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LW CONSULTANTS: PROPOSED BIESJESFONTEIN 218 PROSPECTING PROJECT IN THE FRANCES BAARD DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE

Heritage Scoping Study

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HERITAGE SCOPING STUDY (HS) OF DEMARACTED AREAS ON A PORTION OF PORTION 1 OF THE FARM BIESJESFONTEIN 218 FOR THE PROPOSED BIESJESFONTEIN 218 PROSPECTING PROJECT IN THE FRANCES BAARD DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE

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DECLARATION

I, Nelius Le Roux Kruger, declare that –

- I act as the independent specialist;
- I am conducting any work and activity relating to the proposed Biesjesfontein 218 Prospecting Project in an objective manner, even if this results in views and findings that are not favourable to the client;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have the required expertise in conducting the specialist report and I will comply with legislation, including the relevant Heritage Legislation (National Heritage Resources Act no. 25 of 1999, Human Tissue Act 65 of 1983 as amended, Removal of Graves and Dead Bodies Ordinance no. 7 of 1925, Excavations Ordinance no. 12 of 1980), the Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment (SAHRA, AMAFA and the CRM section of ASAPA), regulations and any guidelines that have relevance to the proposed activity;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this declaration are true and correct.

Signature of specialist
Company: Exigo Sustainability
Date: 1 April 2019

EXECUTIVE SUMMARY

This report details the results of a Heritage Scoping Study (HS) for the proposed Biesjesfontein 218 Prospecting Project on a portion of Portion 1 of the farm Biesjesfontein 218 south of Delportshoop in the Frances Baard District Municipality, Northern Cape Province. The project area spans over a surface area of approximately **20ha**. The report includes background information on the area's archaeology, its representation in Southern Africa, and the history of the larger area under investigation. The HS considers sites such as archaeological and historical sites and features, graves and places of religious and cultural significance and considerations are made with regards to potential impact of the proposed project on heritage resources.

Project Title	Biesjesfontein 218 Prospecting Project
Project Location	S28.431434° E24.257367°
1:50 000 Map Sheet	2824AC & 2824AD
Farm Portion / Parcel	A portion of Portion 1 of the farm Biesjesfontein 218
Magisterial District / Municipal Area	Frances Baard District Municipality
Province	Northern Cape Province

The cultural landscape of the Northern Cape encompasses a period of time that spans millions of years, covering human cultural development from the Stone Ages up to recent times. It depicts the interaction between the first humans and their adaptation and utilization to the environment, the migration of people, technological advances, warfare and contact and conflict. In terms of heritage resources, the landscape around Delportshoop is primarily well known for the occurrence of Stone Age and Colonial Period heritage remains as well as fossil remains. The project area has been transformed by historical and recent agriculture risking the sterilization of these zones of heritage remains. In terms of the probability of site impact on the Biesjesfontein farm, the following should be noted:

- As Stone Age material often occurs along drainage lines, the banks of the Vaal River and associated water courses traversing the project area, as well as smaller streams and waterways elsewhere might prove sensitive in terms of the occurrence of stone artefacts and Stone Age material. Similarly, Stone Age manufacturing sites are known to occur along ridges near sources of stone suitable for stone tool making and the small ridge to the west of the project area could contain remnants of Stone Age manufacturing sites.
- Later Iron Age farmers preferred protective mountain slopes close to areas fit for cattle grazing as settlement areas and single hills and rock outcrops. Iron Age settlements are relatively scarce in this part of the Northern Cape Province but the project area might prove sensitive in terms of the occurrence of Iron Age settlements along ridges and near arable soils fit for prehistoric agriculture.
- European farmers, settling in the area since the middle of the 19th century, divided up the landscape into a number of farms which form the framework for agricultural, residential and other forms of development in present day. In the project area, remnants of the former "At Last" farmstead might prove sensitive in terms implied heritage value. Here it should be noted that buildings and structures sites or structures older than 60 years are generally protected under the National Heritage Resource Act (NHRA 1999).
- As family cemeteries often occur around farmsteads in rural areas of the Northern Cape and

cognisant of the fact that a burial site occurs in close proximity of the prospecting area, the former "At Last" farmstead area might prove sensitive in terms of the possible existence of burial sites.

As a general guideline and to reduce impacts on heritage resources to a minimum, the following recommendations should be considered in the planning, implementation and management phases of the Project:

- The project area falls within a paleontologically sensitive zone and a Palaeontological Desktop Assessment (PDA) was commissioned for the proposed project. Cognisance should be taken of further recommendations included in the PDA Report.
- The term "Living Heritage" can broadly refer to a place of cultural heritage and sacred nature; with cultural attributions that are not generally physically manifested. Ritual and symbolic spaces and practices, and the material residues thereof convey an intangible cultural significance beyond the physical site or artefact, where the meaning of the ritual area speaks directly of a sense of place and lived experience. Such sites might occur on the Biesjesfontein property or it surroundings and due cognisance should be taken of these sites of "Living Heritage" in the cultural landscape.
- It is recommended that all graves and cemeteries that might occur in the project area be conserved and excluded from impact emanating from the development. Where impact on such resources would prove to be inevitable, the correct human remains repatriation procedures should be observed at all times. These procedures should include public notification of intent to relocate the remains, consultation with descendant communities, close liaison with - and approval from local futurities, adherence to any local laws and / bylaws, and correct grave relocation methodologies.
- It is possible that groups, farmers and locals living in the area have occupied the region for many generations and have expressed long-term cultural associations with the region. Therefore, it is important to ascertain from these respondents whether there are any further undetected sites of cultural significance in the area to which they relate and / or attach cultural meaning.
- Ultimately, it is recommended that the archaeological and cultural heritage of this part of the Northern Cape Province be respected. The management of heritage resources, as stipulated by National and International Heritage resources agencies (e.g. SAHRA) should be aligned with any future activity by means of cultural mitigation and / or management plans developed in conjunction with heritage authorities and specialists.

It should be noted that this HS and site sensitivity included above are solely based on off-site desktop findings and the heritage sensitivity of the Biesjesfontein property remains tentative pending further detailed site inspection as part of the Heritage Impact Assessment (HIA) process, subject to section 38 of the National Heritage Resources Act (NHRA - Act 25 of 1999).

NOTATIONS AND TERMS/TERMINOLOGY

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

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

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

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

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.

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.

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

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

Lithic: Stone tools or waste from stone tool manufacturing found 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.

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.

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.

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.

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

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,

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

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.

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

LIST OF ABBREVIATIONS

Abbreviation	Description
ASAPA	Association for South African Professional Archaeologists
AIA	Archaeological Impact Assessment
BP	Before Present
BCE	Before Common Era
BGG	Burial Grounds and Graves
CRM	Culture Resources Management
EIA	Early Iron Age (also Early Farmer Period)
EIA	Environmental Impact Assessment
EFP	Early Farmer Period (also Early Iron Age)
ESA	Earlier Stone Age
GIS	Geographic Information Systems
HIA	Heritage Impact Assessment
HS	Heritage Scoping
ICOMOS	International Council on Monuments and Sites
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)
MRA	Mining Right Area
MSA	Middle Stone Age
NHRA	National Heritage Resources Act No.25 of 1999, Section 35
PFS	Pre-Feasibility Study
PHRA	Provincial Heritage Resources Authorities
SAFA	Society for Africanist Archaeologists
SAHRA	South African Heritage Resources Association
YCE	Years before Common Era (Present)

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1 BACKGROUND

1.1 Scope and Motivation

Exigo Sustainability (Pty) Ltd (Exigo) was commissioned by LW Consultants to conduct a Heritage Scoping Study (HS) study for the proposed Biesjesfontein 218 Prospecting Project in the Northern Cape Province. The rationale of this HS is to determine the presence of heritage resources such as archaeological and historical sites and features, graves and places of religious and cultural significance on a desktop level; to consider the impact of the proposed project on such heritage resources, and to submit initial recommendations with regard to the cultural resources management measures that may be required at affected sites / features.

Ultimately, the process aims to identify significant heritage issues or constraints which may be encountered during project development. In addition, the study identifies relevant heritage mitigation and management actions in order to inform time frames, infrastructure options and possible "show stoppers".

1.2 Project Direction

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

1.3 Project Brief

Renaissance Resources intends to embark on prospecting activities on the Farm Biesjesfontein south-west of Delportshoop in the Northern Cape Province. The author was contracted to undertake a Heritage Scoping of the Biesjesfontein Prospecting application area in in order to identify possible areas of heritage sensitivity and constraints that would affect the development, and provide recommendations as to potential mitigation and management of such heritage receptors. The site, which falls within the jurisdiction of the Frances Baard District, measures more or less **20ha**.

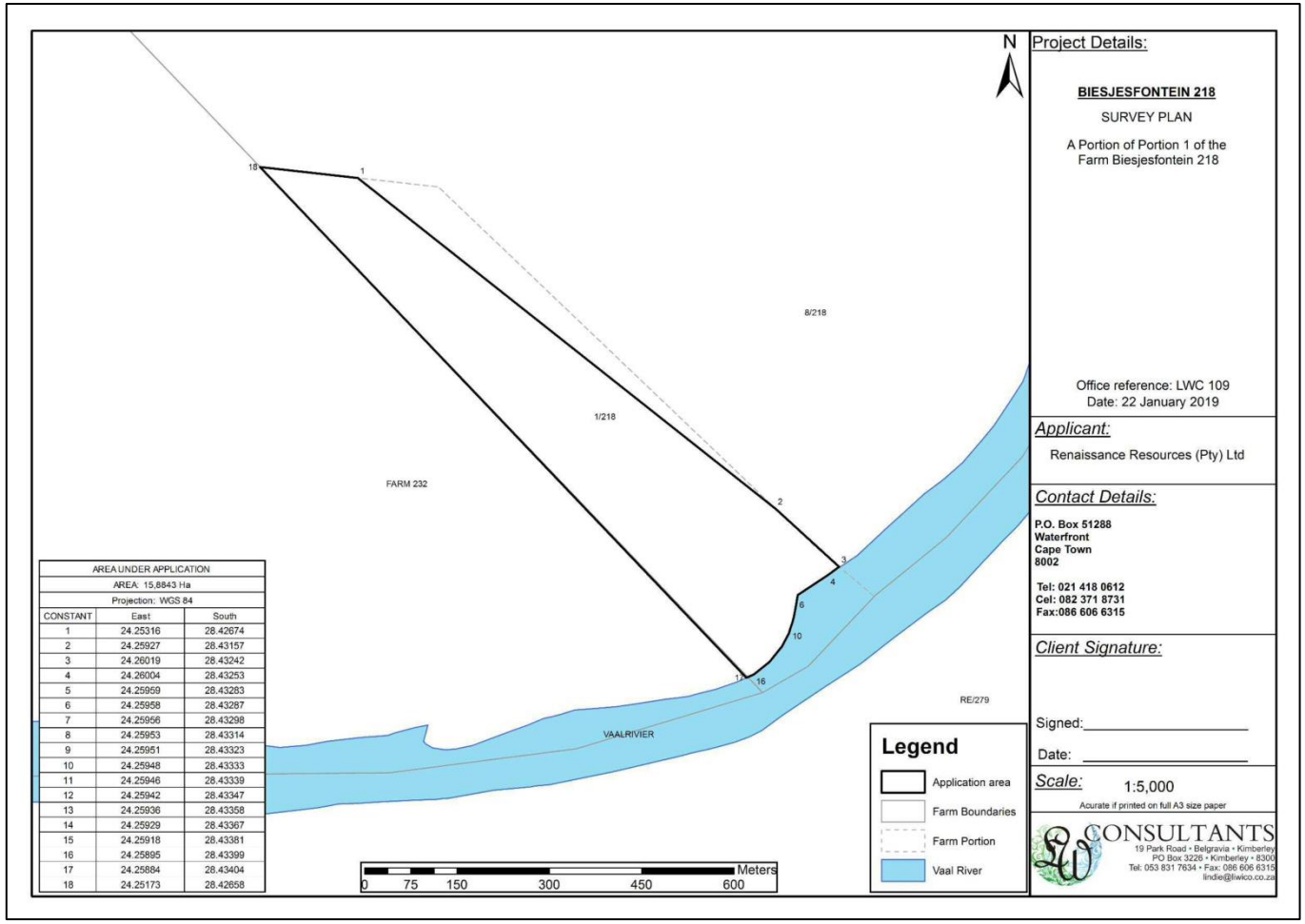

Figure 1-1: Map indicating the Biesjesfontein 218 Prospecting Project application area (black outline).

