

ARCHAEOLOGICAL SCOPING REPORT

FOR THE PROPOSED WOODHOUSE SOLAR 1 AND WOODHOUSE SOLAR 2 PV FACILITIES CLOSE TO VRYBURG NORTH WEST PROVINCE

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Project Reference:

215091

Report date:



September 2015

Revised

9 November 2015

DOCUMENT PROGRESS
Archaeological Impact Assessment

Document status

Document Version	v1.1		
Report Purpose	Final document for review Savannah Environmental (Pty) Ltd		
Report Ref. No.	215095		
	Name	Signature	Date
Mapping	Mr. J. Van der Walt		September 2015
Document Compilation	Mr. J. van der Walt		September 2015

Distribution List

Date	Report Reference number	Document Distribution	Number of Copies
2015/09/12	215095	Draft for review - Savannah (Pty) Ltd	Electronic copy
2015/11/09	215095	Final report for review Savannah (Pty) Ltd	Electronic Copy

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EXECUTIVE SUMMARY

Site name and location: Woodhouse Solar 1 and Woodhouse Solar 2 PV Facilities located on the Remaining Extent of the Farm Woodhouse 729, near Vryburg in the North West Province.

1: 50 000 Topographic Map: 2624 DD & 2724 BB

EIA Consultant: Savannah Environmental (Pty) Ltd.

Developer: Genesis Woodhouse Solar 1 (Pty) Ltd and Genesis Woodhouse Solar 2 (Pty) Ltd

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

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Date of Report: 25 September 2015

Findings of the Assessment:

The scoping report was compiled using information on the study area derived from CRM work in the immediate vicinity of the site and maps of the area. Through these sources the study area is contextualised. The wider geographical area is known to contain archaeological sites dating to the Middle and Later Stone Age. Previous work in the area indicated that pans, drainage channels and ridges are sensitive from a heritage perspective (Van der Walt 2013, Van Schalkwyk 2008 and 2012). The area was also inhabited from the 1800's onwards and structures/features older than 60 years might occur in the area. Databases consulted have no records of known graves in the study area but graves can be expected anywhere on the landscape. As the project triggers the NHRA and possible heritage features might occur in the study area, it is recommended that an Archaeological Impact Assessment should be conducted for the development footprint to determine and confirm areas of heritage significance.

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ABBREVIATIONS

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

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

GLOSSARY

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

Early Stone Age (2 million to 300 000 years ago)

Middle Stone Age (300 000 to 30 000 years ago)

Late Stone Age (30 000 years ago until recent)

Historic (approximately AD 1840 to 1950)

Historic building (over 60 years old)

Lithics: Stone Age artefacts

1. INTRODUCTION

HCAC (Heritage Contracts and Archaeological Consulting CC) was contracted by Savannah Environmental (Pty) Ltd to conduct a Heritage Scoping Study for the proposed Woodhouse Solar 1 and Woodhouse Solar 2 PV Facilities, located south east of Vryburg, North West Province.

The heritage scoping report forms part of the scoping phase of the EIA process for the proposed projects. The aim of the scoping report is to conduct a desktop study of the study area to assess the impact of the proposed facilities on non - renewable heritage resources and to submit appropriate recommendations with regards to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve and develop them within the framework provided by Heritage legislation.

The report outlines the approach and methodology utilized for the Scoping phase of the projects. The report includes information collected from various sources. Possible impacts are identified and mitigation measures are proposed in the report. It is important to note that no field work was conducted as part of the scoping phase but will be conducted as part of the Impact Assessment phase of the EIA.

