



PGS
HERITAGE

The Buffelspoort Solar Photovoltaic (PV) Energy Facility, on Portions 75 and 134 of the Farm Buffelspoort 343 JQ, between Buffelspoort and Mooinooi, in the North West Province

Heritage Scoping Report

Issue Date: 13 June 2022
Revision No.: 1.0
Project No.: 607HIA



+ 27 (0) 12 332 5305



+27 (0) 86 675 8077



contact@pgsheritage.co.za



PO Box 32542, Totiusdal, 0134

Offices in South Africa, Kingdom of Lesotho and Mozambique

Head Office:
906 Bergarend Streets
Waverley, Pretoria,
South Africa

Directors: HS Steyn, PD Birkholtz, W Fourie

Declaration of Independence

- I, Michelle Sachse, declare that –
- General declaration:
- 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;

HERITAGE CONSULTANT:

PGS Heritage (Pty) Ltd

CONTACT PERSON:

Michelle Sachse – Heritage Specialist



Tel: +27 (0) 12 332 5305

Email: michelle@pgsheritage.co.za

SIGNATURE:



ACKNOWLEDGEMENT OF RECEIPT

Report Title	Heritage Scoping report for the Buffelspoort Solar Photovoltaic (PV) Energy Facility, on Portions 75 and 134 of the Farm Buffelspoort 343 JQ, between Buffelspoort and Mooinooi, in the North West Province		
Control	Name	Signature	Designation
Author	M Sachse		PGS Heritage - Archaeologist
Co-author and Internal Review	W Fourie		PGS Heritage - Project Manager/Archaeologist
Reviewed	M Mmola		Savannah Environmental Environmental Consultant

CLIENT: Savannah Environmental (Pty) Ltd

CONTACT PERSON: Mmakoena Mmola
Email: mmakoena@savannahsa.com

SIGNATURE: _____

EXECUTIVE SUMMARY

PGS Heritage (Pty) Ltd was appointed by Savannah Environmental (Pty) Ltd to undertake a Heritage Scoping Assessment (HS) that forms part of the Environmental Impact Assessment (EIA) and Environmental Management Programme (EMPr) for the proposed Buffelspoort Solar Photovoltaic (PV) Energy Facility on Portions 75 and 134 of the farm Buffelspoort 343 JQ, between Buffelspoort and Mooinooi, in the North West Province.

This HS aims to evaluate the possible impacts on heritage resources present within the proposed development footprint of the proposed Buffelspoort Solar PV Energy Facility.

The HS has shown that the development footprint and surrounding area has heritage resources with a moderate to low heritage grading.

Fieldwork

The fieldwork component of the study was aimed at identifying tangible remains of archaeological, historical and heritage significance. The fieldwork was undertaken by way of intensive walkthroughs of the study area. The fieldwork was conducted on 28 April 2022. The fieldwork team had to return to the study area two separate times (6 May 2022 and 26 May 2022) as the client extended the planned layout of the study area after the initial survey was completed. The fieldwork team consisted of two archaeologists from PGS Heritage (Michelle Sachse and Nicholas Fletcher) and a field assistant (Xander Fourie).

During the fieldwork, a total of eleven (11) heritage features and resources were identified (**Figure 31**). These consist of one (1) burial ground with approximately 100 graves (**BFP-06**), three (3) localities with recent historic structures (**BFP-08, BFP-10 and BFP-11**), and one (1) kraal (**BFP-09**), five (5) archaeological sites (**BFP-01, BFP-02, BFP-03, BFP-04, and BFP-05**) with low heritage significance and one archaeological site (BFP-07) with a moderate heritage significance were identified.

Historical Structures

The recent historic structures (**BFP-08, BFP-10 and BFP-11**) and the kraal (**BFP-09**) are all younger than 60 years and vary in preservation. They are all currently abandoned. The structures and remains of structures are not conservation worthy and contain no cultural or scientific value and are consequently graded as not conservation worthy.

The impact on the recent historic structures identified during the fieldwork can potentially have a LOW significance before and after the implementation of the proposed mitigation measures.

Archaeological Sites

Two of the six archaeological sites are characterised by low density scatters of Iron Age ceramics (**BFP-02 and BFP-04**). Due to the low-density scatter of ceramics and lack of any other deposits for these two sites, they are graded as not conservation worthy. The other four archaeological sites consist of areas with stone walling (**BFP-01, BFP-03, BFP-05 and BFP-07**). Site **BFP-01** consists of a long continuous stone wall running along a raised outcrop, although no other cultural material was identified in the area. Site **BFP-07** is a large stone wall site with numerous stone walled enclosures. It appears the area was already disturbed as it now functions as a feeding ground for the game in the area. There is evidence of some of the stone walling being destroyed where others still appear to be in their original state, no other cultural material was identified in the area. Sites **BFP-03** and **BFP-05** are small areas of possible stonewalling.

The possibility of the archaeological resources impacted by the proposed Buffelspoort Solar PV Energy Facility cannot be excluded, and the project can potentially have a MODERATE impact without and LOW with mitigation.

Burial grounds and graves

A single burial ground consisting of approximately 100 graves was identified at site **BFP-06**. The site was indicated to the fieldwork team by the owner the property. The informal graveyard lies just outside the proposed development footprint Although the area is overgrown by vegetation, some of the graves are still identifiable and consist mainly of stone packed or stone lined grave dressings, except for a few concrete or marble grave dressing features. Due to the cultural and religious significance of burial grounds, the site is graded as Grade 3A.

The possibility of the burial ground impacted by the proposed Buffelspoort Solar PV Energy Facility cannot be excluded, and the project can potentially have a HIGH impact without mitigation. Implementation of the recommended management and mitigation measures can reduce the impact rating to LOW.

Palaeontology

According to the PalaeoMap of South African Heritage Resources Information System (SAHRIS), the Palaeontological Sensitivity of the area is zero/Insignificant. As such, no paleontological studies are required.

General

The HS concludes that the heritage resources are present within the study area of the Buffelspoort Solar PV Energy Facility. The initial projected impact is rated as Moderate to HIGH before mitigation measures.

Through the combination of the various environmental, cultural, and socio-economic sensitivities, the client can develop various layout options that will reduce the impact on the

heritage resources. There is, however, a possibility that the combined sensitivity mapping can lead to some of the heritage resources not accommodated in the layouts.

The completion of the HIA as the next step in the heritage assessment process will enable PGS Heritage to accurately calculate the impacts and provide specific mitigation measures to reduce this impact.

TABLE OF CONTENTS

1	INTRODUCTION	16
1.1	Scope of the Study	16
1.2	Specialist Qualifications	16
1.3	Assumptions and Limitations	17
1.4	Legislative Context	17
1.4.1	<i>Notice 648 of the Government Gazette 45421</i>	17
1.4.2	<i>NEMA – Appendix 6 requirements</i>	18
1.4.3	<i>The National Heritage Resources Act</i>	18
2	TECHNICAL DETAILS OF THE PROJECT	18
2.1	Locality	18
2.1.1	<i>Site Description</i>	19
2.2	Technical Project Description	19
2.2.1	<i>Project description</i>	19
3	ASSESSMENT METHODOLOGY	20
3.1	Methodology for Assessing Heritage Site significance	21
3.1.1	<i>Site Significance</i>	22
3.2	Methodology used in determining the significance of environmental impacts	24
4	CURRENT STATUS QUO	24
4.1	Site Description	24
4.2	Area and surrounding landscape	31
4.2.1	<i>Early History of Platinum Mining within the Study Area</i>	38
4.2.2	<i>Potgietersrust Platinums Limited and Rustenburg Platinum Mines Limited</i>	38
4.2.3	<i>Archival and historical maps</i>	41
4.2.4	<i>Krugersdorp, 1900</i>	41
4.2.5	<i>First edition of the 2527CB Rustenburg (Oos) topographical map dated to 1968, First Edition of the 2527CD Rex topographical map dated to 1968 and the First Edition of the 2527DC Magaliesberg topographical map dated to 1943.</i>	42
4.2.6	<i>Previous heritage impact assessment reports from the study area and surroundings</i>	43
4.2.7	<i>Heritage screening</i>	45
4.2.8	<i>Heritage sensitivity</i>	47
4.3	Fieldwork findings	47
4.4	Palaeontology	69
5	IMPACT ASSESSMENT	70
5.1	Details of all alternatives considered	70
5.1.1	<i>Burial grounds and graves</i>	70
5.1.2	<i>Historical Structures</i>	70
5.1.3	<i>Archaeological resources</i>	70

5.1.4	Palaeontology	70
5.2	Scoping Evaluation summary table	71
6	CONCLUSIONS AND RECOMMENDATIONS	71
6.1	Historical Structures	72
6.2	Archaeological Site	72
6.3	Burial grounds and graves	72
6.4	Palaeontology	73
6.5	General	73
7	REFERENCES	74
7.1	Published References	74
7.2	Unpublished References	75
7.3	Archival References	77
7.4	Internet	77
7.5	Google Earth	77

List of Figures

<i>Figure 1 – Human and Cultural Timeline in Africa.....</i>	<i>xv</i>
<i>Figure 2 - Regional locality of Study Area.</i>	<i>19</i>
<i>Figure 3 - General view of the flat open field in the southern section of the proposed Development Footprint.</i>	<i>25</i>
<i>Figure 4 - General view of the denser area in the northern section of the proposed Development Footprint.....</i>	<i>25</i>
<i>Figure 5 - Image depicting some of the game (Rooihartbees) in the Development Footprint area.....</i>	<i>26</i>
<i>Figure 6 - Bee-keeping area located in the south-east of the proposed Development Footprint.</i>	<i>26</i>
<i>Figure 7 - Small dedicated feeding area for the game located in the Development Footprint.</i>	<i>26</i>
<i>Figure 8 - Small structure that serves as a feeding trough located in the Development Footprint.</i>	<i>27</i>
<i>Figure 9 - The small dam located just outside of the proposed Development Footprint.</i>	<i>27</i>
<i>Figure 10 - The two abandoned lodges located just outside the proposed Development Footprint, and adjacent to the small dam.</i>	<i>27</i>
<i>Figure 11 - The large structure used as an office space, located just outside the proposed Development Footprint.</i>	<i>28</i>
<i>Figure 12 - Image of the helicopter pad located in the Development Footprint.</i>	<i>28</i>
<i>Figure 13 - An old windmill located in the centre of the proposed Development Footprint.</i>	<i>28</i>
<i>Figure 14 - Powerlines located in the proposed Development Footprint.</i>	<i>29</i>
<i>Figure 15 - View of the N4 highway in the background from the proposed grid corridor.</i>	<i>29</i>

<i>Figure 16 – View of a dirt road located at the mining operations the northern section of the proposed grid corridor, with the mining operations to the left and the small open grass section surveyed to the right.</i>	29
<i>Figure 17 – View of a mine waste rock dump in the background.</i>	30
<i>Figure 18 – Access to the southern section of the proposed Development Footprint was gained by means of this gate.</i>	30
<i>Figure 19 – Access to the northern section (grid corridor) was gained by means of this road (N4 national highway).</i>	30
<i>Figure 20 – Access could not be gained to survey a section of the proposed grid corridor, which is currently located on mining operations.</i>	31
<i>Figure 21 - Photograph taken in 1887 of Kgosi Mokgatle and his sons (Mbenga & Manson, 2010).</i>	36
<i>Figure 22 - Dr. Hans Merensky, the geologist who discovered the platinum reef at Rustenburg (Machens, 2009).</i>	37
<i>Figure 23 – The power plant at the Kroondal-Klipfontein Mine during the late 1920s (Wagner, 1973:96).</i>	40
<i>Figure 24 – Early prospecting activities on the farm Swartklip, Rustenburg District. Although this farm is located near present-day Northam, this image provides the viewer with an idea as to what the early history of platinum mining within the study area was like (Wagner, 1973:96).</i>	40
<i>Figure 25 – The Main Western Incline Shaft at the Kroondal-Klipfontein Mine. The photograph was taken during the late 1920s (Wagner, 1973:96).</i>	41
<i>Figure 26 - Section of the 1900 Krugersdorp map highlighting the names of the Buffelspoort farm (blue polygon) (University of Cape Town Libraries, South Africa).</i>	42
<i>Figure 27 – Three different sections of First Editions of the 2527CB, CD and DC Topographical Map.</i>	43
<i>Figure 28 - Screening tool map indicating a low sensitivity rating for archaeology and heritage (Source: DFFE).</i>	46
<i>Figure 29 - Screening tool map indicating a medium sensitivity rating for paleontological heritage (Source: DFFE).</i>	46
<i>Figure 30 - Fieldwork tracklogs (track in red) within the proposed study area.</i>	50
<i>Figure 31 - Identified heritage resources within the proposed study area.</i>	51
<i>Figure 32 – Aerial view of the outcrop where site BFP-01 was identified.</i>	52
<i>Figure 33 – General view of the outcrop where site BFP-01 is located.</i>	52
<i>Figure 34 – General view of the stone walling located at site BFP-01. The scale is in 10cm increments.</i>	53
<i>Figure 35 – Close-up of the stone walling located at site BFP-01. The scale is in 10cm increments.</i>	53
<i>Figure 36 – General view of the site BFP-02. The scale is in 10cm increments.</i>	54
<i>Figure 37 – Close-up view of the ceramics located on the surface at site BFP-02. The scale is in 10cm increments.</i>	54

Figure 38 – General view of the site. Two rows of rocks on either side with a possible old road leading in-between. The scale is in 10cm increments. 55

Figure 39 – View of on row of possible stone walling. The scale is in 10cm increments. 55

Figure 40 – General view of the site BFP-04, with a dirt road in the foreground. 56

Figure 41 – Close-up view of the ceramic identified at the site BFP-04, note the decoration on the rim. The scale is in 10cm increments. 56

Figure 42 – General view of the site BFP-05 with a defined stone walling. The scale is in 10cm increments. 57

Figure 43 – View of the defined opening in the stone walling located at site BFP-05. The scale is in 10cm increments. 57

Figure 44 - General view of the collapsed stone walling. The scale is in 10cm increments. .. 58

Figure 45 – General view of the grave site at BFP-06. The scale is in 10cm increments. 60

Figure 46 – General view of the grave site at BFP-06. The scale is in 10cm increments. 60

Figure 47 - General view of the grave site at BFP-06. The scale is in 10cm increments. 60

Figure 48 - General view of the grave site at BFP-06. The scale is in 10cm increments. 60

Figure 49 – One stone walling enclosure located at site BFP-07 with a modern braai located in the centre. The scale is in 10cm increments. 62

Figure 50 – One stone walling enclosure located at site BFP-07 The scale is in 10cm increments. 62

Figure 51 - General view of the collapsed stone walling at BFP-07. The scale is in 10cm increments. 62

Figure 52 - General view of site BFP-07 with a portion of the cleared area visible. 62

Figure 53 – General view of the small brick structure located at site BFP-08. The scale is in 10cm increments. 63

Figure 54 – General view of the small square structure and the possible reservoir located at site BFP-08. The scale is in 10cm increments. 63

Figure 55 - General view of the large residential structure located at site BFP-08. 64

Figure 56 - General view of the large residential structure located at site BFP-08. The scale is in 10cm increments. 64

Figure 57 – General view of the kraal located at site BFP-09. The scale is in 10cm increments. 65

Figure 58 – General view of the kraal located at site BFP-09. 65

Figure 59 – General view of the structure located at site BFP-10. The scale is in 10cm increments. 66

Figure 60 – General view of the broken-down structure located at site BFP-11. The scale is in 10cm increments. 67

Figure 61 – General view of the rubble and broken-down structure located at site BFP-11. . 67

Figure 62 - General view of the structure located at site BFP-11. The area is very overgrown. 68

Figure 63 - Palaeontological Heritage Sensitivity map. As can be viewed, most of the area has no sensitivity indicated by the white/clear background (Retrieved from SAHRIS). 69

List of Tables

<i>Table 1: Reporting requirements for GN648</i>	18
<i>Table 2: Rating system for archaeological resources</i>	22
<i>Table 3: Rating system for built environment resources</i>	23
<i>Table 4: Tangible heritage site in the study area.</i>	47
<i>Table 5: Landform type to heritage find matrix</i>	47
<i>Table 6: Sites identified during the heritage survey.</i>	52
<i>Table 7: SAHRIS palaeosensitivity ratings table.</i>	69
<i>Table 8: Potential Impact – heritage resources</i>	71

List of Appendices

<i>A</i>	<i>Heritage Assessment Methodology</i>
<i>B</i>	<i>Environmental Impact Assessment Methodology</i>
<i>C</i>	<i>Project team CV's</i>

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 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

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 influence 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

Development footprint

Includes the footprint areas for the proposed PV array, substations and the proposed grid corridor.

Early Stone Age

The archaeology of the Stone Age between 700 000 and 2 500 000 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) 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.

Late 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 1 000 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.