1.4 Terms of Reference

Heritage specialist input into the Environmental Impact Assessment (EIA) process is essential to ensure that, through the management of change, developments still conserve our heritage resources. It is also a legal requirement for certain development categories which may have an impact on heritage resources. Thus, EIAs should always include an assessment of heritage resources. The heritage component of the EIA is provided for in the **National Environmental Management Act, (Act 107 of 1998)** and endorsed by section 38 of the **National Heritage Resources Act (NHRA - Act 25 of 1999)**. In addition, the NHRA protects all structures and features older than 60 years, archaeological sites and material and graves as well as burial sites. The objective of this legislation is to ensure that developers implement measures to limit the potentially negative effects that the development could have on heritage resources. Based hereon, this project functioned according to the following **terms of reference for** heritage specialist input**:**

- Provide a description of the heritage landscape of the project area in terms of cultural context and provenience by means of a detailed desktop background study;
- Provide a description of known and documented historical archaeological artefacts, structures (including graves) and settlements – if present - in the project area by means of a detailed desktop study;
- Compile the above into a broad heritage baseline for the project area and discuss the nature and degree of significance of this heritage bassline landscape;
- Provide a level of probability of site distribution and occurrence in the project area.
- Estimate the extent and severity of potential developmental impacts on the heritage landscape as a result of the planned development and associated actions;
- Drawing on findings from this desktop assent, guide the project planning in terms of potential heritage impact.
- Recommend further heritage assessment requirements for the project based on the heritage landscape and its estimated sensitivity.
- Provide an integrated Heritage Scoping Report complying to SAHRA's minimum standards for Heritage Impact Assessment Studies and Reporting and the National Heritage Resources Act, 1999.
- Provide a PDA Report, complying to SAHRA's minimum standards for Heritage Desktop Study Studies and Reporting and the National Heritage Resources Act, 1999.
- Liaise and consult with the relevant Heritage Resources Authority (Northern Cape-PHRA) with regards to the initial NID, the HIA process and review comments from the authority.

1.5 CRM: Legislation, Conservation and Heritage Management

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

1.5.1 Legislation regarding archaeology and heritage sites

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

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

According to the National Heritage Resources Act No 25 of 1999 (section 35) the following features are protected as cultural heritage resources:

a. Archaeological artefacts, structures and sites older than 100 years
b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
c. Objects of decorative and visual arts
d. Military objects, structures and sites older than 75 years
e. Historical objects, structures and sites older than 60 years
f. Proclaimed heritage sites
g. Grave yards and graves older than 60 years
h. Meteorites and fossils
i. Objects, structures and sites of scientific or technological value.

In addition, the national estate includes the following:

a. Places, buildings, structures and equipment of cultural significance
b. Places to which oral traditions are attached or which are associated with living heritage
c. Historical settlements and townscapes
d. Landscapes and features of cultural significance
e. Geological sites of scientific or cultural importance
f. Archaeological and paleontological sites
g. Graves and burial grounds
h. Sites of significance relating to the history of slavery
i. Movable objects (e.g. archaeological, paleontological, meteorites, geological specimens, military, ethnographic, books etc.)

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

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

and

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

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;

(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;

(c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or

(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58)."

and

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

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

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority;

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

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

Graves and burial grounds are commonly divided into the following subsets:

a. ancestral graves
b. royal graves and graves of traditional leaders
c. graves of victims of conflict
d. graves designated by the Minister
e. historical graves and cemeteries
f. human remains

Graves 60 years or older are heritage resources and fall under the jurisdiction of both the National Heritage Resources Act and the Human Tissues Act of 1983. However, graves younger than 60 years are specifically protected by the Human Tissues Act (Act 65 of 1983) and Ordinance on Excavations (Ordinance no. 12 of 1980) as well as any local and regional provisions, laws and by-laws. Such burial places also fall under the jurisdiction of the National Department of Health and the Provincial Health Departments.

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

This act (Act 107 of 1998) states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made. Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

1.5.2 Background to HIA and AIA Studies

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

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

2 REGIONAL CONTEXT

2.1 Area Location

The Biesjesfontein 218 Prospecting Project study area is located south-west of Delportshoop on a portion of Portion 1 of the farm Biesjesfontein 218 in the Frances Baard District Municipality, Northern Cape Province. The property is bisected by the R370 road and the Vaal River forms the south-eastern boundary of the site. The study areas appear on 1:50000 map sheet 2824AC & 2824AD (see Figure 2-1) and coordinates for the proposed project are as follows:

- S28.431434° E24.257367°

2.2 Area Description: Receiving Environment

Delportshoop lies within the Savanna biome which is the largest biome in Southern Africa. It is characterized by a grassy ground layer and a distinct upper layer of woody plants (trees and shrubs). The environmental factors delimiting the biome are complex and include altitude, rainfall, geology and soil types, with rainfall being the major delimiting factor. Fire and grazing also keep the grassy layer dominant. The most recent classification of the area by Mucina & Rutherford shows that the site is classified as Ghaap Plateau Vaalbosveld. The landscape features of the Ghaap Plateau Vaalbosveld vegetation type are a flat plateau with well-developed shrub layer dominated by *Tarchonanthus camphoratus* underlied by surface limestone and dolomite. The conservation status of the Ghaap Plateau Vaalbosveld is Least Threatened with none conserved in statutory reserves and only 1% transformed (Mucina & Rutherford, 2006). This vegetation type covers most of the Ghaap Plateau, and is found on different types of soils, such as calcareous tufa, dark brown to red sands and acid gravels, all underlain by dolomite. In addition, the District consists of two very distinct, morphological regions divided by the Vaal / Harts river valley, the Kalahari and Ghaap Plateau to the west and the Kimberley Plains to the east. The Vaal river occurs along the south-eastern border of the project area.

2.3 Site Description

The Biesjesfontein property occurs along the western banks of the Vaal River. The area is characterised by a flat land parcel which inclines towards the west. The eastern portion of the property along the Vaal River has been transformed as a result of agriculture farming and a farmstead occurs on a central portion of the farm. A number of small drainage channels bisect the site.

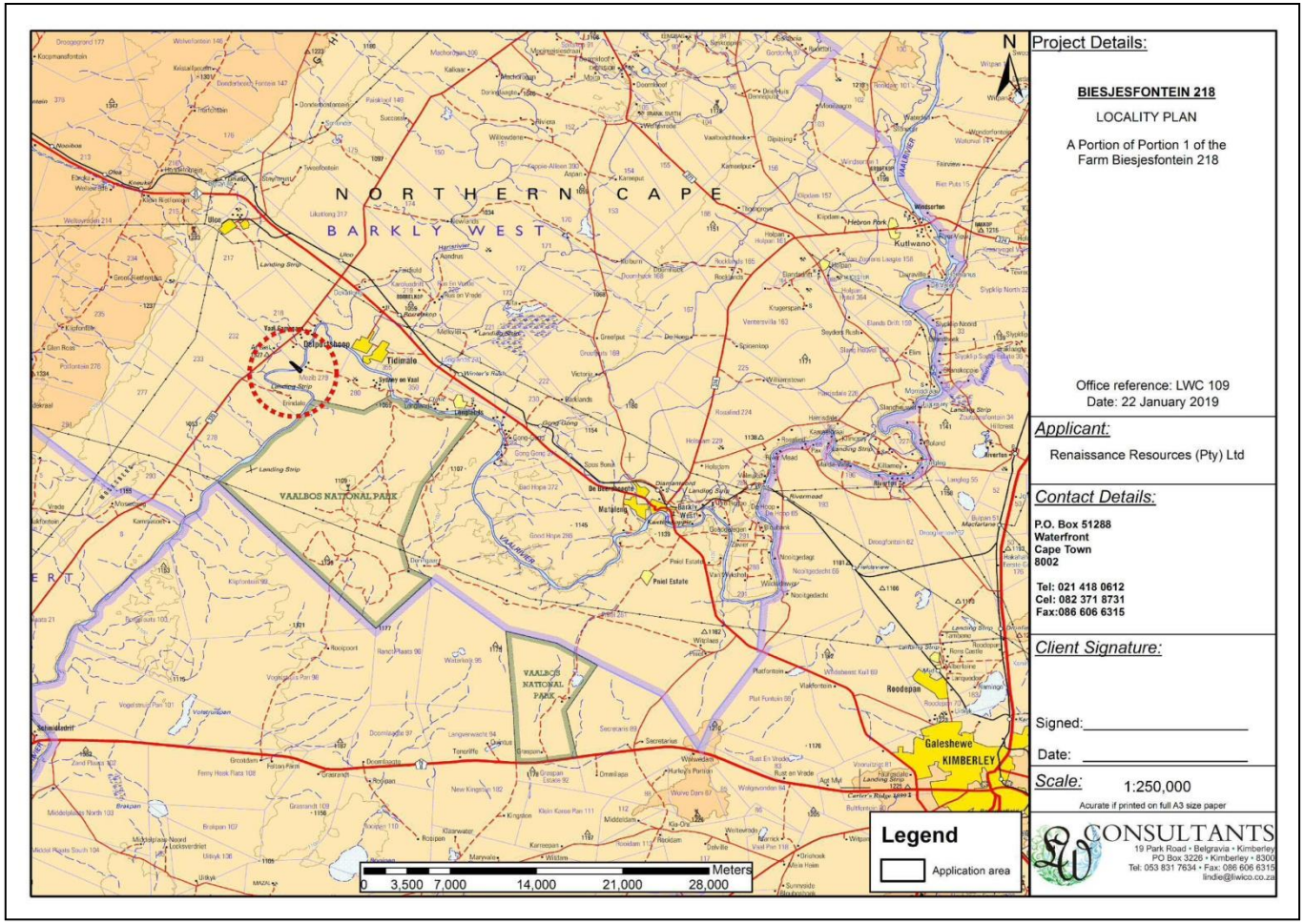

Figure 2-1: 1:250 00 Map representation of the location of the Biesjesfontein property (sheet 2824).
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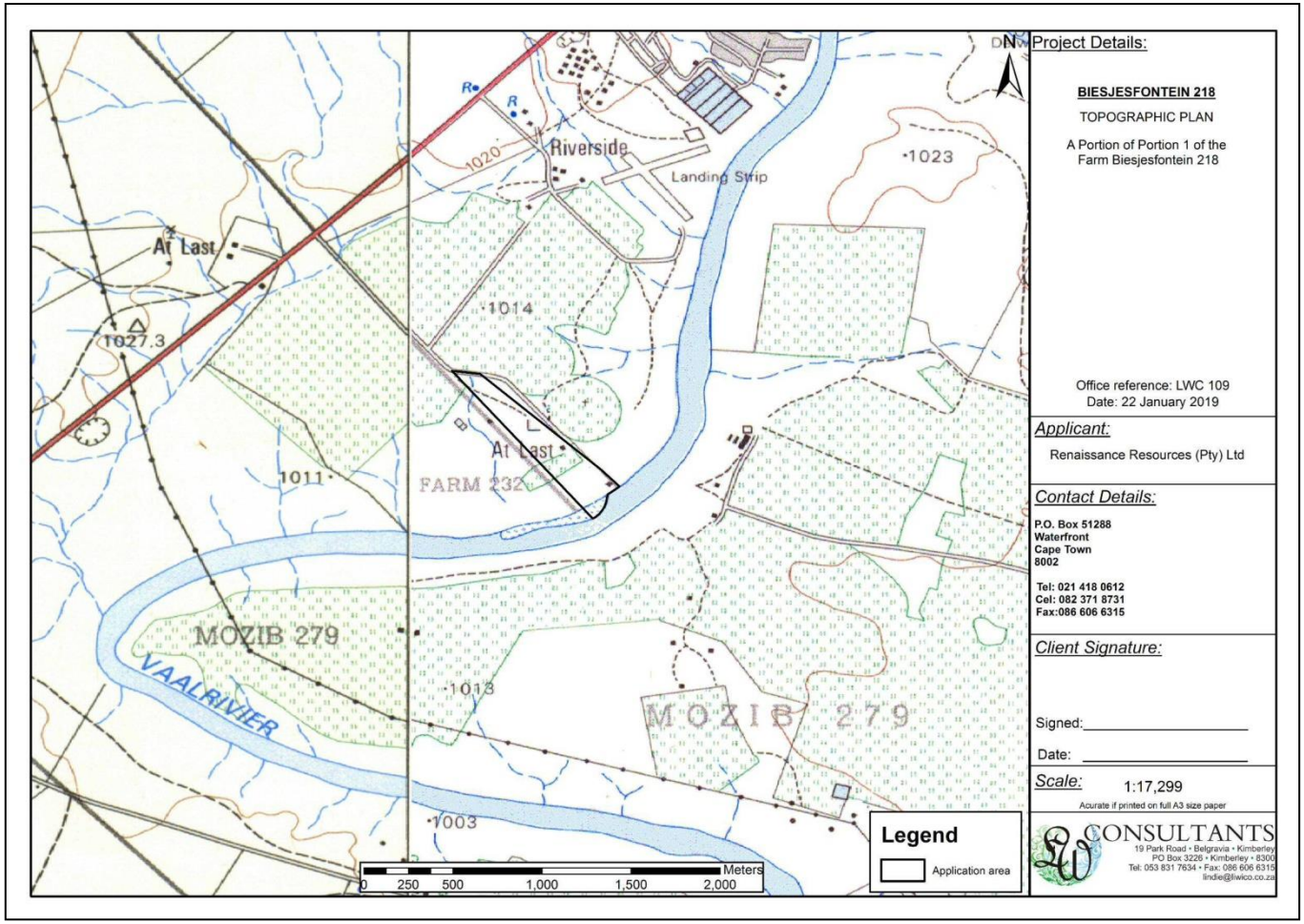

