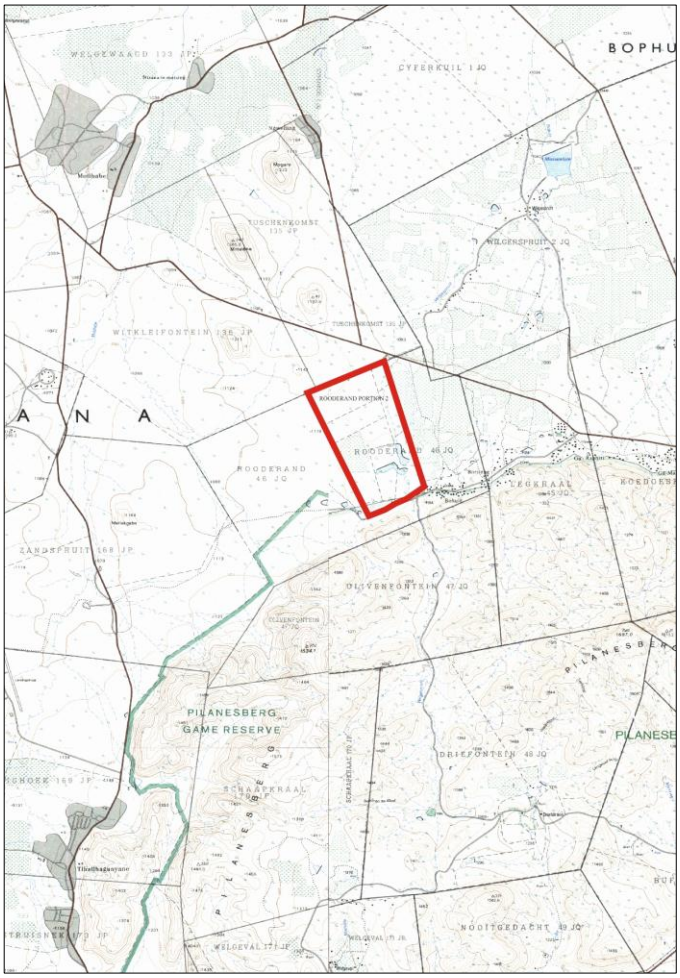


Figure 3-1: 1:50 00 Map representation of Rooderand Portion 2 (2527AA)

The study area is surrounded by numerous formal and informal settlements such as Boriteng, Magwasi, Motlhabe and Ga Masilela (see Figure 3-2).

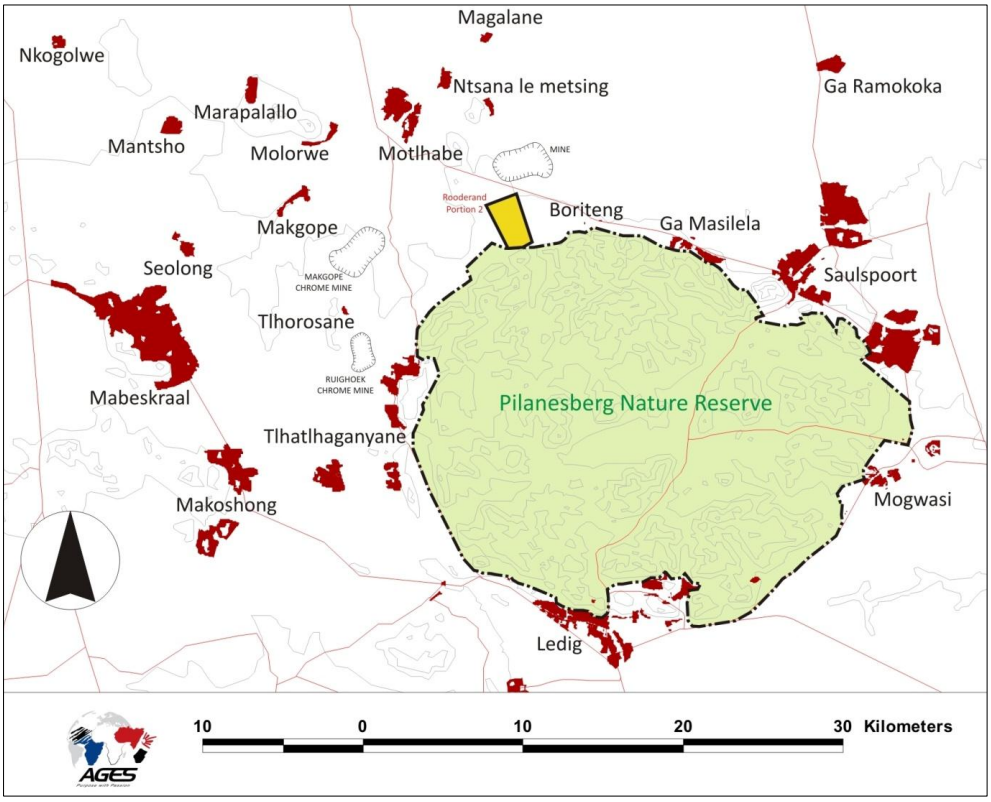


Figure 3-2: Regional setting of Rooderand Portion 2 (indicated in yellow).

3.2 Area Description

The geology of the area consists of norite, in places covered by broad bands of sand. Several non-perennial streams, interlinked with dams transect the area. Two vegetation zones occur; the northern and largest section is classified as Clay Thorn Bushveld and the southern section is classified as Mixed Bushveld. The proposed development is situated within an expanding mining area and significant levels of disturbance is already prevalent in the study area, especially on its northern periphery. These disturbance agents include mining and earthmoving activities, agricultural activities such as ploughing and grazing and the destruction of natural surroundings by local communities.

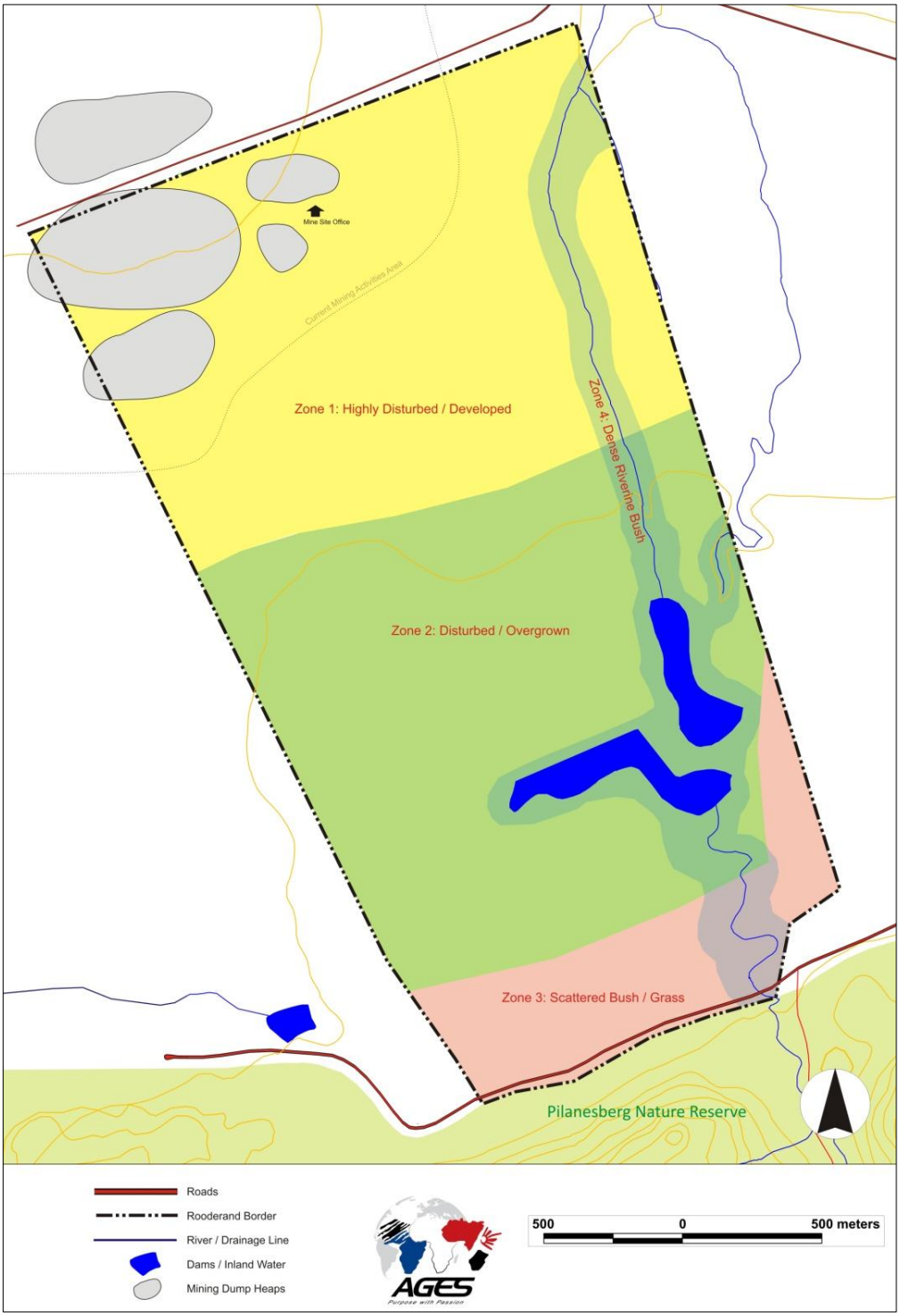


Figure 3-3: Zones identified on Rooderand Portion 2.