Abbreviations	Description
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
BA	Basic Environmental Assessment
BFP	Buffelspoort Site Number
CRM	Cultural Resource Management
ECO	Environmental Control Officer
EIA practitioner	Environmental Impact Assessment Practitioner
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Early Stone Age
GPS	Global Positioning System
HS	Heritage Scoping Assessment
I&AP	Interested & Affected Party
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
PHRA-NW	North West Provincial Heritage Authority
PHS	Provincial Heritage Site
SADC	Southern African Development Community
SAHRA	South African Heritage Resources Agency

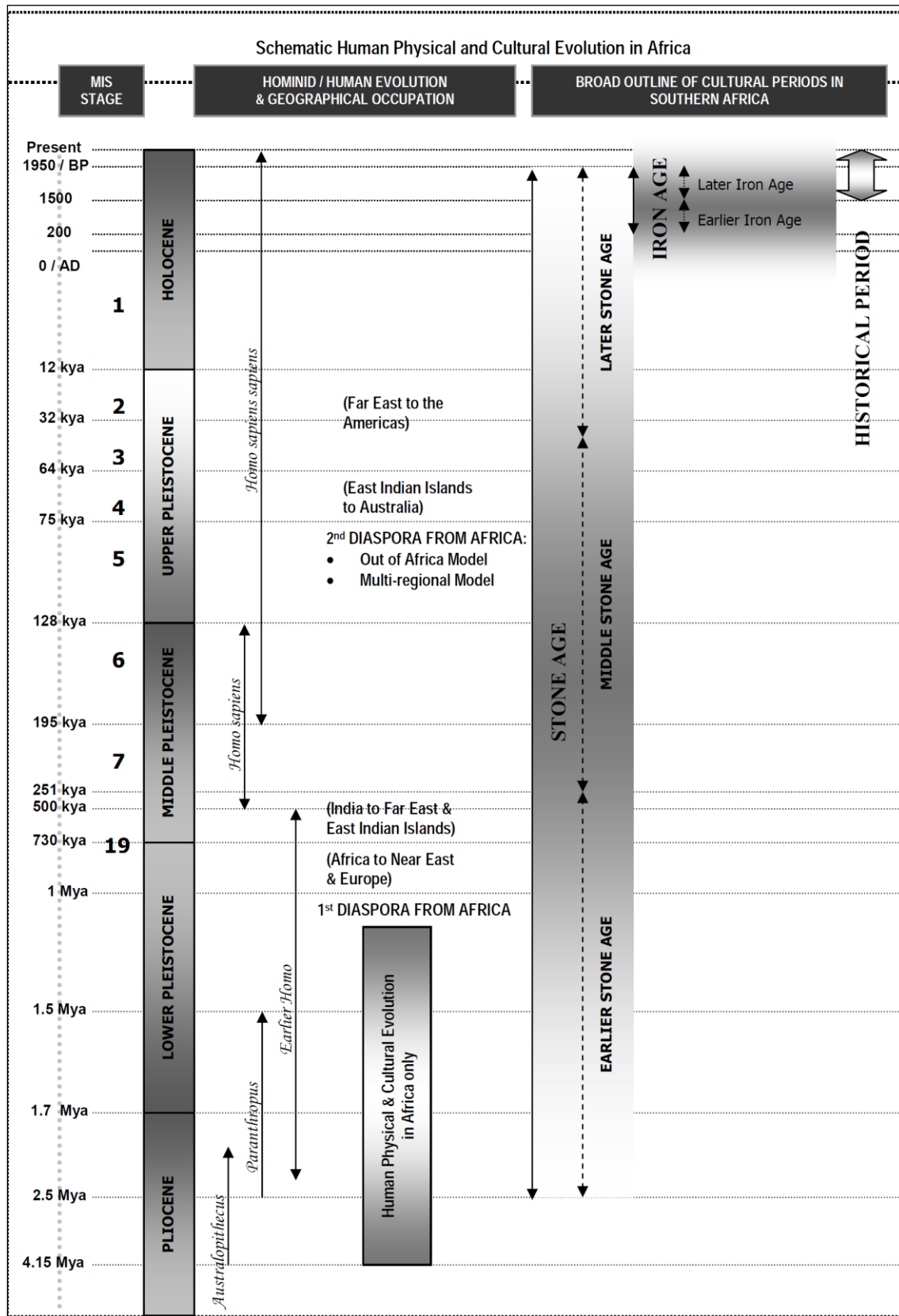


Figure 1 – Human and Cultural Timeline in Africa

1 INTRODUCTION

PGS Heritage (Pty) Ltd was appointed by Savannah Environmental (Pty) Ltd to undertake a Heritage Scoping Assessment (HS) that forms part of the Environmental Impact Assessment (EIA) and Environmental Management Programme (EMPr) for the proposed Buffelspoort Solar PV Energy Facility on Portions 75 and 134 of the Farm Buffelspoort 343 JQ, between Buffelspoort and Mooinooi, in the North West Province (hereafter referred to as the “Project”).

1.1 Scope of the Study

The aim of the study is to identify possible heritage sites and finds that may occur in the proposed study area. The HS aims to inform the client in the layout planning before the finalisation of the infrastructure layout. This to assist the project applicant in responsibly managing the identified heritage resources to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act (Act 25 of 1999) (NHRA).

1.2 Specialist Qualifications

This HS Report was compiled by PGS Heritage.

The staff at PGS has a combined experience of nearly 70 years in the heritage consulting industry. PGS and its staff have extensive experience in managing HIA processes. PGS will only undertake heritage assessment work where they have the relevant expertise and experience to undertake that work competently.

Wouter Fourie, the Project Coordinator and Archaeologist, is registered with the Association of Southern African Professional Archaeologists (ASAPA) as a Professional Archaeologist and is accredited as a Principal Investigator; he is further an Accredited Professional Heritage Practitioner with the Association of Professional Heritage Practitioners (APHP).

Michelle Sachse, the author of this report, is registered with the Association of Southern African Professional Archaeologists (ASAPA) as a Professional Archaeologist, membership number - 526. She holds a master’s degree (MA) in Archaeology from the University of Pretoria

Nicholas Fletcher is a field archaeologist. He holds a master’s degree (MA) in Archaeology from the University of Pretoria.

Xander Fourie is an archaeological field assistant, who is currently busy with his undergraduate studies in archaeology.

1.3 Assumptions and Limitations

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 and existing vegetation cover. It should be noted most of development footprint¹ was accessible for the fieldwork survey.

Furthermore, a small section of the grid corridor was located within the off-taker's boundary. This area was not surveyed as access was not granted as the area had already been disturbed, by the construction of a sub-station. Some areas, especially in the northern part of the proposed study area, were covered in very dense vegetation and the team was unable to survey through the bush. It was also difficult to see if potential material was on the ground as the grass was very thick and long.

Therefore, should any heritage features and/or objects be located or observed outside the identified heritage sensitive areas during the construction activities, a heritage specialist must be contacted immediately. 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 make an assessment 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 located during the development, the procedures and requirements pertaining to graves and burials will apply as set out below.

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:

- Notice 648 of the Government Gazette 45421- general requirements for undertaking an initial site sensitivity verification where no specific assessment protocol has been identified
- National Environmental Management Act (NEMA), Act 107 of 1998 – Appendix 6
- National Heritage Resources Act (NHRA), Act 25 of 1999

1.4.1 Notice 648 of the Government Gazette 45421

Although minimum standards for archaeological (2007) and palaeontological (2012) assessments were published by SAHRA, 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 Government Notice (GN) are listed in **Table 1** and the applicable section in this report noted.

¹ Donates the PV array and infrastructure as well as the grid corridor if not otherwise stated

Table 1: Reporting requirements for GN648

GN 648	Relevant section in report	Where not applicable in this report
2.2 (a) a desktop analysis, using satellite imagery;	section 4.3	
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 4.1	-
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 4.1	-
2.3(b) contains motivation and evidence (e.g., photographs) of either the verified or different use of the land and environmental sensitivity;	section 4.1	-

1.4.2 NEMA – Appendix 6 requirements

The HS report has been compiled considering the NEMA Appendix 6 requirements for specialist reports as indicated in the table below. For ease of reference, the table below provides cross-references to the report sections where these requirements have been addressed.

1.4.3 The National Heritage Resources Act

- National Heritage Resources Act (NHRA) Act 25 of 1999
 - Protection of Heritage Resources – Sections 34 to 36; and
 - Heritage Resources Management – Section 38

The NHRA is utilized as the basis for the identification, evaluation, and management of heritage resources and in the case of Cultural Resource Management (CRM) those resources specifically impacted on by development as stipulated in Section 38 of NHRA. This study falls under s38(8) and requires comment from the relevant heritage resources authority.

2 TECHNICAL DETAILS OF THE PROJECT

2.1 Locality

The proposed 40MW Buffelspoort Solar PV Energy Facility is located on several privately-owned properties and runs from across the N4 national highway to the R104 road, into an open area where

there is a quarantine facility currently located. The site is located 4.5 km from Buffelspoort and 5.5 km from Mooinooi, in the North West Province (**Figure 2**).

2.1.1 Site Description

The proposed development footprint is situated on Portions 75 and 134 of the farm Buffelspoort 343 JQ, between Buffelspoort and Mooinooi with a development footprint area of approximately 77ha and an overhead power line (OHL) grid corridor of approximately 2.5km in length (**Figure 2**).

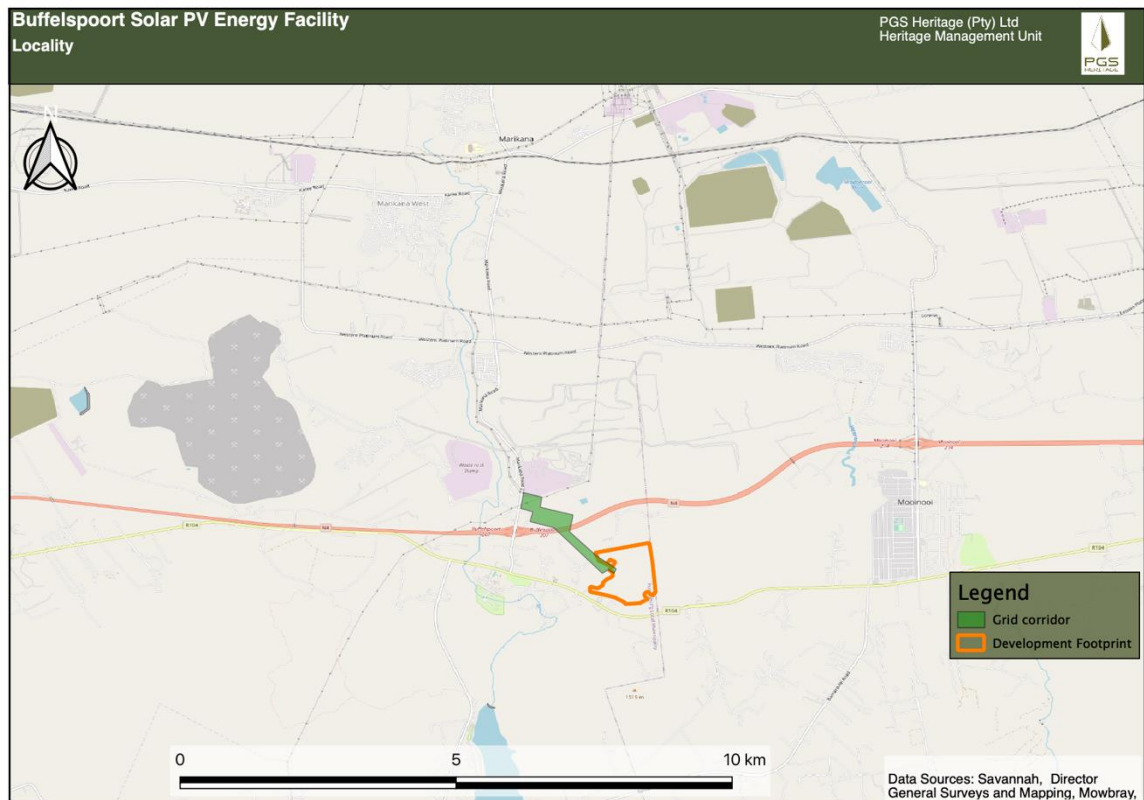


Figure 2 - Regional locality of Study Area.

2.2 Technical Project Description

2.2.1 Project description

Buffelspoort Solar Project (Pty) Ltd is proposing the development of a Solar PV Energy Facility and associated infrastructure on Portions 75 and 134 of the Farm Buffelspoort 343JQ, near Mooinooi in the North-West Province. The project will have a contracted capacity of up to 40MWp and will be known as the Buffelspoort Solar PV Energy Facility. The purpose of the facility will be supply power to a private off-taker through connecting to an existing 88kV via a newly proposed ~2.5km overhead power line that will be routed across privately-owned properties from the onsite substation to the point of interconnection, north of the N4.

The construction of the Solar PV Energy Facility is aimed at diversifying the energy mix for the private off-taker and to reducing the off-taker's dependency on direct supply from Eskom's national grid for operation activities. It is also a conscious effort for the off-taker to contribute to their sustainability targets and reduce their carbon footprint.

A grid connection corridor which varies in width from 200 m to 300 m and is up to 2.5m in length has been identified for the assessment and suitable placement of the grid connection infrastructure within the corridor. This corridor will provide for the avoidance of sensitive environment areas and features.

A development footprint of up to ~77 ha has been identified within the Project Site (~223 ha) by Buffelspoort Solar Project (Pty) Ltd for the development of the Buffelspoort Solar PV Energy Facility. Infrastructure associated with the Solar PV Energy Facility will include the following:

- » Solar PV arrays comprising PV modules and mounting structures.
- » Inverters and transformers.
- » Cabling between the arrays.
- » Onsite facility substation.
- » 88kV single circuit overhead power line for the distribution of the generated power, which will be connected to an existing 88kV Substation.
- » Batter Energy Storage System (BESS)² – to be phased in at a later stage than the Solar PV Energy Facility.
- » Temporary laydown area.
- » Operations and Maintenance (O&M) building which will include a site security office, warehouse, storage area and workshop.
- » Main access road (existing – to be upgraded with hard surface) and internal (new) gravel roads.
- » Fencing around the site, including an access gate.

3 ASSESSMENT METHODOLOGY

The section below outlines the assessment methodologies utilised in the study.

² The BESS is included as part of the ESIA process albeit that the facility will only be installed after the Solar PV Energy Facility has come into operation. The total electricity requirements for the off-taker is currently under review and an energy master plan is being developed, which will only be finalised post implementation of the Solar PV Energy Facility to address all the electricity needs of the off-taker. The BESS has been included in this ESIA in order to ensure that should the energy master plan require this component to be included sooner than expected that it has already been authorised.

3.1 Methodology for Assessing Heritage Site significance

This HS report was compiled by PGS for the 40MWp Buffelspoort Solar PV Energy Facility. The applicable maps, tables and figures are included, as stipulated in the NHRA (no 25 of 1999) and the National Environmental Management Act (NEMA) (No. 107 of 1998). The HIA process consists of three steps:

Step I – Literature Review and initial site analysis: The background information to the field survey relies greatly on the Heritage Background Research which was undertaken through archival research and evaluation of satellite imagery and topographical maps of the study area.

Step II – Physical Survey: A physical survey was conducted by a combination of vehicle and pedestrian access through the proposed project area by one qualified heritage specialists and two field assistants (between 28 April and 26 May 2022), aimed at locating and documenting sites falling within and adjacent to the proposed development footprint.

Step III – The final step involved the recording and documentation of relevant heritage resources identified in the physical survey, the assessment of these resources in terms of the HIA criteria and report writing, as well as mapping and constructive recommendations.

The significance of heritage sites is based on four main criteria:

- Site integrity (i.e., primary vs. secondary context),
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter)
 - Low - <10/50 m²
 - Medium - 10-50/50 m²
 - High - >50/50 m²
- Uniqueness; and
- 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 activity position;

D - Preserve site, or extensive data collection and mapping of the site; and

E - Preserve site.

Impacts on these sites by the development will be evaluated as follows:

3.1.1 Site Significance

Site significance classification standards use is based on the heritage classification of s3 in the NHRA and developed for implementation keeping in mind the grading system approved by SAHRA for archaeological impact assessments. The update classification and rating system as developed by Heritage Western Cape (2021) is implemented in this report.

Site significance classification standards prescribed by the Heritage Western Cape Guideline (2016), were used for the purpose of this report (**Table 2** and

Table 3).

