



PGS HERITAGE

**PROPOSED TOWNSHIP ESTABLISHMENT ON PORTION 3 OF THE FARM DOORNPAN
193 IP, SITUATED OUTSIDE VENTERSDORP, JB MARKS LOCAL MUNICIPALITY, DR
KENNETH KAUNDA DISTRICT MUNICIPALITY, NORTH WEST PROVINCE**

Phase 1 – Heritage Impact Assessment

Issue Date: 24 May 2021

Revision No.: 2

PGS Project No.: 541HIA

Declaration of Independence

**PGS
HERITAGE**

I, Polke Birkholtz, declare that –



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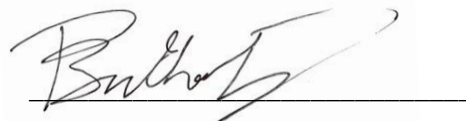
- I act as the independent heritage practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting heritage impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in section 38 of the NHRA when preparing the application and any report relating to the application;
- I have no, 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;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- All the particulars furnished by me in this form are true and correct;
- I will perform all other obligations as expected from a heritage practitioner in terms of the Act and the constitutions of my affiliated professional bodies; and
- I realise that a false declaration is an offence in terms of regulation 71 of the Regulations and is punishable in terms of section 24F of the NEMA.



Disclosure of Vested Interest

I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;

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Co-Author & Internal Review	Polke Birkholtz		Archaeologist/Heritage Specialist/Project Manager – PGS Heritage

DETAILS OF CLIENT:

CLIENT: Nkanivo (Pty) Ltd
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EXECUTIVE SUMMARY

Introduction

PGS Heritage (Pty) Ltd (PGS) was appointed by Nkanivo (Pty) Ltd (Nkanivo) to undertake a Heritage Impact Assessment (HIA) for a Proposed Township Establishment on Portion 3 of the Farm Doornpan 193 IP, outside Ventersdorp, JB Marks Local Municipality, Dr Kenneth Kaunda District Municipality, North West Province.

Project Description

The project comprises the proposed establishment of a township on Portion 3 of the Farm Doornpan 193 IP.

General Desktop Study

An archaeological and historical desktop study was undertaken of the project area and surrounding landscape. This was augmented by an assessment of previous archaeological and heritage studies completed for the study area and surrounding landscape. Furthermore, an assessment was made of the early editions of the relevant topographic maps. Refer to **Chapter 5**.

Fieldwork

The fieldwork comprised a field assessment of the study area undertaken primarily by foot and vehicle over the course of one day by an experienced fieldwork team from PGS consisting of two archaeologists (Cherene de Bruyn and Ruan van der Merwe). The team was met on site by Ms Sushi Mooki from the JB Marks Local Municipality. The fieldwork was undertaken on Friday, 21 May 2021. During the fieldwork, seven archaeological sites (**DP-01 to DP-07**) consisting of low-density surface scatters of Stone Age material were identified.

Throughout the fieldwork, hand-held GPS devices were used to record the tracklogs that show the routes followed by the two archaeologists on site. All sites identified during the fieldwork were photographically and qualitatively recorded, and their respective localities documented using a hand-held GPS device

Palaeontology

According to the PalaeoMap on the SAHRIS database, the Palaeontological Sensitivity of the proposed project footprint is of Moderate (Green) to Low (Blue) palaeontological sensitivity. As a result, a palaeontological desktop study is required.

Impact Assessment and Mitigation

Sites **DP-01 to DP-07** are of low heritage significance and will not require any mitigation. With no impact expected on heritage, no further mitigation is required. Refer to **Chapters 7 & 8** of this report.

General Recommendations

The following general recommendations are required:

- A palaeontological desktop assessment must be undertaken by a professional palaeontologist. The recommendations made in the palaeontological report must be implemented.

Conclusions

The unmitigated impact of the proposed development is expected to result in a low negative impact in terms of the identified archaeological and heritage sites located here. As a result, on the condition that the recommendations made in this report are adhered to, no heritage reasons can be given for the development not to continue.

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TERMINOLOGY AND ABBREVIATIONS

Archaeological resources

This includes:

- material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;
- rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
- wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which the SAHRA considers to be worthy of conservation;
- features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Cultural significance

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance

Cultural Landscapes Terminology

“perceptual qualities” Aspects of a landscape which are perceived through the senses, specifically views and aesthetics.

“cultural landscape” A representation of the combined worlds of nature and of man illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal (World Heritage Committee, 1992). Includes and extends beyond the study site boundaries.

“cultural landscape area” These are single unique areas which are the discrete geographical areas of a particular landscape type. Each will have its own individual character and identity, even though it shares the same generic characteristics with other areas of the same type.

“study site” The study site is assumed to include the area within the boundaries of the proposed development

“characteristics” elements, or combination of elements, which make a particular contribution to distinctive character.

“elements” individual components which make up the landscape, such as trees and fences.

“landscape character” A distinct, and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.

“landscape character assessment” This is the process of identifying and describing variation in the character of the landscape. It seeks to identify and explain the unique combination of elements and features (characteristics) that make landscapes distinctive. This process results in the production of a Landscape Character Assessment.

“sense of place” The unique quality or character of a place, whether natural, rural or urban. It relates to uniqueness, distinctiveness or strong identity.

“scenic route” A linear movement route, usually in the form of a scenic drive, but which could also be a railway, hiking trail, horse-riding trail or 4x4 trail.

Development

This means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of the heritage authority in any way result in a change to the nature, appearance or physical nature of a place or influences its stability and future well-being, including:

- construction, alteration, demolition, removal or change in use of a place or a structure at a place;
- carrying out any works on or over or under a place;
- subdivision or consolidation of land comprising a place, including the structures or airspace of a place;
- constructing or putting up for display signs or boards;
- any change to the natural or existing condition or topography of land; and
- any removal or destruction of trees, or removal of vegetation or topsoil

Earlier Stone Age

The archaeology of the Stone Age between ~300 000 and 3 300 000 years ago.

Fossil

Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.

Heritage

That which is inherited and forms part of the National Estate (historical places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999).

Heritage resources

This means any place or object of cultural significance and can include (but not limited to) the following (as stated under Section 3 of the NHRA):

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds, and
- sites of significance relating to the history of slavery in South Africa

Holocene

The most recent geological time period which commenced 10 000 years ago.

Later Stone Age

The archaeology of the last 30 000 years associated with fully modern people.

Late Iron Age (Early Farming Communities)

The archaeology of the last 1000 years up to the 1800's, associated with iron-working and farming activities such as herding and agriculture.

Middle Stone Age

The archaeology of the Stone Age between 30 000-300 000 years ago, associated with early modern humans.

Palaeontology

Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

Site

Site in this context refers to an area place where a heritage resource is located and not a proclaimed heritage site as contemplated under s27 of the NHRA.

Table 1 – List of abbreviations used in this report

Abbreviations	Description
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
CRM	Cultural Resource Management
ECO	Environmental Control Officer
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
ESA	Early Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
HMP	Heritage Management Plan
IAP	Interested and Affected Party
IWUL	Integrated Water Use License
LSA	Late Stone Age
LIA	Late Iron Age
MSA	Middle Stone Age
MIA	Middle Iron Age
NEMA	National Environmental Management Act
NHRA	National Heritage Resources Act
NWPHRA	North West Provincial Heritage Resources Authority
PDA	Palaeontological Desktop Assessment
PHRA	Provincial Heritage Resources Authority
PIA	Palaeontological Impact Assessment

PSSA	Palaeontological Society of South Africa
SADC	Southern African Development Community
SAHRA	South African Heritage Resources Agency

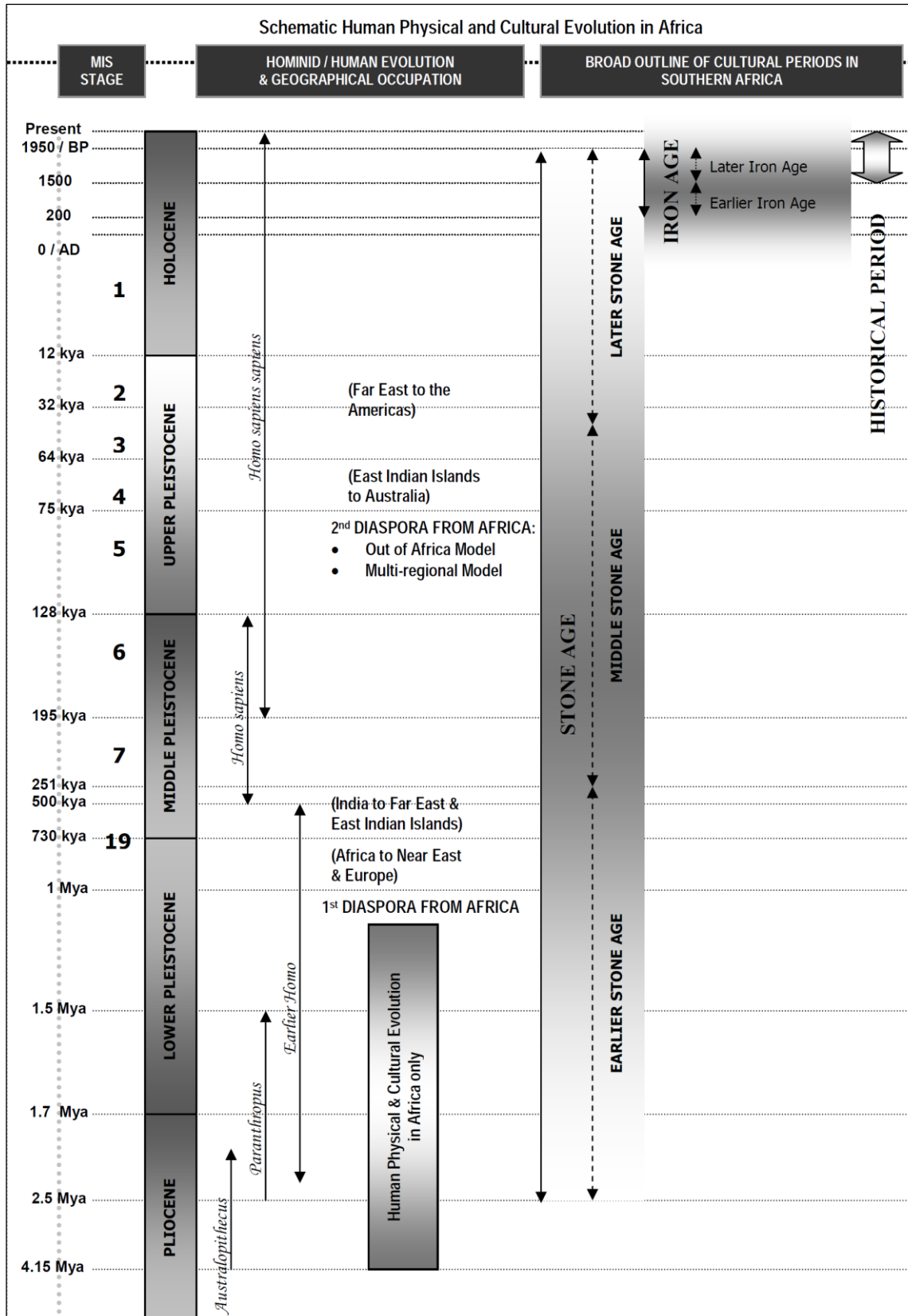


Figure 1 – Human and Cultural Timeline in Africa (Morris, 2008).

1 INTRODUCTION

PGS Heritage (Pty) Ltd (PGS) was appointed by Nkanivo (Pty) Ltd (Nkanivo) to undertake a Heritage Impact Assessment (HIA) for a Proposed Township Establishment on Portion 3 of the Farm Doornpan 193 IP, outside Ventersdorp, JB Marks Local Municipality, Dr Kenneth Kaunda District Municipality, North West Province.

1.1 Scope of the Study

This HIA aims to identify possible heritage sites and finds that may occur in the proposed development area and to assess the impact of the proposed development on these identified heritage sites. The study also aims to inform the developers to manage the identified heritage resources responsibly, to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999) (NHRA).

1.2 Specialist Qualifications

This HIA was compiled by PGS. The staff at PGS has a combined experience of nearly 90 years in the heritage consulting industry and has extensive experience in managing HIA processes. PGS will only undertake heritage assessment work where the staff has the relevant expertise and experience to undertake that work competently.

Polke Birkholtz, the project manager and co-author, is registered with the Association of Southern African Professional Archaeologists (ASAPA) as a Professional Archaeologist and is also accredited with its CRM Section. He has 20 years of experience in the heritage assessment and management field and holds a B.A. (cum laude) from the University of Pretoria specialising in Archaeology, Anthropology and History and a B.A. (Hons.) in Archaeology (cum laude) from the same institution.

Cherene de Bruyn, the author of this report is registered with ASAPA as a Professional Archaeologist and is accredited as a Principal Investigator and Field Director, she is further also a member of the International Association for Impact Assessment South Africa (IAIASA). She holds a MA in Archaeology from University College London, and a BSc (Hons) in Physical Anthropology and a BA (Hons) in Archaeology from the University of Pretoria.

1.3 Assumptions and Limitations

The following assumptions and limitations regarding this study and report exist:

- Not detracting in any way from the comprehensiveness of the fieldwork undertaken, it is necessary to realise that the heritage resources located during the fieldwork do not

necessarily represent all the possible heritage resources present within the area. Various factors account for this, including the subterranean nature of some archaeological sites, as well as the density of vegetation cover found in some areas. As such, should any heritage features and/or objects not included in the present study be located or observed, a heritage specialist must immediately be contacted. Such observed or located heritage features and/or objects may not be disturbed or removed in any way, until such time that the heritage specialist has been able to assess as to the significance of the site (or material) in question. This applies to graves and cemeteries as well. If any graves or burial places are identified or exposed during the development, the procedures and requirements pertaining to graves and burials will apply as set out below (refer **Appendix A**).

- The study area boundaries depicted in this report were provided by the client. As a result, these were the areas assessed during the fieldwork. Should any development footprint areas located outside the areas defined by the appointed scope of work by PGS be proposed, such additional footprint areas will have to be assessed in the field and included in a heritage impact assessment.

1.4 Legislative Context

The identification, evaluation and assessment of any cultural heritage site, artefact or find in the South African context is required and governed by the following legislation:

1.4.1 Statutory Framework: The National Heritage Resources (Act 25 of 1999)

The NHRA has applicability, as the study forms part of an overall HIA in terms of the provisions of Section 34, 35, 36 and 38 of the NHRA and forms part of a heritage scoping study that serves to identify key heritage resources, informants, and issues relating to the palaeontological, archaeological, built environment and cultural landscape, as well as the need to address such issues during the impact assessment phase of the HIA process.

1.4.2 Section 34 – Structures

According to Section 34 of the NHRA, no person may alter, damage or destroy any structure that is older than 60 years, and which forms part of the sites built environment, without the necessary permits from the relevant provincial heritage authority.

1.4.3 Section 35 – Archaeology, Palaeontology and Meteorites

According to Section 35 (Archaeology, Palaeontology and Meteorites) and Section 38 (Heritage Resources Management) of the NHRA, PIAs and AIAs are required by law in the case of developments in areas underlain by potentially fossiliferous (fossil-bearing) rocks, especially where

substantial bedrock excavations are envisaged, and where human settlement is known to have occurred during prehistory and the historic period.