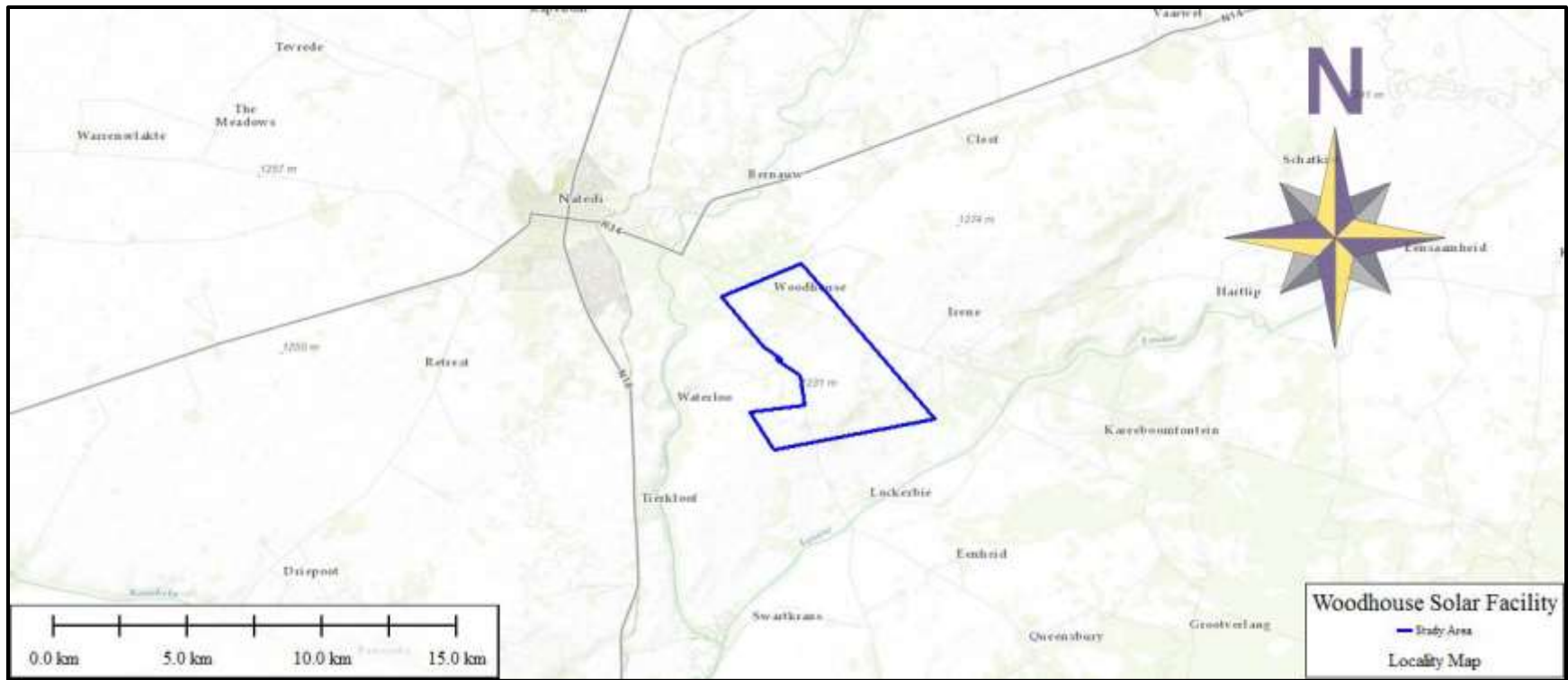


Figure 1: Locality Map illustrating the study area for the Woodhouse Solar 1 and Woodhouse Solar 2 PV facilities

1.2 Terms of Reference

The main aim of this scoping report is to determine if any known heritage resources occur within the study area and to predict the occurrence of any possible heritage significant sites that might present a fatal flaw to the proposed projects. The objectives of the scoping report were to:

- » Conduct a desktop study:
 - * Review available literature, previous heritage studies and other relevant information sources to obtain a thorough understanding of the archaeological and cultural heritage conditions of the area;
 - * Gather data and compile a background history of the area;
 - * Identify known and recorded archaeological and cultural sites;
 - * Determine whether the area is renowned for any cultural and heritage resources, such as Stone Age sites, Iron Age sites, informal graveyards or historical homesteads.

- » Compile a Scoping Report in line with the requirements of the EIA Regulations

The reporting of the scoping component is based on the results and findings of the desk-top study, wherein potential issues associated with the proposed projects are identified, and those issues requiring further investigation through the IA Phase highlighted. Reporting aims to identify the anticipated impacts, as well as cumulative impacts, of the operational units of the proposed project activity on the identified heritage resources for all development stages of the project, i.e. construction, operation and decommissioning. Reporting will also consider alternatives should any significant sites be impacted on by the proposed projects. This is done to assist the developer in managing the discovered heritage resources in a responsible manner, in order to protect, preserve and develop them within the framework provided by Heritage Legislation.

1.3 Nature of the development

Infrastructure associated with each facility will include:

- » Arrays of PV panels with a capacity of up to 100MW
- » Mounting structures to support the PV panels.
- » On-site inverters to convert the power from a direct current to an alternating current the power and a substation to facilitate the connection between the solar energy facility and the Eskom electricity grid.
- » A new 132kV power line between the on-site substation and the Eskom grid connection point. Three alternatives are being considered for the grid connection:
 - A direct connection to the proposed Eskom Bophirima substation to be constructed on-site, or
 - A direct connection to the existing Mookodi 400/132KV substation located to the west of the site, or
 - A connection to the existing Woodhouse 88/22KV Substation located on the boundary of the site in the north.
- » Cabling between the project components, to be laid underground where practical.
- » Offices and workshop areas for maintenance and storage.
- » Temporary laydown areas.
- » Internal access roads and fencing around the development area.