For the purposes of this study, the property was divided into four zones (see Figure 3-3):

- *Zone 1: Highly Disturbed / Developed*

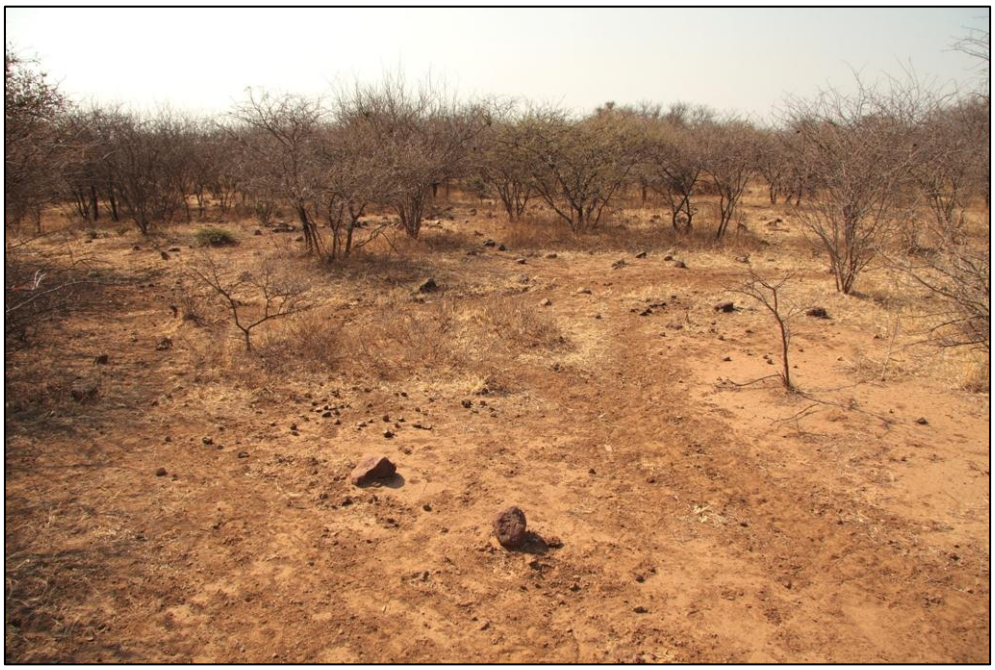
This zone, covering more or less the northern portion of the property, shows signs of severe disturbance as a result of ongoing prospecting and mining activities.

- *Zone 2: Disturbed / Overgrown*

Disturbance as a result of coring and prospecting is also evident in this Zone, which is densely overgrown with, amongst others, pioneering species such as Sickle Bush (*Dichrostachys cinerea)*.

- *Zone 3: Scattered Bush / Grass*

Vegetation in this Zone, identified as Mixed Bushveld seems to be more pristine. Incidentally, this Zone also contains the most important archaeological features on the property.



- *Zone 4: Dense Riverine Bush*

Dense river bush and undergrowth occur along the more prominent drainage lines and dams in Zone 4 but disturbances such as overgrazing and soil erosion is visible in these areas.

4 METHOD OF ENQUIRY

4.1 Sources of Information

4.1.1 Desktop Study

A desktop study was done in order to contextualize the proposed project within a larger historical milieu. The study focused on relevant previous studies in the area, archaeological and archival sources, aerial photographs, historical maps and local histories.

4.1.2 Aerial Representations and Survey

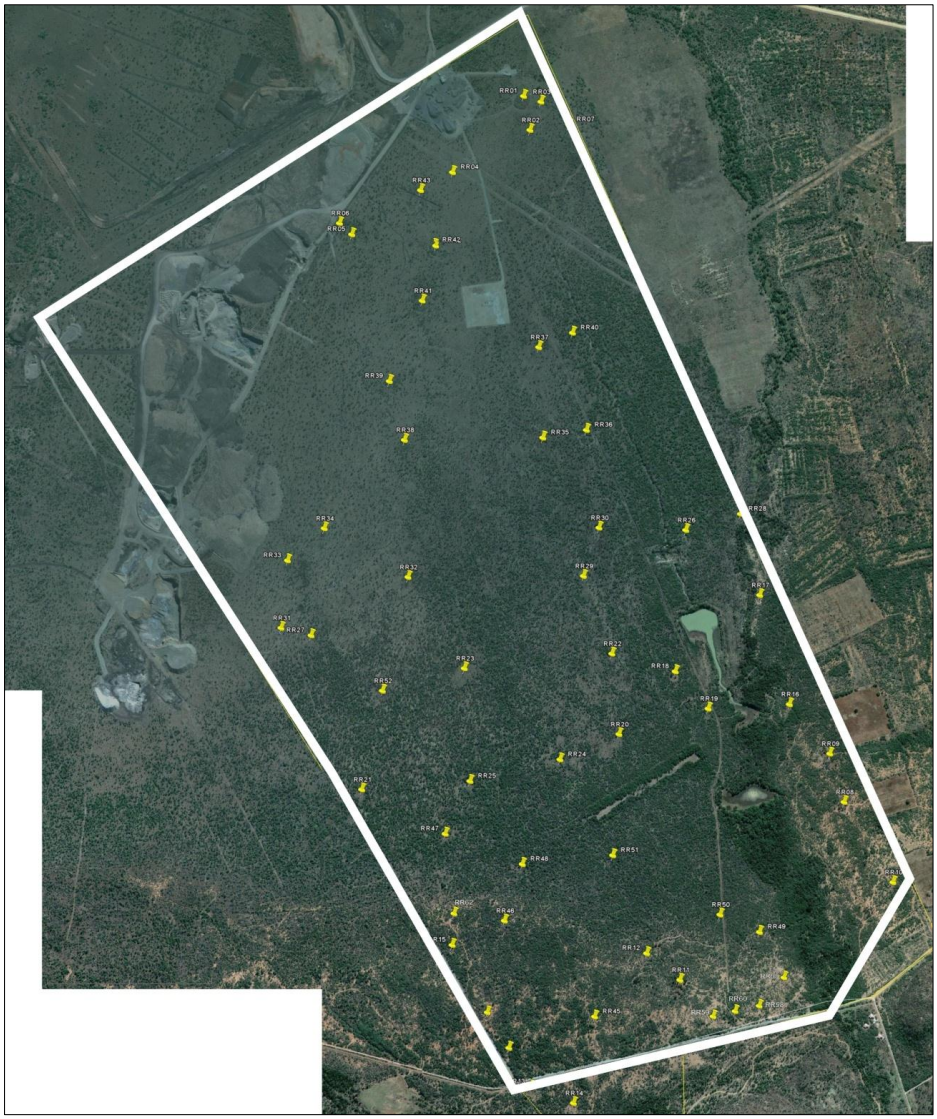


Figure 4-1: Aerial representation indicating areas identified as possible archaeological sites / disturbances prior to site survey.

Aerial photography is often employed to locate and study archaeological sites, particularly where larger scale area surveys are performed. This method was applied to aid the large scale pedestrian survey of Rooderand's more than 500ha surface area, where contour lines of elevations, depressions, variation in vegetation, soil marks

and landmarks were examined (see Figure 4-1). 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 precipitation frequently occur over walls or embankments. By superimposing high frequency aerial photographs with images generated with Google Earth, potential sensitive areas were subsequently identified. These areas served as referenced points from where further transect surveys were carried out.