1.4.4 Section 36 – Burial Grounds & Graves

A section 36 permit application is made to the SAHRA or the competent provincial heritage authority which protects burial grounds and graves that are older than 60 years and must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit. SAHRA must also identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with these graves and must maintain such memorials. A permit is required under the following conditions:

Permit applications for burial grounds and graves older than 60 years should be submitted to the South African Heritage Resources Agency:

- a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of the conflict, or any burial ground or part thereof which contains such graves.
- b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.
- d) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant.

1.4.5 Section 38 - HIA as a Specialist Study within the EIA in Terms of Section 38(8)

A NHRA Section 38 (Heritage Impact Assessments) application to MP-PHRA is required when the proposed development triggers one or more of the following activities:

- a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- b) the construction of a bridge or similar structure exceeding 50 m in length;
- c) any development or other activity which will change the character of a site,
 - i. exceeding 5 000 m² 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 m² in extent; or
- e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority

In this instance, the heritage assessment for the property is to be undertaken as a component of the EIA for the project. Provision is made for this in terms of Section 38(8) of the NHRA, which states that:

- An HIA report is required to identify, and assess archaeological resources as defined by the NHR Act, assess the impact of the proposal on the said archaeological resources, review alternatives and recommend mitigation (see methodology above).

Section 38 (3) Impact Assessments are required, in terms of the statutory framework, to conform to basic requirements as laid out in Section 38(3) of the NHRA. These are:

- The identification and mapping of heritage resources in the area affected;
- The assessment of the significance of such resources;
- The assessment of the impact of the development on the heritage resources;
- An evaluation of the impact on the heritage resources relative to sustainable socio/economic benefits;
- Consideration of alternatives if heritage resources are adversely impacted by the proposed development;
- Consideration of alternatives; and
- Plans for mitigation.

1.4.6 Notice 648 of the Government Gazette 45421

Although minimum standards for archaeological (2007) and palaeontological (2012) assessments were published by SAHRA (2016), Government Notice (GN) 648 requires sensitivity verification for a site selected on the national web-based environmental screening tool for which no specific assessment protocol related to any theme has been identified. The requirements for this GN are listed in **Table 2** and the applicable section in this report noted.

Table 2 - Reporting requirements for GN648

GN 648	Relevant section in report	Where not applicable
2.2 (a) a desktop analysis, using satellite imagery	Section 4 and 5	-

GN 648	Relevant section in report	Where not applicable
2.2 (b) a preliminary on-site inspection to identify if there are any discrepancies with the current use of land and environmental status quo versus the environmental sensitivity as identified on the national web-based environmental screening tool, such as new developments, infrastructure, indigenous/pristine vegetation, etc.	Section 4 and 5	-
2.3(a) confirms or disputes the current use of the land and environmental sensitivity as identified by the national web-based environmental screening tool	Section 1 and 5	-
2.3(b) contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity	Section 4 provides a description of the current use and confirms the status in the screening report	-

An assessment of the Environmental Screening tool provides the following sensitivity ratings for archaeological resources that fall within the proposed project area rated as Very High (**Figure 2**), while palaeontological resources are rated as Medium (**Figure 3**).

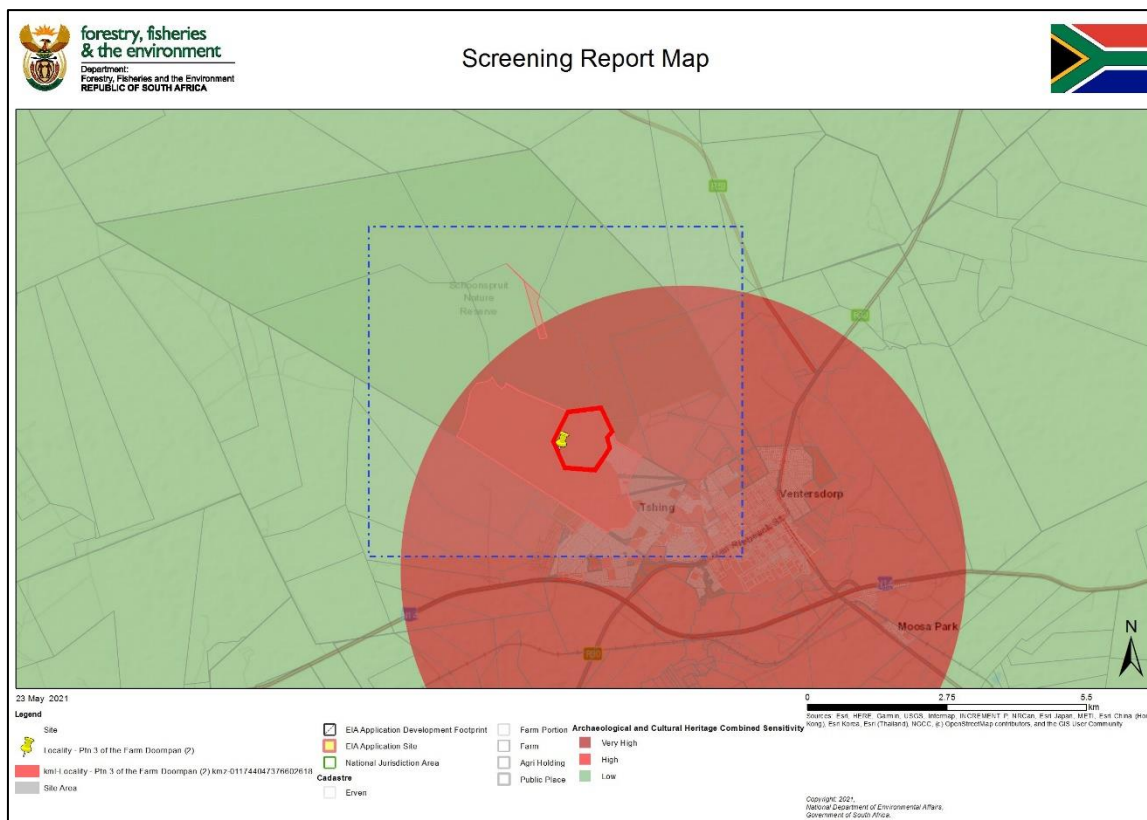


Figure 2 - Environmental screening tool's depiction of the archaeological and heritage sensitivity of the study area and surroundings.

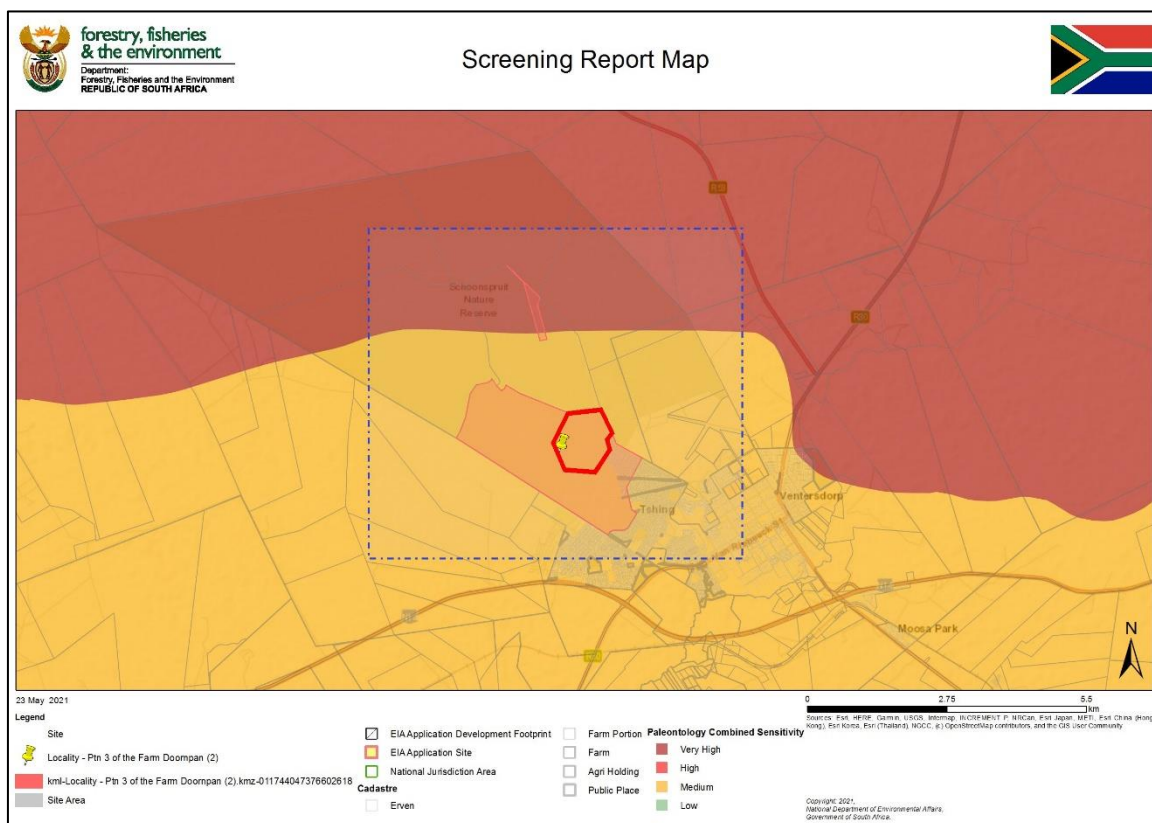


Figure 3 - Environmental screening tool's depiction of the palaeontological sensitivity of the study area and surroundings.

1.4.7 NEMA – Appendix 6 requirements

The HIA report has been compiled considering the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and Environmental Impact Assessment (EIA) Regulations (2014, and as amended in 2017). **Table 3** below sets out the relevant sections as listed in Appendix 6 of the EIA Regulations (2017), which describes the requirements for specialist reports. For ease of reference, **Table 3** provides cross-references to the report sections where these requirements have been addressed. It is important to note that where something is not applicable to this HIA, this has been indicated in the table below.

Table 3 - Reporting requirements as per NEMA, as amended, Appendix 6 for specialist reports.

Requirements of Appendix 6 – GN R326 EIA Regulations of 7 April 2017	Relevant section in report	Comment where not applicable
1.(1) (a) (i) Details of the specialist who prepared the report	Page ii of Report – Contact details and company	-
(ii) The expertise of that person to compile a specialist report including a curriculum vita	Section 1 – refer to Appendix B	-
(b) A declaration that the person is independent in a form as may be specified by the competent authority	Page ii of the report	-
(c) An indication of the scope of, and the purpose for which, the report was prepared	Section 1 and 2	-
(cA) An indication of the quality and age of base data used for the specialist report	Section 3, 4 and 5	-

Requirements of Appendix 6 – GN R326 EIA Regulations of 7 April 2017	Relevant section in report	Comment where not applicable
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 6 and 7	-
(d) The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 3 and 4	-
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Section 3 and Appendix A and B	-
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Sections 5 and 6	-
(g) An identification of any areas to be avoided, including buffers	Sections 6, 8 and 9	-
(h) A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Figure 22	
(i) A description of any assumptions made and any uncertainties or gaps in knowledge;	Section 1	-
(j) A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment	Section 7, 8 and 9	
(k) Any mitigation measures for inclusion in the EMPr	Sections 8 and 9	
(l) Any conditions for inclusion in the environmental authorisation	Sections 8 and 9	
(m) Any monitoring requirements for inclusion in the EMPr or environmental authorisation	Sections 8 and 9	
(n)(i) A reasoned opinion as to whether the proposed activity, activities or portions thereof should be authorised and	Section 9	
(n)(iA) A reasoned opinion regarding the acceptability of the proposed activity or activities; and		
(n)(ii) If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Sections 8 and 9	-
(o) A description of any consultation process that was undertaken during the course of carrying out the study		Not applicable. A public consultation process was handled as part of the BA and EMPr process.
(p) A summary and copies if any comments that were received during any consultation process		Not applicable. To date no comments

Requirements of Appendix 6 – GN R326 EIA Regulations of 7 April 2017	Relevant section in report	Comment where not applicable
		regarding heritage resources that require input from a specialist have been raised.
(q) Any other information requested by the competent authority.		Not applicable.
(2) Where a government notice by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	NEMA Appendix 6 and GN648 SAHRA guidelines on HIAs, PIAs and AIAs	

2 PROJECT DESCRIPTION

2.1 Site Location

Study Area Coordinates	Northernmost point: S 26.298293 E 26.794179	Easternmost point: S 26.304527 E 26.795688
	Southernmost point: S 26.308028 E 26.790002	Westernmost point: S 26.303645 E 26.785723
Location	The project area is located approximately 2.5km north-west of the CBD of Ventersdorp, approximately 54km north-west of Potchefstroom and roughly 66km south-east of Lichtenburg.	
Property	Portion 3 of the Farm Doornpan 193 IP, outside the town of Ventersdorp. The property is situated in the JB Marks Local Municipality and the Dr Kenneth Kaunda District Municipality, North West Province.	
Topographic Map	2626BD	
Application Area	Approximately 84 hectares	

2.2 Project Description

The following information was provided by Nkanivo and is taken nearly verbatim from the Status Quote Report by Nkanivo.

The JB Marks Local Municipality is proposing to establish a township on Portion 3 of the Farm Doornpan 193 IP. The Integrated Development Plan (IDP) of the JB Marks Local Municipality indicates that in the past financial years the Municipality had increased housing needs in the area of Doornpan. To address the identified needs, the Municipality requested the North West Provincial Department of Local Government and Human Settlements to assist with establishing a township on the Remaining Extent of Portion 3 (Portion of Portion 1) of the Farm Doornpan 193, Registration Division IP, North West Province to create a sustainable human settlement.

The first draft township layout plan attached hereto as **Figure 5** yielded approximately 875 erven. The layout accommodates various land uses that are complementary to residential land use such as Municipal, Business, school, clinic, churches, crèches, public open space etc.

The final township layout plan will be informed by various town planning procedures and specialist studies. The public participation process will ensure that all proposed erven are to the satisfaction of the Client and the intended beneficiaries.