Table 2: Rating system for archaeological resources

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
I	Heritage resources with qualities so exceptional that they are of special national significance. Current examples: Langebaanweg (West Coast Fossil Park), Cradle of Humankind	May be declared as a National Heritage Site managed by SAHRA. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	Highest Significance
II	Heritage resources with special qualities which make them significant, but do not fulfil the criteria for Grade I status. Current examples: Blombos, Paternoster Midden.	May be declared as a Provincial Heritage Site managed by Provincial Heritage Authority. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	Exceptionally High Significance
III	Heritage resources that contribute to the environmental quality or cultural significance of a larger area and fulfils one of the criteria set out in section 3(3) of the Act but that does not fulfil the criteria for Grade II status. Grade III sites may be formally protected by placement on the Heritage Register.		
IIIA	Such a resource must be an excellent example of its kind or must be sufficiently rare. Current examples: Varschedrift; Peers Cave; Brobartia Road Midden at Bettys Bay	Resource must be retained. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	High Significance
IIIB	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree.	Resource must be retained where possible where not possible it must be fully investigated and/or mitigated.	Medium Significance
IIIC	Such a resource is of contributing significance.	Resource must be satisfactorily studied before impact. If the recording already done (such as in an HIA or permit application) is not sufficient, further recording or even mitigation may be required.	Low Significance
NCW	A resource that, after appropriate investigation, has been	No further actions under the NHRA are required. This must	No research potential or

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
	determined to not have enough heritage significance to be retained as part of the National Estate.	be motivated by the applicant or the consultant and approved by the authority.	other cultural significance

Table 3: Rating system for built environment resources

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
I	Heritage resources with qualities so exceptional that they are of special national significance. Current examples: Robben Island	May be declared as a National Heritage Site managed by SAHRA.	Highest Significance
II	Heritage resources with special qualities which make them significant in the context of a province or region, but do not fulfil the criteria for Grade I status. Current examples: St George's Cathedral, Community House	May be declared as a Provincial Heritage Site managed by Provincial Heritage Authority.	Exceptionally High Significance
II	Such a resource contributes to the environmental quality or cultural significance of a larger area and fulfils one of the criteria set out in section 3(3) of the Act but that does not fulfil the criteria for Grade II status. Grade III sites may be formally protected by placement on the Heritage Register.		
IIIA	Such a resource must be an excellent example of its kind or must be sufficiently rare. These are heritage resources which are significant in the context of an area.	This grading is applied to buildings and sites that have sufficient intrinsic significance to be regarded as local heritage resources; and are significant enough to warrant that any alteration, both internal and external, is regulated. Such buildings and sites may be representative, being excellent examples of their kind, or may be rare. In either case, they should receive maximum protection at local level.	High Significance
IIIB	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree. These are heritage resources which are significant in the context of a townscape, neighbourhood, settlement, or community.	Like Grade IIIA buildings and sites, such buildings and sites may be representative, being excellent examples of their kind, or may be rare, but less so than Grade IIIA examples. They would receive less stringent protection than Grade IIIA buildings and sites at local level.	Medium Significance

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
IIIC	Such a resource is of contributing significance to the environs. These are heritage resources which are significant in the context of a streetscape or direct neighbourhood.	This grading is applied to buildings and/or sites whose significance is contextual, i.e., in large part due to its contribution to the character or significance of the environs. These buildings and sites should, consequently, only be regulated if the significance of the environs is sufficient to warrant protective measures, regardless of whether the site falls within a Conservation or Heritage Area. Internal alterations should not necessarily be regulated.	Low Significance
NCW	A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate.	No further actions under the NHRA are required. This must be motivated by the applicant and approved by the authority. Section 34 can even be lifted by HWC for structures in this category if they are older than 60 years.	No research potential or other cultural significance

3.2 Methodology used in determining the significance of environmental impacts

The methodology used to determine the environmental impact significance used was provided by Savannah Environmental and is explained in **Appendix B**.

4 CURRENT STATUS QUO

4.1 Site Description

The proposed Buffelspoort Solar PV Energy Facility Development Footprint area is characterised by flat grass land with a few small rocky outcrops. Most of the area is currently being used as grazing land for game (**Figure 5**) as well as small section which is used as a bee keeping area (**Figure 6**). There are also small, dedicated feeding areas (**Figure 7**) which includes a small structure that is used as a feeding trough (**Figure 8**). There is a small dam (**Figure 9**) and two structures that was once a lodge (**Figure 10**), these two features are located just outside the proposed development area to the west. A large modern structure (**Figure 11**), which is currently being used as an office space, and the landowner's house is located adjacent to one another also just outside the proposed Development Footprint to the east. There is also a helicopter pad (**Figure 12**) close to the entrance of the property, which is adjacent to a quarantine facility, access was also gained to the proposed Development Footprint through this facility (**Figure 18**). Other features in the Development Footprint include an old broken windmill and powerlines (**Figure 13** and **Figure 14**).

The proposed grid corridor layout extends from the north-western corner of the Development Footprint, across the N4 national highway onto the area that is currently being utilised by the private off-taker. Access was gained via the N4 national highway (**Figure 19**). Both the north and south side of the N4 highway were surveyed. The area south of the N4 highway consists of an open flat field and a few residential structures (some abandoned, and some still inhabited by people). The section surveyed is located between a mine waste rock dump (**Figure 16**) and the N4 highway (**Figure 15**) and consists of an open flat field and a dirt road. Approximately 50% of the proposed corridor extends into an area where mining operations are currently being conducted, as such this area could not be accessed (**Figure 20**).



Figure 3 - General view of the flat open field in the southern section of the proposed Development Footprint.



Figure 4 - General view of the denser area in the northern section of the proposed Development Footprint.



Figure 5 - Image depicting some of the game (Rooihartbees) in the Development Footprint area.



Figure 6 - Bee-keeping area located in the south-east of the proposed Development Footprint.



Figure 7 - Small dedicated feeding area for the game located in the Development Footprint.



Figure 8 - Small structure that serves as a feeding trough located in the Development Footprint.



Figure 9 - The small dam located just outside of the proposed Development Footprint.



Figure 10 - The two abandoned lodges located just outside the proposed Development Footprint, and adjacent to the small dam.



Figure 11 - The large structure used as an office space, located just outside the proposed Development Footprint.



Figure 12 - Image of the helicopter pad located in the Development Footprint.



Figure 13 - An old windmill located in the centre of the proposed Development Footprint.



Figure 14 - Powerlines located in the proposed Development Footprint.



Figure 15 - View of the N4 highway in the background from the proposed grid corridor..

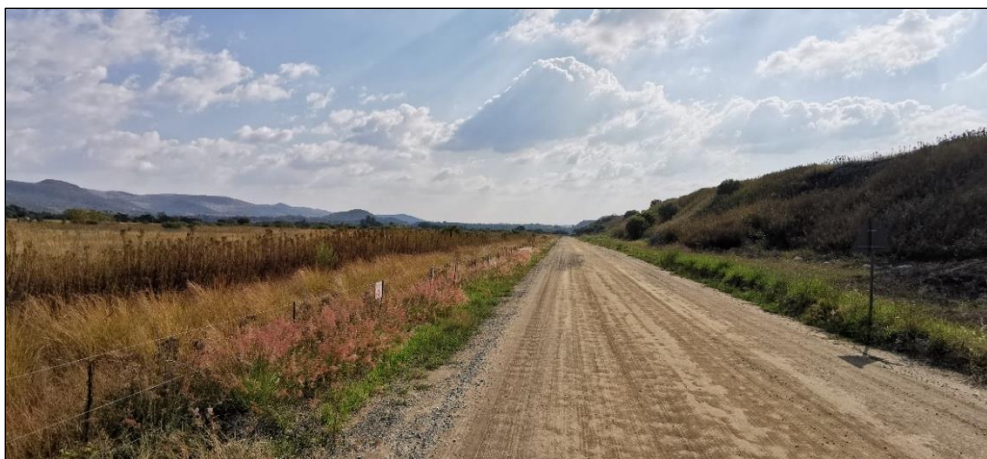


Figure 16 – View of a dirt road located at the mining operations the northern section of the proposed grid corridor, with the mining operations to the left and the small open grass section surveyed to the right.



Figure 17 – View of a mine waste rock dump in the background.



Figure 18 – Access to the southern section of the proposed Development Footprint was gained by means of this gate.



Figure 19 – Access to the northern section (grid corridor) was gained by means of this road (N4 national highway).



Figure 20 – Access could not be gained to survey a section of the proposed grid corridor, which is currently located on mining operations.

4.2 Area and surrounding landscape


DATE	DESCRIPTION
2.5 million to 250 000 years ago	The Earlier Stone Age is the first and oldest phase identified in South Africa’s archaeological history and comprises two technological phases. The earliest of these is known as Oldowan and is associated with crude flakes and hammer stones. It dates to approximately 2 million years ago. The second technological phase is the Acheulian and comprises more refined and better made stone artefacts such as the cleaver and bifacial hand axe. The Acheulian dates to approximately 1.5 million years ago. Several Early Stone Age sites are known from the general vicinity. One of these is situated close to the study area (Huffman, 2005).
250 000 to 40 000 years ago	The Middle Stone Age (MSA) is the second oldest phase identified in South Africa’s archaeological history. This phase is associated with flakes, points and blades manufactured by means of the so-called ‘prepared core’ technique. A MSA site is located approx. 27 km north-west of the study area, and three sites comprising Iron Age pottery as well as Middle Stone Age lithics were identified roughly 23 km to the north as well as 25.1 km and 25.2 km to the north-west of the study area (Huffman, 2005). A Middle Stone Age find spot was also identified approximately 18 km north-west of the study area during the survey of the Turffontein No. 2 area (Huffman, 2005). Lastly, a site comprising Middle Stone Age material as well as Iron Age pottery has been identified in proximity to the study area (Huffman, 2005).
40 000 years ago, to the historic past	The Later Stone Age is the third archaeological phase identified and is associated with an abundance of very small artefacts known as microliths.
AD 1450 – AD 1650	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). Huffman (2007) suggest that the Ntsuanatsatsi facies can be directly linked to the early Bafokeng who regarding this theory were the first Mbo Nguni people to leave present-day KwaZulu-Natal.

DATE	DESCRIPTION
AD 1500 – AD 1700	<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 of site for this facies is located on the farm Olifantspoort 328 JQ, which is situated approx.. 25 km south-west of the present study area. An Olifantspoort site was also identified roughly 20 km north-west of the study area during the survey for the UG2 expansion area (Huffman, 2005). After an archaeological team under Professor R.J. Mason of the University of the Witwatersrand identified several stonewalled settlements on the farm Olifantspoort by 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 several 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 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>Sites associated with the Olifantspoort facies are known from the direct vicinity of the study area. One such an example is Site 6 identified by Professor Tom Huffman within the UG2 Expansion Project Area (Huffman, 2005). This site is located close to the present study area.</p>
AD 1650 – AD 1850	<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. These facies can likely be dated to between AD 1650 and AD 1820. The decoration on the ceramics associated with these 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, which is situated approximately 26km south-east of the study area. The site was excavated by Professor R.J.</p>

DATE	DESCRIPTION
	<p>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 of site for the Iron Age material excavated at these sites as the Uitkomst deposit was found to be well stratified and the site “...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...” (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 encounter 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 “...would indicate that the Bafokeng originated from the Bahurutshe-Bakwena-Bakgatla lineage cluster. Tom Huffman holds a different view...” (Mbenga & Mason, 2010).</p> <p>Uitkomst sites are well known from the surroundings of the study area. Two examples of Uitkomst sites from the vicinity of the study area are two stone walled sites located roughly 23km to the north and 20 km to the north-west of the present study area. These sites were identified during the survey of the Turffontein No. 2 and Turffontein West areas (Huffman, 2005).</p>
AD 1700 – AD 1840	<p>The Buispoort facies of the Moloko branch of the Urewe Ceramic Tradition is the next phase 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 Boschhoek, Buffelshoek, Kaditshwene, Molokwane and Olifantspoort (Huffman, 2007).</p>
Early 1700s	<p>At the time, and possibly for some time before this date, the area surrounding present-day Rustenburg would have been occupied by the Bafokeng and the Tlokwa people (Hall et al., 2008). Mbenga and Mason (2010) indicate that Prof. R.D. Coertze estimation was that the Bafokeng had settled in the vicinity of Rustenburg at the end of the 17th century. Their land at the time stretched from the “...Ngwaritsi (Selons) River to the west, the Bakwena-ba-Mogopa to the east, the Magaliesberg to the south and the Kgetleng (Elands) River to the north (Mbenga & Mason, 2010: 7). At roughly this time the capital of the Bafokeng was moved to the Boschpoort area (Mbenga & Mason, 2010). The farm Boschpoort 284JQ is situated roughly 9km north of the present study area.</p>

DATE	DESCRIPTION
	<p>According to Pistorius (2001) the mountain range traditionally known as the Maralla-a-Nape stretches from the vicinity of the Pilanesberg south-eastward ending up roughly between present-day Rustenburg and Marikana. This mountain range: “...is one of the early beacons where the Bafokeng settled when they arrived from the north in the Rustenburg district...” (Pistorius, 2001:47). He also quotes the Bafokeng author and oral historian Naboth Mokgatle in saying that various clans settled along the Maralla-a-Nape Mountain range at settlements (from north to south) such as Serutube, Marakana, Tsitsing (Kanana), Thekwane and Photsaneng (Bleskop) (Pistorius, 2001). These settlements are still located along the Maralle-a-Nape Mountain range and are still known by their original names, although in some cases (such as Photsaneng and Bleskop) attempts may have been made with the arrival and settlement of white people to rename some of these settlements, albeit not always successfully.</p> <p>Evidence for the settlement of the Maralla-a-Nape range hundreds of years ago was found by Pistorius (2001) in the form of several Late Iron Age stonewalled settlements located along this mountain range. Similarly, Professor Tom Huffman has also identified many Late Iron Age sites associated with areas such as Photsaneng and Thekwane (Huffman, 2005). Incidentally, Photsaneng is located approximately 20 km north-west of the present study area whereas Thekwane is located roughly another 3 km further to the north. It is also worth noting that the Maralla-a-Nape range crosses over the present study area as well.</p>
Late 1700s	<p>During the reign of kgosi Sekete IV the Bafokeng had “...relations of conflict...” with their Batswana neighbours. Of interest for the present study area, is that during this time of unrest the Bafokeng established themselves at the confluence of the Matsokubyane (Hex) and Tlhabane Rivers, in the vicinity of where present-day Rustenburg today stands. They called this settlement Tlhabane (Mbenga & Mason, 2010).</p>
1800	<p>The Bafokeng moved from Tlhabane in a north-western direction and settled at Phokeng (Mokgatle, 1971; Mbenga & Mason, 2010).</p>
1827 - 1832	<p>During this time the Khumalo Ndebele of Mzilikazi established themselves along the Magaliesberg Mountains. They had moved here from the central Vaal River. In c. 1832 the Khumalo Ndebele moved to the Marico River to the north-west (Bergh, 1999).</p>
1836	<p>The first Voortrekker parties started crossing the Vaal River (Bergh, 1999).</p>
Late 1830s – Early 1840s	<p>These years saw the early establishment of farms by the Voortrekkers in the general vicinity of the study area (Bergh, 1999). One of these Voortrekkers was Stephanus Johannes Paulus Kruger, who was President of the Zuid-Afrikaansche Republiek between 1883 and the end of the South African War in 1902. His family formed part of the Voortrekkers who settled in these parts during this time and, in 1841 at the age of 16 Kruger himself became an owner of a farm near Rustenburg (likely Waterkloof).</p> <p>During this period, the first contacts between the black people residing in the Rustenburg area at the time (including the Bafokeng) and white people took place. According to Bergh (2005) these early contacts resulted in the setting aside of land by the Voortrekker leadership for the Bafokeng people. This land appears to have included the farms Boekenhoutfontein 260 IQ (22.6 km north-west of the study area), Turffontein 262 IQ (21.6 km north-west of the study area) and possibly Kookfontein 265 IQ (16 km</p>

DATE	DESCRIPTION
	north-west of the study area) as well. However, within a short period the Bafokeng people were dispossessed of these properties (Bergh, 2005).
1851	Both the district and town of Rustenburg were established in this year (Bergh, 1999). The study area fell within the Rustenburg district at the time.
1858	A Lutheran Mission Station was established at what is today known as the town of Kroondal. The mission station was established on the farm Kronendal which was owned by Jan Michiel van Helsdingen (Erasmus, 2004). The Kroondal Mission Station eventually became one of 22 Lutheran mission stations in South Africa where both the missionaries and farmers living on the property of the mission station were initially supported by the missionary society (Erasmus, 2004). The town of Kroondal is 23 km south-west of the present study area.
10 February 1859	The very first Reformed Church (Gereformeerde Kerk) was established in South Africa on this day. The church was established under a Syringa tree in Church Street, Rustenburg. The stump of this tree was proclaimed as a National Monument in 1951 (Bergh, 1999). This tree is located approx. 30 km west of the present study area. Incidentally, the Anglican Church of Rustenburg was proclaimed a National Monument in 1972 and the Dutch Reformed Church of Rustenburg was proclaimed a National Monument in 1979.
1867	Hermannsburg missionary Hermann Wenhold established the Kana mission station amongst the Bafokeng. At the time the mission station was established on the farm Tweedepoort 283 JQ (Bergh, 2005). This farm is situated roughly 32 km north-west of the study area.
December 1869	The Kana mission station was moved from the farm Tweedepoort 283 JQ to the farm Reinkoyalskraal 278 JQ (Bergh, 2005). This new location for the Kana Mission Station is located roughly 31 km north-west of the study area.
1860s – 1870s	With the assistance provided by German missionary Christoph Penzhorn of the Hermannsburg Missionary Society, Kgosi Mokgatle and the Bafokeng bought several farms (Bergh, 2005). These acquisitions were an attempt by the Kgosi and the Bafokeng to procure land which had been theirs before the arrival of the first white people. According to Mbenga & Manson (2010) a total of 24 farms were acquired by the Bafokeng during the second half of the 19 th century. Of these, the closest two farms to the present study area are Turffontein (located directly north-west of the present study area) and a portion of the farm Klipfontein (the present-day farm of Waterval 303 IQ comprises a section of the farm Klipfontein).
1880-1881	The First Boer War (First War of Independence) took place during this time. The most significant aspect of the war for the town of Rustenburg would have been the besiegement of a company of 2 nd Battalion Royal Scots Fusiliers by Boer forces. The siege lasted for 93 days. While the earthwork fort in which the British forces were besieged does not exist anymore, its present location would have been the corner of Kerk and Von Wielligh Streets. This position is approx. 30 km west of the present study area (Wulfsohn, 1992).