4.1.3 Field Survey

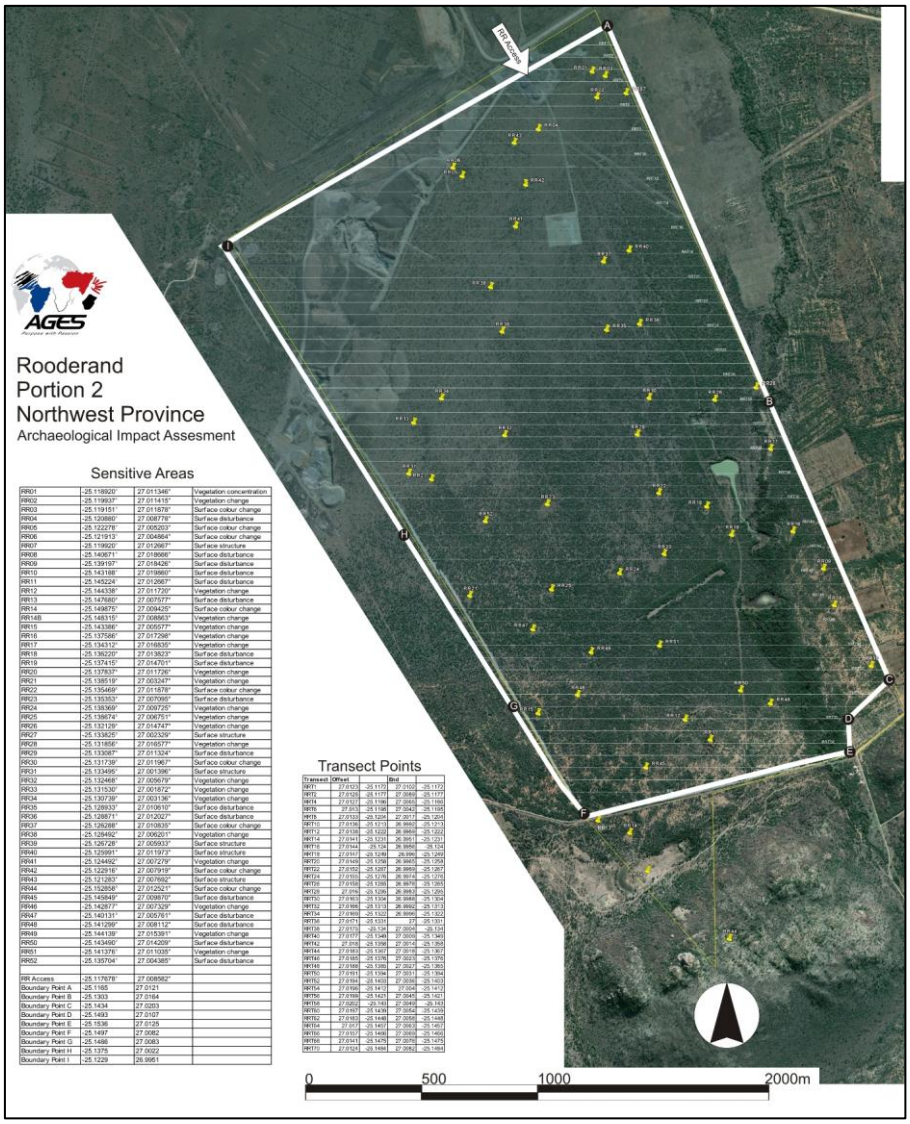


Figure 4-2: Aerial map and transect grid used as reference for pedestrian survey.

Archaeological survey implies the systematic procedure of the identification of archaeological sites. An archaeological survey of Rooderand Portion 2 was done by means of a systematic pedestrian and vehicular survey in accordance with standard archaeological practise by which heritage resources are observed and documented. In order to sample surface areas systematically and to ensure a high probability of site recording, transect grids in a frequency of 50m were digitally superimposed on maps of the area. These transect lines were

applied as guide for the pedestrian and vehicular survey which focused around potentially sensitive areas identified during the aerial survey (see Figure 4-2). Walking along the transect system with a Garmin E-trex Legend GPS, objects and structures of archaeological / heritage value were recorded and photographed with a Canon 450D Digital camera. 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.

4.2 Limitations

4.2.1 Access

At present three access points to Rooderand Portion 2 exist. An official entrance to offices of the mine, currently active in the area is situated on the northern boundary and two unattended entrances provide access to the property on the southern boundary. A network of mine service roads provides access to most areas on the property and no major access restrictions were encountered.

4.2.2 Visibility

Also see Section 3.2: Area Description.

The surrounding vegetation differs according to four Zones identified on the property (refer to Section 3.2: Area Description) and the property contains mostly a combination of scattered bush, trees, grasslands and riverine bush. Similarly, the general visibility varied between Zones where, at the time of the survey (October 2010), Zone 1 provided high visibility as a result of the disturbances in the area. Visibility in Zone 2 was low as a result of dense overgrowth. Zone 3 provided moderately high visibility and visibility along drainage lines in Zone 4 was moderate as a result of dense undergrowth. In single cases during the survey sub-surface inspection was possible but where applied, this revealed no substantial archaeological deposits.

4.2.3 Constraints

Generally, time restrictions in terms of the site survey proved to be a constraint due to the vast surface extent of the larger project area. Visibility also proved to be a constraint in some areas. Therefore, pedestrian and vehicular site surveys focused around areas tentatively identified as sensitive and of high heritage probability (i.e. along drainage lines and pans and those noted during the aerial survey).

Even though it might be assumed that survey findings are representative of the heritage landscape of this farm, 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. Thus, 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 on the property. 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.

5 RESULTS: ARCHAEOLOGICAL SURVEY

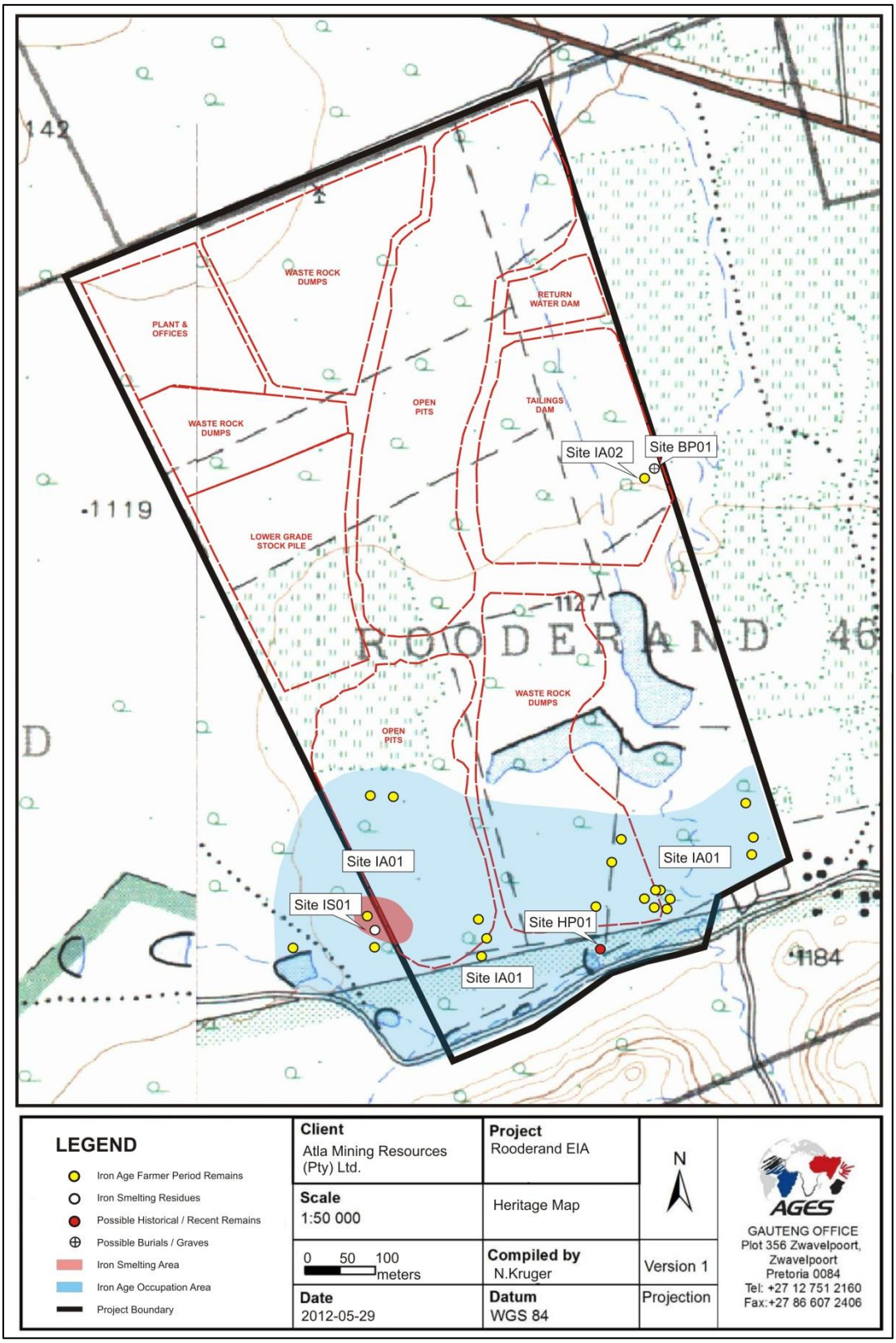


Figure 5-1: Map indicating the locations of archaeological and historical occurrences discussed in the text. The locations of mining infrastructure are superimposed to illustrate impacts on heritage resources.