Locality Map

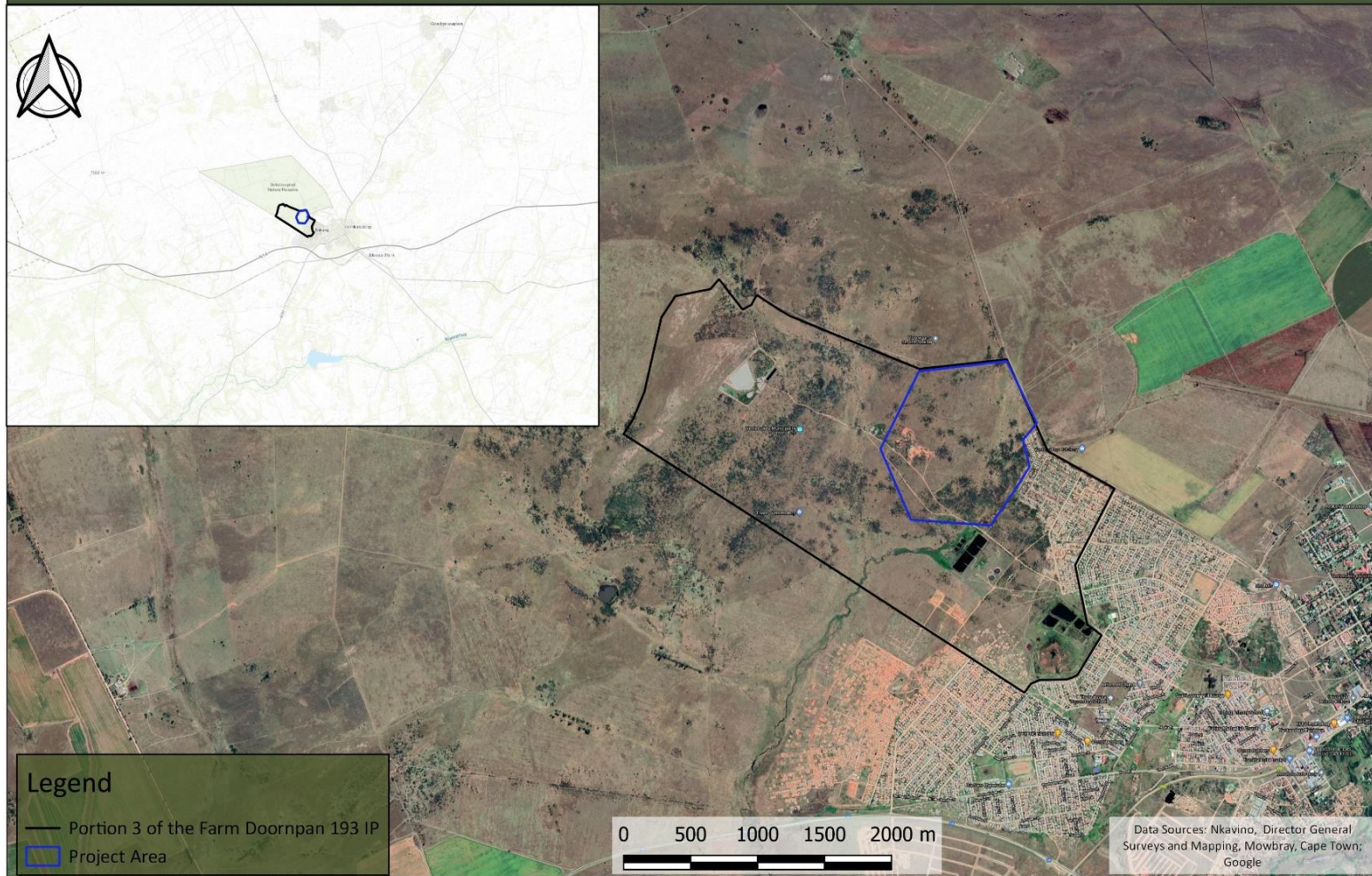


Figure 4 - Locality plan depicting the study area within its surroundings. The boundaries of the study area are shown in blue.

3 METHODOLOGY

3.1 Methodology for Assessing Heritage Site Significance

The HIA process consisted of three steps:

Step I – Desktop Study: An archaeological and historical desktop study was undertaken of the project area and surrounding landscape. This was augmented by an assessment of previous archaeological and heritage studies completed for the study area and surrounding landscape. Furthermore, an assessment was made of the early editions of the relevant topographic maps. Refer to **Chapter 5**.

Step II – Physical Survey: The fieldwork comprised a field assessment of the study area undertaken primarily by foot and vehicle over the course of one day by an experienced fieldwork team from PGS consisting of two archaeologists (Cherene de Bruyn and Ruan van der Merwe). The team was met on site by Ms Sushi Mooki from the JB Marks Local Municipality. The fieldwork was undertaken on Friday, 21 May 2021. During the fieldwork, seven archaeological sites (**DP-01 to DP-07**) consisting of low-density surface scatters of Stone Age material were identified. Throughout the fieldwork, hand-held GPS devices were used to record the tracklogs that show the routes followed by the two archaeologists on site. All sites identified during the fieldwork were photographically and qualitatively recorded, and their respective localities documented using a hand-held GPS device

Step III – The final step involved the recording and documentation of relevant heritage resources, the assessment of resources in terms of the heritage impact assessment criteria and report writing as well as mapping and recommendations.

The significance of heritage sites was based on five 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)
 - Low - <10/50m²
 - Medium - 10-50/50m²
 - High - >50/50m²
- uniqueness and
- the potential to answer present research questions.

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be expressed as follows:

A - No further action necessary;

- B - Mapping of the site and controlled sampling required;
- C - No-go or relocate development position
- D - Preserve site, or extensive data collection and mapping of the site; and
- E - Preserve site

Site Significance

Site significance classification standards prescribed by the SAHRA (2006) and approved by the ASAPA for the Southern African Development Community (SADC) region, were used for the purpose of this report (see table below).

Table 4 - Site significance classification standards as prescribed by SAHRA

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

3.2 Methodology for Impact Assessment

To ensure uniformity, a standard impact assessment methodology has been utilised so that a wide range of impacts can be compared. The impact assessment methodology makes provision for the assessment of impacts against the following criteria:

- Significance;
- Spatial scale;
- Temporal scale;
- Probability; and
- Degree of certainty.

A combined quantitative and qualitative methodology was used to describe impacts for each of the aforementioned assessment criteria. A summary of each of the qualitative descriptors, along with the

equivalent quantitative rating scale for each of the aforementioned criteria, is given in **Table 5** below.

Table 5 – Quantitative rating and equivalent descriptors for the impact assessment criteria

RATING	SIGNIFICANCE	EXTENT SCALE	TEMPORAL SCALE
1	VERY LOW	<i>Isolated corridor / proposed corridor</i>	<u>Incidental</u>
2	LOW	<i>Study area</i>	<u>Short-term</u>
3	MODERATE	<i>Local</i>	<u>Medium-term</u>
4	HIGH	<i>Regional / Provincial</i>	<u>Long-term</u>
5	VERY HIGH	<i>Global / National</i>	<u>Permanent</u>

A more detailed description of each of the assessment criteria is given in the following sections.

Significance Assessment

The significance rating (importance) of the associated impacts embraces the notion of extent and magnitude but does not always clearly define these since their importance in the rating scale is very relative. For example, 10 structures younger than 60 years might be affected by a proposed development, and if destroyed the impact can be considered as VERY LOW in that the structures are all of Low Heritage Significance. If two of the structures are older than 60 years and of historic significance, and as a result of High Heritage Significance, the impact will be considered to be HIGH to VERY HIGH. A more detailed description of the impact significance rating scale is given in **Table 6** below.

Table 6 – Description of the significance rating scale

RATING		DESCRIPTION
5	VERY HIGH	Of the highest order possible within the bounds of impacts which could occur. In the case of adverse impacts: there is no possible mitigation and/or remedial activity which could offset the impact. In the case of beneficial impacts, there is no real alternative to achieving this benefit.
4	HIGH	The impact is of substantial order within the bounds of impacts which could occur. In the case of adverse impacts: mitigation and/or remedial activity is feasible but difficult, expensive, time-consuming or some combination of these. In the case of beneficial impacts, other means of achieving this benefit are feasible but they are more difficult, expensive, time-consuming or some combination of these.
3	MODERATE	The impact is real but not substantial in relation to other impacts, which might take effect within the bounds of those which could occur. In the case of adverse impacts: mitigation and/or remedial activity are both feasible and fairly easily possible. In the case of beneficial impacts: other means of achieving this benefit are about equal in time, cost, effort, etc.

2	LOW	The impact is of a low order and therefore likely to have a little real effect. In the case of adverse impacts: mitigation and/or remedial activity is either easily achieved or little will be required, or both. In the case of beneficial impacts, alternative means for achieving this benefit are likely to be easier, cheaper, more effective, less time consuming, or some combination of these.
1	VERY LOW	The impact is negligible within the bounds of impacts which could occur. In the case of adverse impacts, almost no mitigation and/or remedial activity is needed, and any minor steps which might be needed are easy, cheap, and simple. In the case of beneficial impacts, alternative means are almost all likely to be better, in one or several ways, than this means of achieving the benefit. Three additional categories must also be used where relevant. They are in addition to the category represented on the scale, and if used, will replace the scale.
0	NO IMPACT	There is no impact at all - not even a very low impact on a party or system.

Spatial Scale

The spatial scale refers to the extent of the impact i.e. will the impact be felt at the local, regional, or global scale. The spatial assessment scale is described in more detail in **Table 7** below.

Table 7 – Description of the spatial significance rating scale

RATING		DESCRIPTION
5	Global/National	The maximum extent of any impact.
4	Regional/Provincial	The spatial scale is moderate within the bounds of possible impacts and will be felt at a regional scale (District Municipality to Provincial Level). The impact will affect an area up to 50 km from the site.
3	Local	The impact will affect an area up to 5 km from the proposed site.
2	Study Area	The impact will affect an area not exceeding the study area boundary.
1	Isolated Sites / proposed site	The impact will affect an area no bigger than the site.

Temporal/Duration Scale

In order to accurately describe the impact, it is necessary to understand the duration and persistence of an impact on the environment. The temporal or duration scale is rated according to criteria set out in **Table 8** below.

Table 8 – Description of the temporal rating scale

RATING		DESCRIPTION
1	Incidental	The impact will be limited to isolated incidences occurring very sporadically.
2	Short-term	The environmental impact identified will operate for the duration of the construction phase or a period of less than 5 years, whichever is the greater.

3	Medium-term	The environmental impact identified will operate for the duration of life of the project.
4	Long-term	The environmental impact identified will operate beyond the life of operation of the project.
5	Permanent	The environmental impact will be permanent.

Degree of Probability

The probability or likelihood of an impact occurring will be outlined in **Table 9** below.

Table 9 – Description of the degree of probability of an impact occurring

RATING	DESCRIPTION
1	Practically impossible
2	Unlikely
3	Could happen
4	Very likely
5	It's going to happen/has occurred

Degree of Certainty

It is not possible to be 100% certain of all facts, and for this reason, a standard “degree of certainty” scale is used, as discussed in **Table 10**. The level of detail for specialist studies is determined according to the degree of certainty required for decision-making.

Table 10 – Description of the degree of the certainty rating scale

RATING	DESCRIPTION
Definite	More than 90% sure of a particular fact.
Probable	Between 70 and 90% sure of a particular fact, or of the likelihood of that impact occurring.
Possible	Between 40 and 70% sure of a particular fact, or of the likelihood of an impact occurring.
Unsure	Less than 40% sure of a particular fact or the likelihood of an impact occurring.
Can't know	The consultant believes an assessment is not possible even with additional research.

Quantitative Description of Impacts

To allow for impacts to be described quantitatively, in addition to the qualitative description given above, a rating scale of between 1 and 5 was used for each of the assessment criteria. Thus the total value of the impact is described as the function of significance, spatial and temporal scale, as described below:

$$\text{Impact Risk} = \frac{(\text{Significance} + \text{Spatial} + \text{Temporal})}{3} \times \frac{\text{Probability}}{5}$$

An example of how this rating scale is applied is shown below:

Table 11 – Example of a rating scale

IMPACT	SIGNIFICANCE	SPATIAL SCALE	TEMPORAL SCALE	PROBABILITY	RATING
	Low	Local	Medium Term	Could Happen	Low
Impact on heritage structures	2	3	3	3	1.6

Note: The significance, spatial and temporal scales are added to give a total of 8, which is divided by 3 to give a criterion rating of 2.67. The probability (3) is divided by 5 to give a probability rating of 0.6. The criteria rating of 2.67 is then multiplied by the probability rating (0,6) to give the final rating of 1,6. The impact risk is classified according to five classes as described in the table below.

Table 12 – Impact Risk Classes

RATING	IMPACT CLASS	DESCRIPTION
0.1 – 1.0	1	Very Low
1.1 – 2.0	2	Low
2.1 – 3.0	3	Moderate
3.1 – 4.0	4	High
4.1 – 5.0	5	Very High

Therefore, with reference to the example used for heritage structures above, an impact rating of 1.6 will all in Impact Class 2, which will be considered to be a low impact.

4 CURRENT STATUS QUO

The study area is comprises Portion 3 of the Farm Doornpan 193 IP, outside Ventersdorp. It is situated in the JB Marks Local Municipality and Dr Kenneth Kaunda District Municipality of the North West Province. The project area is located approximately 2.5km north-west of the town of Ventersdorp, approximately 54km north-west of Potchefstroom and roughly 66km south-east of Lichtenburg.

According to the National Vegetation Map of South Africa, the study area is located within the vegetation type known as the Vaal-Vet Sandy Grassland. This vegetation type is characterised as follows: *“Plains-dominated landscape with some scattered, slightly irregular undulating plains and hills. Mainly low-tussock grasslands with an abundant karroid element. Dominance of Themeda triandra is an important feature of this vegetation unit. Locally low cover of T. triandra and the associated increase in Elionurus muticus, Cymbopogon pospischilii and Aristida congesta is attributed to heavy grazing and/or erratic rainfall...”* (Sanbi, 2021).

In terms of geology and soils, the site characterised by *“...Aeolian and colluvial sand overlying sandstone, mudstone and shale of the Karoo Supergroup (mostly the Eccca Group) as well as older Ventersdorp Supergroup andesite and basement gneiss in the north. Soil forms are mostly Avalon, Westleigh and Clovelly...”* (Sanbi, 2021).

During the fieldwork, the study area was found to be located in a landscape that was topographically level, which is characterised by grassy vegetation. The site is located to the west of Tshing, and north-west of Ventersdorp. Several small rock outcrops were observed throughout the study area.

The site has been heavily disturbed in the western section. This disturbance includes evidence for dumping activities in the western corner of the area..

The visibility of the site was limited due to the dense thorny vegetation and what appears to be a wetland in the eastern to south-eastern sections of the project area. Overall, the accessibility of the project area was fairly good. The site was accessed by way of several roads that cross through the study area.

Several photographs below provide general views of the study area and the landscape within which it is located (**Figure 6 to Figure 14**Figure 11).



Figure 6 – General view of the northern section of the project area.



Figure 7 - General view of the southern section of the project area.



Figure 8 – Dense thorny vegetation in the eastern section of the project area.



Figure 9 – What appears to be a wetland is located in the eastern section of the project area.



Figure 10 – View of the Tshing located to the east of the project area.



Figure 11 – Example of small rock outcrops observed throughout the project area.



Figure 12 – General view of the area where dumping activities had taken place within the study area. This image was taken in the western corner of the project area.



Figure 13 – Another view of the western corner of the project area. Evidence for the dumping of rubbish was also observed here.



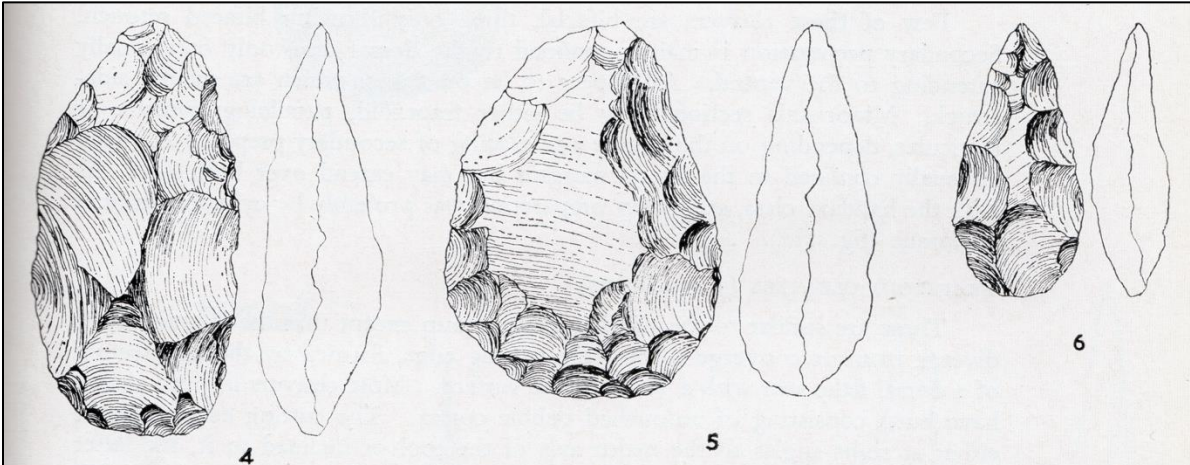
Figure 14 – Several roads were observed in the project area. The roads are still in use.