DATE	DESCRIPTION
	 <p data-bbox="312 1099 1382 1160"><i>Figure 21 - Photograph taken in 1887 of Kgosi Mokgatle and his sons (Mbenga & Manson, 2010).</i></p>
1899 - 1902	<p data-bbox="544 1196 1414 2016">During the Anglo Boer War (1899-1902) the town of Rustenburg had some role to play. This was largely due to its strategic position halfway between Zeerust and Pretoria as well as its location near two important passes over the Magaliesberg range, namely Olifants Nek and Magato's Nek. During the initial phase of the war very few military activities took place in this area. After the British advance into the republics and the occupation of Pretoria (5 June 1900), the Rustenburg area became significant. On 15 June 1900, the town was occupied by a British force under Major-General Robert Stephenson Baden-Powell. On 4 July 1900 it was evacuated by the British and occupied once again the following day on 5 July 1900 by a small British force of 50 men, supported during the afternoon by another 140 men. Soon thereafter, the Rustenburg Commando under General Lemmer attacked the town. They were repulsed when two squadrons of Australians arrived. On 7 August 1900 it was evacuated by the British considering Lord Roberts' decision to evacuate all the smaller British positions in the then Western Transvaal, which included the town of Rustenburg. The Boer forces occupied the town on the same day and remained in possession of Rustenburg until 16 August 1900 when a force under Lord Methuen pushed over Magatos Nek and reoccupied Rustenburg. However, this occupation was short-lived in that the British evacuated the town during the end of August 1900 leaving it in Boer hands once more. On 26 September 1900 General Cunningham's column occupied it again. For the remainder of the war until the cessation of hostilities in 1902 Rustenburg remained in British hands (Wulfsohn, 1992). While no skirmishes or battles are known from within the study area, one of the more significant of these from the direct surroundings was certainly the Battle of Buffelspoort of 3 December 1900. The battle entailed the</p>

DATE	DESCRIPTION
	<p>attack of the commandos of Generals De La Rey and Smuts and Commandant K. Boshoff on the British Convoy under the overall command of Major J.S. Wolrige-Gordon en route from the Rietfontein military camp to Rustenburg (Wulfsohn, 1992) The battlefield is located roughly 15 km west of the present study area.</p> <p>The Magaliesberg Mountain Range played a pivotal part in the South African War (Boer War) with numerous battles and skirmishes taking place between the British and Boer forces. One such encounter took place some 3 kilometers to the east of the study area and is known as the Battle of Buffelspoort. By the end of 1900 the Magaliesberg was dominated by the British forces with all the major passes and farms occupied. On 2 December 1900 a large wagon train embarked for Rustenburg from the current Hartbeespoort Dam area. On the 3rd of December the group reached the area just west of Moonooi where the road winds through the Buffelspoort foothills. General De la Rey and General Smuts ambushed the British group with a Boer force of 600 strong. The British forces took in position on the two hills overlooking the R104 road, after the first assault on the convoy. However, by dusk the attack was called off and most of the wagons were taken by De la Rey and Smuts and the provisions not removed were set a light. In addition to the wagons, a total of 70 men and 1800 oxen were captured (Carruthers, 1990).</p>
1924	<p>In this year, the famous geologist Hans Merensky was shown a sample of platinum ore that a Mr. Andries Lombard had found near Lydenburg. Merensky managed to trace a platinum reef all along the outer edge of the Bushveld Complex from Lydenburg to Rustenburg. This reef was to be known as Merensky Reef (Carruthers, 2007).</p>
	<div data-bbox="620 1137 1067 1704" data-label="Image"> </div> <p data-bbox="292 1704 1404 1767"><i>Figure 22 - Dr. Hans Merensky, the geologist who discovered the platinum reef at Rustenburg (Machens, 2009).</i></p>
1925	<p>Several companies were floated to mine the Merensky Reef in the vicinity of Rustenburg at the time (Carruthers, 2007).</p>
27 August 1925	<p>Potgietersrust Platinums was registered (SA Mining Yearbook, 1941/2).</p>
29 September 1926	<p>The Waterval (Rustenburg) Platinum Mining Company Limited was registered on this day (South African Mining Yearbook, 1941/2).</p>

DATE	DESCRIPTION
1927	The re-proclamation of the farm Rustenburg Townlands was applied for by the Potgietersrust Platinum Mines Limited (MNW, 876, MM804/27).
11 September 1931	Rustenburg Platinum Mines Ltd was registered on this day. It was formed by the amalgamation of Potgietersrust Platinums and the Waterval (Rustenburg) Platinum Mining Company (SA Mining Yearbook, 1941/2).

4.2.1 Early History of Platinum Mining within the Study Area

After the discovery of platinum in the vicinity of Rustenburg by Dr. Hans Merensky during 1924, a period like one of the gold rushes followed during which gambles were won and lost. Those who managed to get options on platinum bearing farms were the obvious winners. This period became known as the Platinum Boom and during this time the quest for options on profitable farms became a mad race as more and more people became interested in the promise of profits to be gained from the newly discovered mineral reefs. Merensky himself commissioned two men by the names of Hans von Gernet and Schreiner Cooper to obtain as many options as possible from farm owners along areas Merensky believed to contain platinum. Due to the obvious advantage Merensky had as the discoverer of the platinum reefs, his rivals constantly spied on Merensky and his two associates, Von Gernet and Cooper. As a result, a cloak and dagger game developed whereby misinformation was spread daily to put any rivals of their tracks (Machens, 2009).

Eventually, as the dust started settling, as many as fifty individual mining companies had been established along the platinum fields of Lydenburg and Rustenburg by 1925. However, sanity soon prevailed as the realities and logistical challenges of mining became apparent. As a result, many of the smaller companies were bought by the larger ones or disappeared altogether. In some cases, mining companies that were established to mine the Lydenburg fields relocated their entire operations to the Rustenburg area, albeit keeping their original names (Wagner, 1973). An example of this is the company known as Potgietersrust Platinums Limited which will be discussed in more detail below.

By 1929, the most prominent mining companies within the study area and surroundings were Potgietersrust Platinums Limited, Transvaal Consolidated Land and Exploration Company Limited and the Colonial Mining Development Company Limited (Wagner, 1973).

4.2.2 Potgietersrust Platinums Limited and Rustenburg Platinum Mines Limited

Potgietersrust Platinums Limited was established on 7 August 1925 and according to Machens (2009) had as founding partners Gustav Adolf Eugene Becker, Hermann Ohlthaver, South African Townships as well as Anglo American with a start-up capital of £500,000. A few months later the Barnato group became another partner and brought capital to the value of £500,000 to the table.

This said, the published history of the Johannesburg Consolidated Investment Company Limited (1965) indicates that the Johannesburg Consolidated Investment company had in fact acquired a controlling interest in the Potgietersrust Platinums Limited company as early as 1926.

As its name suggests, the company was established to mine the platinum deposits in the vicinity of Potgietersrust (present day Mokopane). However, after acquiring the Rustenburg properties of companies such as Premier Rustenburg Platinum Limited, the Steelpoort Platinum Syndicate Limited and the Eerstegeluk Platinum Mines Limited, the company started intensive mining operations on the Rustenburg fields as well. By 1929 Potgietersrust Platinums Limited boasted the most extensive holdings of any South African platinum mining company.

By the late 1920s, the company owned mineral rights over more than 842 morgen, 159 square roods on the farm Kroondal 304 JQ as well as mineral rights over 62 morgen, 105 square roods on the farm Klipfontein 300 JQ (Wagner, 1973).

Within the study area, the mining company was actively developing the Klipfontein-Kroondal Mine during the late 1920s (Wagner, 1973). By 1929 the Merensky Reef on this property had been opened over 18,000 feet (5,486.4 meters) along the outcrop and to a depth of 300 feet (91.4 meters) (Excursion Guide, 1929). At the same time, a treatment plant with a capacity of 6,000 tons a month was in the process of being constructed here (Wagner, 1973). A mill was also erected during this time. According to a published history of the Johannesburg Consolidated Investment company, the mine appears to have come into production in 1930 (Johannesburg Consolidated Investment, 1965).

On 11 September 1931, a new company by the name of Rustenburg Platinum Mines Limited was registered. It was formed by the amalgamation of Potgietersrust Platinums and the Waterval (Rustenburg) Platinum Mining Company (SA Mining Yearbook, 1941/2). This amalgamated company came about because of a decreasing worldwide demand for platinum and the resulting shutting down of the Waterval mine. Due to the continuing slump in the platinum market, all mining operations were halted in April 1932. When the demand for platinum increased again during the early 1950s, the mine opened once more on 1 August 1933 (Johannesburg Consolidated Investment, 1965).

In August 1950, the Rustenburg Platinum Mine took over the Union Platinum Company (Johannesburg Consolidated Investment, 1965). By the 1970s, the Rustenburg Platinum mine was seen as the biggest platinum producer in the world.

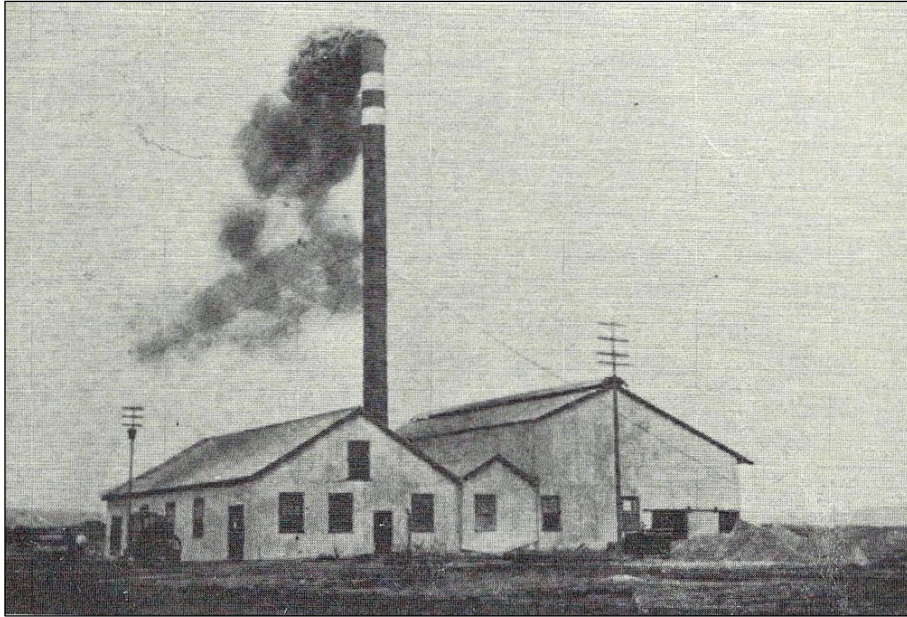


Figure 23 – The power plant at the Kroondal-Klipfontein Mine during the late 1920s (Wagner, 1973:96).



Figure 24 – Early prospecting activities on the farm Swartklip, Rustenburg District. Although this farm is located near present-day Northam, this image provides the viewer with an idea as to what the early history of platinum mining within the study area was like (Wagner, 1973:96).

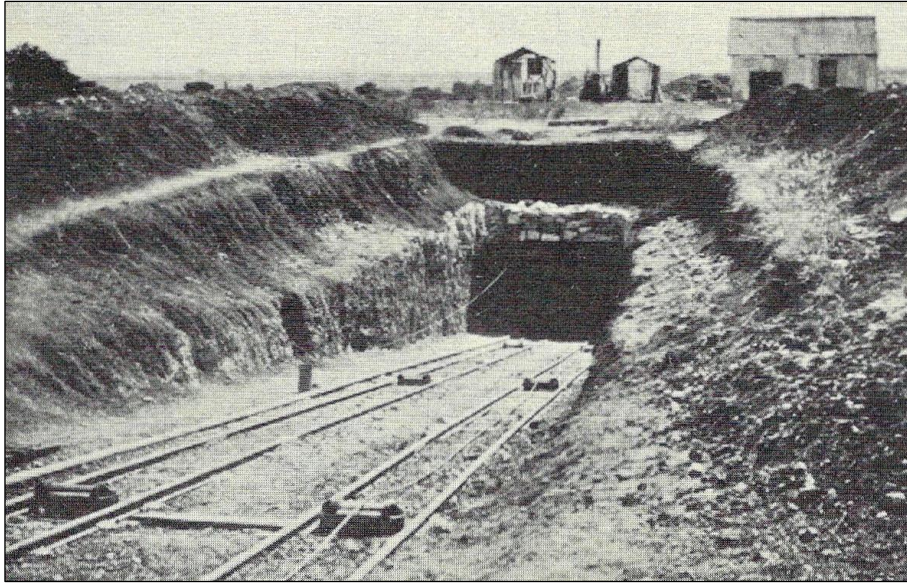


Figure 25 – The Main Western Incline Shaft at the Kroondal-Klipfontein Mine. The photograph was taken during the late 1920s (Wagner, 1973:96).

4.2.3 Archival and historical maps

The examination of historical data and cartographic resources represents a critical tool for locating and identifying heritage resources and in determining the historical and cultural context of the study area. Relevant topographic maps and satellite imagery were studied to identify structures, possible burial grounds or archaeological sites present in the footprint area.

Historical topographic maps (1:50 000) for various years (1943 and 1968) were available for utilisation in the background study. These maps were assessed to observe the development of the area, as well as the location of possible historical structures and burial grounds. The study area was overlain on the map sheets to identify structures or graves situated within or immediately adjacent to the study area that could possibly be older than 60 years and thus protected under Section 34 and 36 of the NHRA.

4.2.4 Krugersdorp, 1900

(University of Cape Town Libraries, South Africa)

The map depicted in **Figure 26** below is titled “Krugersdorp”. It was compiled by John Wood for the Field Intelligence Department. The map dates from 1900. On it is indicated the farm Buffelspoort.

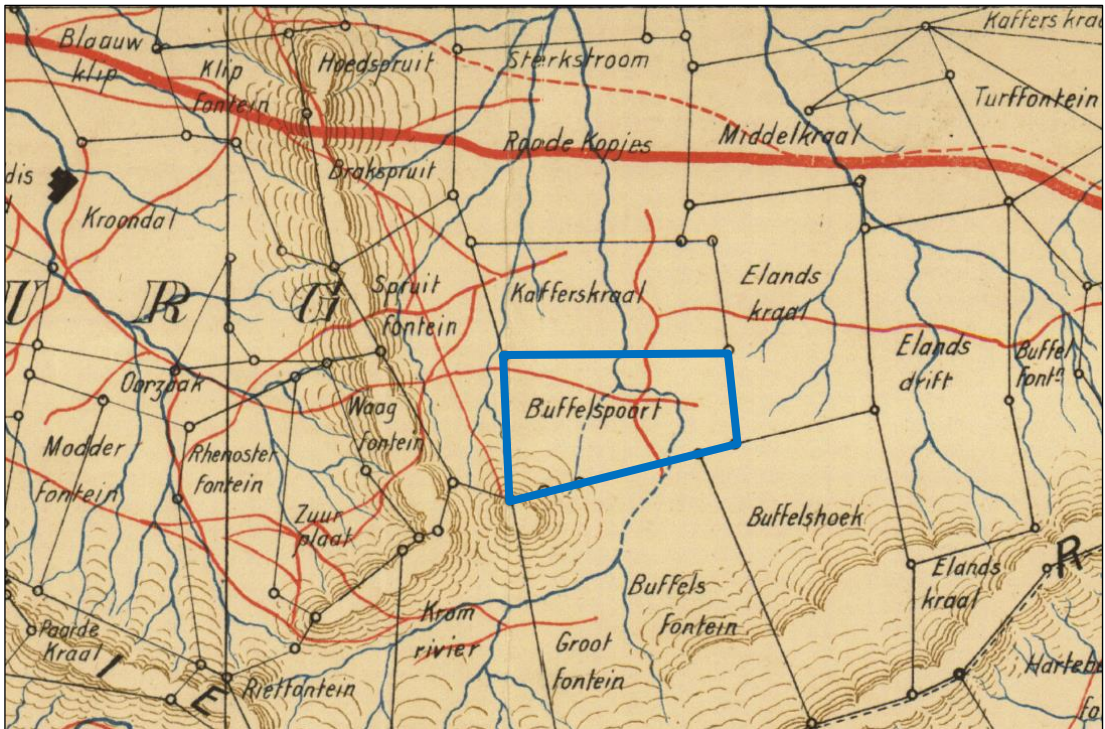


Figure 26 - Section of the 1900 Krugersdorp map highlighting the names of the Buffelspoort farm (blue polygon) (University of Cape Town Libraries, South Africa).

4.2.5 First edition of the 2527CB Rustenburg (Oos) topographical map dated to 1968, First Edition of the 2527CD Rex topographical map dated to 1968 and the First Edition of the 2527DC Magaliesberg topographical map dated to 1943.

The 2527CB Rustenburg (Oos) map sheet was based on the 1963 aerial photography, surveyed in 1968 and drawn in 1969 and printed by the Government Printer in Pretoria in 1976. The 2527CD Rex map sheet was printed by the government printer in Pretoria. The 2527DC map sheet was surveyed and drawn in 1943 by 45 Survey Coy., S. A. E. C. and printed by the Government Printer in Pretoria in 1957.

These three different topographical maps were combined to create an image overlay of the proposed development area (**Figure 27**). This map sheet shows no heritage features within the proposed development area. However, the Kerkhof Cemetery is located just outside the area.