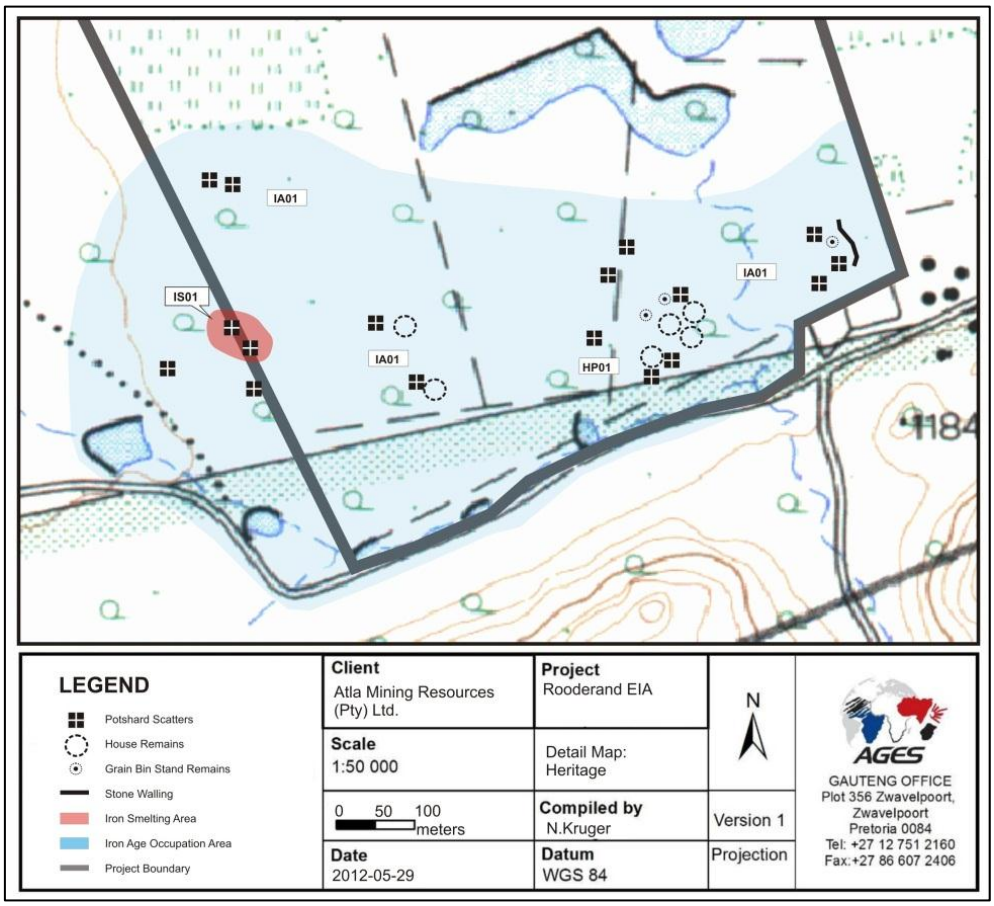


Figure 5-2: Detail map of the southern section of Rooderand Portion 2 indicating the location of Iron Age sites and other features.

5.1 The Stone Age

A few of stone tools and lithics, dating mostly to the Middle Stone Age, were identified during the survey. These, however, are surface occurrences and as such have no significance.

5.2 The Iron Age (Farmer Period)

- **Site IA01: (Early later Iron Age Settlement)**

A large occupation site, measuring approximately 100m x 1.2km in horizontal extent and more or less east-west orientated, was located on the entire southern extremity of the property bordering the Pilanesberg National Park in an area where the open pit and waste rock dump for the mine are planned. The site possibly dates to the early parts of the Later Iron Age at around 1500 AD. This temporal interpretation is based on (see Section 6.2.1):

- The regional context: Considering the location of the site in the larger archaeological landscape, the site was probably occupied by early Sotho-Tswana speakers.
- Diagnostic pottery: Pottery fragments recovered from surface areas display similarities to early phases of the Moloko Ceramic Tradition, a regional expression of early Sotho-Tswana ceramic styles which dates to the middle of the second millennium AD.

- The absence of stone walling: Elaborate stone walling is a characteristic feature of Later Iron Age sites in the north-western interior of South Africa area post 1600. *Site IA01* contains no stone walling, which implies that settlement phases of the site predate stone walling, at around 1500AD.

A large range of material culture was observed on surface areas and the site appears to be rich and its integrity largely intact. As briefly mentioned above, a number of decorated and diagnostic potsherds were recovered from the site.

Figure 5-3: Early later Iron Age settlement area at Site IA01

The fragments generally display decoration motives such as punctuated, stabbed and incised decorations and exterior surfaces have also been coloured and bi-chromed using ochre and graphite composites. These motives are similar to that the Moloko Ceramic tradition, and within a regional archaeological context the ceramics more specifically fit the profile of the Olifantspoort facies, an early regional expression of the Moloko tradition (see Section 6.2.1).

Figure 5-4: Diagnostic ceramics from Site IA01 indicating, horizontal incisions (left) and punctuation and stab decorations (right), typical of the Olifatnsport facies of the Moloko ceramic tradition (see Section 6.2.1).

Even though no domestic or communal middens were located, the remains of house walls displaying post imprints as well as house floors occur widely in the area. These features, combined with evidence of agriculture such as large amounts of upper and lower grindstones point to a residential use of the site. Grindstones are reliable indicators of different crops and it can, indirectly indicate a relative temporality for the site. Accordingly, deep grinding hollows of lower grindstones on the site indicate that they might have been used to process softer materials such as millet and sorghum. Larger grinding circumference grindstones typically associated with grinding harder materials such as maize do not occur on this site. This is significant in terms of site occupation date, as it is commonly accepted that maize were only introduced to southern Africa after the 16th century AD and these larger stones the usually occur on later Iron Age sites.

Figure 5-5: Upper and lower grindstones, probably used to grind sorghum and millet products.

In addition to upper and lower grinding stones, granary stands indicated by small stone circles also point to agricultural subsistence strategies at the site.

Figure 5-6: Small stone granary stand (left) and house wall remains with imprints from hut posts visible (right).

- **Site IA02: (Later Iron Age Stone walling)**

A single section of collapsed stone walling was located on the eastern periphery of the site within the footprint of the proposed tailings dam. The walling extends for about 30m from the eastern fence of Rooderand westwards. No material culture was found in association with the walling and it is therefore not possible to ascertain a temporality for the structures. However, considering the intensification of stone wall building in this landscape after the 17th century as well as the settlement of Sotho-Tswana groups, more specifically the Kgatla Kgafela in the region, the walls are probably not older than 300 years (see Section 6.2.1).

Figure 5-7: Collapsed stone wall section at Site IA02

- **Site IS01: (Iron Age (Farmer Period) Iron Smelting)**

The remains of an iron smelting site were located on the south-western border of the property where the open pit for the mine will be placed. The site, measuring approximately 50m x 50m has unfortunately been disturbed where a service road has been constructed through its eastern periphery. Site IS01 displays a large surface area littered with artefacts associated with iron working, such as tuyere fragments, ceramics, iron objects, ore residues and iron slag. Iron slag refers to melted impurities that were constituent parts of the iron ore, the most common element being silica.

As with the collapsed stone wall section at Site IA02, it is impossible to immediately attribute an absolute age and archaeological context to the smelting site as no clear temporal markers were observed. It is also not clear if the site is contemporaneous with the early Later Iron Age site which surrounds it as Iron smelting was quite a common practice throughout the second millennium AD.

Figure 5-8: Iron Smelting site on the right, cut through by mining service road. The hills on the eye line are situated in the Pilanesberg National Park

Figure 5-9: Surface areas at Site IS01 indicating abundance of Iron Smelting residue and by products.

However, if known historical taboos about iron smelting amongst Bantu speaking groups are observed, the site might not be temporally associated with the early Later Iron Age site (Site IA01) as iron smelting, a highly ritualised practise often took place in secluded areas away from residences, and not within the boundaries of the settlement. This, in turn, might imply a secondary use of the site (refer to Section 6.4.2).

Figure 5-10: Tuyere fragments recovered from Site IS01.

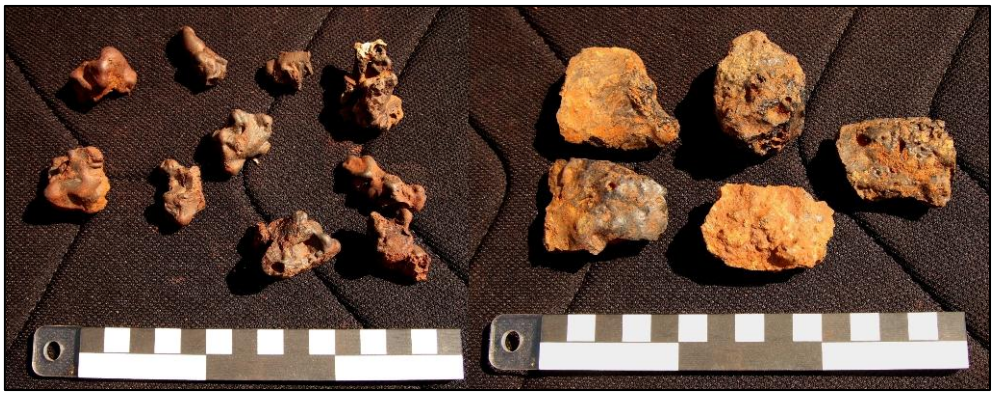


Figure 5-11: Iron slag (left) and slag fused on tuyere fragments (right) recovered from Site IS01.