Figure 2-2: Detail map indicating the application area for the proposed Biesjesfontein 218 Prospecting Project (black outline).

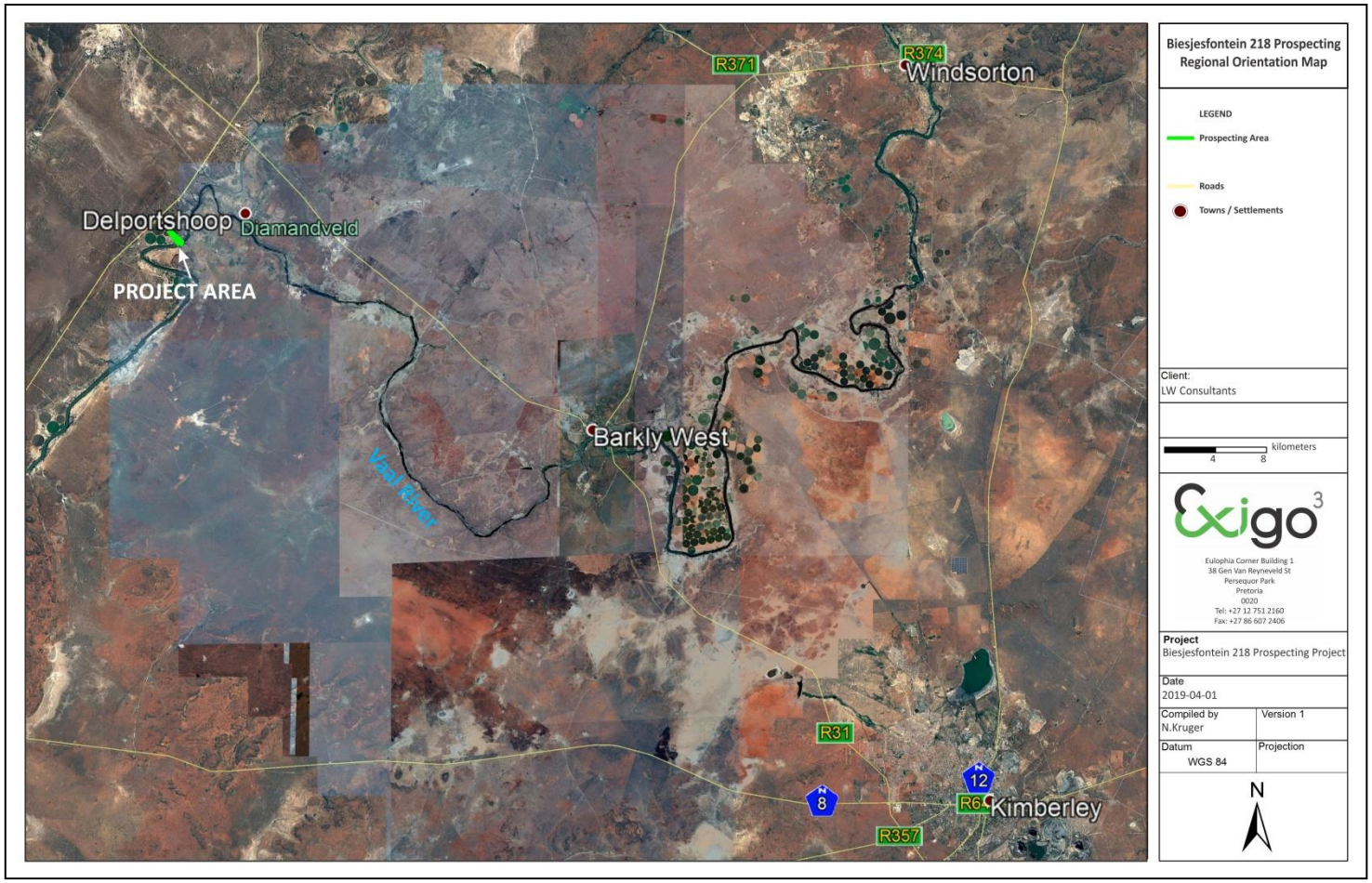

Figure 2-3: Aerial map providing a regional context for the proposed Biesjesfontein 218 Prospecting Project.

3 METHOD OF ENQUIRY

3.1 Sources of Information

Data from detailed desktop studies, aerial surveys and the careful examination of cartographic material were employed in the off-site analysis of the project area.

3.1.1 Desktop Study

This scoping study primarily functioned around data from a desktop study which employed existing sources of information in order to inform on the Northern Cape archaeo-historical landscape. The large extent of the area under study necessitated the utilization of several unpublished archival databases and unpublished Heritage Assessment reports (HIAs) to give a comprehensive representation of known sites in the study area. Furthermore, numerous academic papers and research articles supplied a historical context for the proposed project and archival sources, aerial photographs, historical maps and local histories were used to map out the landscape's heritage. Most of the HIA studies have emanated from Impact Assessment measures for EIA purposes commissioned by the private sector. Some of the studies include:

- Beaumont, P.B. 2002. Archaeological Report: Construction of a Temporary Bridge across the Vaal River at Windsorton, Erf 1, for Floodplain (Island) Diamond Reclamation.
- Beaumont, P.B. 2005a. Archaeological Impact Assessment of a Portion of the Remnant of Farm 225, near Barkly West, Northern Cape.
- Beaumont, P.B. 2005b. Archaeological Impact Assessment of a Portion of the Delportshoop Commonage, Northern Cape.
- Beaumont, P.B. 2006. Phase 1 Heritage Assessment Report on Portion 4 of the Farm Slypklip North 32, Frances Baard District Municipality, Northern Cape Province.
- Beaumont, P.B. 2007a. Phase 1 Heritage Impact Assessment Report on Parts of Portion 2 and the Remainder of the Farm Holsdam 229 near Barkly West, Frances Baard District Municipality, Northern Cape Province.
- Beaumont, P.B. 2007b. Phase 1 Heritage Impact Assessment Report on the Farm Eureka 200 near Kimberley, Francis Baard District Municipality, Northern Cape Province.
- Beaumont, P.B. 2008. Phase 1 Heritage Impact Assessment Report on the Proposed Northgate Housing development on Portions of the Original Farm Roode Pan 70, near Kimberley in the Sol Plaatjie Municipality of the Northern Cape Province.
- Dreyer, C.2003. Archaeological and Historical Investigation of the Proposed Pipeline Installed at Hanover, Northern Cape.
- Dreyer, C. 2005a. Archaeological and Historical Investigation of the Proposed Diamond Mining Activities at the Farm Riverside 208, Barkly West, Northern Cape.
- Dreyer, C. 2005b. Archaeological and Historical Investigation of the Proposed Diamond Mining Activities at the Farms Melkvlei 221 and Longlands 231, Barkly West, Northern Cape.
- Dreyer, C. 2005c. First Phase Archaeological and Cultural Heritage Assessment of the Proposed Residential Development on Erven 687 and 711, Barkly West, Northern Cape.
- Dreyer, C. 2006a. First Phase Archaeological and Cultural Heritage Assessment of the Proposed Developments at the Big Hole, Kimberley, Northern Cape.
- Dreyer, C. 2006b. Archaeological and Historical Investigation of the Proposed Diamond Mining Activities at the Farm Winter's Rush (Longlands 350), Barkly West, Northern Cape.
- Dreyer, C. 2006c. Archaeological and Historical Investigation of the Proposed Diamond Mining Activities at the Farm Holpan 161, Barkly West, Northern Cape.

- Dreyer, C. 2008. Archaeological and Culture Historical Assessment of the proposed Residential Developments at Kimberley, Northern Cape.
- Henderson, Z.L. 2003. Archaeological Survey of Van Aswegenshoek 134.
- Morris, D. 2001. Report on Historical Rubbish Midden at Kamfersdam.
- Morris, D. 2002. Report on an Inspection of Cemeteries at Sydney-on-Vaal.
- Morris, D. 2003a. Archaeological Survey of the Farm Koodoosberg No 141.
- Morris, D. 2003b. Archaeological Impact Assessment Rietputs 15, Windsorton.
- Morris, D. 2005a. Phase 1 Archaeological Impact Assessment of the so-called 'Kemo Dump' (National Site Number 2824DB039) on Remainder of Erf 5024, Erf 6376 and Erf 5058, Vooruitzight 81, Kimberley, Northern Cape.
- Morris, D. 2005b. Site Visit to Inspect Cultural Material on the Mine Debris Dumps adjacent to the Kimberley Mine at the Site of the Proposed Hotel.
- Morris, D. 2005c. Phase 1 Archaeological Impact Assessment for De Beers Consolidated Mines Ltd (Contract 0616-AC-244-05) to evaluate Heritage Resources on properties as Indicated.
- Morris, D. 2005d. Archaeological Impact Assessment of Abrahamoos Fontein near Plooysburg, Northern Cape
- Morris, D. 2005e. Archaeological Impact Assessment at Taaibosch Fontein near Plooysburg, Northern Cape.
- Morris, D. 2005f. Archaeological Impact Assessment on the Claim of Mr. Medwyn Jacobs, Erf 86, near Barkley West.
- Morris, D. 2005g. Archaeological Impact Assessment on Windsorton, Erf 1, Northern Cape.
- Morris, D. 2006a. Report on a Phase 1 Archaeological Impact Assessment of a Proposed Clay Quarry at Roodepan 70, Kimberley, Northern Cape, NC30/5/1/3/3/2/1/358EM.
- Morris, D.2006b. Site Visit to Inspect an Area of Proposed Debris Washing along Kenilworth Road, on Erven 14741, in the Magisterial District of Kimberley.
- Morris, D. 2006c. Report on a Phase 1 Archaeological Impact Assessment of Proposed Prospecting on Uitkyk 106, Locks Verdriet 105 and Brakpan 107, West of Kimberley, Northern Cape.
- Morris, D. 2006d. Archaeological and Heritage Impact Assessment on Portion 20 Mosesberg, near Schmidtsdrift, Northern Cape.
- Morris, D. 2006e. Archaeological Impact Assessment on the Claim of Mr. Setlhabi at Waldeck's Plant, Pniel, near Barkley West, Northern Cape.
- Morris, D. 2007. Archaeological Impact Assessment at Longlands 350 near Barkly West, Northern Cape: Collective Application List of E. Nyanyiwa.
- Morris, D. 2009. Report on a Phase 1Archaeological Assessment of a proposed mining site at the Eddie Williams Oval, Kimberley, Northern Cape.
- Nel, J. (Archaic Heritage Project Management). 2008. Final Report: Heritage Resources Scoping and Preliminary Assessment. Transnet Freight Line EIA, Eastern Cape and Northern Cape.
- Nelson, C.2007. Upgrading of the TR502 Road, Barkly West Magisterial District, Northern Cape Province.
- Rossouw, L. 2006. A Preliminary Evaluation of Archaeological and Palaeontological Impact with regard to the Application for Prospecting Rights on the Farms Doornfontein 12, Grasbult 5, Schoolplaats 3, Schoolplaats Annex 4 and Pontdrift 2 in the Warrenton District, Northern Cape.
- Rossouw, L. (National Museum, Bloemfontein). 2008. Phase 1 Archaeological Impact Assessment of Farm Fourteen Streams, Warrenton District, Northern Cape Province.