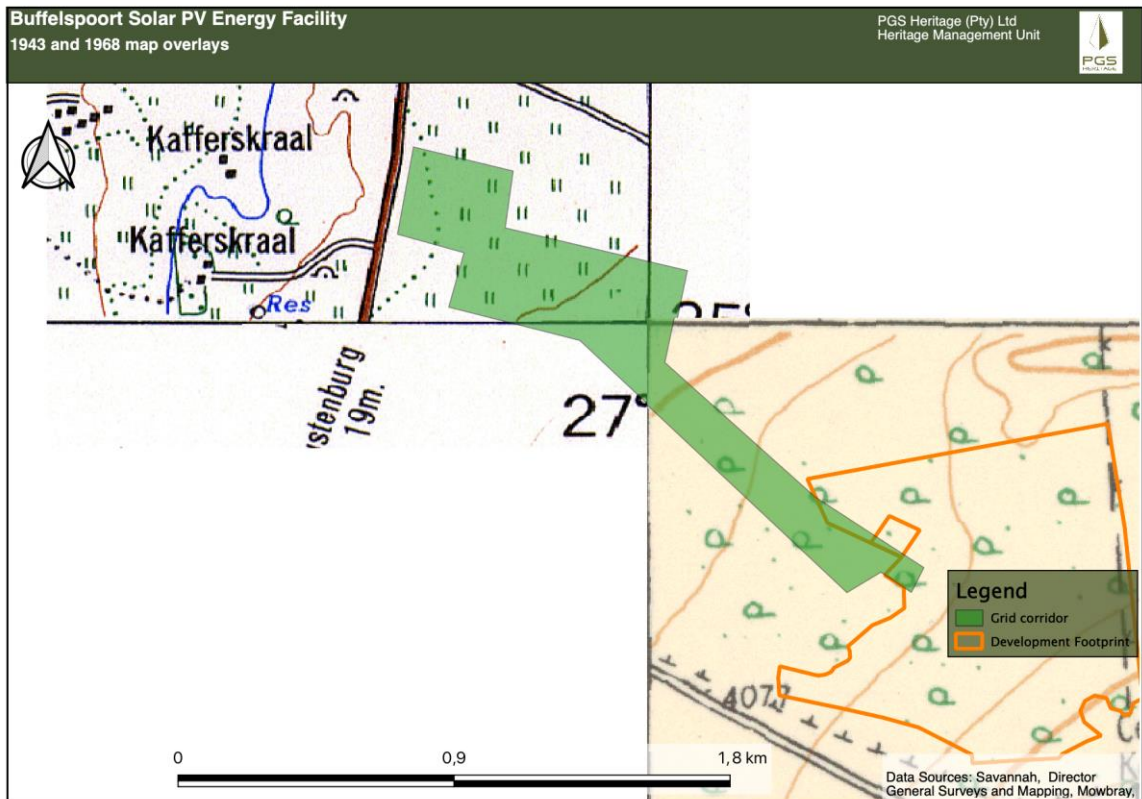


Figure 27 – Three different sections of First Editions of the 2527CB, CD and DC Topographical Map.

4.2.6 Previous heritage impact assessment reports from the study area and surroundings

A search of the South African Heritage Resources Information System (SAHRIS) database revealed that several previous archaeological and heritage impact assessments had been undertaken within the surroundings of the study area. In each case, the results of each study are shown in bold. These previous studies are listed below in ascending chronological order:

- Fourie, W. 2009. Isotium (Pty) Ltd (Isotium) – Royalty Fair Resort on Portion 35 of the farm Buffelspoort 343 JQ, District Rustenburg, North West Province. **During the survey fifteen heritage sites were identified.**
- Fourie, W. 2021. The Proposed Samancor Chrome Ltd (Western Chrome Mines) Waterkloof Section Opencast Project. Samancor Wcm –Waterkloof Section Falls Under the Jurisdiction of the Bojanala Platinum District Council and the Rustenburg Local Municipality, in the Northwest Province. The Mine is Located on Portions of Waterkloof 305 JQ, Northwest. **During the survey 2 areas with multiple foundations and broken-down buildings were identified.**

- Van der Walt, J. 2012. For the Proposed RustMo4 PV Facility on Portion 69 of the farm Spruitfontein JQ 341, near Buffelspoort, North West Province. **During the survey no significant heritage sites were found within the proposed development area.**
- Van der Walt, J. 2017. For the Proposed Overvaal Trust Pv Facility, Buffelspoort, North West Province. **During the survey no significant heritage sites was found within the proposed development area.**
- Pelser, A. J. 2012. A Report on An Archaeological Impact Assessment for the Proposed Moonooi Township Development on Portion 34 and the Remaining Extent of Portion 1 of the Farm Elandsdrift 467 JQ, Near Mooinooi, Northwest. **During the survey one heritage site was identified.**
- An HIA study undertaken by PGS Heritage (Pty) Ltd for a Consolidated EIA and EMP for Kroondal and Marikana in 2014 (Birkholtz) identified the three existing buildings at the Central Shaft site (Additional Site 1). This study noted that the Rustenburg Platinum Mines commissioned and completed the Central Deep shaft and associated treatment plant in 1954. The study also noted that “such older mine buildings and structures from this area are not at all common” and gave the site a Generally Protected B (GP.A) or High / Medium Significance, which indicated that the site may not be impacted upon without prior mitigation. It was recommended that the best option for the site was to preserve it in situ.
- The archaeological survey undertaken by Dr. Johnny van Schalkwyk of the National Cultural History Museum in 1997 on the farm Kroondal 304 JQ. A total of four sites were identified in the report, all of which are located close to the present study area. These four sites comprise three LIA stonewalled sites and one MSA site (NCHM, 1997).
- The cultural resources survey undertaken by the National Cultural History Museum in 1999 on the farms Spruitfontein 341JQ and Kafferskraal 342JQ. Eight sites were identified and include two unmarked graves (2527CB10 & 2527CB13), three cemeteries (2527CB15, 2527CB16 & 2527CB17), a historic structure (2527CB11), an Iron Age site comprising pottery (2527CB12) and an Iron Age stonewalled site (2527CB14) (NCHM, 1999).
- During 1999 an article was published by Dr. Julius Pistorius of the University of Pretoria regarding his archaeological excavations and research on a Late Iron Age stonewalled complex comprising three distinct clusters, numbered in his article as KRO001, KRO002 and KRO003. Dr. Pistorius indicated that these “...settlement clusters reflect the same tripartite division as has been recognised at Molokwane.” Dr. Pistorius identified the overall stonewalled complex comprising the three clusters as a typical Batswana settlement, and

while no direct association with a specific cultural group was found, he suggested that the site was located within the historical sphere of influence of the Bafokeng (Pistorius, 1999).

- The cultural resources survey undertaken by the National Cultural History Museum in 2001 on a section of the farm Kroondal 304JQ. This study was undertaken to identify cultural resources from within the proposed footprint area of a new tailings' facility at Kroondal Platinum Mine. No sites were identified (NCHM, 2001).
- During 2002 the National Cultural History Museum was commissioned by Aquarius Platinum to exhume and relocate 23 graves located on the farm Kafferskraal 342JQ that were affected by proposed development at the Marikana Platinum Mine. The exhumations took place on 31 October 2002 (NCHM, 2002). The graves were reburied on Portion 345 of the farm Kafferskraal 342JQ at the following coordinates: S 25° 44' 19.0" E 27° 27' 59.1". This place of reburial is located close to the present study area.

4.2.7 Heritage screening

A heritage screening report was compiled using the Department of Forestry, Fisheries and Environmental Affairs (DFFE) National Web-based Environmental Screening Tool as required by Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended. According to the heritage screening report, the study area has a Low Heritage Sensitivity (**Figure 28**) and a Medium Palaeontological Sensitivity (**Figure 29**). The fieldwork has shown that some archaeological and heritage resources were present in the area and thus have a higher rating than the original screening rating. This is in part due to the low resolution of the available data that the screening data is based on.

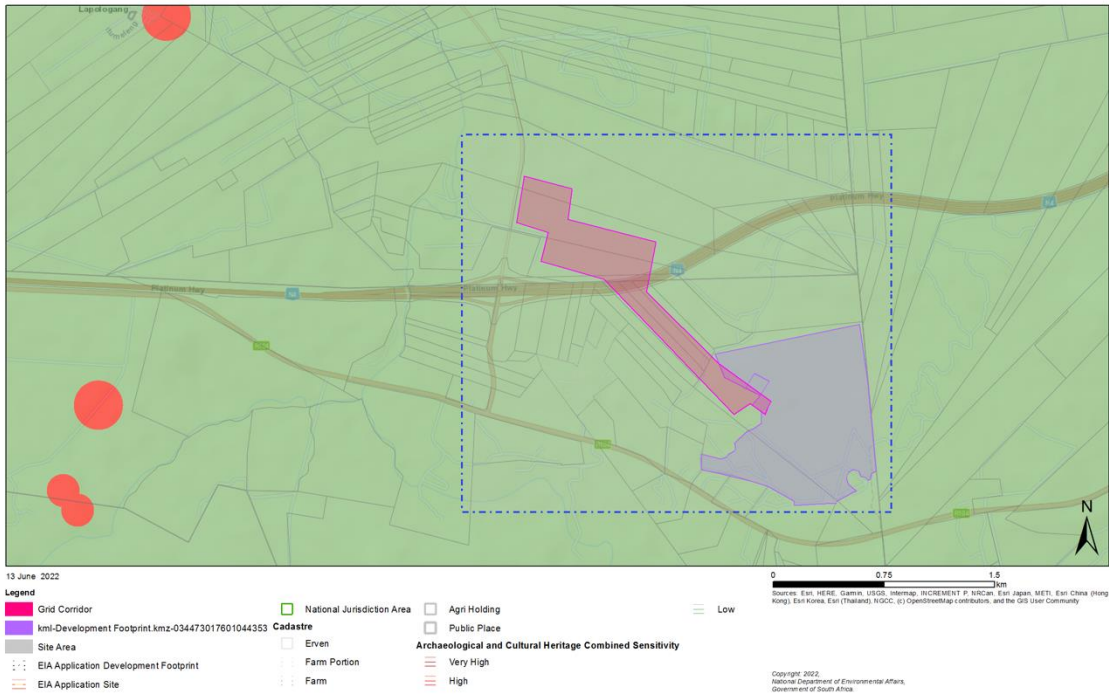


Figure 28 - Screening tool map indicating a low sensitivity rating for archaeology and heritage (Source: DFFE).

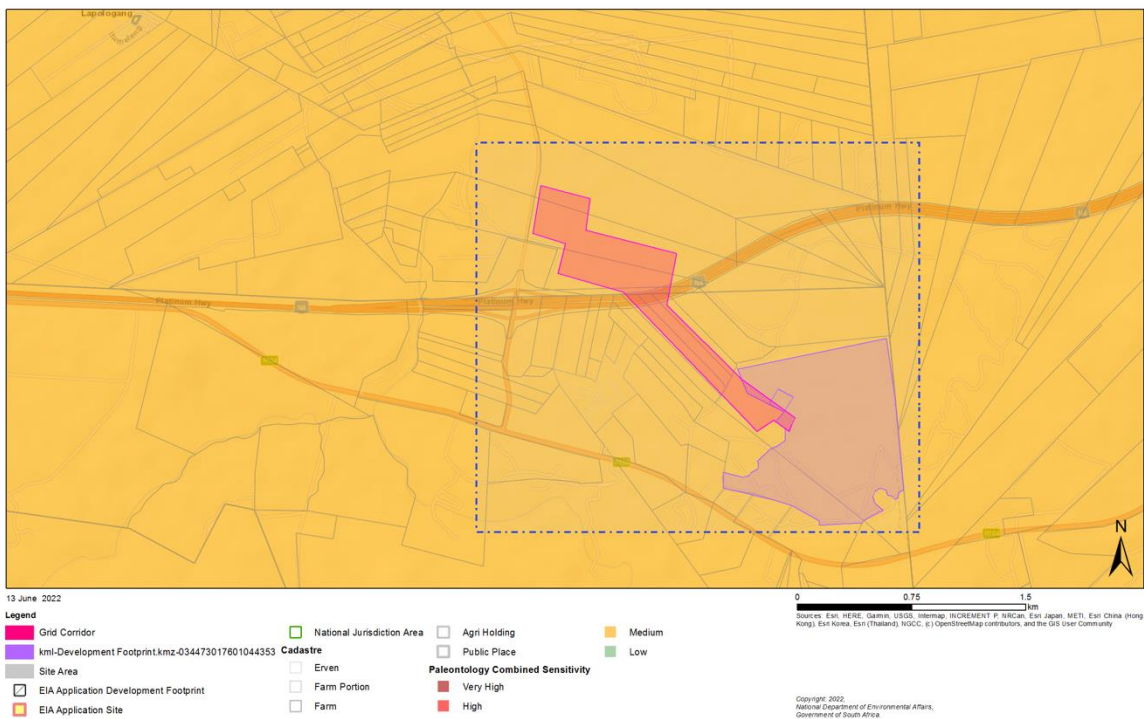


Figure 29 - Screening tool map indicating a medium sensitivity rating for palaeontological heritage (Source: DFFE).

4.2.8 Heritage sensitivity

Analysis of maps and satellite imagery enabled the identification of possible heritage sensitive areas. By superimposition and analysis, it was possible to rate these structures according to age and thus their level of protection under NHRA. **Table 4** lists the possible tangible heritage sites identified in the vicinity of the study area and the relevant legislative protection.

Table 4: Tangible heritage site in the study area.

Name	Description	Legislative protection
Archaeology	Older than 100 years	NHRA Sections 3 and 35
Structures	Possibly older than 60 years	NHRA Sections 3 and 34
Burial grounds	Graves	NHRA Sections 3 and 36 and MP Graves Act

Additionally, evaluation of satellite imagery has indicated the following areas that may be sensitive from a heritage perspective. The analysis of the studies conducted in the area assisted in the development of the following landform type to heritage find matrix (**Table 5**).

Table 5: Landform type to heritage find matrix

LANDFORM TYPE	HERITAGE TYPE
Crest and foot hill	LSA and MSA scatters, LIA settlements
Crest of small hills	Small LSA sites – scatters of stone artefacts, ostrich eggshell, pottery and beads
Water holes/pans/rivers	MSA and LSA sites, LIA settlements
Farmsteads	Historical archaeological material
Ridges and drainage lines	LSA sites, LIA settlements

4.3 Fieldwork findings³

The fieldwork was conducted on 28 April, 6 May, and 26 May 2022 by a field team from PGS Heritage. Their movement on site was tracked by GPS and a tracklog map can be seen in **Figure 30**.

Fieldwork

The fieldwork component of the study was aimed at identifying tangible remains of archaeological, historical and heritage significance. The fieldwork was undertaken by way of intensive walkthroughs of the proposed study area.

³ Site in this context refers to a place where a heritage resource is located and not a proclaimed heritage site as contemplated under s27 of the NHRA.

During the fieldwork, a total of eleven (11) heritage features and resources were identified (**Figure 31**). These consist of one (1) burial ground with approximately 100 graves (**BFP-06**), three (3) localities with recent historic structures (**BFP-08, BFP-10 and BFP-11**), and one (1) kraal (**BFP-09**), as well as six (6) low to moderate significance archaeological sites (**BFP-01, BFP-02, BFP-03, BFP-04, BFP-05 and BFP-07**).

Historical Structures

The recent historic structures (**BFP-08, BFP-10 and BFP-11**) and the kraal (**BFP-09**) are all younger than 60 years and varies in preservation, they are all currently abandoned. The structure and remains of structures are not conservation worthy and contain no cultural or scientific value and is consequently graded as not conservation worthy.

The impact on the recent historic structures identified during the fieldwork can potentially have a LOW significance before and after the implementation of the proposed mitigation measures.

Archaeological Site

Two of the six archaeological sites are characterised by low density scatters of Iron Age ceramics (**BFP-02 and BFP-04**). Due to the low-density scatter of ceramics and lack of any other deposits for these two sites, they are graded as not conservation worthy. The other four archaeological sites consist of areas with stone walling (**BFP-01, BFP-03, BFP-05 and BFP-07**). Site **BFP-01** consists of a long continuous stone wall running along a raised outcrop, although no other cultural material was identified in the area. Site **BFP-07** is a large stone wall site with many different stone walled circles close to one another. It appears the area was already disturbed as it now functions as a feeding ground for the game in the area. There is evidence of some of the stone walling being destroyed where others still appear to be in their original state, no other cultural material was identified in the area. Sites **BFP-03** and **BFP-05** are small areas of possible stonewalling.

The possibility of the archaeological resources impacted by the proposed Buffelspoort Solar PV Energy Facility cannot be excluded, and the project can potentially have a LOW impact without and with mitigation.

Burial grounds and graves

A single burial ground consisting of approximately 100 graves was identified at site **BFP-06**. The site was indicated to the fieldwork team by the owner of the property. The informal graveyard lies just outside the proposed Development Footprint. Although the area is overgrown by vegetation, some of the graves are still identifiable and consist mainly of stone packed or stone lined grave dressings, except for a few concrete or marble grave dressing features. Due to the cultural and religious significance of burial grounds, the site is graded as Grade 3A.

The possibility of the burial ground impacted by the proposed Buffelspoort Solar PV Energy cannot be excluded, and the project can potentially have a HIGH impact without mitigation. Implementation of the recommended management and mitigation measures can reduce the impact rating to LOW.