Figure 15 – A low ridge (yellow arrow) is located north of the project area.

5 DESKTOP STUDY FINDINGS

5.1 Archaeological and Historical Overview of the Study Area and Surroundings

DATE	DESCRIPTION
The Study Area and Surroundings during the Stone Age	
<p>The archaeological literature does not contain much information on the Stone Age archaeology of this area. As an example of this, a chapter from the book <i>Geskiedenisatlas van Suid-Afrika</i> dealing with the Stone Age in the four northern provinces of South Africa, has almost no information on Stone Age sites from the North West Province. This said, a number of rock art sites, and especially sites containing rock engravings, are discussed in this book, albeit none of these sites are located in proximity to the study area or the town of Ventersdorp (Bergh, 1999).</p>	
<p>2.5 million to 250 000 years ago</p>	<p>The Earlier Stone Age (ESA) is the first and oldest phase identified in South Africa's archaeological history and comprises two technological phases. The earliest of these technological phases is known as Oldowan which is associated with crude flakes and hammerstones and dates to approximately 2 million years ago. The second technological phase in the ESA of Southern Africa is known as the Acheulian and comprises more refined and better-made stone artefacts such as the cleaver and bifacial handaxe. The Acheulian phase dates back to approximately 1.5 million years ago.</p> <p>No information regarding Early Stone Age sites are known from the study area or surroundings.</p>
	
<p>Figure 16 - Example of Early Stone Age Later Acheulian handaxes. These handaxes were identified at Blaaubank near Rooiberg. Cropped section of an illustration published in Mason (1962:199).</p>	
<p>250 000 to 40 000 years ago</p>	<p>The Middle Stone Age (MSA) dates to between 250 000 to 40 000 years BP. MSA dates of around 250 000 BP originate from sites such as Leopards Kopje in Zambia, while the late Pleistocene (125 000 BP) yields several important dated sites associated with modern humans (Deacon & Deacon, 1999). The MSA is characterised by flake and blade industries, the first use of grindstones, wood and bone artefacts, personal ornaments, use of red ochre, circular hearths and hunting and gathering lifestyle.</p> <p>A total of seven low density surface scatters of lithics were identified during the fieldwork undertaken for the present study. While the lack of lithic numbers and especially formal tools at these sites make any conclusions regarding the affinity of these sites difficult, some of the sites may be associated with the Middle Stone Age.</p>

<p>40 000 years ago to the historic past</p>	<p>The Later Stone Age (LSA) is the third phase identified in South Africa's archaeological history. It is associated with an abundance of very small stone artefacts known as microliths.</p> <p>A total of seven low density surface scatters of lithics were identified during the fieldwork undertaken for the present study. While the lack of lithic numbers and especially formal tools at these sites make any conclusions regarding the affinity of these sites difficult, some of the sites may be associated with the Later Stone Age. Additionally, during a heritage impact assessment undertaken by one of the authors for a proposed diamond mining activity located north-east of Ventersdorp, two Late Stone Age sites were also identified (Birkholtz, 2008).</p>
<p>The Study Area and Surroundings during the Iron Age</p>	
<p>The arrival of early farming communities during the first Millennium heralded in the start of the Iron Age for South Africa. The Iron Age is that period in South Africa's archaeological history associated with pre-colonial farming communities who practised cultivation and pastoralist farming activities, metalworking, cultural customs such as lobola and whose settlement layouts show the tangible representation of the significance of cattle (known as the Central Cattle Pattern) (Huffman, 2007).</p> <p>The Southern African Iron Age can be divided into an Early Iron Age (AD 200 – AD 900), Middle Iron Age (AD 900 – AD 1300) and Late Iron Age (AD 1300 – AD 1840) (Huffman, 2007). Maggs (1976) opines that the Highveld areas of Mpumalanga were not occupied by the EIA due to the existing environment. The extensive grassland endemic to this area was of little value to their economy as they were dependent on slash-and-burn (swidden) agriculture. Radiocarbon dating from pottery places the EIA in the first millennium (Evers 1977); however, the land became valuable only when LIA populations had increased livestock numbers to the point that they formed a principal resource. It is during this time that the LIA populations would have migrated to the high grasslands of the Highveld to take advantage of the open grazing lands (Hall 1987).</p>	
<p>1450 AD – 1650 AD</p>	<p>The Ntsuanatsatsi facies of the Blackburn Branch of the Urewe Ceramic Tradition represents the earliest known Iron Age period within the surroundings of the study area. The decoration on the ceramics from this facies is characterised by a broad band of stamping in the neck, stamped arcades on the shoulder and appliqué (Huffman, 2007).</p> <p>Huffman (2007) suggests that the Ntsuanatsatsi facies can be directly linked to the early Bafokeng, who in terms of this hypothesis, was the first Mbo Nguni people to leave present-day KwaZulu-Natal.</p>
<p>1500 AD – 1700 AD</p>	<p>The Olifantspoort facies of the Moloko Branch of the Urewe Ceramic Tradition is the second Iron Age facies to be identified within the surroundings of the study area. The Olifantspoort facies can likely be dated to between AD 1500 and AD 1700. The key features of the decoration used on the ceramics from this facies include multiple bands of fine stamping or narrow incision separated by colour (Huffman, 2007). The type site for this facies is located on the farm Olifantspoort 328 JQ, which is situated a considerable distance east of the study area.</p> <p>After an archaeological team under Professor R.J. Mason of the University of the Witwatersrand identified a number of stonewalled settlements on the farm Olifantspoort using aerial photographs, archaeological field research and excavations were undertaken during 1971 at eight of these sites located on the farm Olifantspoort as well as another site located on an adjacent farm. These sites were numbered 20/71, 21/71, 26/71, 27/71, 28/71, 60/71, 61/71, 62/71, 64/71 and 65/71. The focus of the research turned to Site 20/71 which proved to be a very large stonewalled site. A total of 85 huts as well as a number of middens were excavated here during the 1971 season alone. As many as 80 individual rock engraving panels were identified in the vicinity of the site. These engravings all depict settlement plans (Mason, 1973). A copper mine was also identified on the farm (Steel, 1987). In the</p>

	<p>following year sites 2/72 and 29/72 were added and researched, with sites 38/73 and 47/73 added the year after. A few years later in 1984 an Olifantspoort site was identified at Broederstroom and in 1985 another Olifantspoort site was identified at Ifafi (Huffman, 2007).</p> <p>The Olifantspoort facies holds an important position in the sequence of the Moloko or Sotho-Tswana group. The earliest facies to be associated with the Moloko is the Icon facies (AD 1300 – 1500), with sites found across large sections of what is today the Limpopo Province. The Icon facies resulted in three different and parallel Iron Age facies, namely the Madikwe facies (AD 1500 – 1700) (which in turn led to the Buispoort facies between AD 1700 and 1850), the Letsibogo facies (AD 1500 – 1700) and thirdly the Olifantspoort facies. The Olifantspoort facies developed into the Thabeng facies (AD 1700 – 1850) (Huffman, 2007). It is therefore evident that the Olifantspoort facies represents a key pillar in our understanding of the origins and sequence of the Sotho-Tswana people of today (Huffman, 2007).</p>
<p>AD 1650 – AD 1820</p>	<p>The Uitkomst facies of the Blackburn Branch of the Urewe Ceramic Tradition represents the third Iron Age period to be identified for the surroundings of the study area. This facies can likely be dated to between AD 1650 and AD 1820. The decoration on the ceramics associated with this facies is characterised by stamped arcades, appliqué of parallel incisions, stamping and cord impressions and is described as a mixture of the characteristics of both Ntsuanatsatsi (Nguni) and Olifantspoort (Sotho) (Huffman, 2007).</p> <p>The type-site is Uitkomst Cave, a considerable distance to the east. The site was excavated by Professor R.J. Mason of the University of the Witwatersrand as part of a project to excavate five cave sites in the Witwatersrand-Magaliesberg area. These five sites are Glenferness, Hennops River, Pietkloof, Zwartkops and Uitkomst. Uitkomst was chosen as the type site for the particular Iron Age material excavated at these sites as the Uitkomst deposit was found to be well stratified and the site <i>“...illustrates the combination of a certain kind of pottery with evidence for metal and food production and stone wall building found at the open sites...”</i> (Mason, 1962:385).</p> <p>The Uitkomst pottery is viewed as a combination of Ntsuanatsatsi and Olifantspoort, and with the Makgwareng facies is seen as the successors to the Ntsuanatsatsi facies. The Ntsuanatsatsi facies is closely related to the oral histories of the Early Fokeng people and represents the earliest known movement of Nguni people out of Kwazulu-Natal into the inland areas of South Africa. Regarding this theory, the Bafokeng settled at Ntsuanatsatsi Hill in the present-day Free State Province. Subsequently, the BaKwena lineage had broken away from the Bahurutshe cluster and crossed southward over the Vaal River to come in contact with the Bafokeng. As a result of this contact a Bafokeng-Bakwena cluster was formed, which moved northward and became further ‘Sotho-ised’ by coming into increasing contact with other Sotho-Tswana groups. According to this theory, this eventually resulted in the appearance of Uitkomst facies type pottery which contained elements of both Nguni and Sotho-Tswana speakers (Huffman, 2007). Huffman states that that the Uitkomst facies is directly associated with the Bafokeng (Huffman, 2007). However, it worth noting that not all researchers agree with this preposition of the Bafokeng origins. In their book on the history of the Bafokeng, Bernard Mbenga and Andrew Mason indicate that the research of Prof. R.J. Mason and Dr. J.C.C. Pistorius <i>“...would indicate that the Bafokeng originated from the Bahurutshe-Bakwena-Bakgatla lineage cluster. Tom Huffman holds a different view...”</i> (Mbenga & Mason, 2010).</p>

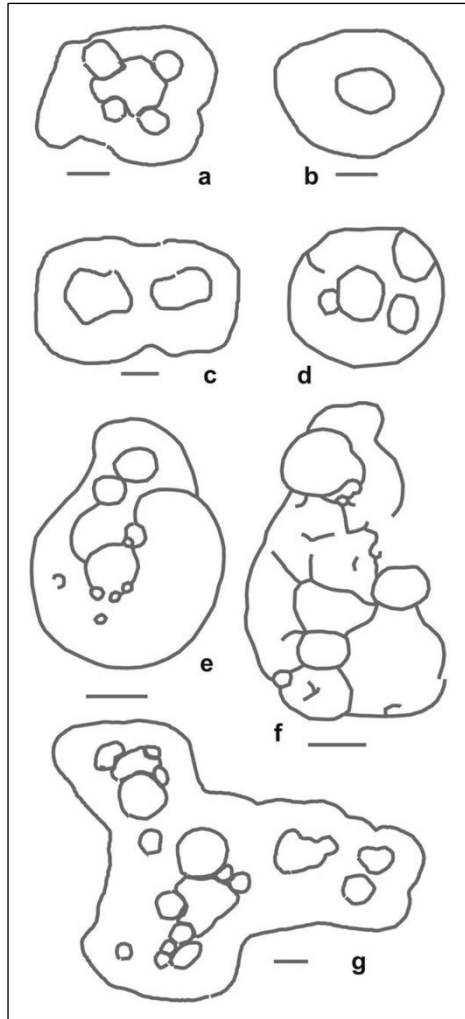


Figure 17

Examples of so-called Group I settlements as published by Sadr & Rodier (2012:3). The settlement layout as depicted in illustration 'b' provides an example of a simple Type N settlement which has the appearance of a 'fried egg'. Illustration 'a' provides one example of a more elaborate Type N settlement. The settlement layouts as depicted in this figure can be associated with the Ntsuanatsatsi facies and the Bafokeng as well.

1700 AD – 1840 AD

The Buispoort facies of the Moloko branch of the Urewe Ceramic Tradition is the fourth phase in the Iron Age to be identified within the study area's surroundings. It is most likely dated to between AD 1700 and AD 1840. The key features on the decorated ceramics include rim notching, broadly incised chevrons and white bands, all with red ochre (Huffman, 2007). It is believed that the Madikwe facies developed into the Buispoort facies. The Buispoort facies is associated with sites such as Buffelshoek, Kaditshwene, Molokwane and Olifantspoort (Huffman, 2007). Molokwane appears to be the nearest of these sites to the study area, and is located on the farm Selonskraal 317 JQ some 65km to the north-east (Pistorius, 1992). During the early 1980s, Dr. J.C.C. Pistorius conducted archaeological excavations at Molokwane. His research was aimed at "...proving that the site's settlement style is representative of the settlement system of historical and contemporary Sotho-Tswana villages (*metse*) in its ground plan, composition and settlement layout." (Pistorius, 1992:1). The available oral history was also assessed in this research, which revealed that Molokwane was the home of the Bakwena Bamodimosa Bammatau from c. 1600 AD to the early 1800s (Pistorius, 1992).

The research at Molokwane focussed on a settlement unit named SEL 1. This settlement unit is comprised of three main spatial features, namely an outer scalloped wall (where the dwellings of the settlement were located), a centrally located cluster of enclosures and kraal complexes (that is enclosed by the outer scalloped wall) and lastly the intervening space between the outer scalloped wall and the centrally located cluster of enclosures (Pistorius, 1992). A number of excavations were also undertaken, which

focused on the settlement unit at SEL 1. The excavations focused on all three spatial features of SEL 1 as outlined above. The excavations yielded pottery (including intact vessels), iron tools, bone tools, stone artefacts, clay figurines, ochre figurines and beads (Pistorius, 1992).