5.3 Historical / Colonial Period and recent times

- **Site HP01: (Foundation structures and midden)**

The foundation structures of a rectangular house and a concrete dam, as well as a recent midden containing glass, metal, plastic and wood were located on the southern border of the property. These artefacts are not very old and the associated foundation structures probably date to the recent past. A .303 cartridge was located on the surface in the area surrounding the foundation structures. These types of bullet shells were first adopted by the British Military in 1889 and in 1910, the 174 grain spitzer pointed “Mark VII” (MK.7) bullet was adopted, which remained the standard ball round for the remainder of the .303 cartridge's service life.

Figure 5-12: Cement and brick foundation structure of a dam and house at Site HP01.

Figure 5-13: Porcelain, metal and MK.7 bullet casing (example image, left and artefact find, right) dating to recent times.

The code "MK.7" and U51 is stamped on the head of the shell. "MK.7" then refers to the calibre (.303) and series, and "U51" refers to the manufacturer and year of manufacture. The "U" code was used from 1939 until 1961 by the South African Mint in Pretoria. This round was therefore manufactured in 1951 in Pretoria but could have been fired anytime thereafter.

5.4 Graves

- **Site BP01:**

Two stone heaps were found in association with the possible Later Iron Age collapsed stone wall section on the eastern border of the property at Site IA02 within the footprint of the proposed tailings dam facility. At this stage it is impossible to identify the nature and function of the structures but they do resemble later Farmer Period graves. Yet, because Iron Age graves are not always marked, this may be a later grave intrusion or possibly a different stone feature associated with this Iron Age stone walling.

Figure 5-14: Stone structure, possibly a grave outlined in white observed at Site BP01.

5.5 Other: Palaeontology

Palaeontological assessments on areas around Rooderand indicated mainly un-fossiliferous geology and morphology, with fossils limited to geological formations of the Malmani Subgroup of the Chuniespoort Group of the Transvaal Supergroup; Karoo Supergroup; and other superficial Quaternary deposits[1]. No palaeontological occurrences were documented at Rooderand. However, all palaeontological and fossil remains such as fossil fish, reptiles or petrified wood potentially occurring in the larger landscape should be regarded as scientifically significant.

6 ARCHAE0-HISTORICAL CONTEXT

6.1 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 gives a concise outline of the chronological sequence of periods in Southern African history:

Period	Epoch	Associated cultural groups	Typical Material Expressions
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominins: *Australopithecines* *Homo habilis* *Homo erectus*	Typically large stone tools such as hand axes, choppers and cleavers.
Middle Stone Age 250 000 – 25 000 YCE	Pleistocene	First *Homo sapiens* species	Typically smaller stone tools such as scrapers, blades and points.

[1] For example: Rubidge, B. 2009. Delta-epsilon 6x 765kv transmission power lines from Lephalale to Potchefstroom: Palaeontological Impact Assessment. BPI for Palaeontological Research. University Of the Witwatersrand.

Late Stone Age 20 000 BC – present	Pleistocene / Holocene	*Homo sapiens sapiens* 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. homestead, missionary schools etc. as well as, glass, porcelain, metal and ceramics.

6.1.1 The Stone Ages

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

Earlier Stone Age deposits typically occur on the flood-plains of perennial rivers and may date to between 2 million and 250 000 years ago. 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 stone tools were made by the earliest hominins. These groups seldom actively hunted and relied heavily on the opportunistic scavenging of meat from carnivore fill sites.

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

The majority of Middle Stone Age (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 also associated with the MSA.

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

Sites dating to the Later Stone Age (LSA) are better preserved in rock shelters, although open sites with scatters of mainly stone tools can occur. Well-protected deposits in shelters allow for stable conditions that result in the preservation of organic materials such as wood, bone, hearths, ostrich eggshell beads and even bedding material. By using San (Bushman) ethnographic data a better understanding of this period is possible. South African rock art is also associated with the LSA.

6.1.2 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 manifests in ceramics, beads and other artefacts. This means that distinct pottery typologies can be found in the different late Iron Age group of South Africa.

Bantu speaking groups north of the Vaal River

Ethnographers generally divide major Bantu-speaking groups of southern Africa into two broad linguistic groups, the Nguni and the Sotho. Smaller subdivisions obviously existed 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 north Nguni and the south Nguni. The various Zulu and Swazi groups were generally associated with the north Nguni whereas the south Nguni contained the Xhosa, Mpondo, Thembu and Mpondomise groups. The same geographically based divisions could be found among Sotho groups, where, under the Western Sotho (or Tswana) one would be able to identify groups such as the Rolong, Hurutshe, Kwena, Fokeng and Kgatla. The north Sotho, in turn was characterised by the Pedi and an amalgamation of smaller groups united to become the Basutho, or the south Sotho group. 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 extend influenced and absorbed by neighbouring groups. One should remember the terms "Nguni" and "Sotho" refer to broad and comprehensive 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.

6.1.3 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.

6.2 Rooderand: Specific Themes

6.2.1 Early Sotho-Tswana History

Within a larger archaeological context, the Iron Age settlement representations located at Rooderand can probably be traced back to ancestral Sotho-Tswana occupation and developments from the sixteenth century AD onwards. As mentioned previously, diagnostic pottery assemblages are commonly used in the South African Iron Age to infer group identities and to trace movements across the landscape. Similarly, the migration of the Sotho-Tswana speakers in South Africa in the 16th century marked a new ceramic style, known as Moloko. The Moloko Tradition can be divided into two phases: an early phase in which sites were usually located at the foot of hills and contained little or no stone walling; and a later phase characterised by extensive stone wall complexes which were often erected on hills.

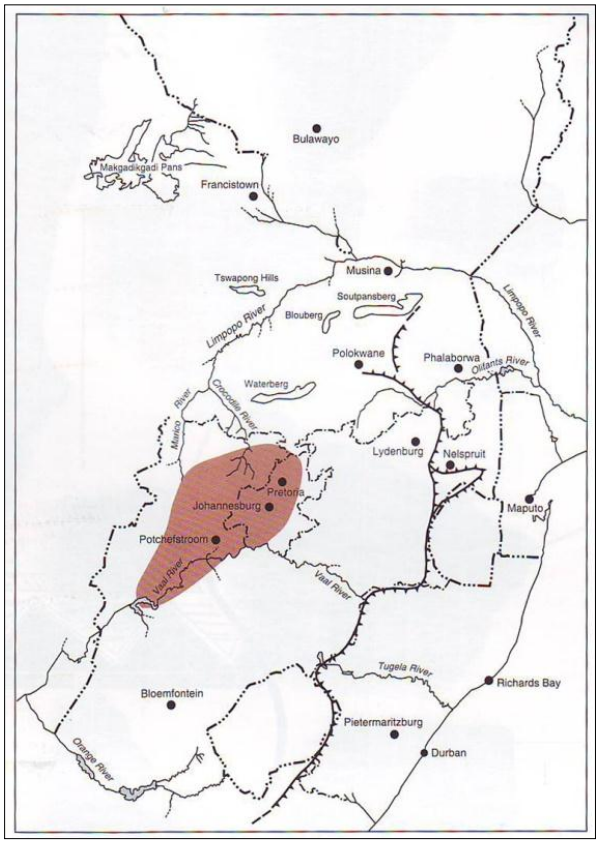


Figure 6-1: Map detailing the distribution of 16th century Olifantspoort type sites (After Huffman 2007)

Figure 6-2: Ceramics typical of the 16th century Olifantspoort facies (After Huffman 2007)

The best-preserved ***early*** Moloko site is Olifantspoort near Rustenburg, dating to around 1510 AD and this also became the name of the distribution of these characteristic ceramic facies. The absence of stone walling observed at Site IA01 (see Section 5.2) at Rooderand, combined with diagnostic ceramics similar to said early Moloko / Olifantspoort type ceramics therefore imply an early Sotho-Tswana occupation of the site.

As stated earlier, the second phase of the Moloko Tradition is associated with the large number of stone-walled complexes found in Gauteng, North West and Mpumalanga, as well as the Free State. The stone walls were erected to construct stock byres and to demarcate residential units; huts were pole-and-dagha structures except in some cases in the Free State, where corbelled stone huts were built. There is still no clarity about why the Late Iron Age inhabitants started building with stone or exactly when the Late Moloko phase commenced. However, these settlements can in many instances be correlated with oral traditions on population movements during which African farming communities sought refuge in mountainous regions during the processes of disruption in the northern interior of South Africa, resulting from the so-called difaqane (see Section 6.1.2).

By the end of the 18th century, various Sotho-Tswana groups were found in the interior of the Highveld areas of South Africa. These units occupied a large area, from present-day Botswana across large sections of the old Transvaal, the Free State Province into the Northern Cape. Based on Sotho-Tswana oral histories various groups acted as cores from which the Sotho-speaking communities sprouted. One of these, specifically the Kgatla Kgafela occupied the northern surroundings of the present day Pilanesberg National Park (Swanepoel et al.: 2008) and it is quite possible that Later Iron Age stone walling located at Site IA02 at Rooderand (see Section 5.2) might be attributed to satellite Kgatla settlements.