Buffelspoort Solar PV Energy Facility
Fieldwork tracks

PGS Heritage (Pty) Ltd
Heritage Management Unit

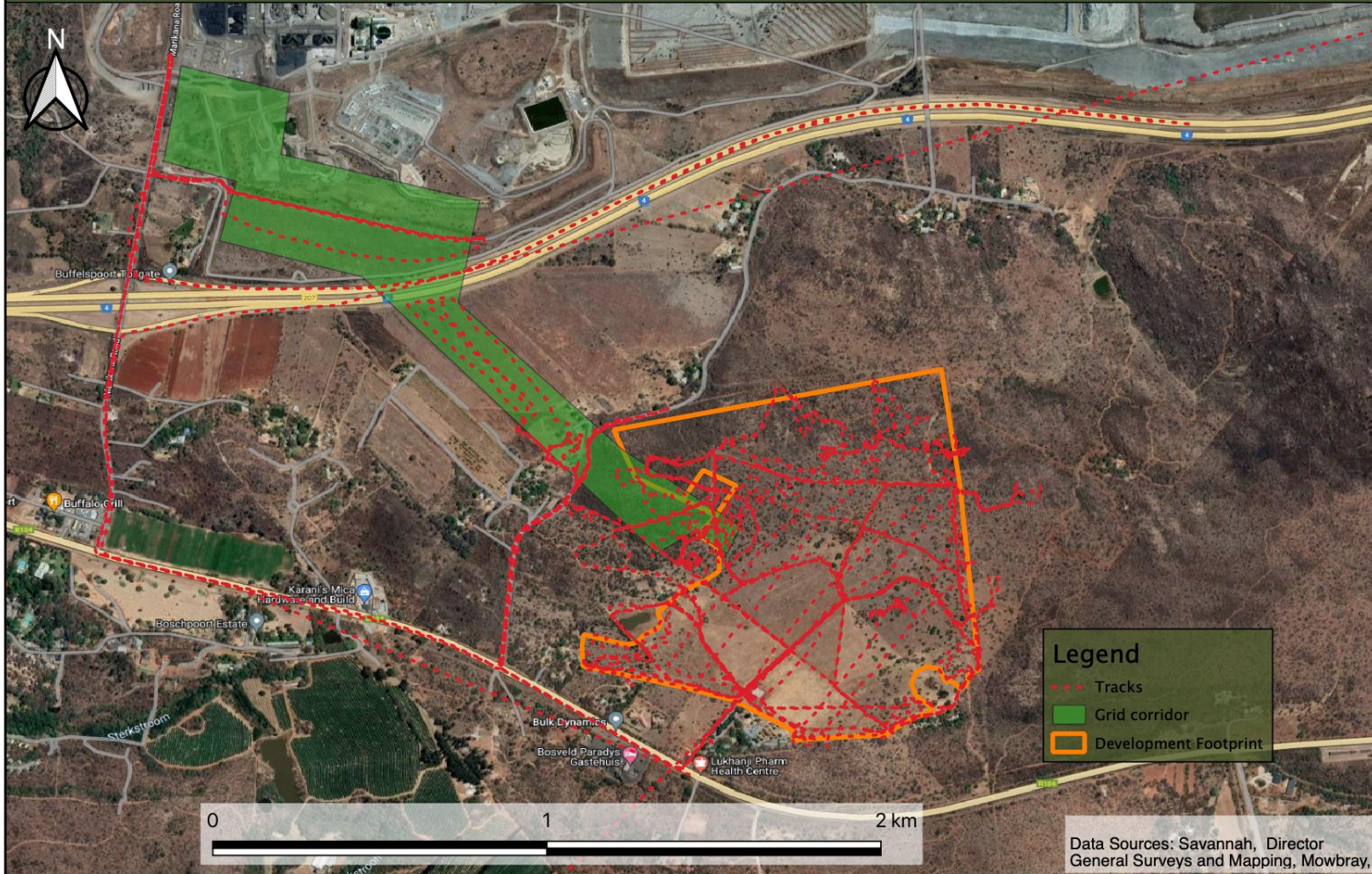


Figure 30 - Fieldwork tracklogs (track in red) within the proposed study area.

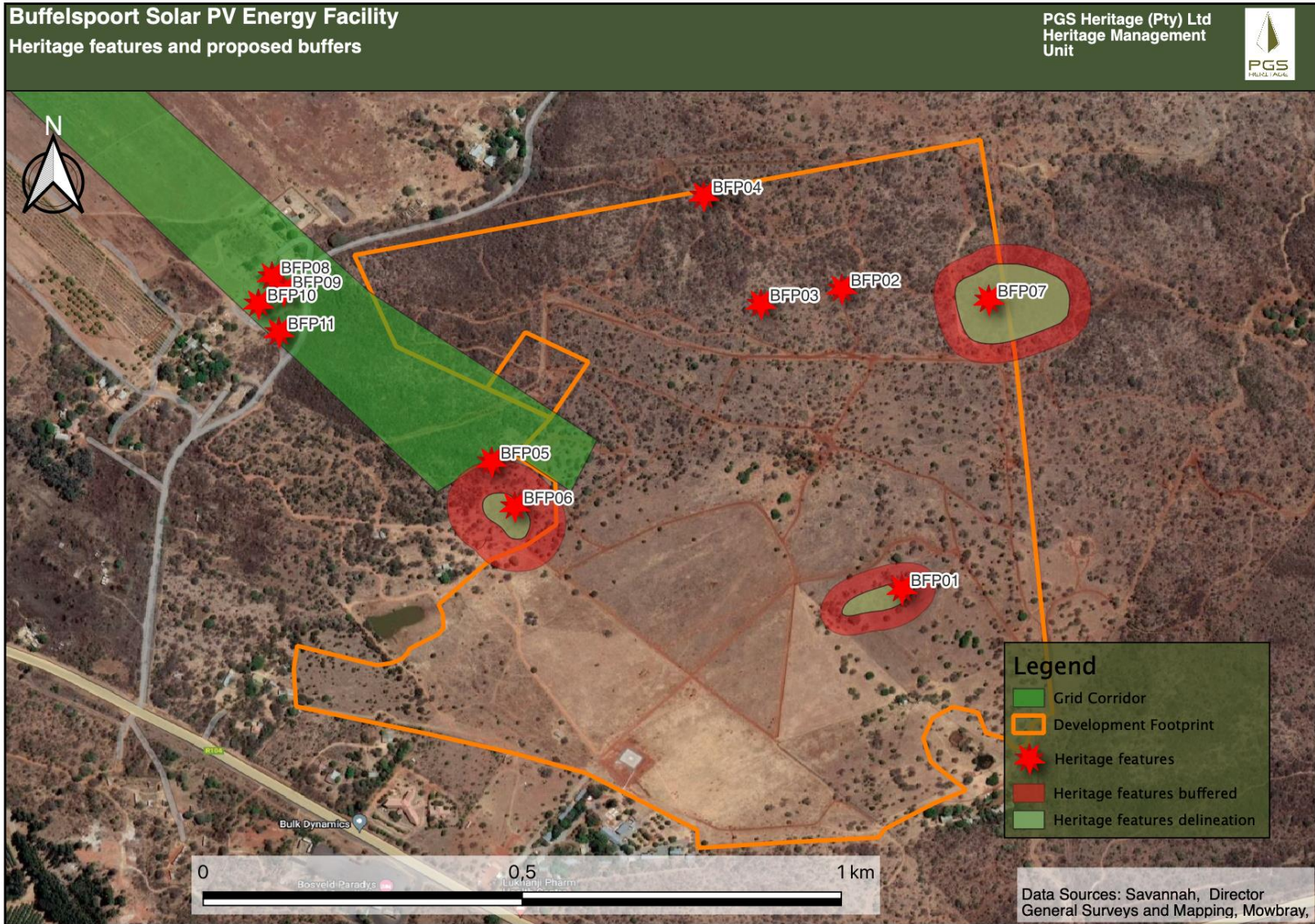


Figure 31 - Identified heritage resources within the proposed study area.

Table 6: Sites identified during the heritage survey.



Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
BFP-01	S -25.759900°	E 27.512075°	<p>A continuous stone wall (dry walling) is located on a small outcrop within the proposed Development Footprint. It runs across the centre of the small, raised outcrop. No other material of cultural significance was identified within the site area.</p> <p>Site extent: Approximately 60m x 30m.</p> <p>The site is of low heritage significance and is rated as IIIC. It is recommended that:</p> <ul style="list-style-type: none"> Keep stone walling intact with 30 meter buffer 	LOW	IIIC



Figure 32 – Aerial view of the outcrop where site BFP-01 was identified.



Figure 33 – General view of the outcrop where site BFP-01 is located.

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
			 <p data-bbox="226 663 1097 742"><i>Figure 34 – General view of the stone walling located at site BFP-01. The scale in in 10cm increments.</i></p>		 <p data-bbox="1144 647 2072 726"><i>Figure 35 – Close-up of the stone walling located at site BFP-01. The scale is in 10cm increments.</i></p>

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
BFP-02	S 25.755680°	E 27.511230°	<p>A small open area with a low surface scatter of ceramics, all undecorated. No other cultural material or stone walling was identified within the vicinity of the site.</p> <p>Site extent: Approximately 5m x 5m.</p> <p>The site is of low heritage significance and is rated as IIIC. It is recommended that:</p> <ul style="list-style-type: none"> No mitigation is required. 	LOW	IIIC



Figure 36 – General view of the site BFP-02. The scale is in 10cm increments.



Figure 37 – Close-up view of the ceramics located on the surface at site BFP-02. The scale is in 10cm increments.

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
BFP-03	S 25.755891°	E 27.510092°	<p>A few areas were identified with low stone walling. The stone walling wasn't very well preserved and, in some areas, appeared to be rocks pushed to one side to create space for an old road. No other cultural material was identified at the site.</p> <p>Site extent: Approximately 10m x 10m.</p> <p>It is recommended that:</p> <ul style="list-style-type: none"> No mitigation is required. 	No research potential or other cultural significance	NCW



Figure 38 – General view of the site. Two rows of rocks on either side with a possible old road leading in-between. The scale is in 10cm increments.



Figure 39 – View of one row of possible stone walling. The scale is in 10cm increments.

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
BFP-04	S -25.754371°	E 27.509287°	<p>A very overgrown area with a slight raised area. A low-density surface scatter of ceramics, with one rim and decorated sherd was found in the dirt road. The ceramic was possible washed down. No other material could be identified in the area.</p> <p>Site extent: Approximately 5m x 5m.</p> <p>The site is of low heritage significance and is rated as IIIC. It is recommended that:</p> <ul style="list-style-type: none"> No mitigation is required 	LOW	NCW



Figure 40 – General view of the site BFP-04, with a dirt road in the foreground.



Figure 41 – Close-up view of the ceramic identified at the site BFP-04, note the decoration on the rim. The scale is in 10cm increments.


Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
BFP-05	S -25.758110°	E 27.506302°	<p>Two area with stone walling was identified. One stone walling had a clear square shape with a defined entrance. The other stone walling had fallen over, and it is difficult to distinguish a shape. No other cultural material was identified at the site.</p> <p>Site extent: Approximately 10m x 5m.</p> <p>It is recommended that:</p> <ul style="list-style-type: none"> No mitigation is required. 	No research potential or other cultural significance	NCW







Figure 42 – General view of the site BFP-05 with a defined stone walling. The scale is in 10cm increments.







Figure 43 – View of the defined opening in the stone walling located at site BFP-05. The scale is in 10cm increments.

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
			 <p data-bbox="208 651 1117 724"><i>Figure 44 - General view of the collapsed stone walling. The scale is in 10cm increments.</i></p>		

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
BFP-06	S -25.758738°	E 27.506627°	<p>An informal cemetery with approximately 100 graves is located at the site. The graves are in a field that is very overgrown and as such, some of the graves can easily be missed. Most of the graves have a stone-packed and/or stone-lined dressing, whereas others have concrete or granite dressing.</p> <p>Site extent: Approximately 50m x 50m.</p> <p>Burial grounds and graves are protected under Section 36 of the NHRA 25 of 1999. Thus, the site is provisionally rated as having a high heritage significance with a heritage rating of IIIA. All graves have high levels of emotional, religious and in some cases historical significance. It is also important to understand that the identified graves could have significant heritage value to the relevant families.</p> <p>It is recommended that:</p> <ul style="list-style-type: none"> • The sites should be demarcated and a 50-meter no-go-buffer zone must be enforced. The graves should be avoided and left in situ. • A Grave Management Plan should be developed for the graves, to be implemented during the construction and operation phases (which needs approval by SAHRA BGG). • If the site is going to be impacted directly and the graves need to be removed, a grave relocation process for these sites is recommended as a mitigation and management measure. This will involve the necessary social consultation and public participation process before grave relocation permits can be applied for with the SAHRA BGG under the NHRA and National Health Act regulations. 	HIGH	IIIA

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
			 <p data-bbox="221 683 1104 743"><i>Figure 45 – General view of the grave site at BFP-06. The scale is in 10cm increments.</i></p>		
			 <p data-bbox="1160 651 2042 743"><i>Figure 46 – General view of the grave site at BFP-06. The scale is in 10cm increments.</i></p>		
			 <p data-bbox="221 1158 1104 1248"><i>Figure 47 - General view of the grave site at BFP-06. The scale is in 10cm increments.</i></p>		
			 <p data-bbox="1160 1158 2042 1248"><i>Figure 48 - General view of the grave site at BFP-06. The scale is in 10cm increments.</i></p>		

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
BFP-07	S -25.755832°	E 27.513298°	<p>A large stone walled site is located here but it appears that it has already been disturbed by activities. The area is currently being used as a feeding ground for the game located on the property.</p> <p>Some of the stone walling appears to be in its original state, whereas other have been pushed over and heaps created to clear a space for the game. At the centre of one stone enclosure a modern braai area has been built with bricks.</p> <p>No other cultural material was identified at the site.</p> <p>Site extent: Approximately 30m x 30m.</p> <ul style="list-style-type: none"> • A 30 meter buffer should be implemented from the outer edge of the archaeological site. • If the preservation of the site is not possible mitigation before destruction will be required. • Phase 2 archaeological mitigation process must be implemented. This will include, surface collections, test excavations and analysis of recovered material. A permit issued under s35 of the NHRA will be required to conduct such work. • On completion of the mitigation work the developer can apply for a destruction permit with the backing of the mitigation report. • This work will need to be done as part of the EMP implementation prior to construction 	MODERATE	IIIB

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
			 <p data-bbox="250 683 1079 759"><i>Figure 49 – One stone walling enclosure located at site BFP-07 with a modern braai located in the centre. The scale is in 10cm increments.</i></p>		
			 <p data-bbox="210 1187 1115 1264"><i>Figure 51 - General view of the collapsed stone walling at BFP-07. The scale is in 10cm increments.</i></p>		
			 <p data-bbox="1155 673 2056 750"><i>Figure 50 – One stone walling enclosure located at site BFP-07 The scale is in 10cm increments.</i></p>		
			 <p data-bbox="1173 1187 2042 1248"><i>Figure 52 - General view of site BFP-07 with a portion of the cleared area visible.</i></p>		



Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
BFP-08	S -25.755504°	E 27.503211°	<p>Large abandoned and broken-down structure located in an open field. Along with the large structure there is a small broken-down red-brick building located to the left of the structure and a small square concrete and a possible reservoir located to the right of the structure.</p> <p>The large structure consists of bricks and concrete and had wooden window frames along with a corrugated iron roof. The structure has multiple rooms and probably served the purpose of a residential space.</p> <p>The structure appears to be relatively modern as it does not yet appear on the first edition topographical maps that date to 1968.</p> <p>Site extent: Approximately 25m x 25m.</p> <p>It is recommended that:</p> <ul style="list-style-type: none"> No mitigation is required. 	NCW	No research potential or other cultural significance



Figure 53 – General view of the small brick structure located at site BFP-08.
The scale is in 10cm increments.



Figure 54 – General view of the small square structure and the possible reservoir located at site BFP-08. The scale is in 10cm increments.

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
			 <p data-bbox="206 673 1115 746"><i>Figure 55 - General view of the large residential structure located at site BFP-08.</i></p>		 <p data-bbox="1146 673 2065 746"><i>Figure 56 - General view of the large residential structure located at site BFP-08. The scale is in 10cm increments.</i></p>

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
BFP-09	S -25.755708°	E 27.503372°	<p>A kraal that possibly once served the purpose to keep animals, like domestic stock. The kraal could also be associated with the large residential structure at site BFP-08.</p> <p>Site extent: Approximately 10m x 10m.</p> <p>It is recommended that:</p> <ul style="list-style-type: none"> No mitigation is required. 	NCW	No research potential or other cultural significance



Figure 57 – General view of the kraal located at site BFP-09. The scale is in 10cm increments.



Figure 58 – General view of the kraal located at site BFP-09.

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
BFP-10	S -25.755888°	E 27.503019°	<p>Large abandoned and broken-down structure located in an open field. The structure consists of brick and concrete. There is no evidence left of a roof. At the corner of the building there is a space that resembles an entryway and the remains of a few stairs.</p> <p>This building could probably have been a storage unit of some sort.</p> <p>The structure appears to be relatively modern as it does not yet appear on the first edition topographical maps that date to 1968.</p> <p>Site extent: Approximately 10m x 10m.</p> <p>It is recommended that:</p> <ul style="list-style-type: none"> No mitigation is required. 	NCW	No research potential or other cultural significance



Figure 59 – General view of the structure located at site BFP-10. The scale is in 10cm increments.


Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
BFP-11	S -25.756290°	E 27.503308°	<p>An abandoned and broken-down structure located behind site BFP-10. It appears to be the same building materials, bricks, and concrete. The structure has no remains of a roof, or doors and windows.</p> <p>The structure appears to be relatively modern as it does not yet appear on the first edition topographical maps that date to 1968.</p> <p>Site extent: Approximately 5m x 5m.</p> <p>It is recommended that:</p> <ul style="list-style-type: none"> No mitigation is required. 	NCW	No research potential or other cultural significance



Figure 60 – General view of the broken-down structure located at site BFP-11. The scale is in 10cm increments.



Figure 61 – General view of the rubble and broken-down structure located at site BFP-11.