- Van Ryneveld, K. 2005a. Cultural Resources Management Impact Assessment: Portion 1 of Roode Pan 146, Kimberley District, Northern Cape, South Africa.
- Van Ryneveld, K. 2005b. Cultural Resources Management Impact Assessment: Portions of Paardeberg 154, Kimberley District, Northern Cape, South Africa.
- Van Ryneveld, K. 2005c. Cultural Resources Management Impact Assessment: (Portions of) Leeuwpoort 161, Kimberley District, Northern Cape, South Africa.
- Van Ryneveld, K. 2005d. Cultural Resources Management Impact Assessment: (Portions of) Paardeberg 12, Paardeberg-East, Kimberley District, Northern Cape, South Africa.
- Van Ryneveld, K. 2005e. Cultural Resources Management Impact Assessment: Rooipoort – (Portions of) Klipfontein 99, Berg Plaats 100, Vogelstruispan 98, Vogelstruispan 101 and Zand Plaas 102, Kimberley District, Northern Cape, South Africa.
- Van Ryneveld, K. 2005f. Cultural Heritage Impact Assessment: (Southern Portion of) Camp 3, Erf 1, Windsorton, Barkly West District, Northern Cape, South Africa.
- Van Ryneveld, K. 2006a. Stamper Claim on a Portion of the Farm Longlands, Barkly West, Northern Cape, South Africa.
- Van Ryneveld, K. 2006c. Cultural Resources Management Impact Assessment:A 400ha Portion of Van Zoelen's Laagte 158, Windsorton District, Northern Cape, South Africa.
- Van Ryneveld, K. . 2007a. Archaeological Site Inspection – Mining Impact on Two Graveyard Sites, Schmidtsdrift Mining Area, Boomplaats 21, Schmidtsdrift District, Northern Cape, South Africa
- Van Ryneveld, K. 2007b. Proposed Phase 2 Archaeological Mitigation and Management for the Residential Development, Remainder of Portion 1 of the Farm van Zoelen's Laagte 158, Windsorton, Barkly-West District, Northern Cape, South Africa.
- Van Ryneveld, K. . 2007c. Phase 1 Archaeological Impact Assessment – Sewer Purification Plant, Ikutseng Township, Warrenton, Northern Cape, South Africa.
- Van Ryneveld, K. . 2007d. Phase 1 Archaeological Impact Assessment: Portion of the farm Platfontein 68, Kimberley District, Northern Cape, South Africa.
- Van Schalkwyk, J.A. 2008. Heritage Impact Survey Report for the Development of Visitor Facilities in the Makala National Park, Northern Cape Province.
- Van Schalkwyk, J.A. 2011. Heritage impact assessment for the proposed development of photovoltaic power plants on five different locations in Northwest and Northern Cape Provinces.

3.1.2 Aerial Survey

Aerial photography is often employed to locate and study archaeological sites, particularly where larger scale area surveys are performed. This method was applied in great detail where depressions, variation in vegetation, soil marks and landmarks were examined. Specific attention was given to shadow sites (shadows of walls or earthworks which are visible early or late in the day), crop mark sites (crop mark sites are visible because disturbances beneath crops cause variations in their height, vigour and type) and soil marks (e.g. differently coloured or textured soil (soil marks) might indicate ploughed-out burial mounds). Attention was also given to moisture differences, as prolonged dampening of soil as a result of precipitation frequently occurs over walls or embankments.

In addition, historical aerial photos obtained during the archival search were scrutinized and features that were regarded as important in terms of heritage value were identified and mapped out. By superimposing high frequency aerial photographs with images generated with Google Earth as well as historical aerial imagery, land use characters and potential sensitive areas were subsequently identified (see Figure 3-1). From the aerial survey (historical and more recent aerial imagery) it is evident that sections of farm had been transformed by agriculture in the past century (see Figure 3-2).

3.1.3 Mapping of sites

Historical and current maps of the project area were examined (see Figure 3-3 and Figure 3-4). By merging data obtained from the desktop study and the aerial survey, sites and areas of possible heritage potential were plotted on these maps of the larger Delportshoop area using GIS software. These maps were then superimposed on high definition aerial representations in order to graphically demonstrate the geographical locations and distribution of potentially sensitive landscapes in association with natural features and manmade occurrences noted on earlier maps.

3.2 Limitations

The main limitation of this Scoping Study is the fact that it was undertaken at a desktop level, employing secondary information and data generated through off-site methods (e.g. aerial survey, literature review). As such, the study merely infers a level of probability of the presence of cultural, historical, or archaeological sites of significance. In this instance, detailed field assessments would have to be required once impact areas have been established in order to confirm the presence of sites of significance.

As this study was conducted on desktop level only, it should be noted that the findings are not a complete representation of the heritage landscape of the project area as the possibility exists that individual sites could be missed due to the sometimes inaccurate and often subjective nature of desktop data. The subterranean nature of some archaeological sites, dense vegetation cover and visibility constraints sometimes distort heritage representations and any additional heritage resources located during development phases must be reported to the Heritage Resources Authority or an archaeological specialist.

Figure 3-1: Aerial image indicating land uses for the Biesjesfontein property at around 2003.

Figure 3-2: Aerial image indicating existing land uses for the Biesjesfontein property at present.

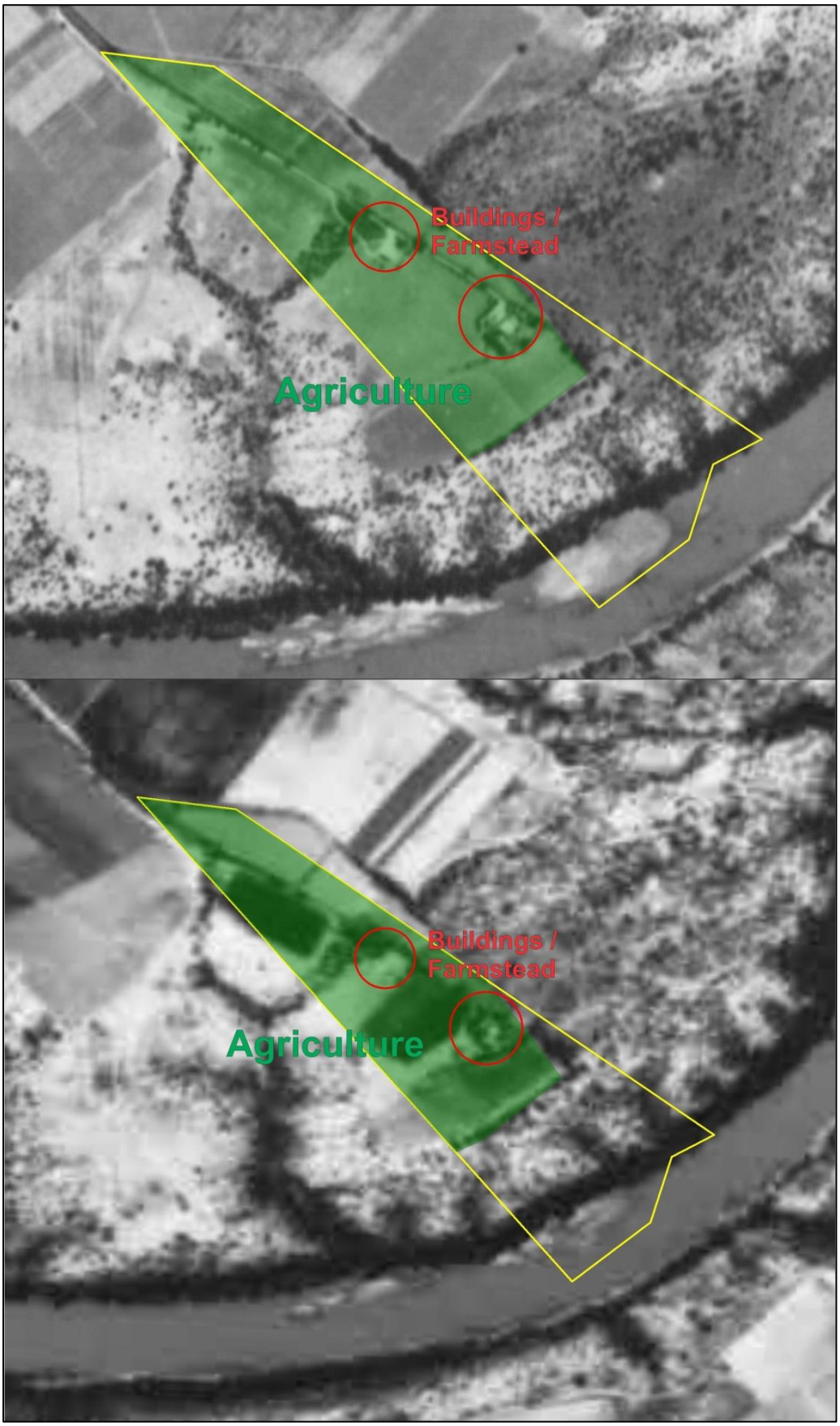

Figure 3-3: Historical aerial imagery dating to 1957 (top) and 1965 (bottom) indicating the application area (yellow outline) and land uses within the historical landscape over the past century.