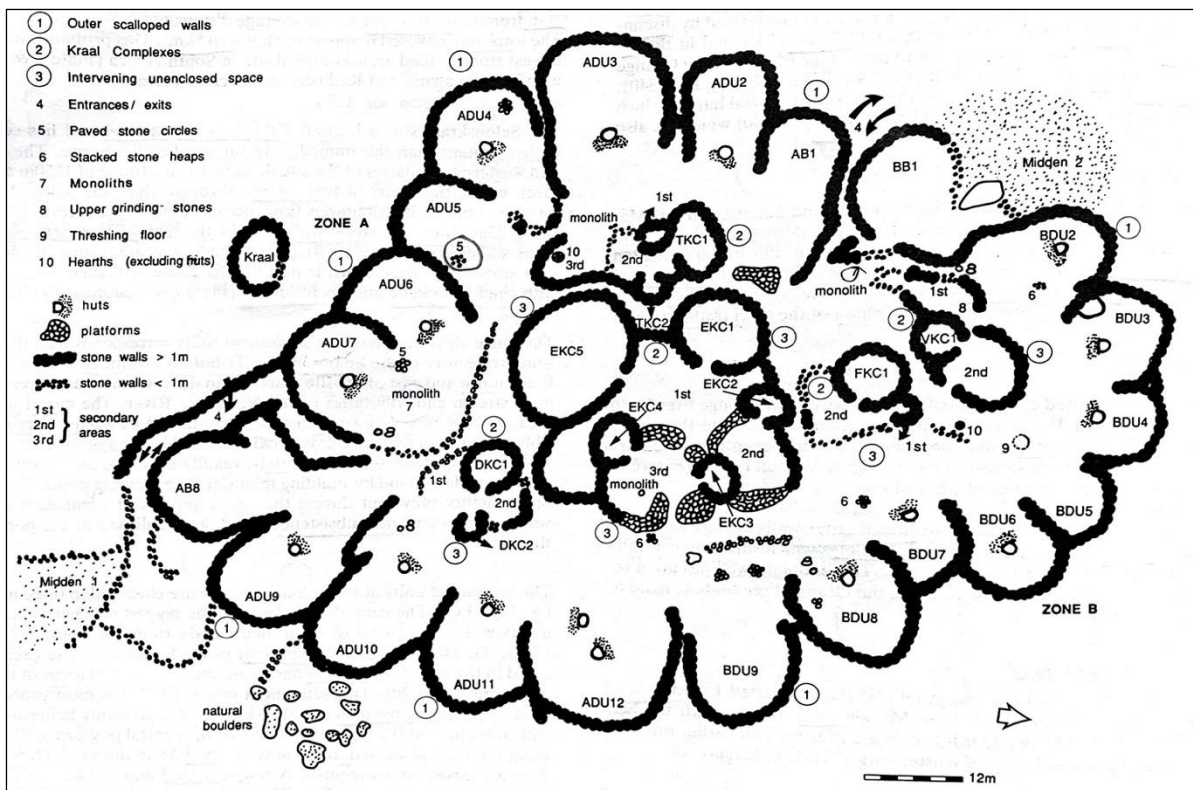


Figure 18 - Layout plan of settlement unit SEL 1 at Molokwane as recorded by Pistorius (1992:18).

The Study Area and Surroundings during the Historical Period

The Historical Period within the study area and surroundings commenced with the arrival of newcomers to this area. The first arrivals would almost certainly have been travellers, traders, missionaries, hunters and fortune seekers. However, with time, this initial trickle was replaced by a mass flood of white immigrants during the 1830s, when a mass migration of roughly 2 540 Afrikaner families (comprising approximately 12 000 individuals) from the frontier zone of the Cape Colony to the interior of Southern Africa took place. The people who took part in this Great Trek were later named Voortrekkers (Visagie, 2011). As this period carried on, the general surroundings of the study area underwent significant changes, including the establishment of the town of Ventersdorp associated with residential, commercial and infrastructural development.

1836	The first Voortrekker parties crossed over the Vaal River (Bergh, 1999).
1839 - 1860	According to Bergh (1999), one of the early areas of settlement of Voortrekkers north of the Vaal River was centred around what was to become the District of Potchefstroom. In fact, Bergh (1999) indicates that the year of establishment for this district can be viewed as early as 1839. The study area was located within this district and would remain within this district until 1924, when the District of Ventersdorp was established.
1839 - 1840	This period saw the early establishment of farms by white farmers in the general vicinity of the study area (Bergh, 1999). The permanent settlement of white farmers in the general vicinity of the study area would have resulted in the proclamation of individual farms and the establishment of permanent farmsteads. Features that can typically be

	<p>associated with the early farming history of the area include farm dwellings, sheds, rectangular stone kraals and cemeteries.</p> <p>The other sites often associated with these early farms are graves and cemeteries for farmers and farm workers, and their respective families. These sites are often all that remains of the farmsteads of the mid to late nineteenth century. This may be due to their age as well as the destruction of farmsteads by the British forces during the South African War in accordance with the so-called 'scorched earth' policy.</p>
1866 - 1887	<p>The town of Ventersdorp has its origins in the establishment of a parish of the Dutch Reformed Church on the farm Roodepoort in 1866. The town was established in 1887 and derived its name from the owner of the farm Roodepoort, namely Johannes Venter (Erasmus, 2004).</p>
1899 - 1902	<p>The South African War (also known as the Anglo Boer War) between Great Britain and her allies and the Boer Republics of the Transvaal (known as the <i>Zuid-Afrikaansche Republiek</i>) and Free State took place between October 1899 and May 1902.</p> <p>After the fall of Pretoria on 5 June 1900, the decision was made by the Boer commanders to drastically depart from the way the war had been fought up to that point. Rather than attempting to face an ever increasing British military force head-on in formal set battles, the Boer military leaders decided to exploit the mobility of the Boer commando's on horse-back by using hit-and-run tactics during the last two years of the war that would become known as the guerrilla phase of the war. This new strategy, and the response of the British military authorities to this new strategy, were to define the remaining years of the war.</p> <p>On 11 June 1900 the town of Ventersdorp was occupied by the British Army. However, the countryside surrounding the town remained under the authority of the mobile Boer commando's. Over time, the countryside surrounding the town became increasingly fortified when blockhouse lines were built between Ventersdorp and the surrounding towns. These fortifications were built to attempt to reduce the mobility of the Boer commando's.</p> <p>Another response of the British military authorities to the guerrilla war waged by the Boer commando's, was to implement the so-called 'scorched earth' policy of Lord Kitchener, which entailed the destruction of many Boer farmsteads. This would certainly also have been true for the surroundings of the study area. Another aspect characteristic of the 'scorched earth' policy was the system of concentration camps (also referred to as refugee camps) in which women and children were held. Such a concentration camp was also established at Ventersdorp.</p> <p>Although the wider surroundings of the study area experienced skirmishes and battles associated with the war years, no such events is known to have occurred within the study area. In all likelihood the nearest site associated with the war to the study area, is the old town cemetery in Ventersdorp where both British soldiers and Boer burghers who died during the war were buried. This historic cemetery is located approximately 2.6km south-east of the study area.</p>
1913	<p>The baKwena ba Mogôpa is related to the bakwena ba Modimosana of Rustenburg, having split off from them in the past. While the largest settlement always remained in Rustenburg, there were also other settlements in Jericho, the Brits area, Hebron, the Pretoria district and Ventersdorp.</p> <p>The origins of the Bakwena ba Mogôpa can be traced back to Matlhare near present-day Brits. In approximately 1840-1845 a group associated with the</p>

	<p>Majakgomo regiment left Matlhare for Thaba Bosigo. After the Seqiti war in 1868 they left Thaba Bosigo and became scattered across the Free State. It is from here that the group moved to Zwartkop in Ventersdorp.</p> <p>In 1905 Matladi Thomas S. More became <i>kgoši</i> of the Bakwena ba Mogôpa group that was scattered across the Free State. Between 1905 and 1913 he undertook to unify his followers again. He also started collecting money from them with which the farms Zwartkop (old number 48) and Hartbeeslaagte (old number 82) were eventually bought in 1913. M.T.S. More was officially recognised as <i>kgoši</i> on the 1st of December 1941 but still fell under the leadership of <i>kgoši</i> D.D. Mmamogale of Rustenburg (Breutz, 1954).</p> <p>The settlement on the farm became known as Mogôpa and people started building houses there. Schools, shops and churches were also built. The residents had sheep and cattle and undertook agricultural activities as well. A cemetery was also situated in the town. The settlement of Ga-Mogôpa is located approximately 20.7km north by north-east of the study area.</p>
1920 - 1945	<p>Alluvial diamonds were mined on various farms in the Ventersdorp district in the period after c. 1920. This led to the district being declared a labour district. It is known that between 1925 and 1945 a large section of the black residents of the Ventersdorp district worked on the diamond mines. This declaration of Ventersdorp as a labour district was retracted in 1948, which suggests that the significance of diamond mining in the area had declined by this time (Breutz, 1954).</p> <p>One of the earliest diggings in the wider surroundings the study area took place on the farm Nooitgedacht alias Vetpan, which is situated approximately 23km north of the study area. In terms of a proclamation dated 22 August 1922 and undertaken in terms of Section 51 of the Precious Stones Act (Act 44 of 1927), claims were distributed along the Vetpan Alluvial Diggings on the farm Nooitgedacht alias Vetpan. This means that the farm had been proclaimed a public diggings before August 1922 (2862). The public diggings proclamation was withdrawn from the farm on 19 March 1930 (689).</p>
1983 - 1984	<p>The forced removal of the residents of Zwartkop and Hartbeeslaagte started in 1975 when a small number of families were removed from the farm Zwartkop to Waaikraal in the then Bophuthatswana. On 21 August 1983, a total of 170 families were moved to Pachsdraai. The forced relocation continued with an order that was issued by the State President on 10 November 1983 under Section 5 (1)(b) of the Black Administration Act (38 of 1927) in terms of which members of the Bakwena ba Mogôpa and other residents of the farms Hartbeeslaagte and Zwartkop were directed to withdraw from there (within 10 days of the date of the order) to the Pachsdraai area in the Groot Marico district. In February 1984 the forced removal of the people from the two farms were completed when over 300 families were removed (T8/7/2/2/V13/19).</p>

5.2 Archival and Historical Maps

An assessment of available archival and historical maps was undertaken as a way to establish a historic layering for the study area. These historic maps are also valuable resources in identifying possible heritage sites and features located within the study area. In terms of the topographic maps, overlays were compiled showing the study area boundaries on each of the maps. Any possible heritage sites depicted within the study area on these maps will be marked and discussed. Refer **Figures 20** and **21**.

5.2.1 Ventersdorp' sheet of the Major Jackson Series

The figure below depicts a section of the 'Ventersdorp' sheet of the Major Jackson Map Series. This series was compiled and drawn in the Surveyor-General's Office in Pretoria during the South African War under the direction of Major H.M. Jackson of the Royal Engineers. The specific sheet's surveys were undertaken in October 1900 while the lithography took place during February 1901. The depicted map is the sixth revised edition of the particular sheet dating to March – June 1902. Apart from two tracks that run in the eastern and southern sections of the farm Doornpan, no heritage sites are depicted in or around the study area.

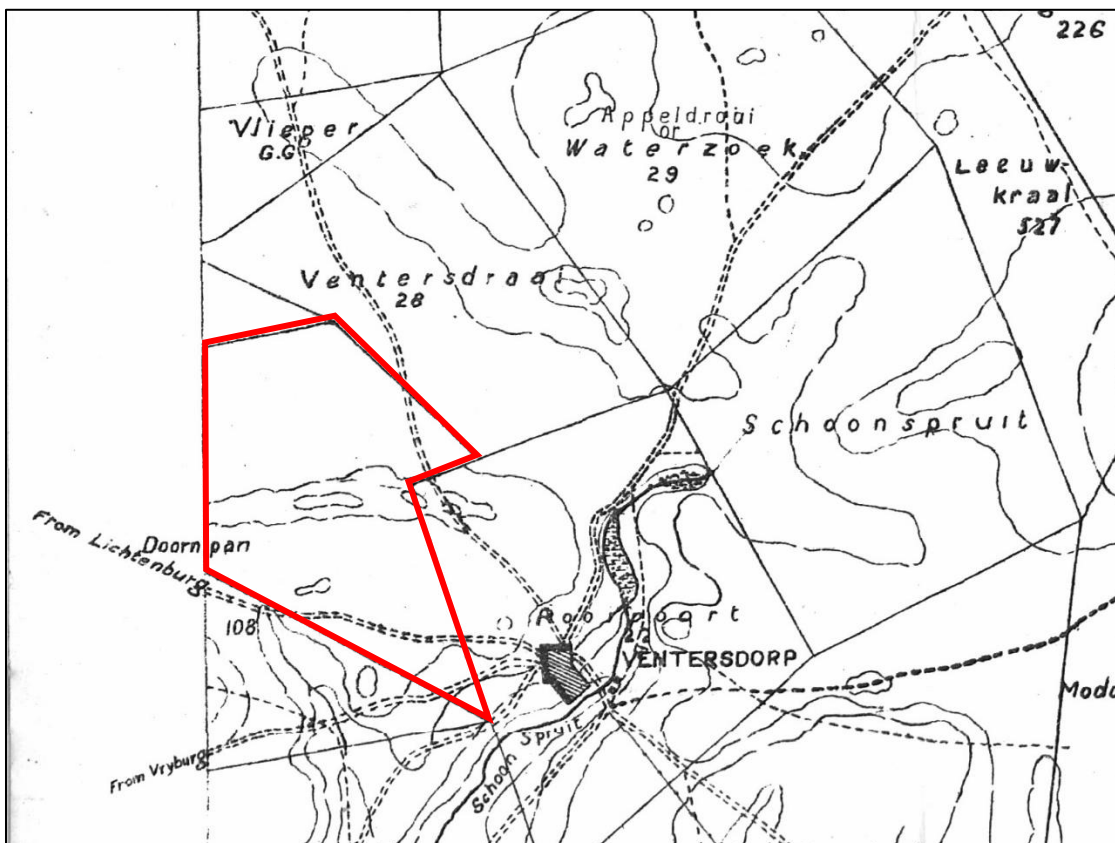


Figure 19 – Section of the 'Ventersdorp' sheet of the Major Jackson Series. The boundaries of the farm Doornpan is depicted in red.

5.2.2 First Edition of the 2626BD Topographic Map

A section of the First Edition of the 2626BD (Ventersdorp) Topographical Map is depicted below. This map was surveyed in 1954 and drawn by the Trigonometrical Survey Office in 1959. It was printed by the Government Printer in 1959. No heritage features are depicted within the study area on the map.

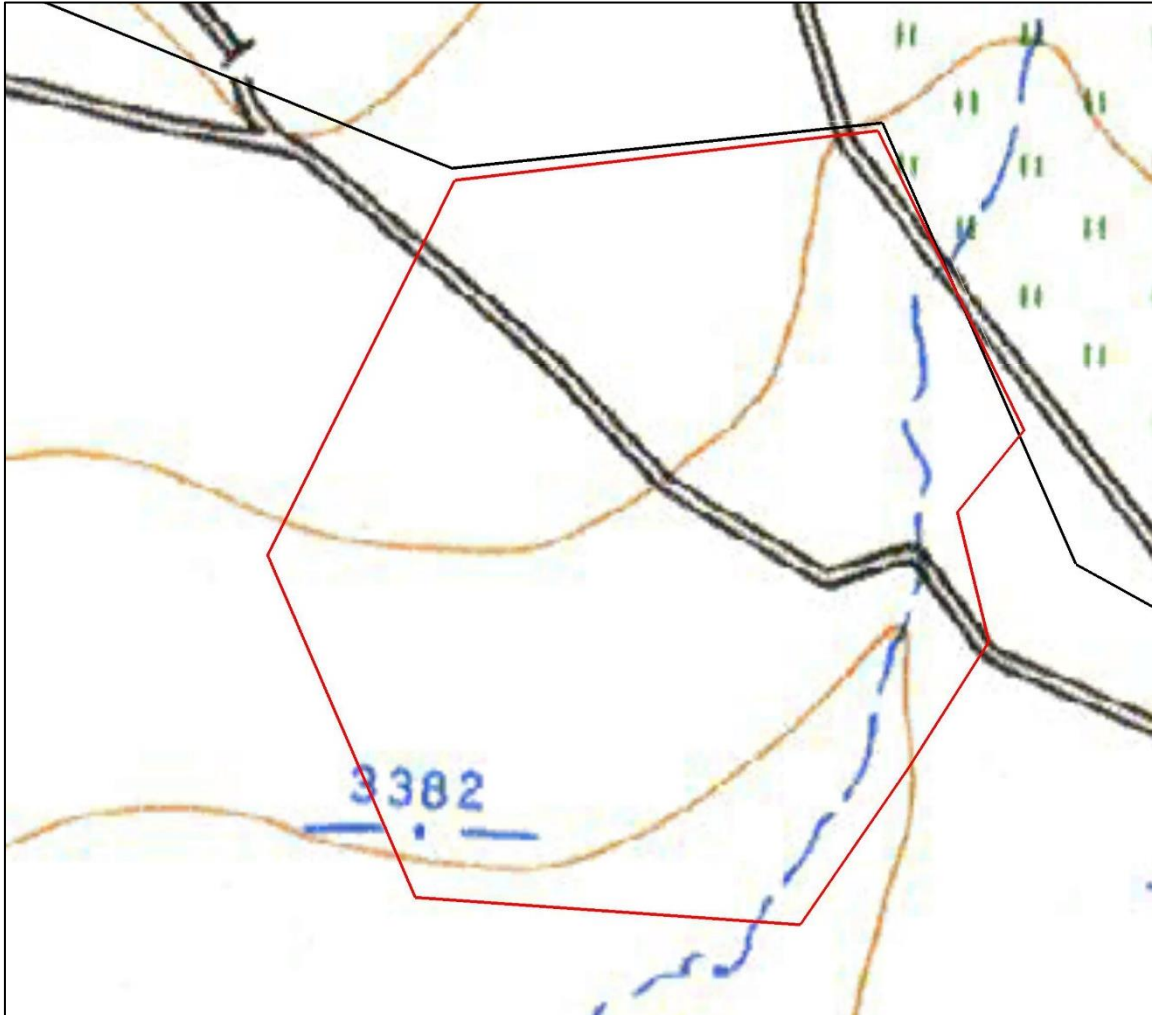


Figure 20 - View of the study area as depicted on a section of the First Edition of the 2626BD Topographical Sheet. As can be seen from this image, no heritage features are identified within the study area on the map. The study area boundaries are shown in red.