Kgatla Kgafela History

Archaeological observations provide important data on younger Kgatla Kgafela sequences in the Pilanesberg dating from the late 18th and 19th centuries. The Kgatla are linked, first, to an origin in the Rustenburg area, where the end of the 15th century a certain chief Mokgatla broke away from the Hurutshe group to settle in this area to form the Kgatla. The Kgatla, who later settled in central areas in the Transvaal such as the Waterberg, then split into several smaller groups including the Pedi, Tlokwa, Phuting and Kholokwe. The Kgafela Kgatla left the southern Waterberg as the area was 'unhealthy', and they progressively established themselves from the

early 18th century in the Saulspoort region on the north-eastern quarter of the Pilanesberg. Mabele-a-Podi, a large capital of the Kgatla Kgafela was probably the site where the well-known Kgatla king, Kgosi Pilane (from which the name "Pilanesberg" is derived) lived in the mid-19th century (Swanepoel et al 2007).

6.2.2 Archaeo-Metallurgy and Prehistoric Mining

Africa is fortunate as its general geology is such that iron deposits exist almost everywhere in some level of mine-able ore - from solid nuggets of hematite to iron ore dust or clays rich in iron. In South Africa, the Later Iron Age is characterised by a greater degree of economic specialisation where villages were no longer self-sufficient units; instead, there was greater regional interdependency and more emphasis on trade. Iron smelting activities no longer occurred on most sites; instead, there were a number of main centres which specialised in the mining and production of iron. Phalaborwa in the Limpopo Province was one of the most important iron and copper production centres. Iron was used mainly to manufacture hoes, knife-blades, axes, spears, adzes, awls and metalworking tools. In addition, it also acted as currency and bridal wealth (lobola) as well as fulfilling ceremonial and political functions.

Copper production was even more restricted and there is little evidence of copper-working south of the Vaal and the Nkomati Rivers. Copper and bronze were used to manufacture ornaments such as beads, earrings and arm bangles. Tin was mined at Rooiberg near Warmbaths/Bela-Bela in the Limpopo Province, while gold objects, particularly beads, were recovered from a few sites such as Mapungubwe and Machemma in the Limpopo Province and Thulamela in the Kruger National Park. Metal products were important trade items during the Late Iron Age. Furnaces were usually constructed in an oval shape with at least two vents that held the tuyères or blowpipes that were attached to bellows. Grass, charcoal and wood was used to reach temperatures of up to 1500ºC inside the furnace, sufficient to reduce iron ore to iron.

The role of metallurgy in the cultural life ways of metal workers in Africa is sophisticated and includes much more than just the practical value associated with metals. In unstratified societies metal smiths were free independent agents and part-time specialists that conserved their knowledge. In some instances smaller clans or settlements had their own metal smiths. Metal smiths were respected and did not easily share knowledge of the practise but they sometimes would employ helpers such as bellow operators. In stratified societies metal smiths were not independent and they had to pay dues to a chief or king. With the appearance of large states in Africa, metal smiths were permanently hired by royalty in order to perform iron smelting practices.

Iron smelting was almost without exception, a highly ritualised activity with a deep symbolic meaning. Communication and consent from the ancestors was crucial in order to successfully reduce iron ore. It was also believed that the furnaces and the iron smelting area had to be purified and that certain aspects would render it unclean.

The implication of the ritual association with iron smelting was that:

- the iron smelting areas were positioned outside settlement areas and usually out of line of sight of the villages and villagers. In many cases these areas were situated behind hills or kopjes.
- the metal smiths had to seclude themselves during the time of iron reduction. They had to abstain from sexual activities and they were not to come into contact with menstruating women ("unclean women").
- the iron smiths were supplied with food by young girls or older women. Any woman biologically capable of menstruation had to keep away from the activities.

7 STATEMENT OF SIGNIFICANCE

7.1 Heritage resources management and conservation

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.

7.2 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.

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 four 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. Such sites must be adequately recorded and sampled before being destroyed. These are generally sites graded as of low or medium significance.

7.3 Evaluation of Results

Previous studies conducted in the larger Northwest Province area suggest a rich and diverse archaeological landscape and cognisance should be taken of archaeological material that might be present in surface and sub-surface deposits. The following significance rating applies to material of heritage potential, located in the landscape at Rooderand:

Stone Age remains: Stone Age material dating to the Middle Stone Age occurs at isolated locations the study area. However, these lithic scatters occur in low densities. They are not unique as an abundance of related Stone Age sites occur in the surrounding landscape. These occurrences are therefore of low significance.

Iron Age Remains: As the Iron Age occupation and iron smelting sites have been relatively well-preserved, and considering the central position of sites of this time period in the landscape, the sites are of medium significance as it has potential to inform on developments and spread of Iron Age groups and industries in the area.

Burial Places and Graves: All graves and burials are of heritage conservation priority and, if the stone structures at Rooderand are found to be graves, these sites will be highly significant.

Palaeontological remains: Even though no palaeontolocial occurrences were identified in the study area, all palaeontological remains occurring in the larger landscape should be regarded as scientifically significant.

7.4 Potential Impacts

- *Nature*

Generally, the value and significance of archaeological and other heritage sites might be impacted 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)). Here, the most apparent impact would be land surface disturbance associated with infrastructure construction. Thus, the destructive impacts that are possible in terms of heritage resources would tend to be direct, once-off and permanent events occurring during the mining of the area. However, in the long run, the proximity of operations in any given area could result in secondary indirect impacts resulting from the movement of people or vehicles in the immediate or surrounding vicinity.

- *Magnitude and extent*

It should be noted that the magnitude and extent of potential impacts emanating from the mining at Rooderand could be regarded as largely **destructive**, as large sections of the landscape and its surface will be modified where the mine pits, waste rock dumps, and tailings dams as well as associated infrastructure will be erected.

Considering the nature, magnitude and extent of impacts on heritage resources in this section of the Northwest Province, the following potentially sensitive receptors in the landscape should be considered:

- Rock art is known to exist in sandstone overhangs and rock faces in the larger landscape. Such geological features occur in the landscape and sandstone outcrops and rock faces should be regarded as potentially sensitive in terms of rock markings.
- Water sources such as drainage lines, fountains and pans would often have attracted human activity in the past. As Iron Age material is typically originate from below present soil surfaces in eroded areas, the larger landscape should be regarded as potentially sensitive in terms of possible subsurface deposits.
- As a general rule, graves and burials are likely to occur around Iron Age Sites, Historical Period and recent farmsteads and these areas should be regarded as sensitive.

As Palaeontological remains might occur in areas, specifically where bedrock has been exposed, such geological features should be regarded as sensitive in terms of impacts on fossilized resources.

7.5 Site Significance Ratings.

7.5.1 Site IA01: Early Later Iron Age Settlement

1. SITE DESCRIPTION :

1.1 General Site Description

Early later Iron Age occupation site

1.2 Site features / artefacts / Other

Site Location			
Province / Dsitrict	**Northwest Province**	Map Number	**2527AA**
Farm Name	**Rooderand Portion 2**	Co-ordinates	**S 27° 0' 51.8400"** / **E --25° 8' 45.2400"**

Site Type			
Surface sites	X	Caves and rock shelters	
Larger open-air sites	X	Sealed sites (deposits	
River deposits		Other	

Site Function			
Living / habitation	X	Kill	
Ceremonial		Burial	
Trading / Barter		Art	
Quarry / Mining / Smelting		Other	

Site Placement							
Valley floor		Hill top		Vlei/swamp		River Mouth	
Dam		River Bank		Slope	X	Plains	X
Other / Comments							

Vegetation							
Riverine forest		Bushveld		Savannah		Mountain forest	
Thornveld	X	Grassland	X	Cultivated	X	Other	

Age Classification							
Stone Age		Early Iron Age		Middle Iron Age		Later Iron Age	X
Historical		Other					

Material Culture							
Midden		House Remains	X	Stone Walling		Stone Structures	X
Granary		Grinding Stone (L)	X	Grinding Stone (U)	X	Granary Stand	X
Metal		Ceramics (Pottery)	X	Ceramics (Porcelain)		Stone (non-lithic)	X
Metal slag		Tuyere		Fauna	X	Bead (Glass)	
Bead (OES / Shell)		Glass		Lithics		Smelting Residues	
Other:				Other:			

1.3 Site Condition

The site has been well preserved and, notwithstanding natural transformation processes, the integrity of deposits and features seem to have preserved well.