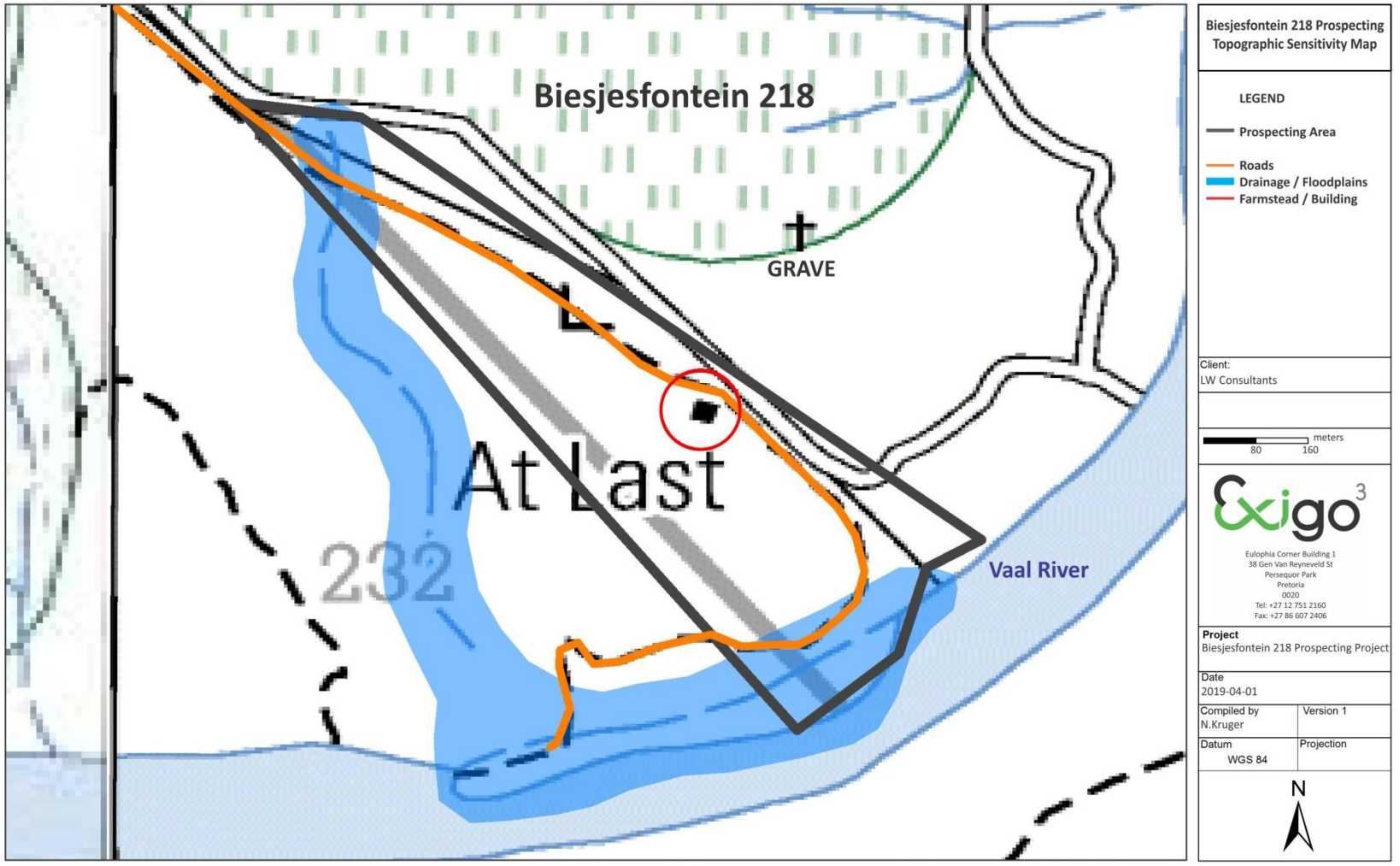

Figure 3-4: Topographic map (2009) indicating natural and man-made features on the property which might suggest the presence of heritage receptors. Note the presence of a burial site north of the prospecting area on the property.

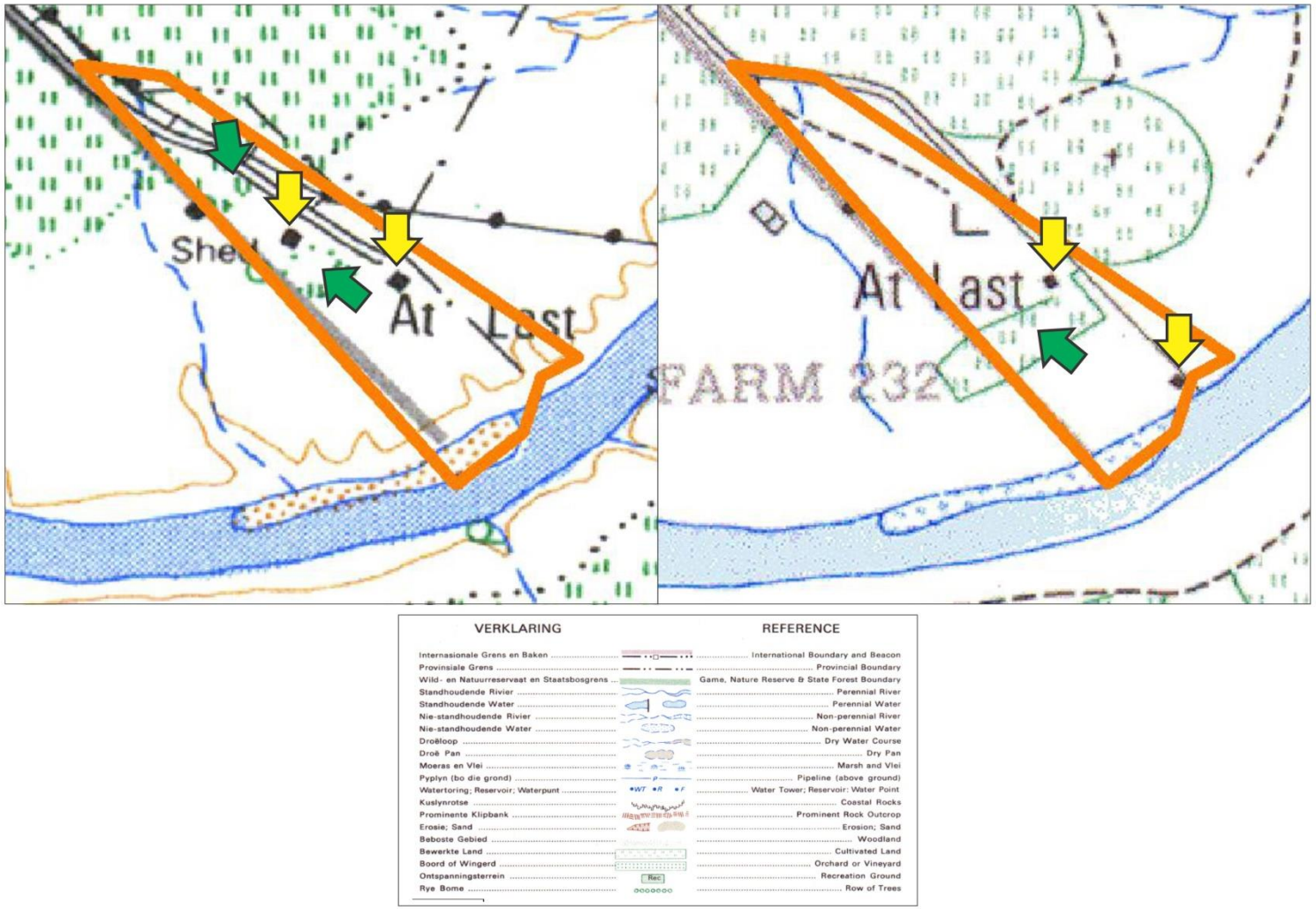

Figure 3-4: Historical topographic maps dating to 1970 (left) and 1986 (right) indicating the prospecting area within the historical landscape. Yellow arrows indicate man-made features and green arrows indicate agricultural farmlands.

4 ARCHAEO-HISTORICAL CONTEXT

4.1 The archaeology of Southern Africa

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

Table 1 Chronological Periods across Southern Africa

Period	Epoch	Associated cultural groups	Typical Material Expressions
Early Stone Age 2.5m – 250 000 YCE	Pleistocene	Early Hominins: *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.
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 **(commonly restricted to the interior and north-east coastal areas of Southern Africa)**	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 **(commonly restricted to the interior and north-east coastal areas of Southern Africa)**	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 **(commonly restricted to the interior and north-east coastal areas of Southern Africa)**	Holocene	Various Bantu-speaking groups including Venda, Thonga, Sotho-Tswana and Zulu	Distinct ceramics, grinding stones, iron objects, trade objects, remains of iron smelting activities including iron smelting furnace, iron slag and residue as well as iron ore.
Historical / Colonial Period ±1850 AD – present	Holocene	Various Bantu-speaking groups as well as European farmers, settlers and explorers	Remains of historical structures e.g. homesteads, missionary schools etc. as well as, glass, porcelain, metal and ceramics.

4.2 Discussion: An archaeo-historical background of the Delportshoop Region

The small town of Delportshoop is situated between the Harts and Vaal rivers at the foot of the Ghaap Plato. The history of this section of the Northern Cape Province is reflected in a rich archaeological landscape, mostly dominated by Stone Age and Colonial Period occurrences. Numerous sites, documenting Earlier, Middle and Later Stone Age habitation occur across the landscape, mostly in open air locales or in sediments alongside rivers or pans. In addition, a wealth of Later Stone Age rock art sites, most of which are in the form of rock engravings are to be found in the larger landscape. These sites occur on hilltops, slopes, rock outcrops and occasionally in river beds. Sites dating to the Iron Age occur in the north eastern part of the Northwest Province but environmental factors delegated that the spread of Iron Age farming westwards from the 17th century was constrained mainly to the area east of the Langeberg Mountains. However, evidence of an Iron Age presence as far as the Upington area in the eighteenth century occurs in the larger landscape area. Moving into recent times, the archaeological record reflects the development of a rich colonial frontier, characterised by, amongst others, a complex industrial archaeological landscape such as mining developments at Kimberley, which herald the modern era in South African history. Finally, the Northwest Province saw a number of war conflicts, particularly the Anglo Boer War (or the South

African War) left behind the remnants of battlefields, skirmishes and concentration camps.

4.2.1 Early History and the Stone Ages

The Northern Cape has traces of various types of archaeological sites inclusive of fossil, prehistoric and historical sites. Of palaeontological and Stone Age significance is a major fossil-bearing and archaeological complex of karstic deposits at Groot Kloof in the escarpment of the Ghaap Plateau, around 100 km southwest of Taung. The region is known for open fluvial and lacustrine sites sampling Lower and Middle Pleistocene tool types and the long, but discontinuous sequence of Wonderwerk Cave. Small pockets of Later Stone Age artefact-bearing breccia and rock art also occur. The significance of Groot Kloof is underscored by current debate about the emergence of modern humans in which the appearance of modern behaviour is posited to have occurred in this and other regions (Curnoe et al. 2005).

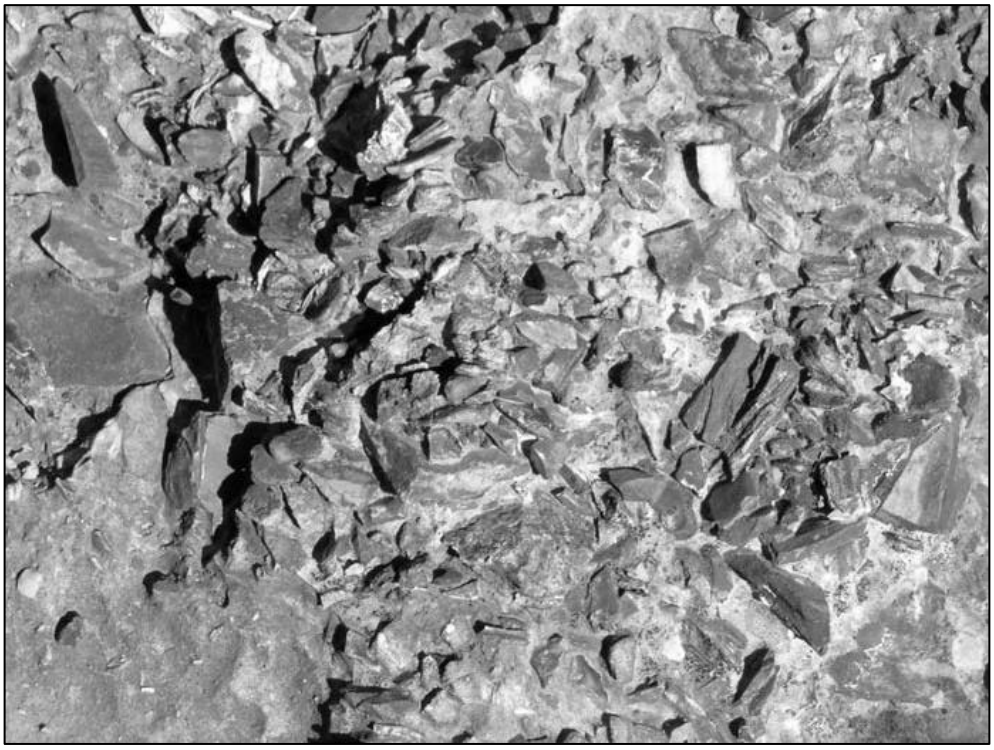

Figure 4-1: Intrusive breccia containing a Late Stone Age industry. Note the high density of lithics.