1.4 The receiving environment

Woodhouse Solar 1 and Woodhouse Solar 2 PV Facilities are located on the Remaining Extent of the Farm Woodhouse 729, near Vryburg in the North West Province. The development falls in a Renewable Energy Development Zone (REDZ).

The town of Vryburg (including the Huhudi township), is located approximately 2 km north west of the proposed development. The topography of the general area includes plains, gently undulating slopes, low ridges and a palaeo drainage channel that roughly traverses the study area in the centre from north to south and natural depressions or small pans (Figure 2).

The study area falls within the Eastern Kalahari Bushveld Bioregion in a Savannah Biome as described by Mucina *et al* (2006) with the vegetation described as Ghaap Plateau Vaalbosveld. Land use in the general area is characterized by agriculture, dominated by cattle farming. The study area is mostly underlain by dolomite, sandstone and shale of the Campbell and Griquastad Groups of the Griqualand West Sequence (Geological Survey, 1984). The area was extensively used for grazing in the past.

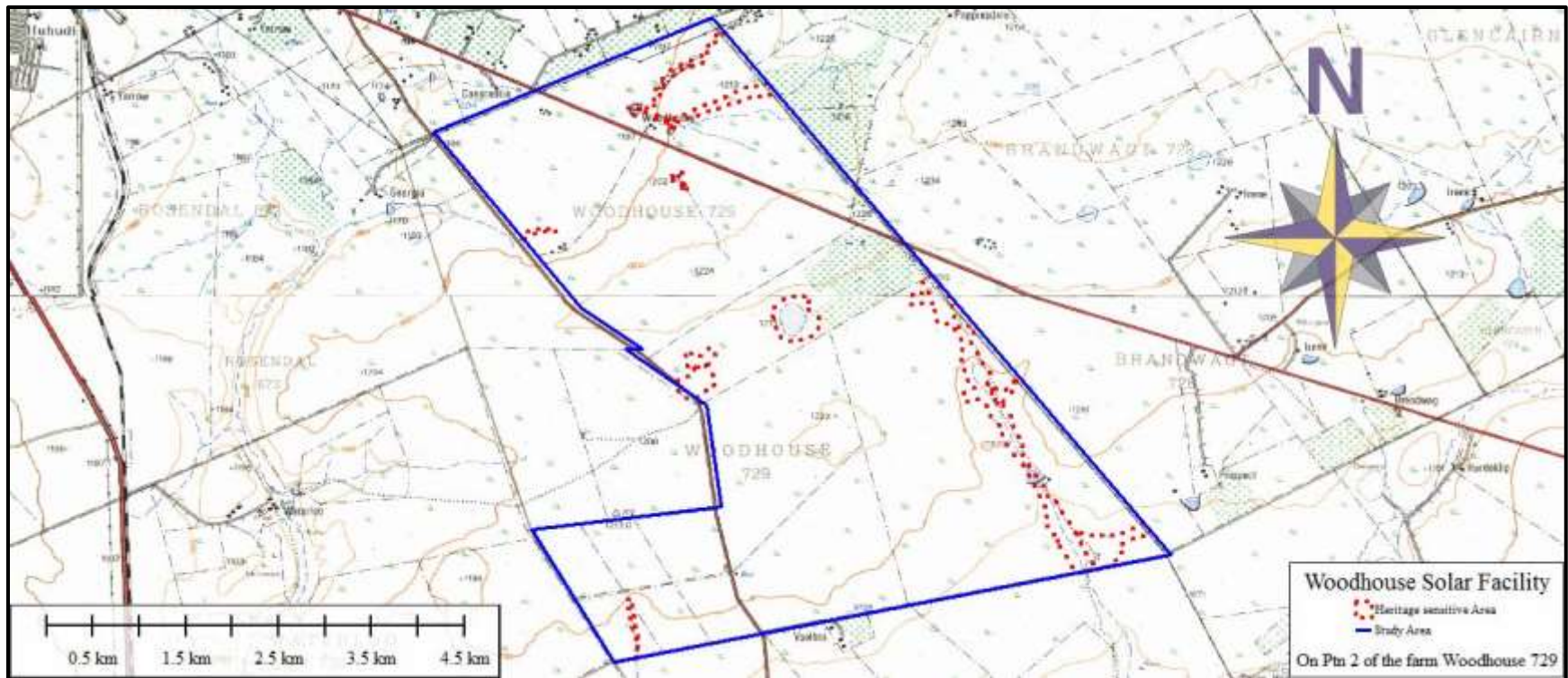


Figure 2: Heritage sensitivity map indicating areas of possible heritage sensitivity including drainage channels, pans and manmade dams within the study area.