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.		X	
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			X
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.		X	

It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.		X	
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			X
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			X
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).		X	
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.		X	
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			X
It has significance relating to the history of slavery in South Africa.			X
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.		X	

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]	X
Generally protected B [Medium significance, to be recorded]	
Generally Protected C [Low significance, no further action]	

C. SPHERE OF SIGNIFICANCE	High	Medium	Low
International			
National			
Provincial			
Local		X	
Specific community			

E. GENERAL STATEMENT OF SITE SIGNIFICANCE	
Low	
Medium	X
High	

F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT	
None	
Peripheral	
Destruction	X
Uncertain	

G. RECOMMENDED MITIGATION

If further impact is envisaged:

- **Survey and mapping**
- **Phase 2 investigation**
- **Permit from SAHRA for destruction**

H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS

- **National Heritage Resources Act (Act no. 25 of 1999)**

7.5.2 Site IA02: Later Iron Age Stonewalled Area

1. SITE DESCRIPTION :

1.1 General Site Description

Later Iron Age single stonewall area

1.2 Site features / artefacts / Other

Site Location				
Province / Dsitrict	**Northwest Province**	Map Number	**2527AA**	
Farm Name	**Rooderand Portion 2**	Co-ordinates	**S 27° 0' 59.4000"**	**E -25° 7' 51.2400"**

Site Type			
Surface sites	**X**	Caves and rock shelters	
Larger open-air sites		Sealed sites (deposits	
River deposits		Other	

Site Function			
Living / habitation		Kill	
Ceremonial		Burial	
Trading / Barter		Art	
Quarry / Mining / Smelting		Other	**X Unknown**

Site Placement							
Valley floor		Hill top		Vlei/swamp		River Mouth	
Dam		River Bank		Slope		Plains	**X**
Other / Comments							

Vegetation							
Riverine forest		Bushveld		Savannah		Mountain forest	
Thornveld	**X**	Grassland	**X**	Cultivated		Other	

Age Classification							
Stone Age		Early Iron Age		Middle Iron Age		Later Iron Age	**X**
Historical		Other					

Material Culture							
Midden		House Remains		Stone Walling	**X**	Stone Structures	**X**
Granary		Grinding Stone (L)		Grinding Stone (U)		Granary Stand	
Metal		Ceramics (Potter)		Ceramics (Porcelain)		Stone (non-lithic)	
Metal slag		Tuyere		Fauna		Bead (Glass)	
Bead (OES / Shell)		Glass		Lithics		Smelting Residues	
Other:				Other:			

1.3 Site Condition

Site preservation is generally poor as stone structures and features have collapsed. No material culture was located in association with the site.

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.		**X**	
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			**X**
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.		**X**	
It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.		**X**	
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or		**X**	

cultural group.			
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		X	
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons.		X	
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.		X	
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			X
It has significance relating to the history of slavery in South Africa.			X
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.		X	

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]	X
Generally protected B [Medium significance, to be recorded]	
Generally Protected C [Low significance, no further action]	

C. SPHERE OF SIGNIFICANCE	High	Medium	Low
International			
National			
Provincial			
Local		X	
Specific community			

E. GENERAL STATEMENT OF SITE SIGNIFICANCE	
Low	
Medium	X
High	

F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT	
None	
Peripheral	
Destruction	X
Uncertain	

G. RECOMMENDED MITIGATION

If further impact is envisaged:

- **Survey and mapping**
- **Limited Phase 2 investigation**
- **Permit from SAHRA for destruction**

H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS

- **National Heritage Resources Act (Act no. 25 of 1999)**

7.5.3 Site IS01: Iron Age Smelting Area

1. SITE DESCRIPTION :

1.1 General Site Description

Iron Age iron smelting site

1.2 Site features / artefacts / Other

Site Location							
Province / Dsitrict	**Northwest Province**			Map Number	**2527AA**		
Farm Name	**Rooderand Portion 2**			Co-ordinates	**S 27° 0' 24.4800"**	**E 25° 8' 47.0400"**	
Site Type							
Surface sites	**X**			Caves and rock shelters			
Larger open-air sites				Sealed sites (deposits			
River deposits				Other			
Site Function							
Living / habitation				Kill			
Ceremonial				Burial			
Trading / Barter				Art			
Quarry / Mining / Smelting	**X**			Other			
Site Placement							
Valley floor		Hill top		Vlei/swamp		River Mouth	
Dam		River Bank		Slope	**X**	Plains	**X**
Other / Comments							
Vegetation							
Riverine forest		Bushveld		Savannah		Mountain forest	
Thornveld	**X**	Grassland	**X**	Cultivated		Other	
Age Classification							
Stone Age		Early Iron Age		Middle Iron Age		Later Iron Age	
Historical		Other	**X Unspecified Iron Age**				
Material Culture							
Midden		House Remains		Stone Walling		Stone Structures	
Granary		Grinding Stone (L)		Grinding Stone (U)	**X**	Granary Stand	
Metal	**X**	Ceramics (Pottery)	**X**	Ceramics (Porcelain)		Stone (non-lithic)	**X**
Metal slag	**X**	Tuyere	**X**	Fauna		Bead (Glass)	
Bead (OES / Shell)		Glass		Lithics		Smelting Residues	**X**
Other:				Other:			

1.3 Site Condition

Intact and *in situ* tuyere fragments and iron smelting residues suggest a relatively well preserved assemblage. However, a service road cuts through the site and has disturbed parts of the deposit.

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.		**X**	
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.		**X**	
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.		**X**	
It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.		**X**	
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		**X**	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		**X**	
It has marked or special association with a particular community or cultural group for social, cultural or		**X**	

spiritual reasons.			
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.		X	
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			X
It has significance relating to the history of slavery in South Africa.			X
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.		X	

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]	X
Generally protected B [Medium significance, to be recorded]	
Generally Protected C [Low significance, no further action]	

C. SPHERE OF SIGNIFICANCE	High	Medium	Low
International			
National			
Provincial			
Local		X	
Specific community			

E. GENERAL STATEMENT OF SITE SIGNIFICANCE	
Low	
Medium	X
High	

F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT	
None	
Peripheral	
Destruction	X
Uncertain	

G. RECOMMENDED MITIGATION

If further impact is envisaged:

- **Survey and mapping**
- **Phase 2 investigation**
- **Permit from SAHRA for destruction**

H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS

- **National Heritage Resources Act (Act no. 25 of 1999)**

7.5.4 Site HP01: Foundation Structures and Midden

1. SITE DESCRIPTION :

1.1 General Site Description

Historical period (?)building and dam foundation and midden.

1.2 Site features / artefacts / Other

Site Location

Province / Dsitrict	**Northwest Province**			Map Number	**2527AA**		
Farm Name	**Rooderand Portion 2**			Co-ordinates	**S25°08'47.93"**	**E27°00'42.35"**	
Site Type							
Surface sites	**X**			Caves and rock shelters			
Larger open-air sites				Sealed sites (deposits)			
River deposits				Other			
Site Function							
Living / habitation	**X**			Kill			
Ceremonial				Burial			
Trading / Barter				Art			
Quarry / Mining / Smelting				Other			
Site Placement							
Valley floor		Hill top		Vlei/swamp		River Mouth	
Dam		River Bank		Slope		Plains	**X**
Other / Comments							
Vegetation							
Riverine forest		Bushveld		Savannah		Mountain forest	
Thornveld	**X**	Grassland	**X**	Cultivated	**X**	Other	
Age Classification							
Stone Age		Early Iron Age		Middle Iron Age		Later Iron Age	
Historical	**X**	Other	**X - recent**				

Material Culture							
Midden	**X**	House Remains	**X**	Stone Walling		Stone Structures	**X**
Granary		Grinding Stone (L)		Grinding Stone (U)		Granary Stand	
Metal	**X**	Ceramics (Pottery)		Ceramics (Porcelain)	**X**	Stone (non-lithic)	**X**
Metal slag		Tuyere		Fauna	**X**	Bead (Glass)	
Bead (OES / Shell)		Glass	**X**	Lithics		Smelting Residues	
Other: **X - Plastics**				Other:			

1.3 Site Condition

Site preservation is poor where structures have collapsed.

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.			**X**
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.			**X**
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.			**X**
It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.		**X**	
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			**X**
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			**X**
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons.			**X**
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.		**X**	
It has significance through contributing towards the promotion of a local sociocultural identity and can be			**X**

developed as a tourist destination.			
It has significance relating to the history of slavery in South Africa.			X
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.		X	

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]	X
Generally Protected C [Low significance, no further action]	

C. SPHERE OF SIGNIFICANCE	High	Medium	Low
International			
National			
Provincial			
Local			X
Specific community			

E. GENERAL STATEMENT OF SITE SIGNIFICANCE	
Low	X
Medium	
High	

F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT	
None	X
Peripheral	
Destruction	
Uncertain	

G. RECOMMENDED MITIGATION

If further impact is envisaged:

- **Survey and mapping and documentation of site.**
- **Permit from SAHRA for destruction**

H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS

- **National Heritage Resources Act (Act no. 25 of 1999)**

7.5.5 Site BP01: Later Iron Age Stone Structures (Graves*?)

***Note: If the said structures proof to be graves, the following significance rating will apply. If not, significance ratings for *SITE 2* will apply.**

1. SITE DESCRIPTION :

1.1 General Site Description

Possible Later Iron Age graves / burial places.