The Stone Age archaeological wealth of the Northern Cape is unequalled by any of the other provinces in South Africa. Stone Age sites are not randomly scattered within the landscape and they occur either near water sources or close to local sources of two highly-prized raw materials, specularite and jaspilite. As such, tools dating to all phases of the Stone Age are mostly found in the vicinity of larger watercourses. Surveys around Kimberley have documented Acheullian industries and continuity between Earlier Stone Age (ESA) and Middle Stone Age (MSA) lithic technologies in the same area. Excavations at other well-known sites in the wider region attest to further ESA and MSA occupation, some of which have yielded have yielded significant Stone Age assemblages that all inform on our general understanding of the technological sequences of the Stone Age in the Northern Cape and the Northwest (e.g. see Beaumont 2008, 2009; Morris 2006; Morris 2007; Dreyer 2007). Within the greater Kimberley region ESA and MSA sites with long research histories include Doornlaagte, Pniel, Canteen Koppie and Rooidam (Beaumont & Morris 1990). Open air ESA and MSA sites are often associated with raw material outcrops, dolines, playas (palaeo-lakes) and palaeo-river channels. In addition low density ESA, MSA and

Later Stone Age (LSA) occurrences remain regular phenomena characterizing the cultural landscape of the region. LSA use of the more immediate region is most prominently evidenced by the Wildebeest Kuil Rock Art Center and adjoining Rock Art site (see later reference) . Here, a number of lithic artefacts with spatial distribution indicative of separate residential and knapping areas occur around the hill. Of note around Barkly West and Delportshoop is the Canteen Kopje Earlier Stone Age situated outside Barkly West. The rich Stone Age site is a Provincial Heritage Site which has yielded an as yet unpublished basal date of some 2.3 million years, making the site one of the oldest in South Africa. In 2016 the site became threatened by mining after the Department of Minerals and Energy issued a permit for part of the site to be mined.

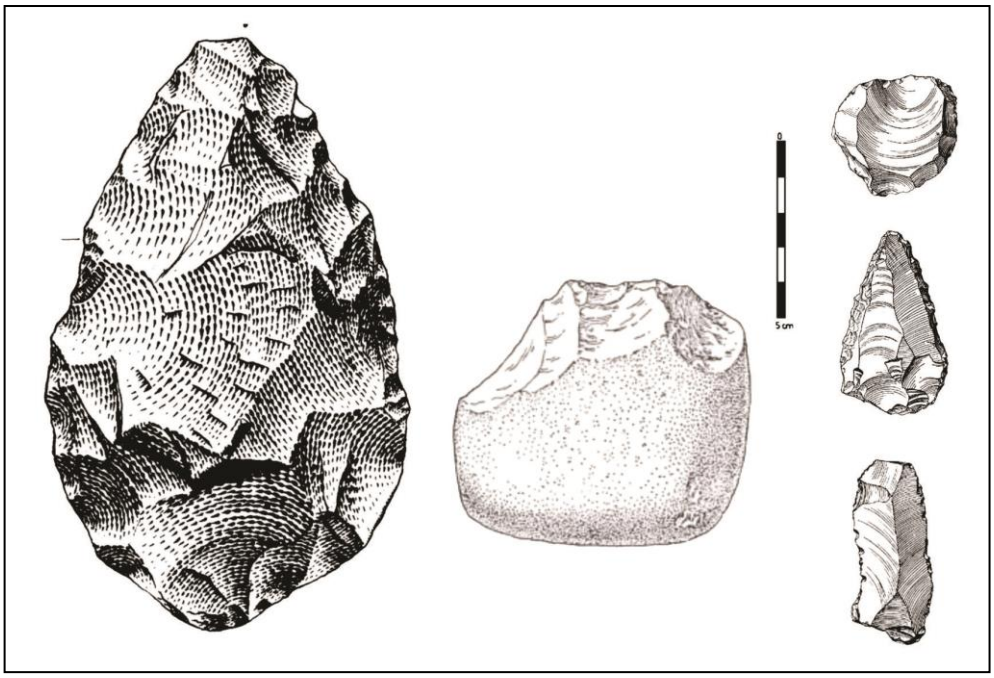

Figure 4-2: Typical ESA handaxe (left) and cleaver (center). To the right is a MSA scraper (right, top), point (right, middle) and blade (right, bottom).

A wealth of Later Stone Age (LSA) sites dating to within the last 5000 years have been documented in the Delportshoop area, demonstrating a pronounced hunter gatherer, and later Khoekhoen pastoralist presence, where these groups camped on parts of the bay where there were rocky shorelines that could provide them with shellfish and other marine foods. As such, LSA sites are known to occur in association with specific landscape features e.g. silcrete outcrops where people have been quarrying stone for artefact manufacture (Kasteelberg 10 km northwest of Vredenburg and other smaller granite hills on the Vredenburg Peninsula), rocky outcrops where shelter was sought (shell middens associated with the rocky promontories of Lynch Point and Leentjiesklip) or sand dunes. With respect to the latter, some 20 km south of the study area Conard and Kandel (2006; Conard *et al.* 1999; Kandel & Conard 2005; Kandel *et al.* 2003) have described numerous occurrences of both MSA and LSA material located in deflating areas between the dunes. The same researchers have also worked in a large deflation at Anyskop, in the grounds of the Langebaanweg Fossil Park, where they found limited ESA and MSA artefacts as well as numerous LSA artefacts and burnt stones indicative of hearths (Dietl *et al.* 2005; Kandel & Conard n.d.). In particular, the Langebaan Limestone deposits in Saldanha Bay, has provided some of the earliest evidence for the human exploitation of coastal resources more than 100 000 years ago (Grine & Klein 1993).

4.2.2 Pastoralism and the last 2000 years

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

4.2.3 A Landscape of Rock Markings

Rock engravings are mostly found in the interior plateau of South Africa for example in Kimberley and the Karoo. Evidence exists of rock art paintings occurring in caves and shelters at the Wonderwerk Caves, Kuruman Hills, Ghaap Escarpment and scattered sites in the Karoo. Rock engravings have also been identified at Driekopseiland that is positioned in the close vicinity of Kimberley Town. Driekopseiland is evident of more than ninety percent of geometric engraving sites (Morris 1988). Geometrics have been identified at the Kuruman valley and the middle Orange area (Morris 1988). Engravings tend to be found at rock walls, low outcrops, or clusters of surface stone.

Figure 4-3: Rock engravings at the Wildebeest Kuil Rock Art Site.

The Wildebeest Kuil 1 Rock Art site, a declared Provincial Heritage Site (2008), is characterized by a fairly prominent hill surrounded by a number of 'kuils' or non-perennial water holes and wetlands. The hill itself is host to more than 400 petroglyphs, including both naturalistic and abstract engravings, in fine-line and pecked technique. LSA deposits are scattered about the immediate terrain with deposits closer to the hill indicative of residential outlines and activity or knapping areas. Extensive LSA use of the landscape is evidenced by even more engravings on the glacial pavements of the farm Nooitgedacht, just

north of Platfontein. Further afield the Driekopseiland site, one of the most prolific engraving sites in the country is host to more than 3,600 images, engraved into the glaciated andesite of the Riet River's banks (Morris 1990a). Closer to the Vaal River, at the Bushmans' Fountain site, Klipfontein, more than 4,500 engravings have been recorded across the approximate 9ha site (Morris 1990b). The many petroglyph sites across the Northern Cape signal an aesthetic and spiritual expression of a modern LSA cognition. The LSA archaeological record is directly associated with San history, dating conservatively back to around 40-27kya, whilst the Khoe is reported to have entered the country around 2kya (Mitchell 2002). Both groups are known to have traded with Later Iron Age communities and Colonial settlers. Rock engravings are mostly situated in the semi-arid plateau with most of these engravings situated at the Orange – Vaal basin, Karoo and Namibia. The upper Vaal, Limpopo basin and eastern Free State regions have a small quantity of rock engravings as well. Generally, rock paintings exist at cave areas and rock engravings at open surface areas. The Cape interior consists of a technical, formal and thematic variation between and within sites (Morris 1988). Two major techniques existed namely the incised and pecked engravings. Morris (1988) indicated technical and formal characteristics through space and a sharp contrast exists between engravings positioned north of the Orange River that are mostly pecked and those in the Karoo where scraping was mostly used. According to Morris (1988) hairline engravings occur at the North and the South, but they are rare at the Vryburg region. Finger painting techniques mostly occur at the Kuruman Hills, Asbestos Mountains, Ghaap Escarpment, Langeberg, Koranaberg ranges, scattered sites at the Karoo and the Kareeberge (Morris 1988). The development petroglyphs (i.e. carving or line drawing on rock) were associated with three different types of techniques, namely incised fine lines, pecked engravings and scraped engravings. According to Peter Beaumont the pecked and scraped engravings at the Upper Karoo are coeval (i.e. having the same age or date of origin) (Beaumont P B et al. 1989). Dating of rock art includes the use of carbonate fraction dating of ostrich eggshell pieces, dating of charcoal and ostrich eggshell at various rock art shelters. Unifacial points, double segments and thin – walled sherds may indicate the presence of the Khoikhoi at the Northern Cape during 2500 BP (years Before the Present) (Beaumont 1989)

4.2.4 Iron Age / Farmer Period

The beginnings of the Iron Age (Farmer Period) in southern Africa are associated with the arrival of a new Bantu speaking population group at around the third century AD. These newcomers introduced a new way of life into areas that were occupied by Later Stone Age hunter-gatherers and Khoekhoe herders. Distinctive features of the Iron Age are a settled village life, food production (agriculture and animal husbandry), metallurgy (the mining, smelting and working of iron, copper and gold) and the manufacture of pottery. Stone ruins indicate the occurrence of Iron Age settlements in the Northern Cape specifically at sites such as Dithakong where evidence exists that the Thlaping used to be settled in the Kuruman – Dithakong areas prior to 1800 (Humphreys 1976). Here, the assessment of the contact between the Stone Age, Iron Age and Colonial societies are significant in order to understand situations of contact and assimilation between societies. As an example, Trade occurred between local Thlaping Tswana people and the Khoikhoi communities. It means that the Tswana traded as far south as the Orange River at least the same time as the Europeans at the Cape (Humphreys 1976).

Morris (1990) reports that the area to the west of the Langeberg was once settled by the BaTlhaping. He notes that 35 km due north of Witsand lies the modern farm of Nokanna, which he says equates with the former BaTlhaping capital of Nokana or Nokaneng. Historically, the Trekboers traversed this area during the late 19th century. More recent research by Jacobs shows occupational Tswana site to occur during the later "Bantu Expansion" and "Proto-Difiqane between c1750 and 1830 in the study area. Specifically the Tlhaping

and Tlharo chiefdoms are referred to here (N. J. Jacobs, 199). It is even suggested that some Sotho-Tswana people might have preceded the Tlhaping and Tlharo in this region. This is however not a recent postulations since Ellenberger and MacGregor already proposed earlier Iron Age communities in these areas as early as 1912 (Ellenberger & MacGregor, 1912).

4.2.5 Later History: Delportshoop

The 18th century was defined as a period of conflict when the Griqua, Korana and white settlers were competing for the availability of land. This period is also known for the occurrence of the Mfecane or the so called Difaqane that resulted in a time period of instability that started in the middle 1820's. The conflict time period related to the Mfecane or Difaqane was the result of the influx of the then displaced people. The continuous conflict resulted in tribal groups migrating to hilltop areas in the need of finding safe environments. From early Colonial times interest in the Northern Cape was firmly vested in its mineral wealth; early settlers speculated about mountains rich in copper towards the north-west. The landscape around the study area was scarcely populated in Historical times and it was only towards the early 19th century that missionaries, hunters and traders access the region. These pioneers were followed by Colonial farmers who negotiated with local chiefs for land, or occupied areas that were perceived to be vacant. In some areas short-lived Boer Republics were established. With the influx of farmers came the establishment of a number of small towns, some of which include Vryburg, Reivilo and Hartswater. The village resides at the confluence of the Harts and Vaal rivers. It developed from a diamond-diggers' camp and is said to have given the name after the first person to find diamonds there. The public diggings were proclaimed in November 1871, a village management board was instituted in 1931, and municipal status attained in 1970. The town (Delport's Hope) is named after Mr Delport who was a miner and prospector in the area. Currently Delportshoop has the older in larger plot formal settlement that is linked to the R31. The newer Coloured and African extensions to Delportshoop, Tidimalo and Proteahof, are located east of the older town. An old Apartheid styled public open space buffer is the interface between these two locations. Access to the R31, from these two extensions is provided through the older town. Two Tswana names for Delportshoop are encountered, namely Tsineng, also spelt Tsining, Tsening, Tsenin and Tsoneng, and Dekgathlong, also spelt Dekhath-long, Dekatlong, Dekgathlong, Dikgatlhong, Likatlong and Likhat-lhong. The latter name means 'meeting-place', referring to the confluence of the Vaal and Harts rivers there.