5.2.3 First Edition of the 2626BD Topographic Map

A section of the First Edition of the 2626BD (Ventersdorp) Topographic Map is depicted below. This map was published by the Chief Director of Survey and Mapping and printed by the Government Printer in 1972. No heritage features are depicted within the study area on the map.

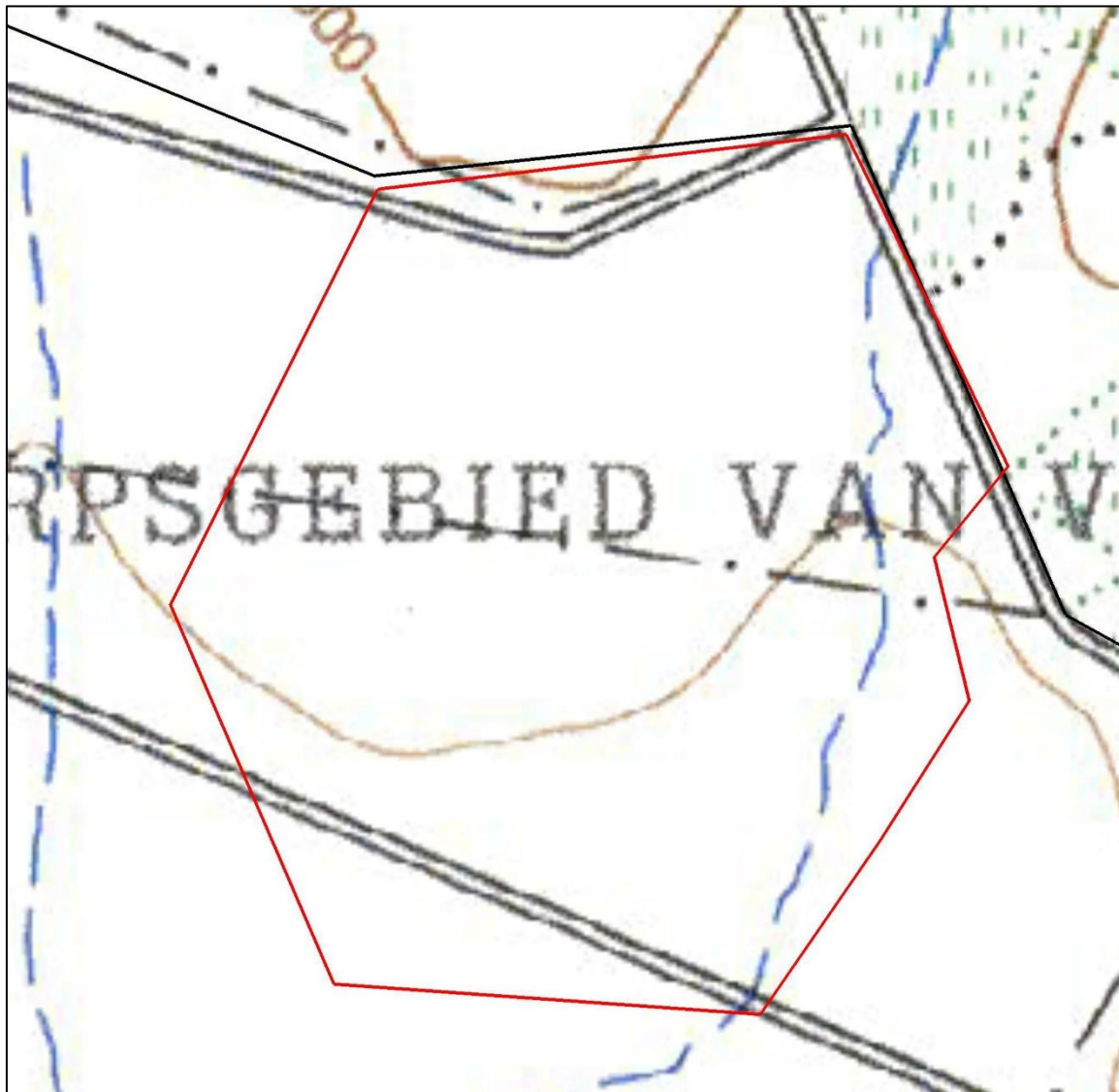


Figure 21 - View of the study area as depicted on a section of the Second Edition of the 2626BD Topographical Sheet. As can be seen from this image, no heritage features are identified within the study area on the map. The study area boundaries are shown in red.

5.2.4 Previous Heritage Reports from the Study Area and Surroundings

An assessment of the South African Heritage Resources Information System (SAHRIS) of SAHRA was undertaken to establish whether any previous archaeological and heritage impact assessments had revealed archaeological and heritage sites within the present study area. This assessment has revealed that a number of previous studies had been undertaken in the surroundings of the study area. However, although a few sites were identified in proximity to the present study area, no sites from these studies were identified within the present study area.

All previous studies that were located on the SAHRIS system and/or received from the client, will be briefly discussed in chronological order below. In each case, the results of each study are shown in bold.

- DREYER, C. 2006. First Phase Archaeological and Cultural Heritage Assessment of the Proposed Development at the Farms Bovenste Oog 68IQ (Mooi River), Digby Plain 63IQ, Sommerville 62IQ, Preston Pans 59IQ and Drylands 64IQ, Ventersdorp, North West Province. **A variety of cultural and historical remains ranging from rectangular stone-walled house ruins, part of a stock kraal, prospecting holes, old mine shafts, a graveyard, stone walls and LIA stonewalls were found.**
- BIRKHOLZ, P. 2008. Phase 1 Heritage Impact Assessment for the Proposed Etruscan Diamonds (Pty) Ltd Development situated on the Remaining Extent of the Farms Nooitgedacht 131 IP, Zwartrand 145 IP and Hartbeeslaagte 146 IP, Magisterial District of Ventersdorp, North West Province. **Eight sites were identified namely two historic farm dwellings, four cemetery sites, and two Later Stone Age sites.**
- KUSEL, U. 2007. Cultural Heritage Resources Impact Assessment of Portions 9 and 146 of the Farm Klipplaatdrift 214 IP, Ventersdorp, North West Province. **No important heritage resources or graves were identified.**
- KUSEL, U. 2011. Cultural Heritage Resources Impact Assessment of the Farm Roodepoort 191 IP, Ventersdorp, North West Province. **No important heritage resources or graves were identified.**
- KUSEL, U. 2017. Phase I Cultural Heritage Resources Impact Assessment for the Proposed Development of an Integrated Human Settlement in Ventersdorp Town within the Jurisdiction of Venterdorp/Tlokwe 405 Local Municipality, in the North West Province. **A large cemetery with 38 graves was identified.**
- VAN DER WALT, J. 2017. Heritage Impact Assessment for the Proposed Ventersdorp Township Establishment, North West Province Project. **No archaeological sites or material of significance was recorded during the survey.**
- COETZEE, T. 2020. Phase 1 Archaeological Impact Assessment and Desktop Study for Rivanet Mining & Exploration on Several Portions of the Farms Wolvenfontein 74 IQ, Syferfontein 81 IQ, Modderfontein 187 IP, Roodepoort 191 IP, Oatlands 79 IQ, Uitkyk 184 IP, Palmietfontein 189 IP, Koppieskraal 500 IP, Makokskraal 203 IP, Sweethome 197 IP and Doornpan 193 IP, near Ventersdorp, North West Province. **Several sites, including structures, buildings, mine shafts, homesteads and cemeteries were identified.**

6 FIELDWORK FINDINGS

6.1 Introduction

The fieldwork comprised a field assessment of the study area undertaken primarily by foot and vehicle over the course of one day by an experienced fieldwork team from PGS consisting of two archaeologists (Cherene de Bruyn and Ruan van der Merwe). The team was met on site by Ms. Sushi Mooki from the JB Marks Local Municipality. The fieldwork was undertaken on Friday, 21 May 2021.

During the fieldwork, hand-held GPS devices were used to record tracklogs. These recorded tracklogs show the routes followed by the fieldwork team on site. The recorded tracklogs are depicted in **Figure 20** below.

During the fieldwork, seven archaeological sites (**DP-01** to **DP-07**) consisting of low-density surface scatters of Stone Age material were identified.



Figure 22 - Google Earth image depicting the study area boundaries in blue with the recorded tracklogs in yellow. The identified heritage sites are also depicted.

6.2 Heritage Sites

6.2.1 DP-01

GPS Coordinates:

S 26.299071

E 26.788821

Type: Low Density Surface Scatter of Stone Age Lithics

Description:

The site consists of a low-density surface scatter of Stone Age lithics located around a small rock outcrop. The noticeable lithic types consist of flakes and blades made from chert. The highest lithic density observed at the site is one lithic per square meter. Additionally, only a small number of lithics were observed on the surface of the site.

Significance:

The site has a low lithic density and is only comprised of a small number of lithics. As a result, it is deemed to be of **Generally Protected C (GP. C) or Low Significance**.

Site Extent:

The site is approximately 10m x 10m in extent.

Impact Assessment and Mitigation:

See **Chapter 7** for impact assessment calculations and **Chapter 8** for required mitigation measures.



Figure 23 - General view of site DP-01 showing the area where lithics were observed. The scale is in 10cm increments.



Figure 24 – Sample of blades and flakes observed on the surface of the site. The scale is in 1cm and 5cm increments.

6.2.2 DP 02

GPS Coordinates:

S 26.298890

E 26.790623

Type: Low Density Surface Scatter of Stone Age Lithics

Description:

The site consists of a low-density surface scatter of Stone Age lithics. The noticeable lithic types consist of flakes. The lithics were made from quartzite. The highest lithic density observed at the site is one lithic per square meter. Additionally, only a small number of lithics were observed on the surface of the site.

Significance:

The site has a low lithic density and is only comprised of a small number of lithics. As a result, it is deemed to be of **Generally Protected C (GP. C) or Low Significance**.

Site Extent:

The site is approximately 10m x 10m in extent.

Impact Assessment and Mitigation:

See **Chapter 7** for impact assessment calculations and **Chapter 8** for required mitigation measures.



Figure 25 - General view of the site. The scale is in 10cm increments.



Figure 26 – Sample of lithics observed on the surface of the site. The scale is in 1cm and 5cm increments.

6.2.3 DP 03

GPS Coordinates:

S 26.299001

E 26.791078

Type: Low Density Surface Scatter of Stone Age Lithics

Description:

The site consists of a low-density surface scatter of Stone Age lithics located near a small rock outcrop. The noticeable lithic types consist of flakes and blades. The tools are made from chert and possibly quartzite. The highest lithic density observed at the site is two lithics per square meter. Additionally, only a small number of lithics were observed on the surface of the site.

Significance:

The site has a low lithic density and is only comprised of a small number of lithics. As a result, it is deemed to be of **Generally Protected C (GP. C) or Low Significance**.

Site Extent:

The site is approximately 10m x 10m in extent.

Impact Assessment and Mitigation:

See **Chapter 7** for impact assessment calculations and **Chapter 8** for required mitigation measures.



Figure 27 - General view of the site. The scale is in 10cm increments.



Figure 28 - Sample of lithics observed on the surface of the site. The scale is in 1cm and 5cm increments.

6.2.4 DP 04

GPS Coordinates:

S 26.304433

E 26.786340

Type: Low Density Surface Scatter of Stone Age Lithics

Description:

The site consists of a low-density surface scatter of Stone Age lithics. The lithics were observed in one of the roads that crosses through the study area. It seems likely for the lithics to have been exposed during the construction of this road. The noticeable lithic types consist of flakes. The tools are made from chert. The highest lithic density observed at the site is one lithic per square meter. Additionally, only a small number of lithics were observed on the surface of the site.

Significance:

The site has a low lithic density and is only comprised of a small number of lithics. As a result, it is deemed to be of **Generally Protected C (GP. C) or Low Significance**.

Site Extent:

The site is approximately 10m x 10m in extent.

Impact Assessment and Mitigation:

See **Chapter 7** for impact assessment calculations and **Chapter 8** for required mitigation measures.



Figure 29 - General view of the site. The scale is in 10cm increments.



Figure 30 - Sample of lithics observed on the surface of the site. The scale is in 1cm and 5cm increments.

6.2.5 DP 05

GPS Coordinates:

S 26.305204

E 26.787682

Type: Low Density Surface Scatter of Stone Age Lithics

Description:

The site consists of a single Stone Age lithic that was observed on the surface of the site. The lithic observed on the surface of the site is a flake. The raw material used in the manufacture of the flake is quartzite. The highest lithic density observed at the site is one lithic per square meter.

Significance:

The site is only comprised of a single lithic. As a result, it is deemed to be of **Generally Protected C (GP. C) or Low Significance**.

Site Extent:

The site is approximately 10m x 10m in extent.

Impact Assessment and Mitigation:

See **Chapter 7** for impact assessment calculations and **Chapter 8** for required mitigation measures.



Figure 31 -General view of the site. The scale is in 10cm increments.



Figure 32 - View of the lithic observed on the site surface. The scale is in 1cm and 5cm increments.

6.2.6 DP 06

GPS Coordinates:

S 26.303401

E 26.786230

Type: Low Density Surface Scatter of Stone Age Lithics

Description:

The site consists of a low-density surface scatter of Stone Age lithics. The lithics were observed in one of the roads that crosses through the study area. It seems likely for the lithics to have been exposed during the construction of this road. The noticeable lithic types consist of flakes. The tools are made from chert. The highest lithic density observed at the site is one lithic per square meter. Additionally, only a small number of lithics were observed on the surface of the site.

Significance:

The site has a relatively low lithic density and is only comprised of a small number of lithics. As a result, it is deemed to be of **Generally Protected C (GP. C) or Low Significance**.

Site Extent:

The site is approximately 10m x 10m in extent.

Impact Assessment and Mitigation:

See **Chapter 7** for impact assessment calculations and **Chapter 8** for required mitigation measures.