Site number	Lat	Lon	Description	Heritage Significance	Heritage Rating
			 <p data-bbox="584 651 1677 683"><i>Figure 62 - General view of the structure located at site BFP-11. The area is very overgrown.</i></p>		

4.4 Palaeontology

According to the PalaeoMap of SAHRIS, the Palaeontological Sensitivity of the proposed study area is zero or insignificant. No paleontological studies are required (**Figure 63**).



Figure 63 - Palaeontological Heritage Sensitivity map. As can be viewed, most of the area has no sensitivity indicated by the white/clear background (Retrieved from SAHRIS).

Table 7: SAHRIS palaeosensitivity ratings table.

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.
--	--	--

5 IMPACT ASSESSMENT

The impact assessment rating is based on the rating scale as contained in **Appendix B**.

The following section provides an analysis of the impact of the proposed study area on heritage resources identified within the proposed Buffelspoort Solar PV Energy Facility.

5.1 Details of all alternatives considered

This section describes alternative means of carrying out the operation and the consequences of not proceeding with the proposed project.

The “no-go” alternative refers to the option of not going ahead with the proposed project. This will entail maintaining the current status quo with no impact from the project.

5.1.1 Burial grounds and graves

The burial ground at site **BFP-06** has a high local heritage significance with 3A heritage grading. The possibility of the burial ground impacted by the proposed Buffelspoort Solar PV Energy Facility cannot be excluded, and the project can potentially have a MODERATE impact without mitigation. Implementation of the recommended management and mitigation measures can reduce the impact rating to LOW.

5.1.2 Historical Structures

The impact on the recent historic structures (**BFP-08, BFP-10 and BFP-11**) and the kraal (BFP-09) identified during the fieldwork is calculated as having a LOW significance before and after the implementation of the proposed mitigation measures.

5.1.3 Archaeological resources

The five archaeological features at (**BFP-01, BFP-02, BFP-03, BFP-04, and BFP-05**) have a low local heritage significance with no heritage grading. Site **BFP-07** was given a heritage grading of IIB and is of moderate heritage significance. The possibility of the archaeological resources impacted by the proposed Buffelspoort Solar PV Energy Facility cannot be excluded, and the project can potentially have a LOW impact without and with mitigation.

5.1.4 Palaeontology

The PDA notes that the paleontological significance and potential of the geology of the study area is rated as low to zero. The impact significance is rated as LOW before and after mitigation.

5.2 Scoping Evaluation summary table

Implementing the scoping evaluation methodology as supplied by Savannah Environmental, **Table 8** provides a quantitative assessment of the impacts of the proposed Buffelspoort Solar PV Energy Facility.

Table 8: Potential Impact – heritage resources

Impact Possible destruction of heritage resources			
Issue	Nature of Impact	Extent of Impact	No-Go Areas
Potential destruction of burial ground (BFP06)	<u>Direct impacts:</u> » Destruction of burial ground and its graves <u>Indirect impacts:</u> » Potential impact on communities due to the destruction of the burial ground	Regional	If included in project layout a 50-meter buffer is required. A full grave relocation process must be completed if the graves are to be relocated
Potential loss of archaeological resources (BFP01 and BFP07)	<u>Direct impacts:</u> » Destruction of archaeological resources <u>Indirect impacts:</u> » None	Local	Mitigation measures will negate the need for a no go option at these two sites
Description of expected significance of impact The burial ground (BFP006) is of high heritage significance and given a Grade 3A grading. Destruction of the burial ground will have a high to very high impact significance. Implementation of mitigation measures could reduce the impact significance to low. The potential impact on the archaeological site BFP07 rated as having a 3C grading can potentially be a medium impact significance. The implementation of the proposed buffers or mitigation measures can potentially reduce the impact to a low rating.			
Gaps in knowledge & recommendations for further study <ul style="list-style-type: none"> ▪ Re-evaluation of impacts on heritage resources during the EIA phase when proposed layouts are finalised; and ▪ Mitigation measures depended on final layouts for the project. 			
Recommendations with regards to general field surveys <ul style="list-style-type: none"> ▪ None 			

6 CONCLUSIONS AND RECOMMENDATIONS

The HIA identified various heritage resources within the study area including archaeological resources and burial grounds and graves which are rated as having a high heritage significance and will require further mitigation work before the project can continue.

During the fieldwork, a total of eleven (11) heritage features and resources were identified (**Figure 31**). These consist of one (1) burial ground with approximately 100 graves (**BFP-06**), three (3) localities with recent historic structures (**BFP-08**, **BFP-10** and **BFP-11**), and one kraal (**BFP-09**),

as well as five (5) archaeological sites (**BFP-01, BFP-02, BFP-03, BFP-04, and BFP-05**) with low heritage significance and one archaeological site (BFP-07) with a moderate heritage significance were identified.

6.1 Historical Structures

The three recent historic structures (**BFP-08, BFP-10 and BFP-11**) and one kraal (**BFP-09**) are all younger than 60 years and varies in preservation, they are all currently abandoned. The structure and remains of structures are not conservation worthy and contain no cultural or scientific value and is consequently graded as not conservation worthy.

The impact on the recent historic structures identified during the fieldwork can potentially have a LOW significance before and after the implementation of the proposed mitigation measures.

6.2 Archaeological Site

Two of the six archaeological sites are characterised by low density scatters of Iron Age ceramics (**BFP-02 and BFP-04**). Due to the low-density scatter of ceramics and lack of any other deposits for these two sites they are graded as not conservation worthy. The other four archaeological sites consist of areas with stone walling (**BFP-01, BFP-03, BFP-05 and BFP-07**). Site **BFP-01** consists of a long continuous stone wall running along a raised outcrop, although no other cultural material was identified in the area. Site **BFP-07** is a large stone wall site with numerous stone walled enclosures. It appears the area was already disturbed as it now functions as a feeding ground for the game in the area. There is evidence of some of the stone walling being destroyed where others still appear to be in their original state, no other cultural material was identified in the area. Sites **BFP-03 and BFP-05** are small areas of possible stonewalling.

The possibility of the archaeological resources impacted by the proposed Buffelspoort Solar PV Energy Facility cannot be excluded, and the project can potentially have a MODERATE impact without and LOW with mitigation.

6.3 Burial grounds and graves

A single burial ground consisting of approximately 100 graves was identified at site **BFP-06**. The site was indicated to the fieldwork team by the owner the property. The informal graveyard lies just outside the proposed development area. Although the area is overgrown by vegetation, some of the graves are still identifiable and consist mainly of stone packed or stone lined grave dressings, except for a few concrete or marble grave dressing features. Due to the cultural and religious significance of burial grounds the site is graded as Grade 3A.

The possibility of the burial ground impacted by the proposed Buffelspoort Solar PV Energy Facility cannot be excluded and the project can potentially have a HIGH impact without mitigation.

Implementation of the recommended management and mitigation measures can reduce the impact rating to LOW.

6.4 Palaeontology

According to the PalaeoMap of South African Heritage Resources Information System (SAHRIS), the Palaeontological Sensitivity of the proposed study area is zero/Insignificant. As such no paleontological studies are required.

6.5 General

The HS concludes that heritage resources are present within the proposed study area of the Buffelspoort Solar PV Energy Facility. The initial projected impact is rated as Moderate to HIGH before mitigation measures.

Through the combination of the various environmental, cultural, and socio-economic sensitivities, the client can develop various layout options that will reduce the impact on the heritage resources. There is, however, a possibility that the combined sensitivity mapping can lead to some of the heritage resources not accommodated in the layouts.

The completion of the HIA as the next step in the heritage assessment process will enable PGS Heritage to accurately calculate the impacts and provide specific mitigation measures to reduce this impact.

7 REFERENCES

7.1 Published References

BERGH, J.S. 1995. We Must Never Forget Where We Come From: The Bafokeng and Their Land in 19th Century Transvaal. *History in Africa*, Vol. 32 (2005), pp. 95 – 115.

BERGH, J.S. (ed.). 1999. *Geskiedenis Atlas van Suid-Afrika: Die Vier Noordelike Provinsies*. J.L. van Schaik. Pretoria.

CARRUTHERS, V. 2007. *The Magaliesberg*. Protea Book House, Pretoria.

CRESWELL, T. 2004. *Place, a short introduction*. London: Blackwell Publishing

ERASMUS, B.J. 2004. *On Route in South Africa*. Jonathan Ball Publishers, Johannesburg.

GIRAUD L AND B GALY. 2018. *Fault Tree Analysis and Risk Mitigation Strategies for Mine Hoists*. (www.researchgate.net/publication/327317892)

HUFFMAN, T.N. 2007. *Handbook to the Iron Age: The archaeology of Pre-Colonial Farming Societies in Southern Africa*. University of KwaZulu-Natal Press, Scottsville.

MACHENS, E.W. 2009. *Platinum, Gold and Diamonds: The adventure of Hans Merensky's discoveries*. Protea Book House, Pretoria.

MASON, R.J. 1973. Iron Age Research in the Western Transvaal, South Africa. *Current Anthropology*, Vol. 14, No. 4 (Oct. 1973), pp. 485-487.

MBENGA, B. & A. MANSON. 2010. *People of the Dew: A History of the Bafokeng of Rustenburg District, South Africa from Early Times to 2000*. Jacana Media (Pty) Ltd, Johannesburg.

MOKGATLE, N. 1971. *The Autobiography of an Unknown South African*. London.

PISTORIUS, J.C.C. 1999. Spatial identity and expressions in a stone walled complex on Kroondal. *South African Journal of Ethnology*, 22(3), pp. 116 – 128.

ROSENTHAL, E. 1979. *Rustenburg Romance: The History of a Voortrekker Town*. Perskor Publishers, Johannesburg.

SOUTH AFRICAN MINING YEARBOOK, 1941/2. The South African Mining Journal Syndicate, Johannesburg.

HALL, S., ANDERSON, M, BOEYENS, J. & F. COETZEE. 2008. Towards an outline of the oral geography, historical identity and political economy of the Late Precolonial Tswana in the Rustenburg region in Swanepoel, N., Esterhuizen, A. & P. Bonner. 2008. Five Hundred Years Rediscovered: Southern African Precedents and Prospects. Wits University Press, Johannesburg.

JOHANNESBURG CONSOLIDATED INVESTMENT COMPANY, 1965. The Story of 'Johnnies': 1889 - 1964. JCI, Johannesburg.

NAUDE, M. 2018/2019. Unexplored identities of 'whole environments' In Ditsong: National Museum of Cultural History Research Journal (Vol 11).

SIBANYE-STILLWATER LIMITED. Mineral Resources and Mineral Reserves Report 2019

WAGNER, P.A. 1973. Platinum Deposits and Mines of South Africa. C. Struik (Pty) Ltd, Cape Town.

WULFSOHN, L. 1992. Rustenburg at War: The Story of Rustenburg and its Citizens in the First and Second Anglo-Boer Wars. L.M. Wulfsohn, Rustenburg.

7.2 Unpublished References

ARM, 2005. The Archaeology of the Anglo Platinum Lease Area. An unpublished report by Professor Tom Huffman of Archaeological Resources Management, University of the Witwatersrand. On file at SAHRA.

BIRKHOLTZ, PD. 2014. Consolidation of the existing Environmental Management Programme Report (EMPR) and associated addendums for the Kroondal and Marikana Mining Right Areas into one Environmental Impact Assessment (EIA) and Environmental Management Programme (EMP) report, Rustenburg Local Municipality, North West Province. By PGS Heritage (Pty) Ltd

HCAC, 2012a. Archaeological Impact Assessment for the Proposed RustMo4 PV Plant on Portion 69 of the farm Spruitfontein 341JQ, near Buffelspoort, North West Province. An unpublished report that is on file at SAHRA.

HCAC, 2012b. Archaeological Impact Assessment for the Proposed RustMo3 PV Plant on Portion 90 of the farm Spruitfontein 341JQ, near Buffelspoort, North West Province. An unpublished report that is on file at SAHRA.

FOURIE, W. 2009. Isotium (Pty) Ltd (Isotium) – Royalty Fair Resort on Portion 35 of the farm Buffelspoort 343 JQ, District Rustenburg, North West Province. An unpublished report that is on file at SAHRA.

FOURIE, W. 2021. The Proposed Samancor Chrome Ltd (Western Chrome Mines) Waterkloof Section Opencast Project. Samancor Wcm –Waterkloof Section Falls Under the Jurisdiction of the Bojanala Platinum District Council and the Rustenburg Local Municipality, in the Northwest Province. The Mine is Located on Portions of Waterkloof 305 JQ, Northwest. An unpublished report that is on file at SAHRA.

NATIONAL CULTURAL HISTORY MUSEUM, 1997. A Survey of Cultural Resources on the Farm Kroondal 304 JQ, East of Rustenburg. An unpublished report by Dr. J.A. van Schalkwyk and A. Pelser of the National Cultural History Museum, Pretoria. On file at SAHRA.

NATIONAL CULTURAL HISTORY MUSEUM, 1999. A Survey of Cultural Resources on the farms Spruitfontein 341 JQ and Kafferskraal 342 JQ, Rustenburg District. An unpublished report by Dr. J.A. van Schalkwyk and A. Pelser of the National Cultural History Museum, Pretoria. On file at SAHRA.

NATIONAL CULTURAL HISTORY MUSEUM, 2001. A Survey of Cultural Resources on the farm Kroondal 304JQ, East of Rustenburg. An unpublished report by Dr. J.A. van Schalkwyk and A. Pelser of the National Cultural History Museum, Pretoria. On file at SAHRA.

NATIONAL CULTURAL HISTORY MUSEUM, 2002. The Exhumation and Relocation of Graves on the farm Kafferskraal 342 JQ, Rustenburg District, North West Province. An unpublished report by A. Pelser and F. Teichert of the National Cultural History Museum, Pretoria. On file at SAHRA.

NAUDE, M. 2020. Phase I Heritage Assessment of Redundant Central Shaft Structures at Sibanye-Stillwater Rustenburg Platinum Mines (Northwest Province)

PELSER, A. J. 2012. A Report on An Archaeological Impact Assessment for the Proposed Moonooi Township Development on Portion 34 and the Remaining Extent of Portion 1 of the Farm Elandsdrift 467 JQ, Near Moonooi, Northwest. An unpublished report that is on file at SAHRA.

VAN DER WALT, J. 2012. For the Proposed RustMo4 PV Facility on Portion 69 of the farm Spruitfontein JQ 341, near Buffelspoort, North West Province. An unpublished report that is on file at SAHRA.

VAN DER WALT, J. 2017. For the Proposed Overvaal Trust Pv Facility, Buffelspoort, North West Province. An unpublished report that is on file at SAHRA.

VAN SCHALKWYK, J. 2011a. Heritage Impact Assessment for the Proposed Development of a Photo Voltaic Plant on the Farm Spruitfontein 341JQ, Rustenburg Magisterial District, North West Province. An unpublished report that is on file at SAHRA.

VAN SCHALKWYK, J. 2011b. Heritage Impact Assessment for the Proposed Amendment to the existing Aquarius Platinum South Africa's Marikana Mine Environmental Management Programme to include the proposed West-Wits Open Pit Rehabilitation and Tailings Storage Facility Project, Marikana, North West Province. An unpublished report that is on file at SAHRA.

7.3 Archival References

MNW, 876, MM804/27

7.4 Internet

www.researchgate.net/publication/327317892

www.sibanyestillwater.com

<https://www.sibanyestillwater.com/business/southern-africa/pgm-operations/kroondal/>

<http://tedyproject.blogspot.com/2015/11/shed-roof-framing-diagrams.html>

www.sanbi.org

7.5 Google Earth

All the aerial depictions and overlays used in this report are from Google Earth.

APPENDIX A

HERITAGE ASSESSMENT METHODOLOGY

The section below outlines the assessment methodologies utilised in the study.

This HIA report was compiled by PGS Heritage (PGS) for the proposed Buffelspoort Solar Photovoltaic (PV) Energy Facility. The applicable maps, tables and figures are included, as stipulated in the NHRA (no 25 of 1999) and the National Environmental Management Act (NEMA) (No. 107 of 1998). The HIA process consists of three steps:

Step I – Literature Review and initial site analysis: The background information to the field survey relies greatly on the Heritage Background Research which was undertaken through archival research and evaluation of satellite imagery and topographical maps of the study area.

Step II – Physical Survey: A physical survey was conducted by a combination of vehicle and pedestrian access through the proposed project area by one qualified heritage specialist and one field assistant (19-21 April), aimed at locating and documenting sites falling within and adjacent to the proposed development footprint.

Step III – The final step involved the recording and documentation of relevant heritage resources identified in the physical survey, the assessment of these resources in terms of the HIA criteria and report writing, as well as mapping and constructive recommendations.

The significance of heritage sites is based on four main criteria:

Site integrity (i.e., primary vs. secondary context),

Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),

Density of scatter (dispersed scatter)

Low - <10/50m²

Medium - 10-50/50m²

High - >50/50m²

Uniqueness; and

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 activity position;

D - Preserve site, or extensive data collection and mapping of the site; and

E - Preserve site.

Impacts on these sites by the development will be evaluated as follows:

Site Significance

Site significance classification standards use is based on the heritage classification of s3 in the NHRA and developed for implementation keeping in mind the grading system approved by SAHRA for archaeological impact assessments. The update classification and rating system as developed by Heritage Western Cape (2016) is implemented in this report

Site significance classification standards prescribed by the Heritage Western Cape Guideline (2021), were used for the purpose of this report (**Table 9** and **Table 10**).