Farms in the Delportshoop area were proclaimed in the first part of 20th century.

4.2.6 The Anglo-Boer War

The Anglo-Boer War saw the Kimberley area besieged by the *Boers* on the 14th of October 1899, with British forces suffering heavy losses. The Boers moved quickly to try to capture the British enclave when war broke out between the British and the two Boer republics in October 1899. The town was ill-prepared but the defenders organised an energetic and effective improvised defense that was able to prevent it from being taken. Cecil John Rhodes, who had made his fortune in the town, and who controlled all the mining activities, moved into the town at the onset of the siege. His presence was controversial, as his involvement in the Jameson Raid made him one of the primary protagonists behind war breaking out. Rhodes was constantly at loggerheads with the military, but he was nonetheless instrumental in organising the defense of the town. The Boers shelled the town with their superior artillery in an attempt to force the garrison to capitulate. Engineers of the De Beers company manufactured a one-off gun named Long Cecil, however the Boers soon countered with a much larger siege gun that terrified the residents, forcing many to take shelter in the Kimberley Mine. The British military had to change its strategy for the war as public

opinion demanded that the sieges of Kimberley, Ladysmith and Mafeking be relieved before the Boer capitals were assaulted. The first attempt at relief of Kimberley under Lord Methuen was stopped at the battles of Modder River and Magersfontein. The 124-day siege was finally relieved on 15 February 1900 by a cavalry division under Lieutenant-General John French, part of a larger force under Lord Roberts. The battle against the Boer general Piet Cronjé continued at Paardeberg immediately after the town itself was relieved.

5 BIESJESFONTEIN: HERITAGE SENISTIVITY AND SITE PROBABILITY

In terms of heritage resources, the landscape around Delportshoop is primarily well known for the occurrence of Stone Age and Colonial Period heritage remains as well as fossil remains. However, the project subject properties have been transformed in places by historical and recent agriculture risking the sterilization of these zones of heritage remains.

5.1 Heritage Potential and Sites

5.1.1 Palaeontology

As noted in previous sections, fossiliferous formations occur in a major fossil-bearing complex of karstic deposits in the escarpment of the Ghaap Plateau and numerous sites of palaeontological significance occur here. It is therefore possible that palaeontological occurrences and fossils might occur in the study area in bedrock and fossiliferous rock outcrops.

5.1.2 The Stone Age

Material from the earlier, middle and later Stone Age occur widely across the Northern Cape Province and local archaeological research has indicated how Stone Age material often occurs along drainage lines, in rock shelters, along ridges, the rims of pans and in cave sites. Similarly, the Vaal river system traversing the project area as well as smaller associate water courses might prove sensitive in terms of the occurrence of stone artefacts and Stone Age material where evidence of factory or workshop sites might be found. For example, it was noted in research along the Vaal River in the Northern Cape, that rivers and pans would have acted as focal points for grazing animals, but also a source of water and archaeological material was recovered from throughout the sedimentary sequences along the Vaal. Large numbers of Later Stone Age (LSA) tools occur on the surface around pans and within the upper red sands, while below the red sands, Middle Stone Age (MSA) lithics occurs. Earlier Stone Age (ESA) tools, which may be older than 300 000 years, occurs in the general landscape around rivers and pans.

Figure 5-1: Earlier Stone Age tools occurring along a large salt pan near the Vaal River south of Delportshoop

5.1.3 The Iron Age (Farmer Period)

A frontier zone in Prehistorical times, the Vaal River holds Iron Age Farmer remnants where expanding territories and resulting conflict situations forced Later Iron Age farmers to mover west in order to seek protective mountain slopes close to areas fit for cattle grazing and agriculture as settlement areas. Even though Iron Age sites occur in lower densities in this part of the Northern Cape Province, such sites generally occur along ridges, near arable soils and close to water sources and remnants of Iron Age farmers might be encountered in the project area.

5.1.4 Colonial Period and recent times

The Northern Cape has a long and extensive Colonial Period settlement history. From around the first half of the 19th century, the area was frequented by explorers, missionaries and farmers who all contributed to a recent history of contact and conflict. An analysis of historical aerial photographs and topographic maps suggest that the Biesjesfontein farm property was utilized for crop farming for the largest part of the previous century where agricultural lands were established along the banks of the Vaal River. A farmstead was also established on the property in the first part of the 20th century. Until recently, the farmstead which is indicated on maps as “At Last”, held a farmhouse and outbuildings and an analysis of historical topographical maps and aerial photographs indicate the presence of the farmstead from at least 1957. It seems as though the buildings (which were older than 60 years and generally protected under the NHRA 1999) were destroyed in recent years where agricultural lands were extended. However, traces of the farmstead might remain at the site. In addition, old agricultural landscapes on the banks of the Vaal River might be associated with the early phases of settlement of the farm but the heritage significance of these transformed areas remain to be established.

Figure 5-2: Aerial imagery of the “At Last” farmstead dating to 1957 (left) and 2003 (middle). Note the absence of the site in newly established crop fields in 2018 (right).

5.1.5 Graves

In the rural areas of the Northern Cape Province graves and cemeteries sometimes occur within settlements or around farmsteads but they are also randomly scattered around archaeological and historical settlements. A burial site is indicated north of the prospecting area on the larger property and the probability of human burials occurring around the demolished At Last farmstead should not be excluded. In addition, human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, or occur sporadically anywhere as a result of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface. Human remains are usually observed when they are exposed through erosion. In some instances packed stones or rocks may indicate the presence of informal pre-colonial burials.

If any human bones are found during the course of construction work then they should be reported to an archaeologist and work in the immediate vicinity should cease until the appropriate actions have been carried out by the archaeologist. Where human remains are part of a burial they would need to be exhumed under a permit from SAHRA (for pre-colonial burials as well as burials later than about AD 1500). Should any unmarked human burials/remains be found during the course of construction, work in the immediate vicinity should cease and the find must immediately be reported to the archaeologist, or the South African Heritage Resources Agency (SAHRA). Under no circumstances may burials be disturbed or removed until such time as necessary statutory procedures required for grave relocation have been met.

5.2 Site Probability

The synthesis of data in this report suggests a landscape rich in cultural heritage resources and a further medium probability of the occurrence of cultural heritage sites could be expected in the Biesjesfontein 218 Prospecting Project area. The following table provides a rough outline as to archaeological remains to be expected within the study area based on the wealth of archaeological evidence in these regions:

Time Period	Sites Examples	Characteristic Material Culture	Archaeological Footprint	Probability of site occurrence
Palaeontology and Fossils	Ghaap Plateau	Fossilized faunal and botanical remain.	Such resources are typically found in specific geographical areas, e.g. the Karoo and are embedded in ancient rock and limestone/calcrete formations. Exposed by road cuttings and quarry excavation.	High Probability
Earlier Stone Age	Tshipise Mapungubwe Bosbokpoort	Large hand axes, cleavers, cores and residue material.	Buried unless disturbed.	Medium – High Probability
Middle Stone Age	Uitenpast Maremani Tshipse Ha-Dowe Mapungubwe	Specialised formal stone tools such as points, blades and scrapers. Cores and residue.	Surface scatters, found in erosion gullies, dongas and open scatters.	Medium – High Probability
Later Stone Age	Mapungubwe Machete Ratho	Specialised formal microlithic stone tools such as points, blades and scrapers as well as cores and residue. Rock Art.	Usually associated with rock shelters. Artefacts occur in buried deposits or surface scatters.	Medium – High Probability
Early Iron Age	Broederstroom	Potsherds, iron objects, house remains, glass beads, ostrich egg shell beads, middens, fauna.	Generally buried with few ceramics on surface.	Improbable
Middle Iron Age	Mapungubwe Pontdrif Kromdraai	Potsherds, iron objects, house remains, glass beads, ostrich egg shell beads, middens, trade goods such as porcelain, some stone walling.	Sites are primarily open, visible kraals, grain bin foundations and ceramic scatters.	Improbable
Later Iron Age	Magaliesberg	Potsherds, iron objects,	Khami/Venda sites specifically	Medium – Low

	Kaditswene Molokwane	house remains, glass beads, ostrich egg shell beads, middens, trade goods such as porcelain, extensive stone walling.	have a high visibility due to the stone walling and visible ceramic scatters kraal.	Probability
Mining / Metallurgy	Rooiberg Verdun	Residues associated with metallurgy including slag, ore, metal objects, and hammer stones.	Sites are primarily open, visible stone enclosures in secluded areas.	Medium – Low Probability
Rock Art and Markings	Waterberg Olieboomspoort	Fine line and finger paintings, grooves, cupules, engravings.	Usually associated with rock shelters and outcrops.	Medium Probability
Colonial Period: Structures	Schoemansdal Valdezia Mission Makapansgat	Foundation structures, house remains.	Colonial period sites generally have a high visibility due to preservation and visible material remains scatters.	Medium Probability
Colonial Period: Middens / Dumps	Schoemansdal Valdezia Mission Makapansgat	Glass, porcelain, potsherds, metal objects such as tin cans.	Colonial period sites generally have a high visibility due to preservation and visible material remains scatters.	Medium Probability
Battle and military sites	Fort Westfort Wonderboom Fort	Artefacts associated with conflict including spears, arrow heads, ammunition, rifles.	It is sometimes hard to identify sites of conflict as a result of the short duration and limited impact that such events incur.	Medium – Low Probability
Burials over 100 years	Schoemansdal Makapansgat Maremani	Stone cairns, circles and ovals.	Prehistoric burials are sometimes hard to identify as they frequently occur in cattle kraals or as parts of stone wall structures.	Medium Probability
Burials younger than 60 years	Ga -Rankuwa	Marble head stones	More recent burials can be identified by headstones and grave dressings frequently present on these structures.	Medium Probability

Figure 5-3: Aerial map indicating areas of heritage potential and possible heritage sensitivity in the prospecting area.

6 SITE SIGNIFICANCE AND POTENTIAL IMPACTS

6.1 Potential Impacts and Significance Ratings[1]

The following section provides a background to the identification and assessment of possible impacts and alternatives, as well as a range of risk situations and scenarios commonly associated with heritage resources management. A guideline for the rating of impacts and recommendation of management actions for areas of heritage potential within the study area is supplied in Section 10.2 of Addendum 3.

6.1.1 General assessment of impacts on resources

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

6.1.2 Direct impact rating

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

The following table summarizes impacts to the heritage receptors within and in close proximity of the project areas (**refer to Section 3.3**):

6.1.3 Discussion: Evaluation of Results and Impacts

Previous studies conducted in the Northern Cape Province and the Delportshoop region suggests a rich and diverse archaeological landscape but it seems as though the receiving environment at Biesjesfontein has been transformed by agriculture in places. Still, the area is suitable for pre-colonial and Colonial habitation and the probability of exposing archaeological remains that might be present in surface and sub-surface deposits along drainage lines and in pristine areas during development should be carefully considered.

6.1.4 Archaeology

It is probable that archaeological remains might be impacted in the project area. Here, Stone Age material might occur along drainage lines, especially along the banks of the Vaal River and smaller water courses. In addition, the small ridge and rock outcrops in the project area might prove sensitive in terms of the occurrence of Stone Age sites as well as Iron Age settlements.

[1] Based on: W inter, S. & Baumann, N. 2005. *Guideline for involving heritage specialists in EIA processes: Edition 1.*

6.1.5 Built Environment

Farm houses and outbuildings dating to the 19th and 20th centuries are common around Delportshoop. Locally, the "At Last" farmstead which occurred in the project area until recently dated to the first part of the 20th century and the site was protected under the NHRA. It is possible that remnants of the farmstead might remain in the project area. As for the rest of the project area, the general landscape holds significance in terms of the built environment as the area comprises historical farming remnants and relatively newly established residential zones, settlements and townlands.

6.1.6 Cultural Landscape

Generally, the proposed project area and its surrounds are characterised by farming areas with rural residential zones towards Delportshoop. The cultural landscape of the study area revolves strongly around dryland agriculture and livestock grazing. Further away from the project area, the surroundings display undulating hills with flatter plains in a landscape bisected by the Vaal River.