Figure 33 -General view of the site. A small number of lithics were observed in a disturbed context in the road. The scale is in 10cm increments.



Figure 34 - Sample of the lithic observed on the surface of the site. The scale is in 1cm and 5cm increments.

6.2.7 DP 07

GPS Coordinates:

S 26.304084

E 26.786124

Type: Low Density Surface Scatter of Stone Age Lithics

Description:

The site consists of a single Stone Age lithic that appears to have been exposed through erosion. The lithic observed here is a flake. The raw material used in the manufacture of the flake is chert. The highest lithic density observed at the site is one lithic per square meter

Significance:

The site is only comprised of a single lithic. As a result, it is deemed to be of **Generally Protected C (GP. C) or Low Significance.**

Site Extent:

The site is approximately 10m x 10m in extent.

Impact Assessment and Mitigation:

See **Chapter 7** for impact assessment calculations and **Chapter 8** for required mitigation measures.



Figure 35 - General view of the site. Surface erosion appears to have exposed the lithic. The scale is in 10cm increments.

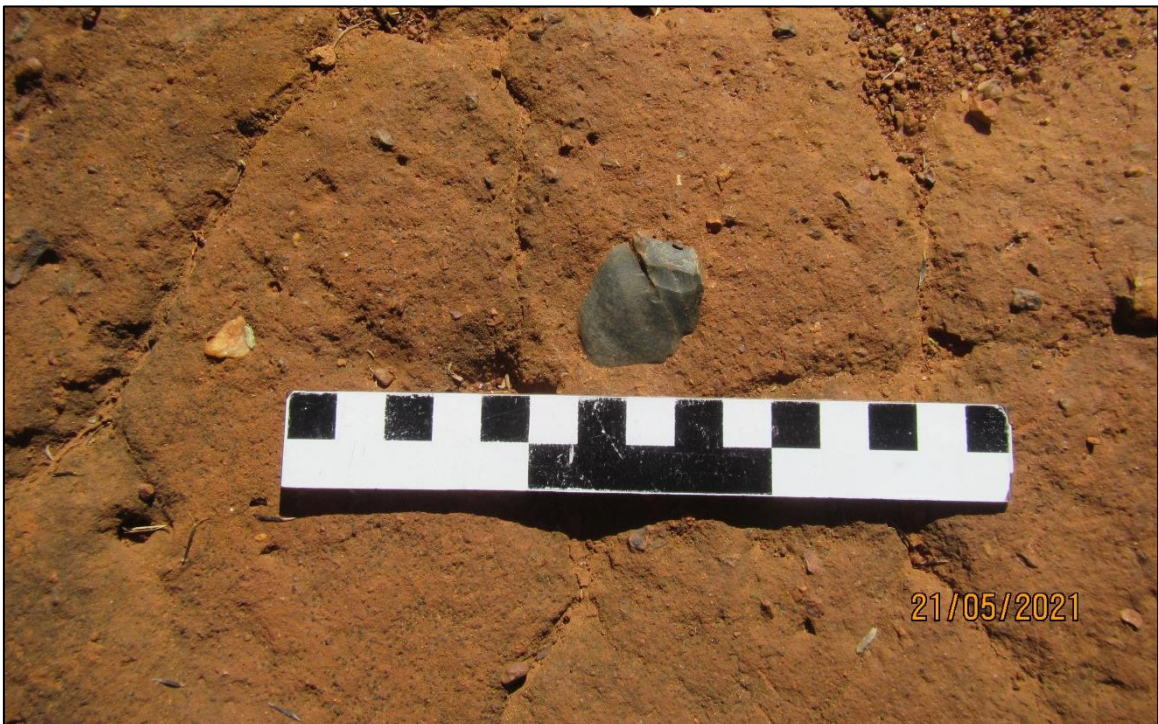


Figure 36 – Closer view of the lithic. The scale is in 1cm and 5cm increments.

6.3 Palaeontology

According to the PalaeoMap on the SAHRIS database, the Palaeontological Sensitivity of the proposed project footprint is of Moderate (Green) to Low (Blue) palaeontological sensitivity (**Figure 37**). As a result, a palaeontological desktop study undertaken by a professional palaeontologist is required.

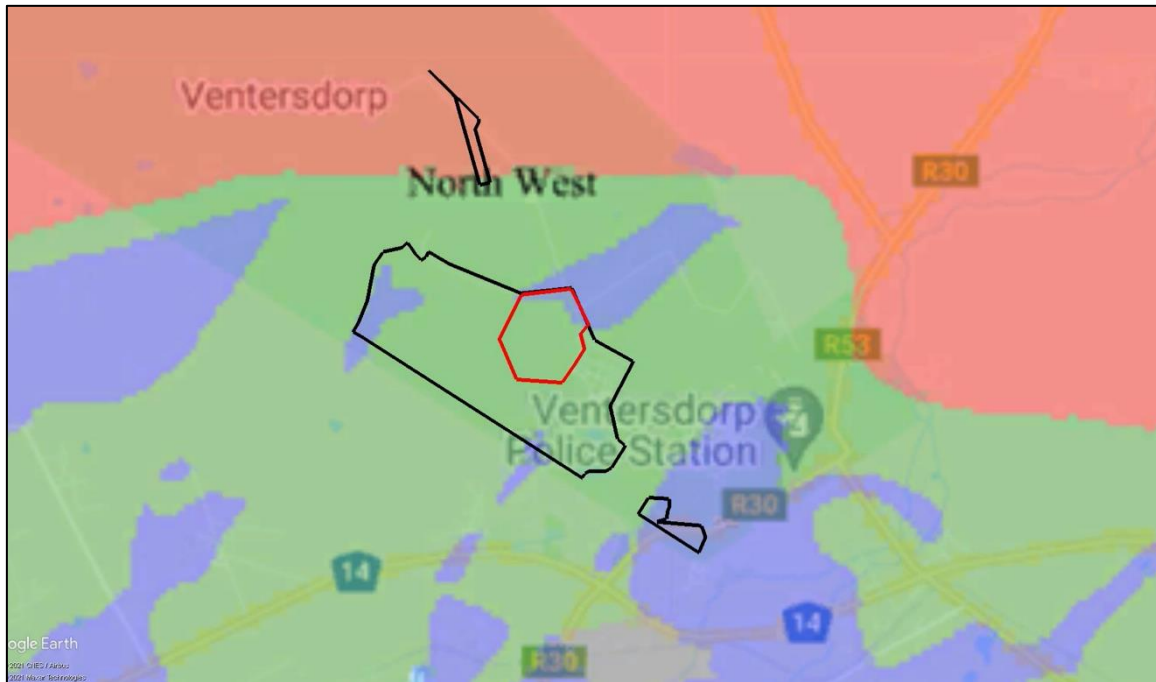


Figure 37 - Extract of the 1 in 250 000 SAHRIS PalaeoMap map (Council of Geosciences). The approximate location of the proposed development is indicated in red. The underlying geology is shown as Moderate (Green) to Low (Blue) palaeontological sensitivity.

Table 13 - SAHRIS Palaeosensitivity ratings table. The relevant sensitivities are highlighted

Colour	Sensitivity	Required Action
RED	VERY HIGH	Field assessment and protocol for finds is required.
ORANGE/YELLOW	HIGH	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely.
GREEN	MODERATE	Desktop study is required.
BLUE	LOW	No palaeontological studies are required however a protocol for finds is required.
GREY	INSIGNIFICANT/ZERO	No palaeontological studies are required.
WHITE/CLEAR	UNKNOWN	These areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

7 ASSESSMENT OF IMPACT OF PROPOSED DEVELOPMENT

7.1 Introduction

In this section, an assessment will be made of the impact of the proposed development on the identified heritage sites.

Heritage sites assessed to have a low heritage significance are not included in these impact risk assessment calculations. The reason for this is that sites of low significance will not require mitigation. These sites are **DP-01 to DP-07**.

As a result, no impact assessments are required.

8 REQUIRED MITIGATION MEASURES

8.1 Introduction

In this chapter, required mitigation measures for each of the sites affected by the proposed development will be outlined.

No mitigation is required for heritage sites assessed to have a low heritage significance. As a result, no mitigation is required for the following sites: **DP-01 to DP-07**.

As a result, no heritage impact is expected as a result of the proposed development of Portion 3 of the Farm Doornpan 193 IP. As such, no mitigation is required for the construction of this proposed township to continue.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Introduction

PGS Heritage (Pty) Ltd (PGS) was appointed by Nkanivo (Pty) Ltd (Nkanivo) to undertake a Heritage Impact Assessment (HIA) for a Proposed Township Establishment on Portion 3 of the Farm Doornpan 193 IP, outside Ventersdorp, JB Marks Local Municipality, Dr Kenneth Kaunda District Municipality, North West Province.

9.2 Project Description

The project comprises the proposed establishment of a township on Portion 3 of the Farm Doornpan 193 IP.

9.3 General Desktop Study

An archaeological and historical desktop study was undertaken of the project area and surrounding landscape. This was augmented by an assessment of previous archaeological and heritage studies completed for the study area and surrounding landscape. Furthermore, an assessment was made of the early editions of the relevant topographic maps. Refer to **Chapter 5**.

9.4 Fieldwork

The fieldwork comprised a field assessment of the study area undertaken primarily by foot and vehicle over the course of one day by an experienced fieldwork team from PGS consisting of two archaeologists (Cherene de Bruyn and Ruan van der Merwe). The team was met on site by Ms Sushi Mooki from the JB Marks Local Municipality. The fieldwork was undertaken on Friday, 21 May 2021. During the fieldwork, seven archaeological sites (**DP-01 to DP-07**) consisting of low-density surface scatters of Stone Age material were identified.

Throughout the fieldwork, hand-held GPS devices were used to record the tracklogs that show the routes followed by the two archaeologists on site. All sites identified during the fieldwork were photographically and qualitatively recorded, and their respective localities documented using a hand-held GPS device

9.5 Palaeontology

According to the PalaeoMap on the SAHRIS database, the Palaeontological Sensitivity of the proposed project footprint is of Moderate (Green) to Low (Blue) palaeontological sensitivity. As a result, a palaeontological desktop study is required.

9.6 Impact Assessment and Mitigation

Sites **DP-01 to DP-07** are of low heritage significance and will not require any mitigation. With no impact expected on heritage, no further mitigation is required. Refer to **Chapters 7 & 8** of this report.

9.7 General Recommendations

The following general recommendations are required:

- A palaeontological desktop assessment must be undertaken by a professional palaeontologist. The recommendations made in the palaeontological report must be implemented.

9.8 Conclusions

The unmitigated impact of the proposed development is expected to result in a low negative impact in terms of the identified archaeological and heritage sites located here. As a result, on the condition that the recommendations made in this report are adhered to, no heritage reasons can be given for the development not to continue.

10 PREPARERS

This Heritage Impact Assessment was compiled by the following preparers:

- Polke Birkholtz – Project Manager / Archaeologist - Co-Author
- Cherene de Bruyn – Archaeologist - Author

11 REFERENCES

11.1 Published Sources

- BERGH, J.S. (ed.). 1999: Geskiedenis Atlas van Suid-Afrika: Die Vier Noordelike Provinsies. J.L. van Schaik. Pretoria.
- BREUTZ, P.L. 1954: Die Stamme van die Distrik Ventersdorp, Ethnologiese Reeks Nr. 31, Department van Naturellesake. Die Staatsdrukker, Pretoria.
- ESTERHUYSEN, A and SMITH, J. 2007. Stories in Stone. Chapter 2 in Mpumalanga: History and Heritage.
- HUFFMAN, T. 2007. Handbook to the Iron Age of Pre-Colonial Farming Societies in South Africa. Pietermaritzburg: University of KwaZulu-Natal Press.
- Pistorius, J.e.e. 1992. Molokwane: An Iron Age Bakwena Village. Early Tswana settlement in the Western Transvaal. Johannesburg: Perskor
- VISAGIE, J.C. 2011. Voortrekkerstamouers: 1835 – 1845. Protea Boekhuis, Pretoria.

11.2 Unpublished Sources

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- KUSEL, U. 2011. Cultural heritage resources impact assessment of the Farm Roodepoort 191 IP Ventersdorp North West Province.

KUSEL, U. 2017. Phase I cultural heritage resources impact assessment for the proposed development of an integrated human settlement in Ventersdorp town within the jurisdiction of Venterdorp/Tlokwe 405 Local Municipality, in the North West Province.

VAN DER WALT, J. 2017. Heritage impact assessment for the proposed Ventersdorp Township establishment, North West Province Project.

11.3 Old Topographic Maps

All the historic topographical maps used in this report were obtained from the Directorate: National Geo-spatial Information of the Department of Rural Development and Land Reform in Cape Town.

11.4 Archival Documents

BAO, 2/4290, T8/7/2/2/V13/19

BAO, 2/4292, T8/7/2/2/V13/19

BAO, 2/4293, T8/7/2/2/V13/19

BAO, 10/ 76, D52/1716/7

URU, 1118, 689

URU, 1005, 2862

11.5 Internet

www.sanbi.org

<https://screening.environment.gov.za/screeningtool/#/pages/welcome>

www.sahistory.org.za

11.6 Google Earth

At least some of the aerial depictions of the study area were obtained using Google Earth.

Appendix A
HERITAGE MANAGEMENT GUIDELINES

1. **General Management Guidelines**

1. The National Heritage Resources Act (Act 25 of 1999) states that, any person who intends to undertake a development categorised as-
 - (a) the construction of a road, wall, transmission line, 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 m² 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 m² 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.

In the event that an area previously not included in an archaeological or cultural resources survey is to be disturbed, the SAHRA needs to be contacted. An enquiry must be lodged with them into the necessity for a Heritage Impact Assessment.

2. In the event that an additional heritage assessment is required, it is advisable to utilise a qualified heritage practitioner, preferably registered with the Cultural Resources Management Section (CRM) of the Association of Southern African Professional Archaeologists (ASAPA). This survey and evaluation must include:
 - (a) The identification and mapping of all heritage resources in the area affected;
 - (b) An assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6 (2) or prescribed under section 7 of the National Heritage Resources Act;
 - (c) An assessment of the impact of the development on such heritage resources;
 - (d) An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
 - (e) The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;

- (f) If heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
 - (g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.
3. In the event that a possible find is discovered during construction, the following steps must be taken:
- (a) All activities must be halted in the area of the discovery and a qualified archaeologist contacted;
 - (b) The archaeologist needs to evaluate the finds on site and make recommendations towards possible mitigation measures;
 - (c) If mitigation is necessary, an application for a rescue permit must be lodged with SAHRA; and
 - (d) After mitigation, an application must be lodged with SAHRA for a destruction permit. This application must be supported by the mitigation report generated during the rescue excavation. Only after the permit is issued may such a site be destroyed.
4. In the case where a grave is identified during construction, the following measures must be taken:
- (e) Upon the accidental discovery of graves, a buffer of at least 20 meters should be implemented;
 - (f) If graves are accidentally discovered during construction, activities must cease in the area and a qualified archaeologist be contacted to evaluate the find;
 - (g) To remove the remains, a permit must be applied for from SAHRA and other relevant authorities. The local South African Police Services must immediately be notified of the find; and
 - (h) Where it is recommended that the graves be relocated, a full grave relocation process that includes a comprehensive social consultation must be followed. Such a grave relocation process must include the following:
 - (i) A detailed social consultation process that aims to trace the next-of-kin and obtain their consent for the relocation of the graves, that will be at least 60 days in length;
 - (ii) Site notices indicating the intent of the relocation;
 - (iii) Newspaper notices indicating the intent of the relocation;
 - (iv) Permits from the relevant permitting authorities, including the local authority; the Provincial Department of Health; the South African Heritage Resources Agency (SAHRA) (if the graves are older than 60 years or unidentified and thus presumed older than 60 years) etc.