1.2 Site features / artefacts / Other

Site Location

Province / Dsitrict	**Northwest Province**	Map Number	**2527AA**	
Farm Name	**Rooderand Portion 2**	Co-ordinates	**S 27° 0' 58.3200"**	**E -25° 7' 46.5600"**

Site Type

Surface sites	X	Caves and rock shelters	

Larger open-air sites		Sealed sites (deposits	
River deposits		Other	
Site Function			
Living / habitation		Kill	
Ceremonial		Burial	X
Trading / Barter		Art	
Quarry / Mining / Smelting		Other	

Site Placement							
Valley floor		Hill top		Vlei/swamp		River Mouth	
Dam		River Bank		Slope	X	Plains	X
Other / Comments							
Vegetation							
Riverine forest		Bushveld		Savannah		Mountain forest	
Thornveld	X	Grassland	X	Cultivated	X	Other	
Age Classification							
Stone Age		Early Iron Age		Middle Iron Age		Later Iron Age	
Historical		Other	X Unspecified				

Material Culture							
Midden		House Remains		Stone Walling		Stone Structures	X
Granary		Grinding Stone (L)		Grinding Stone (U)		Granary Stand	
Metal		Ceramics (Potter)		Ceramics (Porcelain)		Stone (non-lithic)	
Metal slag		Tuyere		Fauna		Bead (Glass)	
Bead (OES / Shell)		Glass	Lithics			Smelting Residues	
Other:				Other:			

1.3 Site Condition

The condition of the site could not be established as the nature and function of the stone structures are not known.

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.	X		
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.	X		
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	X		
It is of importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.	X		
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.			X
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.			X
It has marked or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).	X		
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.	X		
It has significance through contributing towards the promotion of a local sociocultural identity and can be developed as a tourist destination.			X
It has significance relating to the history of slavery in South Africa.			X
It has importance to the wider understanding of temporal changes within cultural landscapes, settlement patterns and human occupation.			X

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]	X
Generally Protected A [High/Medium significance, mitigation]	
Generally protected B [Medium significance, to be recorded]	
Generally Protected C [Low significance, no further action]	

C. SPHERE OF SIGNIFICANCE	High	Medium	Low
International			
National			
Provincial			
Local	X		
Specific community			

E. GENERAL STATEMENT OF SITE SIGNIFICANCE	
Low	X
Medium	
High	

F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT	
None	
Peripheral	
Destruction	X
Uncertain	

G. RECOMMENDED MITIGATION

If no further impact is envisaged:
- **A buffer zone of minimum 50 metres should be maintained.**
- **The graves must be fenced off.**

If further impact is envisaged:
- **Phase 2 investigation**
- **Social consultation**
- **Exhumation and reburial**

H. 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)**
- **Local and regional provisions, laws and by-laws**
- **National Heritage Resources Act (Act no. 25 of 1999)**
- **Permit from SAHRA for removal**

8 RECOMMENDATIONS

The author of this report proposes the following recommendations, based on findings contained in this archaeological scoping report:

- Stone Age remains, dating to the Middle Stone Age Period are minimal and scattered. No further investigation of these occurrences is recommended prior to further developments in the area.
- The southern boundary of the property constitutes the area of main heritage conservation priority. It is recommended that a Phase 2 archaeological investigation be done on **Site IA01** of the early Later Iron Age site and **Site IS01,** the Iron Smelting Site on the southern boundary of the property, as these sites

will be impacted upon by the mine where the open pit and waste rock dump for the mine will be placed. Such careful measures of mitigation, including the sampling of cultural and other remains that will adequately allow the temporal, cultural and spatial classification of the site, will extract as much data from the site before impact occurs. It would be advantageous to regulate access to these sites until further archaeological investigations and possible conservation measures are put into action. In addition, the stone structures at **Site IA02** should be recorded and its nature and context be established by means of limited STP (Shovel Test Spit) excavations.

- Foundation structures of a rectangular house and a concrete dam on the southern border of the property (**Site HP01**) are probably of recent age and younger than 60 years. No further studies of these features are recommended. Incidentally, the structure falls within the confines of the area identified as "archeologically sensitive" around **Site 1** and **Site 3**.
- In principle, graves or any possible burials should be excluded from mitigation measures as the legal, moral and ethical aspects of the disturbance of graves are extremely complex. Also, graves older than 60 years, or unmarked burial places are protected under the NHRA (Act 25 of 1999). It is therefore recommended that the nature of the stone structures at **Site BP01** be established using a combination of STP (Shovel Test Spit) testing and ethnographic research. If these structures do prove to be burial places, and if impact will not occur, the structures should be fenced off and a conservation buffer of at least 100m around the features be maintained. Assuming that the features are graves, and risks of direct impact by the proposed developments arise, last resort mitigation measures may entail full grave relocations of these features in a process independent from the proposed limited Phase 2 recommended for this area.
- Since the palaeontological sensitivity of rock units within the study area is generally low the impact significance of the proposed prospecting activities as far as fossil heritage is concerned, is likely to be small. However, 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.
- Due cognisance should be taken of the larger palaeontological, archaeological and historical landscape of the area in order to avoid the destruction of previously undetected heritage sites in the area. Here, care should be taken around sandstone outcrops and rock faces, as rock art is known to occur on such features. Water sources such as drainage lines, springs and pans should also be regarded as potentially sensitive in terms of possible Iron Age deposits. The existence of Historical Period and recent resources deriving from the area's contemporary farming history should also be considered.
- A careful watching brief monitoring process is recommended for all stages of construction and infrastructure development. Should any subsurface paleontological / archaeological / historical material be exposed during construction activities, all activities should be suspended and the archaeological specialist should be notified immediately

9 GENERAL COMMENTS AND CONDITIONS

This Phase 1 AIA report serves to confirm the extent and importance of the archaeological sites at Rooderand Portion 2. In addition to heritage resources occurring on the property, the larger Northwest Province encompasses a rich and diverse archaeological landscape and cognisance should be taken of heritage resources and archaeological material that might be present in surface and sub-surface deposits. Such heritage sites might include:

- Stone Age sites located near the foot of hills, in rock shelters and along water courses.
- Sites with either rock engravings or rock paintings. Sandstone outcrops and rock faces in the region are known to have rock engravings.
- Stock enclosures constructed of stone.
- Houses, middles and other structures older than 60 years
- Farming infrastructure such as wind mills, outhouses and cattle pens.
- Graves and cemeteries, both formal and informal.
- Any sites of intangible heritage value.

If, during construction, any possible archaeological material culture 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 such as handaxes, choppers and cleavers.
- Formal Middle Stone Age stone tools such as points, blades and scrapers.
- Formal Later Stone Age stone tools such a microlithic blades, points and scrapers.
- Lithic residues and debris such as stone cores and flakes.
- Decorated and undecorated potsherds.
- Iron objects.
- Beads made from ostrich eggshell and glass.
- Ash middens and cattle dung deposits and accumulations.
- Animal bones and faunal remains.
- Human remains/graves.
- Stone walling or any sub-surface structures.
- Historical glass, tin or ceramics.
- Fossils.

If such site 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. Please note that this report is an archaeological scoping study only and does not include or exempt other required heritage impact assessments.

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 (AIAs) will be assessed by the relevant heritage resources authority. The final decision rests with the heritage resources authority, which should give a permit or a formal letter of permission for the destruction of any cultural sites.

10 BIBLIOGRAPHY

Bergh,J.S.1999. Geskiedenisatlas van Suid-Afrika: die vier noordelike provinsies. Pretoria: J.L. van Schaik

Childs, S.T & Killich, D.1993. Indigenous African Metallurgy Nature and Culture. Annual Review of Anthropology: 22 (317-337)

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.

Evers,T.M.1981. The Iron Age in eastern Transvaal, South Africa. In: Voigt, E.A. (ed.) Guide to archaeological sites in the northern and eastern Transvaal. Pretoria: Transvaal Museum.

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

Hall, M. 1996. Archaeology Africa. Cape Town, Johannesburg: David Philip

Huffman, T.N. 2002. Regionality in the Iron Age: the case of the Sotho-Tswana. Southern African Humanities. Vol 14. Pietermaritzburg.

Huffman, T.N. 2007. Handbook to the Iron Age. Pietermaritzburg: University of Kwazulu-Natal Press

Mason, R.J. 1986. Origins of black people of Johannesburg and the southern western central Transvaal AD 350--1880. Johannesburg: Witwatersrand University Press.

Phillipson, D.W. 1985. African Archaeology (second edition). Cambridge: Cambridge University Press

Rathje, W.L & Schiffer, M.B. 1982. Archaeology. USA: Harcourt

Renfrew, C & Bahn, P. 1991. Archaeology: Theories, Methods and Practice USA: Thames & Hudson

Rubidge, B. 2009. Delta-epsilon 6x 765kv transmission power lines from Lephalale to Potchefstroom: Palaeontological Impact Assessment. BPI for Palaeontological Research: University Of the Witwatersrand.

Sharer, A.J & Ashmore, W 1979. The Nature of Archaeological Data California: Benjamin/Cummings Publishing

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

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

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