6.1.7 Graves / Human Burials Sites

In the rural areas of the Northern Cape Province graves and cemeteries sometimes occur within settlements or around farmsteads but they are also randomly scattered around archaeological and historical settlements. The probability of human burials encountered around the former "At Last" farmsteads should thus be considered. In addition, human remains and burials are commonly found close to archaeological sites; they may be found in "lost" graveyards, or occur sporadically anywhere as a result of prehistoric activity, victims of conflict or crime. It is often difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface.

7 RECOMMENDATIONS AND FURTHER TERMS OF REFERENCE

The cultural landscape of the Northern Cape encompasses a period of time that spans millions of years, covering human cultural development from the Stone Ages up to recent times. It depicts the interaction between the first humans and their adaptation and utilization to the environment, the migration of people, technological advances, warfare and contact and conflict. In terms of heritage resources, the landscape around Delportshoop is primarily well known for the occurrence of Stone Age and Colonial Period heritage remains as well as fossil remains. The project area has been transformed by historical and recent agriculture risking the sterilization of these zones of heritage remains. In terms of the probability of site impact on the Biesjesfontein farm, the following should be noted.

7.1 Biesjesfontein Heritage Sensitivity

- As Stone Age material often occurs along drainage lines, the banks of the Vaal River and associated water courses traversing the project area, as well as smaller streams and waterways elsewhere might prove sensitive in terms of the occurrence of stone artefacts and Stone Age material. Similarly, Stone Age manufacturing sites are known to occur along ridges near sources of stone suitable for stone tool making and the small ridge to the west of the project area could contain remnants of Stone Age manufacturing sites.
- Later Iron Age farmers preferred protective mountain slopes close to areas fit for cattle grazing as settlement areas and single hills and rock outcrops. Iron Age settlements are relatively scarce in this part of the Northern Cape Province but the project area might prove sensitive in terms of the occurrence of Iron Age settlements along ridges and near arable soils fit for prehistoric agriculture.

- European farmers, settling in the area since the middle of the 19th century, divided up the landscape into a number of farms which form the framework for agricultural, residential and other forms of development in present day. In the project area, remnants of the former "At Last" farmstead might prove sensitive in terms implied heritage value. Here it should be noted that buildings and structures sites or structures older than 60 years are generally protected under the National Heritage Resource Act (NHRA 1999).
- As family cemeteries often occur around farmsteads in rural areas of the Northern Cape and cognisant of the fact that a burial site occurs in close proximity of the prospecting area, the former "At Last" farmstead area might prove sensitive in terms of the possible existence of burial sites.

7.2 Initial recommendations

As a general guideline and to reduce impacts on heritage resources to a minimum, the following recommendations should be considered in the planning, implementation and management phases of the Project:

- The project area falls within a paleontologically sensitive zone and a Palaeontological Desktop Assessment (PDA) was commissioned for the proposed project. Cognisance should be taken of further recommendations included in the PDA Report.
- The term "Living Heritage" can broadly refer to a place of cultural heritage and sacred nature; with cultural attributions that are not generally physically manifested. Ritual and symbolic spaces and practices, and the material residues thereof convey an intangible cultural significance beyond the physical site or artefact, where the meaning of the ritual area speaks directly of a sense of place and lived experience. Such sites might occur on the Biesjesfontein property or it surroundings and due cognisance should be taken of these sites of "Living Heritage" in the cultural landscape.
- It is recommended that all graves and cemeteries that might occur in the project area be conserved and excluded from impact emanating from the development. Where impact on such resources would prove to be inevitable, the correct human remains repatriation procedures should be observed at all times. These procedures should include public notification of intent to relocate the remains, consultation with descendant communities, close liaison with - and approval from local futurities, adherence to any local laws and / bylaws, and correct grave relocation methodologies.
- It is possible that groups, farmers and locals living in the area have occupied the region for many generations and have expressed long-term cultural associations with the region. Therefore, it is important to ascertain from these respondents whether there are any further undetected sites of cultural significance in the area to which they relate and / or attach cultural meaning.
- Ultimately, it is recommended that the archaeological and cultural heritage of this part of the Northern Cape Province be respected. The management of heritage resources, as stipulated by National and International Heritage resources agencies (e.g. SAHRA) should be aligned with any future activity by means of cultural mitigation and / or management plans developed in conjunction with heritage authorities and specialists.

7.3 Further Terms of Reference

It should be noted that this HS and site sensitivity included above are solely based on off-site desktop findings and the heritage sensitivity of the Biesjesfontein property remains tentative pending further detailed site inspection as part of the Heritage Impact Assessment (HIA) process, subject to section 38 of the National Heritage Resources Act (NHRA - Act 25 of 1999).

The following terms of reference for the HIA as part of the Environmental Authorisation Process, are required specifically for the Biesjesfontein 218 Prospecting Project terms of proposed operations:

- Provide a detailed description of all archaeological and heritage artefacts, structures, graves and settlements by means of the field inspection of all surface areas to be impacted by the planned exploration activities.
- Closely liaise with local communities and farm owners in order to identify additional archaeological, heritage and living heritage sites in the Project area.
- Contextualize any heritage resources and archaeological sites within the larger historical landscape by means of a detailed desktop-based background study.
- 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.
- If necessitated by the development, propose possible mitigation measures for heritage resources, subject to a mandate from local authorities and according to international standards for best practise in Cultural Resources Management (CRM).
- Develop protection procedures for sacred sites and any other heritage features excluded from mitigation in conjunction with traditional guardians and elders and the local community.
- Liaise and consult with the relevant heritage resources management authorities (South African Heritage Resources Agency, Stakeholders).

It must be emphasised that the conclusions and recommendations expressed in this heritage scoping and sensitivity investigation are primarily based on desktop study findings and is thus not representative of the Project area's complete archaeological an historical 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. With reference to the potential impacts that may occur as a result of the operational activities of the proposed development it should be noted that such impacts are considered to be of a similar nature to those related to the construction phase.

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9 ADDENDUM 1: HERITAGE LEGISLATION BACKGROUND

9.1 CRM: Legislation, Conservation and Heritage Management

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

9.1.1 Legislation regarding archaeology and heritage sites

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

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

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

The Act identifies heritage objects as:

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

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

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

and

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

(d) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;

(e) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;

(f) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or

(g) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58)."

and

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

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

(i) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority;

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

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

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

9.1.2 Background to HIA and AIA Studies

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

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

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

development categorised as:

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

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

(i) exceeding 5 000 m^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:

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

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

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

(n) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;

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

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

(q) plans for mitigation of any adverse effects during and after the completion of the proposed development (38. [3] 1999:64)."

Consequently, section 35 of the Act requires Heritage Impact Assessments (HIAs) or Archaeological Impact Assessments (AIAs) to be done for such developments in order for all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual, linguistic or technological value or significance to be protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60

years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.

9.2 Assessing the Significance of Heritage Resources

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

- Categories of significance

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

- *Aesthetic value:*

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

- *Historic value:*

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

- *Scientific value:*

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

- *Social value:*

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

It is important for heritage specialist input in the EIA process to take into account the heritage

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

Formally protected sites:

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

Generally protected sites:

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

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

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

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

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

10 ADDENDUM 2: GRAVE RELOCATION AND SITE MANAGEMENT: STATUTORY MANDATE

10.1 Archaeology, graves and the law

Note that four categories of graves can be identified. These are:
- Graves younger than 60 years;

- Graves older than 60 years, but younger than 100 years;

- Graves older than 100 years; and

- Graves of victims of conflict or of individuals of royal descent

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:
(a) destroy, damage, alter, exhume or remove from its original position of otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
(b) destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
(c) bring onto or use at a burial ground or grave referred to in paragraph
(a) Or (b) any excavation, or any equipment which assists in the detection or recovery
of metals.

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

Unidentified/unknown graves are also handled as older than 60 until proven otherwise.
Summary of applicable legislation and legal requirements:

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

10.2 Graves: necessary procedures

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

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

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

Methodology for grave relocations:

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

11 ADDENDUM 3: CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE

11.1 Site Significance Matrix

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

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

11.2 Impact Assessment Criteria

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

Significance of the heritage resource

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

Nature of the impact

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

Extent

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

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

Duration

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

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

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

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

Intensity

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

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

Probability

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

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

Confidence

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

- High, where the information is comprehensive and accurate, where there has been a high degree of consultation and the socio-political context is relatively stable.
- Medium, where the information is sufficient but is based mainly on secondary sources, where there has been a limited targeted consultation and socio-political context is fluid.

- Low, where the information is poor, a high degree of contestation is evident and there is a state of socio-political flux.

Impact Significance

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

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

11.3 Direct Impact Assessment Criteria

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

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

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

HERITAGE CONTEXTS	CATEGORIES OF DEVELOPMENT
Context 1: Of high intrinsic, associational and contextual heritage value within a national, provincial and local context, i.e. formally declared or potential Grade 1, 2 or 3A heritage resources **Context 2:** Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources. **Context 3:** Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources **Context 4:** Of little or no intrinsic, associational or contextual heritage value due to disturbed, degraded conditions or extent of irreversible damage.	**Category A: Minimal intensity development** - No rezoning involved; within existing use rights. - No subdivision involved. - Upgrading of existing infrastructure within existing envelopes - Minor internal changes to existing structures - New building footprints limited to less than 1000m2. **Category B: Low-key intensity development** - Spot rezoning with no change to overall zoning of a site. - Linear development less than 100m - Building footprints between 1000m2-2000m2 - Minor changes to external envelop of existing structures (less than 25%) - Minor changes in relation to bulk and height of immediately adjacent structures (less than 25%). **Category C: Moderate intensity development** - Rezoning of a site between 5000m2-10 000m2. - Linear development between 100m and 300m. - Building footprints between 2000m2 and 5000m2 - Substantial changes to external envelop of existing structures (more than 50%) - Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 50%) **Category D: High intensity development** - Rezoning of a site in excess of 10 000m2 - Linear development in excess of 300m. - Any development changing the character of a site exceeding 5000m2 or involving the subdivision of a site into three or more erven. - Substantial increase in bulk and height in relation to immediately adjacent buildings (more than 100%)

11.4 Management and Mitigation Actions

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

No further action / Monitoring
Where no heritage resources have been documented, heritage resources occur well outside the impact zone of any development or

the primary context of the surroundings at a development footprint has been largely destroyed or altered, no further immediate action is required. Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation in order to ensure that no undetected heritage\ remains are destroyed.

Avoidance

This is appropriate where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. Mitigation is not acceptable or not possible. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources.

Mitigation

This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated to a degree of medium to low significance, e.g. the high to medium impact of a development on an archaeological site could be mitigated through sampling/excavation of the remains. Not all negative impacts can be mitigated.

Compensation

Compensation is generally not an appropriate heritage management action. The main function of management actions should be to conserve the resource for the benefit of future generations. Once lost it cannot be renewed. The circumstances around the potential public or heritage benefits would need to be exceptional to warrant this type of action, especially in the case of where the impact was high.

Rehabilitation

Rehabilitation is considered in heritage management terms as a intervention typically involving the adding of a new heritage layer to enable a new sustainable use. It is not appropriate when the process necessitates the removal of previous historical layers, i.e. restoration of a building or place to the previous state/period. It is an appropriate heritage management action in the following cases:

- The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation.
- Where rehabilitation implies appropriate conservation interventions, i.e. adaptive reuse, repair and maintenance, consolidation and minimal loss of historical fabric.
- Where the rehabilitation process will not result in a negative impact on the intrinsic value of the resource.

Enhancement

Enhancement is appropriate where the overall heritage significance and its public appreciation value are improved. It does not imply creation of a condition that might never have occurred during the evolution of a place, e.g. the tendency to sanitize the past. This management action might result from the removal of previous layers where these layers are culturally of low significance and detract from the significance of the resource. It would be appropriate in a range of heritage contexts and applicable to a range of resources. In the case of formally protected or significant resources, appropriate enhancement action should be encouraged. Care should, however, be taken to ensure that the process does not have a negative impact on the character and context of the resource. It would thus have to be carefully monitored