- (vii) An exhumation process that keeps the dignity of the remains intact;
- (viii) The whole process must be done by a reputable company that is well versed in relocations; and
- (ix) The exhumation process must be conducted in such a manner as to safeguard the legal rights of the families as well as that of the mining company.

PGS Heritage can be contacted on the way forward in this regard.

Table 14: Roles and responsibilities of archaeological and heritage management

ROLE	RESPONSIBILITY	IMPLEMENTATION
A responsible specialist needs to be allocated and should attend all relevant meetings, especially when changes in design are discussed, and liaise with SAHRA.	The client	Archaeologist and a competent archaeological support team
If chance finds and/or graves or burial grounds are identified during construction or operational phases, a specialist must be contacted for evaluation.	The client	Archaeologist and a competent archaeological support team
Comply with defined national and local cultural heritage regulations on management plans for identified sites.	The client	Environmental Consultancy and the Archaeologist
Consult the managers, local communities and other key stakeholders on mitigation of archaeological sites.	The client	Environmental Consultancy and the Archaeologist
Implement additional programs, as appropriate, to promote the safeguarding of our cultural heritage.	The client	Environmental Consultancy and the Archaeologist
If required, conservation or relocation of burial grounds and/or graves according to the applicable regulations and legislation.	The client	Archaeologist, and/or competent authority for relocation services
Ensure that recommendations made in the Heritage Report are adhered to.	The client	The client
Provision of services and activities related to the management and monitoring of significant archaeological sites.	The client	Environmental Consultancy and the Archaeologist
After the specialist/archaeologist has been appointed, comprehensive feedback reports should be submitted to relevant authorities during each phase of development.	Client and Archaeologist	Archaeologist

Appendix B
CURRICULUM VITAE

**PROFESSIONAL CURRICULUM
FOR POLKE DOUSSY BIRKHOLTZ**

Name: *Polke Doussy Birkholtz*

Date & Place of Birth: *9 February 1975 – Klerksdorp, North West Province, South Africa*

Place of Tertiary Education & Dates Associated:

Institution: University of Pretoria

Qualification: BA (Cum Laude) - Bachelor of Arts Specializing in Archaeology, History & Anthropology

Date: 1996

Institution: University of Pretoria

Qualification: BA Hons (Cum Laude) - Bachelor of Arts with Honours Degree Specializing in Archaeology

Date: 1997

Qualifications:

BA - Degree specialising in Archaeology, History and Anthropology

BA Hons - Professional Archaeologist

Memberships:

Association of Southern African Professional Archaeologists (ASAPA)

Professional Member of the CRM Section of ASAPA

Overview of Post Graduate Experience:

1997 – 2000 – Member/Archaeologist – Archaeo-Info

2001 – 2003 – Archaeologist/Heritage Specialist – Helio Alliance

2000 – 2008 – Member/Archaeologist/Heritage Specialist – Archaeology Africa

2003 - Present – Director / Archaeologist / Heritage Specialist – PGS Heritage

Languages: English: Speak, Read & Write & Afrikaans: Speak, Read & Write

Total Years' Experience: 19 Years

Experience Related to the Scope of Work:

- Polke has worked as a **HERITAGE SPECIALIST / ARCHAEOLOGIST / HISTORIAN** on more than 300 projects and acted as **PROJECT MANAGER** on almost all of these projects. His experience includes the following:
 - Development of New Sedimentation and Flocculation Tanks at Rand Water's Vereeniging Pumping Station, Vereeniging, Gauteng Province. Heritage Impact Assessment for *Greenline*.
 - EThekweni Northern Aqueduct Project, Durban, KwaZulu-Natal. Heritage Impact Assessment for *Strategic Environmental Focus*.
 - Johannesburg Union Observatory, Johannesburg, Gauteng Province. Heritage Inventory for *Holm Jordaan*.
 - Development at Rand Water's Vereeniging Pumping Station, Vereeniging, Gauteng Province. Heritage Impact Assessment for *Aurecon*.
 - Comet Ext. 8 Development, Boksburg, Gauteng Province. Phase 2 Heritage Impact Assessment for *Urban Dynamics*.
 - Randjesfontein Homestead, Midrand, Gauteng Province. Baseline Heritage Assessment with Nkosinathi Tomose for Johannesburg City Parks.
 - Rand Leases Ext. 13 Development, Roodepoort, Gauteng Province. Heritage Impact Assessment for *Marsh*.
 - Proposed Relocation of the Hillendale Heavy Minerals Plant (HHMP) from Hillendale to Fairbreeze, KwaZulu-Natal. Heritage Impact Assessment for *Goslar Environmental*.
 - Portion 80 of the farm Eikenhof 323 IQ, Johannesburg, Gauteng Province. Heritage Inventory for *Khare Incorporated*.
 - Comet Ext. 14 Development, Boksburg, Gauteng Province. Heritage Impact Assessment for *Marsh*.
 - Rand Steam Laundries, Johannesburg, Gauteng Province. Archival and Historical Study for *Impendulo and Imperial Properties*.
 - Mine Waste Solutions, near Klerksdorp, North West Province. Heritage Inventory for *AngloGold Ashanti*.
 - Consolidated EIA and EMP for the Kroondal and Marikana Mining Right Areas, North West Province. Heritage Impact Assessment for *Aquarius Platinum*.
 - Wilkoppies Shopping Mall, Klerksdorp, North West Province. Heritage Impact Assessment for the *Center for Environmental Management*.
 - Proposed Vosloorus Ext. 24, Vosloorus Ext. 41 and Vosloorus Ext. 43 Developments, Ekurhuleni District Municipality, Gauteng Province. Heritage Impact Assessment for *Enkanyini Projects*.
 - Proposed Development of Portions 3, 6, 7 and 9 of the farm Olievenhoutbosch 389 JR, City of Tshwane Metropolitan Municipality, Gauteng Province. Heritage Impact Assessment for *Marsh*.

- Proposed Development of Lotus Gardens Ext. 18 to 27, City of Tshwane Metropolitan Municipality, Gauteng Province. Heritage Impact Assessment for *Pierre Joubert*.
- Proposed Development of the site of the old Vereeniging Hospital, Vereeniging, Gauteng Province. Heritage Scoping Assessment for *Lekwa*.
- Proposed Demolition of an Old Building, Kroonstad, Free State Province. Phase 2 Heritage Impact Assessment for *De Beers Consolidated Mines*.
- Proposed Development at Westdene Dam, Johannesburg, Gauteng Province. Heritage Impact Assessment for *Newtown*.
- West End, Central Johannesburg, Gauteng Province. Phase 1 Heritage Impact Assessment for the *Johannesburg Land Company*.
- Kathu Supplier Park, Kathu, Northern Cape Province. Heritage Impact Assessment for *Synergistics*.
- Matlosana 132 kV Line and Substation, Stilfontein, North West Province. Heritage Impact Assessment for *Anglo Saxon Group* and *Eskom*.
- Marakele National Park, Thabazimbi, Limpopo Province. Cultural Resources Management Plan for *SANParks*.
- Cullinan Diamond Mine, Cullinan, Gauteng Province. Heritage Inventory for *Petra Diamonds*.
- Highveld Mushrooms Project, Pretoria, Gauteng Province. Heritage Impact Assessment for *Mills & Otten*.
- Development at the Reserve Bank Governor's Residence, Pretoria, Gauteng Province. Archaeological Excavations and Mitigation for the *South African Reserve Bank*.
- Proposed Stones & Stones Recycling Plant, Johannesburg, Gauteng Province. Heritage Scoping Report for *KV3*.
- South East Vertical Shaft Section of ERPM, Boksburg, Gauteng Province. Heritage Scoping Report for *East Rand Proprietary Mines*.
- Proposed Development of the Top Star Mine Dump, Johannesburg, Gauteng Province. Detailed Archival and Historical Study for *Matakoma*.
- Soshanguve Bulk Water Replacement Project, Soshanguve, Gauteng Province. Heritage Impact Assessment for *KWP*.
- Biodiversity, Conservation and Participatory Development Project, Swaziland. Archaeological Component for *Africon*.
- Camdeboo National Park, Graaff-Reinet, Eastern Cape Province. Cultural Resources Management Plan for *SANParks*.
- Main Place, Central Johannesburg, Gauteng Province. Phase 1 Heritage Impact Assessment for the *Johannesburg Land Company*.
- Modderfontein Mine, Springs, Gauteng Province. Detailed Archival and Historical Study for *Consolidated Modderfontein Mines*.
- Proposed New Head Office for the Department of Foreign Affairs, Pretoria, Gauteng Province. Heritage Impact Assessment for *Holm Jordaan Group*.

- Proposed Modification of the Lukasrand Tower, Pretoria, Gauteng Province. Heritage Assessment for IEPM.
- Proposed Road between the Noupoort CBD and Kwazamukolo, Northern Cape Province. Heritage Impact Assessment for *Gill & Associates*.
- Proposed Development at the Johannesburg Zoological Gardens, Johannesburg, Gauteng Province. Detailed Archival and Historical Study for *Matakoma*.

- Polke's **KEY QUALIFICATIONS:**
 - Project Management
 - Archaeological and Heritage Management
 - Archaeological and Heritage Impact Assessment
 - Archaeological and Heritage Fieldwork
 - Archival and Historical Research
 - Report Writing

- Polke's **INFORMATION TECHNOLOGY EXPERIENCE:**
 - *MS Office – Word, Excel, & Powerpoint*
 - *Google Earth*
 - *Garmin Mapsource*
 - *Adobe Photoshop*
 - *Corel Draw*

PROFESSIONAL CURRICULUM FOR CHERENE DE BRUYN

Professional Archaeologist for PGS Heritage

2016-2017	MA in Archaeology University College London, United Kingdom
2015	BSC Honours in Physical Anthropology, University of Pretoria, South Africa
2013	BA Honours in Archaeology University of Pretoria, South Africa
2010-2012	BA (General) University of Pretoria, South Africa Major subjects: Archaeology and Anthropology

PROFESSIONAL QUALIFICATIONS:

- Association of Southern African Professional Archaeologists - Professional Member (#432)
- International Association for Impact Assessment South Africa - Member (#6082)
- Association of Southern African Professional Archaeologists - CRM Accreditation
 - Principal Investigator: Grave relocation
 - Field Director: Colonial period archaeology, Iron Age archaeology
 - Field Supervisor: Rock art, Stone Age archaeology
 - Laboratory Specialist: Human Skeletal Remains
- KZN Amafa and Research Institute - Accredited Professional Heritage Practitioner

Languages:

Afrikaans & English

SUMMARY OF EXPERIENCE

Expertise in Heritage Impact Assessment Management, Historical and Archival Research, Archaeology, Physical Anthropology, Grave Relocations, Fieldwork, Geographic Information Systems and Project Management including *inter alia* -

Involvement in various grave relocation projects

- Grave exhumation, test excavations and grave “rescue” excavations in the various provinces of South Africa.
- Permit applications with SAHRA BGG and AMAFA, including relevant Municipalities and Authorities for grave relocation projects.

Involvement with various Heritage Impact Assessments,

- Heritage Impact Assessments and Management for various projects within Eastern Cape, Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, Northern Cape, North West and Western Cape Province.
- Archaeological Walkdowns for various projects.
- Instrument Survey and recording for various projects.
- Desktop, archival and heritage screening for projects.

INFORMATION TECHNOLOGY EXPERIENCE:

- MS Office – Word, Excel, Publisher & Powerpoint
- Google Earth
- QGIS, ArcGIS Online, ArcGIS Collector
- Inkscape

Heritage Assessment Projects

Below a selected list of Heritage Impact Assessments (HIA) Projects involvement:

- Heritage Management Plan for the proposed development of the 305MW Oya solar photovoltaic (PV) facility and associated infrastructure near Matjiesfontein, Western Cape.
- Heritage Impact Assessment for the Proposed Township Establishment on the Remainder of Portion 8 of the Farm Boschoek 103 JQ, near Boschoek, North West Province.
- The Proposed Irenedale Water Pipeline Between Bosjesspruit Colliery And A Local Reservoir, Located In The Lekwa Local Municipality And The Govan Mbeki Local Municipality, Gert Sibande District Municipality, Mpumalanga Province.
- Heritage Impact Assessment for the proposed development of the Msobo Coal Tselentis Colliery: Albion Opencast project, Near Breyten, Mpumalanga Province.
- Heritage Impact Assessment for the proposed development of an Airport For Kolomela Mine In Postmasburg, Northern Cape.
- Heritage Impact Assessment for the Proposed South African Coal Estates (SACE) Clydesdale Pit Project, near Emalahleni, Mpumalanga Province.
- Heritage Impact Assessment for the Amendment of the Mogalakwena Mine Expansion Project, near Mokopane, Limpopo Province.
- Heritage Impact Assessment for the Mogalakwena Mine Integrated Permitting Project near Mokopane, Limpopo Province.
- Heritage Impact Assessment for the Proposed Solar PV Plant at Armoede, near Mokopane, Limpopo Province.
- Heritage Impact Assessment for the Proposed New Cargo Precinct For The O.R. Tambo International Airport On The Farm Witkoppie 64, Gauteng Province.
- Heritage Impact Assessment for the upgrade of road d4407 between Hluvukani and Timbavati, road d4409 at Welverdiend and road d4416/2 between Welverdiend and road P194/1 in the Bohlabela region of the Mpumalanga Province.
- Heritage Impact Assessment for the proposed Piggery on Portion 46 of the farm Brakkefontien 416, within the Nelson Mandela Bay Municipality, Eastern Cape.
- Heritage Impact Assessment for proposed development On Erf 30, Letamo Town, Farm Honingklip 178 Iq, Mogale Local Municipality, Gauteng Province.
- Heritage Impact Assessment for the proposed Prospecting Right Application on the Farm Reserve No 4 15823 And 7638/1, near St Lucia, within the jurisdiction of the Mfoloji Local Municipality in the King Cetshwayo District Municipality, KwaZulu-Natal Province.

Grave Relocation Projects

Below, a selection of grave relocation projects involvement:

- Report On Test Excavations. Ivn_078 Maruma Graves, Farm Turfspruit 241 Kr, Mokopane, Limpopo Province. Test Excavation Of Possible Burial Ground As Identified By The Maruma Family.
- Relocation Of Two Infant Graves From The Farm Wonderfontein 428 Js, Belfast, Mpumalanga Province.
- Relocation Of Approximately 4 Stillborn Graves From Farm Wonderfontein 428 Js, Umsimbithi Mining (Pty) Ltd, Belfast, Chief Albert Luthuli Local Municipality, Mpumalanga Province.

EMPLOYMENT SUMMARY:

Positions Held

- 2020 – to date: Archaeologist - PGS Heritage (Pty) Ltd
- 2018 – 2019: Manager of the NGT ESHS Heritage Department – NGT Holdings (Pty) Ltd
Archaeologist and Heritage Consultant – NGT Holdings (Pty) Ltd
- 2015-2016: Archaeological Contractor - BA3G, University of Pretoria
- 2014 – 2015: DST-NRF Archaeological Intern, Forensic Anthropological Research Centre