Table 9: Rating system for archaeological resources

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
I	Heritage resources with qualities so exceptional that they are of special national significance. Current examples: Langebaanweg (West Coast Fossil Park), Cradle of Humankind	May be declared as a National Heritage Site managed by SAHRA. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	Highest Significance
II	Heritage resources with special qualities which make them significant, but do not fulfil the criteria for Grade I status. Current examples: Blombos, Paternoster Midden.	May be declared as a Provincial Heritage Site managed by HWC. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	Exceptionally High Significance
III	Heritage resources that contribute to the environmental quality or cultural significance of a larger area and fulfils one of the criteria set out in section 3(3) of the Act but that does not fulfil the criteria for Grade II status. Grade III sites may be formally protected by placement on the Heritage Register.		
IIIA	Such a resource must be an excellent example of its kind or must be sufficiently rare. Current examples: Varschedrift; Peers Cave; Brobartia Road Midden at Bettys Bay	Resource must be retained. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	High Significance
IIIB	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree.	Resource must be retained where possible where not possible it must be fully investigated and/or mitigated.	Medium Significance
IIIC	Such a resource is of contributing significance.	Resource must be satisfactorily studied before impact. If the recording already done (such as in an HIA or permit application) is not sufficient, further recording or even mitigation may be required.	Low Significance
NCW	A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate.	No further actions under the NHRA are required. This must be motivated by the applicant or the consultant and approved by the authority.	No research potential or other cultural significance

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance

Table 10: Rating system for built environment resources

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
I	Heritage resources with qualities so exceptional that they are of special national significance. Current examples: Robben Island	May be declared as a National Heritage Site managed by SAHRA.	Highest Significance
II	Heritage resources with special qualities which make them significant in the context of a province or region, but do not fulfil the criteria for Grade I status. Current examples: St George's Cathedral, Community House	May be declared as a Provincial Heritage Site managed by HWC.	Exceptionally High Significance
II	Such a resource contributes to the environmental quality or cultural significance of a larger area and fulfils one of the criteria set out in section 3(3) of the Act but that does not fulfil the criteria for Grade II status. Grade III sites may be formally protected by placement on the Heritage Register.		
IIIA	Such a resource must be an excellent example of its kind or must be sufficiently rare. These are heritage resources which are significant in the context of an area.	This grading is applied to buildings and sites that have sufficient intrinsic significance to be regarded as local heritage resources; and are significant enough to warrant that any alteration, both internal and external, is regulated. Such buildings and sites may be representative, being excellent examples of their kind, or may be rare. In either case, they should receive maximum protection at local level.	High Significance
IIIB	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree.	Like Grade IIIA buildings and sites, such buildings and sites may be representative, being excellent examples of their kind, or may be	Medium Significance

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
	These are heritage resources which are significant in the context of a townscape, neighbourhood, settlement or community.	rare, but less so than Grade IIIA examples. They would receive less stringent protection than Grade IIIA buildings and sites at local level.	
IIIC	Such a resource is of contributing significance to the environs These are heritage resources which are significant in the context of a streetscape or direct neighbourhood.	This grading is applied to buildings and/or sites whose significance is contextual, i.e. in large part due to its contribution to the character or significance of the environs. These buildings and sites should, as a consequence, only be regulated if the significance of the environs is sufficient to warrant protective measures, regardless of whether the site falls within a Conservation or Heritage Area. Internal alterations should not necessarily be regulated.	Low Significance
NCW	A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate.	No further actions under the NHRA are required. This must be motivated by the applicant and approved by the authority. Section 34 can even be lifted by HWC for structures in this category if they are older than 60 years.	No research potential or other cultural significance

SAVANNAH ENVIRONMENTAL: IMPACT ASSESSMENT METHODOLOGY

Scoping Report Requirements

The Scoping Report should be in line with the EIA Regulations of 2014, as amended on 07 April 2017 and Savannah Environmental's requirements. Where relevant, the report must be in line with the gazetted protocols.

Example of Scoping evaluation table summarising the impacts identified

Impact [description of the impact]			
Issue	Nature of Impact	Extent of Impact	No-Go Areas
Potential loss of faunal species	<u>Direct impacts:</u> » Loss of habitat will potentially lead to a loss faunal species <u>Indirect impacts:</u> » Minimal edge effects leading to loss of habitat outside development site, thus loss of faunal species	Regional	None identified at this stage
Potential loss of Species of Special Concern	<u>Direct impacts:</u> » None <u>Indirect impacts:</u> » Loss of protected species in terrestrial habitat	National	None identified at this stage
Description of expected significance of impact The proposed development site has a long history of transformation and therefore the impacts on the terrestrial environment are likely to be limited as the species typically resident in and around urban and industrial areas are commonly generalists with a wide range of habitat types. Protected species such as <i>Crinum stuhlmannii</i> and <i>Zoothera guttata</i> have potential to occur on the proposed development site. However, no protected species were observed within the development areas during the previously conducted site visits. Impacts can be minimised through the implementation of appropriate mitigation measures.			
Gaps in knowledge & recommendations for further study <ul style="list-style-type: none"> » Mapping of all protected species and species of special concern within the development footprint. » Mapping of known and potential habitats used in breeding, foraging, roosting, aestivation and hibernation. » Describing the condition of all habitats and clearly indicating these on an Ecological sensitivity map. » Indication of the potential of protected species to occur on the proposed development site. 			
Recommendations with regards to general field surveys			

- » Field surveys must include the proposed development site and adjacent surrounding areas with indigenous vegetation and habitats within a 500 m radius of the project footprint.
- » In season (November to April) follow-up terrestrial site visits to determine the diversity of resident fauna species
- » In season follow-up terrestrial site visits to determine the diversity of vegetation species.
- » A follow up site visit is to be undertaken for small mammal trapping.
- » Active search will be required for the protected species and species of concern that have a high probability of occurrence which will be impacted by the proposed facility.

EIA Report Requirements

The EIA Report should be in line with the EIA Regulations of 2014, as amended on 07 April 2017 and Savannah Environmental's requirements. Where relevant, the report must be in line with the gazetted protocols.

The EIA Report must consider the latest layout provided and should include:

- » a description of the environment that may be affected by the activity and the manner in which the environment may be affected by the proposed project
- » a description and evaluation of environmental issues and potential impacts (including direct, indirect, cumulative impacts and residual risks) that have been identified
- » Direct, indirect, cumulative impacts and residual risks of the identified issues must be evaluated within the EIA Report in terms of the following criteria:
 - * the nature, which shall include a description of what causes the effect, what will be affected and how it will be affected;
- » a statement regarding the potential significance of the identified issues based on the evaluation of the issues/impacts
- » a comparative evaluation of the identified feasible alternatives, and **nomination of a preferred alternative**
- » Any aspects which are conditional to the findings of the assessment which are to be included as conditions of the Environmental Authorisation
- » This must also include any gaps in knowledge at this point of the study. Consideration of areas that would constitute "acceptable and defensible loss" should be included in this discussion.
- » A reasoned opinion as to whether the proposed project should be authorised.
- » Summary of the positive and negative impacts and risks of the proposed project and identified alternatives.
- » Mitigation measures and management recommendations to be included in the Environmental Management Programme to be submitted with the FEIR

Assessment of Impacts

Direct, indirect and cumulative impacts of the issues identified through the scoping study, as well as all other issues identified in the EIA phase must be assessed in terms of the following criteria:

- » The **nature**, which shall include a description of what causes the effect, what will be affected and how it will be affected.

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

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

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

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

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

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

Assessment of impacts must be summarised in the following table format. The rating values as per the above criteria must also be included. Complete a table and associated ratings for **each** impact identified during the assessment.

Example of Impact table summarising the significance of impacts (with and without mitigation)

Nature: [Outline and describe fully the impact anticipated as per the assessment undertaken]			
Impact description: The impact will occur due to added pressure on the availability of housing located in the local community. This may contribute to increased levels of competition in the temporary housing market.			
	Rating	Motivation	Significance
Prior to Mitigation			
Duration	Short-term (1)	The construction period will last for less than one year	Low Negative (18)
Extent	Local (1)	Pressure will only be added on the local municipality to provide housing for outsourced construction workers	
Magnitude	Low (4)	The increase in demand for affordable accommodation should not be extensive as workers will primarily be sourced from the local communities.	
Probability	Probable (3)	The possibility of the impact on the provision of affordable accommodation is very low	
Mitigation/Enhancement Measures			
Mitigation: "Mitigation", means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible. <ul style="list-style-type: none"> Provide a description of how these mitigation measures will be undertaken keeping the above definition in mind. 			
Post Mitigation/Enhancement Measures			
Duration	Short-term (1)	Pressure will only be added on the local municipality to provide housing for outsourced construction workers.	Low Positive (8)
Extent	Local (1)	The increase in demand for affordable accommodation should be mitigated if external construction crews are provided with onsite accommodation.	
Magnitude	Minor (2)	The possibility of the impact on the provision of affordable accommodation is very low.	
Probability	Improbable (2)	A reduced amount of pressure will be added on the local municipality to provide housing for outsourced construction workers.	
Cumulative impacts: "Cumulative Impact", in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that			

activity, that in itself may not be significant, but may become significant when added to existing and reasonably foreseeable impacts eventuating from similar or diverse activities.

Residual Risks:

“Residual Risk”, means the risk that will remain after all the recommended measures have been undertaken to mitigate the impact associated with the activity (Green Leaves III, 2014).

Assessment of Cumulative Impacts

As per requirements of the EIA Regulations, specialists are required to assess the cumulative impacts. In this regard, please refer to the methodology below that will need to be used for the assessment of Cumulative Impacts.

“Cumulative Impact”, in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to existing and reasonably foreseeable impacts eventuating from similar or diverse activities⁴.

The role of the cumulative assessment is to test if such impacts are relevant to the proposed project in the proposed location (i.e. whether the addition of the proposed project in the area will increase the impact). This section should address whether the construction of the proposed development will result in:

- » Unacceptable risk
- » Unacceptable loss
- » Complete or whole-scale changes to the environment or sense of place
- » Unacceptable increase in impact

The specialist is required to conclude if the proposed development will result in any unacceptable loss or impact considering all the projects proposed in the area.

Example of a cumulative impact table:

Nature: Complete or whole-scale changes to the environment or sense of place (example)

Nature: [Outline and describe fully the impact anticipated as per the assessment undertaken]		
	Overall impact of the proposed project considered in isolation	Cumulative impact of the project and other projects in the area
Extent	Low (1)	Low (1)
Duration	Medium-term (3)	Long-term (4)
Magnitude	Minor (2)	Low (4)
Probability	Improbable (2)	Probable (3)
Significance	Low (12)	Low (27)
Status (positive or negative)	Negative	Negative
Reversibility	High	Low
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	Yes

⁴ Unless otherwise stated, all definitions are from the 2014 EIA Regulations, as amended, GNR 326

Confidence in findings: High.

Mitigation:

"Mitigation", means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.

Provide a description of how these mitigation measures will be undertaken keeping the above definition in mind.

Environmental Management Plan Table format

Measures for inclusion in the draft Environmental Management Programme must be laid out as detailed below:

OBJECTIVE: Description of the objective, which is necessary in order to meet the overall goals; these take into account the findings of the environmental impact assessment specialist studies

Project component/s	List of project components affecting the objective
Potential Impact	Brief description of potential environmental impact if objective is not met
Activity/risk source	Description of activities which could impact on achieving objective
Mitigation: Target/Objective	Description of the target; include quantitative measures and/or dates of completion

Mitigation: Action/control	Responsibility	Timeframe
List specific action(s) required to meet the mitigation target/objective described above	Who is responsible for the measures	Time periods for implementation of measures

Performance Indicator	Description of key indicator(s) that track progress/indicate the effectiveness of the management plan.
Monitoring	Mechanisms for monitoring compliance; the key monitoring actions required to check whether the objectives are being achieved, taking into consideration responsibility, frequency, methods and reporting

WOUTER FOURIE

Professional Heritage Specialist and Professional Archaeologist and Director PGS Heritage

Summary of Experience

Specialised expertise in Archaeological Mitigation and excavations, Cultural Resource Management and Heritage Impact Assessment Management, Archaeology, Anthropology, Applicable survey methods, Fieldwork and project management, Geographic Information Systems, including *inter alia* -

Involvement in various grave relocation projects (some of which relocated up to 1000 graves) and grave “rescue” excavations in the various provinces of South Africa

Involvement with various Heritage Impact Assessments, within South Africa, including -

- Archaeological Walkdowns for various projects
- Phase 2 Heritage Impact Assessments and EMPs for various projects
- Heritage Impact Assessments for various projects
 - Iron Age Mitigation Work for various projects, including archaeological excavations and monitoring
 - Involvement with various Heritage Impact Assessments, outside South Africa, including -
- Archaeological Studies in Democratic Republic of Congo
- Heritage Impact Assessments in Mozambique, Botswana and DRC
- Grave Relocation project in DRC

Key Qualifications

BA [Hons] (Cum laude) - Archaeology and Geography - 1997

BA - Archaeology, Geography and Anthropology - 1996

Professional Archaeologist - Association of Southern African Professional Archaeologists (ASAPA)
- Professional Member

Accredited Professional Heritage Specialist – Association of Professional Heritage Practitioners (APHP)

CRM Accreditation (ASAPA) -

- Principal Investigator - Grave Relocations
- Field Director – Iron Age
- Field Supervisor – Colonial Period and Stone Age
- Accredited with Amafa KZN

Key Work Experience

2003- current - Director – Professional Grave Solutions (Pty) Ltd

2007 – 2008 - Project Manager – Matakoma-ARM, Heritage Contracts Unit, University of the Witwatersrand

2005-2007 - Director – Matakoma Heritage Consultants (Pty) Ltd

2000-2004 - CEO– Matakoma Consultants

1998-2000 - Environmental Coordinator – Randfontein Estates Limited. Randfontein, Gauteng

1997-1998 - Environmental Officer – Department of Minerals and Energy. Johannesburg, Gauteng

Worked on various heritage projects in the SADC region including, Botswana, Mauritius, Malawi, Zambia, Mozambique, and the Democratic Republic of the Congo

PROFESSIONAL CURRICULUM FOR MICHELLE SACHSE

Archaeologist for PGS Heritage

Summary of Experience

Involvement in various grave relocation projects in the various provinces of South Africa.

Expertise in Heritage Impact Assessment Surveys, Historical and Archival Research,

Archaeology, Fieldwork including *inter alia* -

Involvement with various Heritage Impact Assessments,

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

Heritage Impact Assessments:

- Proposed New Pit for Msobo Coal (Spitzkop Colliery), in Ermelo, within the Mpumalanga Province. **Position:** Heritage Specialist.
- The Proposed Harmony FSS6 Reclamation Pipeline, Welkom, Free State Province. **Position:** Heritage Specialist.
- Heritage Impact Assessment Report, for the Proposed Kalgold Expansion Project between Mafikeng and Vryburg, the North West Province. **Position:** Heritage Specialist.
- Heritage Impact Assessment Report, for the Proposed Chartwell Data Centre Project in Chartwell, Johannesburg, Gauteng Province. **Position:** Heritage Specialist.
- Proposed Development on Portions of the Farm Rondebult 303 JS, Near Kwa-Guqa, Emalahleni Local Municipality, Nkangala District Municipality, Mpumalanga Province. **Position:** Heritage Specialist.

Grave Relocation Projects:

- Report on the Relocation of Graves: Relocation of 22 Graves at Nkomati Anthracite Mine on the Farm Fig Tree 503 JU, near Madadeni Mpumalanga Province.
- Report on the Relocation of Graves: Relocation of 27 Graves Located on the Farm Welstand 55 IS, near Kriel, Mpumalanga Province.
- Report on the Relocation of Graves: Relocation of 6 Graves Located on the Farm Klipfontein 241 IS, near Breyten, Mpumalanga province.
- Report on the Relocation of Graves. Relocation of 68 Graves Located at Erf 4460, 4461 and 4463, Kudube Unit 4, in Hammanskraal, Gauteng Province.

Key Qualifications

- 2016 - 2019 MA in Archaeology
University of Pretoria, Pretoria
- 2015 BA Honours in Archaeology
University of Pretoria, South Africa
- 2012 - 2014 BA (General)
University of Pretoria, South Africa
Major subjects: Archaeology and History

Professional Qualifications

Professional Archaeologist - Association of Southern African Professional Archaeologists -
Professional Member – No 526

Key Work Experience

- 2020 – to date: Archaeologist - PGS Heritage
- 2018 – 2019: Assistant Manager at the Archaeology Laboratory on South Campus at the University of Pretoria

PROFESSIONAL CURRICULUM FOR NICHOLAS FLETCHER

Archaeologist for PGS Heritage

Summary of Experience

Expertise in Heritage Impact Assessment Surveys, Historical and Archival Research, Archaeology, Fieldwork including *inter alia* -

Involvement with various Heritage Impact Assessments,

- Heritage Impact Assessments within Gauteng, Limpopo, Mpumalanga, Free State, North-West and the Northern Cape Province.
- Archaeological Walkdowns for various projects.
- Desktop, archival and heritage screening for projects.

Key Qualifications

2022	MA in Archaeology University of Pretoria, Pretoria
2015	BA Honours in Archaeology University of Pretoria, South Africa
2014	BA (General) University of Pretoria, South Africa Major subjects: Archaeology and History

Key Work Experience

- 2021: Archaeologist - PGS Heritage
- 2018 – 2019: Lab Technician for the Archaeology Laboratory at the University of Pretoria