2. APPROACH AND METHODOLOGY

The assessment is to be undertaken in two phases, a desktop study as part of the Scoping phase and an Archaeological Impact Assessment as part of the Environmental Impact Assessment phase. This report concerns the scoping phase. The aim of the scoping phase is to cover archaeological and cultural heritage data available to compile a background history of the study area. The background study is done in order to identify possible heritage issues or fatal flaws that should be avoided during development.

This was accomplished by means of the following phases (the results are represented in section 4 & 5 of this report):

2.1 Information collection

The South African Heritage Information System was consulted to further collect data from CRM practitioners who undertook work in the area to provide the most comprehensive account of the history of the area where possible.

2.2 Public consultation

As part of the EIA process public participation will be conducted.

2.3 Google Earth and mapping survey

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

2.4 Genealogical Society of South Africa

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

3. LEGISLATION

For these projects the National Heritage Resources Act, 1999 (Act No. 25 of 1999) is of importance and the following sites and features are protected:

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

The national estate that includes the following:

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

Section 34 (1) of the Act deals with structures which is older than 60 years. Section 35(4) of the Act deals with archaeology, palaeontology and meteorites. Section 36(3) of the National Heritage Resources Act, deals with human remains older than 60 years. Unidentified/unknown graves are also handled as older than 60 years until proven otherwise.

3.1 Heritage Site Significance and Mitigation Measures

The presence and distribution of heritage resources define a Heritage Landscape. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area. In all initial investigations, however the specialists are responsible only for the identification of resources visible on the surface.

This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. National and Provincial Monuments are recognised for conservation purposes. The following interrelated criteria are used to establish site significance of sites:

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

The criteria above will be used to place identified sites with in SAHRA's (2006) system of grading of places and objects which form part of the national estate. This system is approved by ASAPA for the SADC region.

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

Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

4. REGIONAL OVERVIEW

4.1 Brief Archaeological Background

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where archaeological and historical sites might be located. A farm house complex is located in the north of the study area at 26° 59' 02.8682" S, 24° 48' 16.5773" E. The database of the Genealogical Society of South Africa indicated no known grave sites within the study area.

4.2. Archaeology of the area

The archaeological background and timeframe of the study area can be divided into the Stone Age and Iron Age.

4.2.1. Stone Age

The Stone Age is divided in Early; Middle and Late Stone Age and refers to the earliest people of South Africa who mainly relied on stone for their tools.

Early Stone Age (ESA): The period from \pm 2.5 million yrs. - \pm 250 000 yrs. ago. Acheulean stone tools are dominant. No Acheulean sites are on record near the project area, but isolated finds may be possible. However, isolated finds have little value. Therefore, the project is unlikely to disturb a significant site.

Middle Stone Age (MSA): The Middle Stone Age includes various lithic industries in South Africa dating from \pm 250 000 yrs. - 25 000 yrs. before present. This period is first associated with archaic Homo sapiens and later Homo sapiens sapiens. Material culture includes stone tools with prepared platforms and stone tools attached to handles. MSA materials are found scattered widely across southern Africa and a significant factory site is recorded on the farm Woodhouse (van Schalkwyk 2012) with Middle Stone Age recorded to the west by Van der Walt (2013) on the farm Waterloo 730 (Figure 3).

Late Stone Age (LSA): The period from \pm 25 000- yrs before present to the period of contact with either Iron Age farmers or European colonists. This period is associated with Homo sapiens sapiens. Material culture from this period includes: microlithic stone tools; ostrich eggshell beads and rock art. Sites in the open are sometimes poorly preserved and therefore have less value than sites in caves or rock shelters. A Large factory site was recorded in the Van der Walt (2013) study to the west on the farm Waterloo 730 (Figure 3). For the wider region an important LSA site is located to the north west of Stella at Thaba Sione and later used by Tswana people as a rainmaking site with several engraved boulders. Around Vryburg there are various rock engraving sites (Bergh 1999).

Four previous CRM studies were conducted in the immediate vicinity by van Schalkwyk (2008, 2012a, 2012b) and Van der Walt (2013). The 2008 survey was conducted directly

North West of the current project area and recorded Stone Age material ascribed to the MSA. The 2012a study was conducted on a neighbouring farm, Waterloo 730, to the west of the current study area and recorded stromatolites and MSA material, the 2012b study recorded MSA material also on the farm Waterloo. Van der Walt (2013) recorded several Stone Age occurrences and a site of significance included in a 'No Go' Zone.

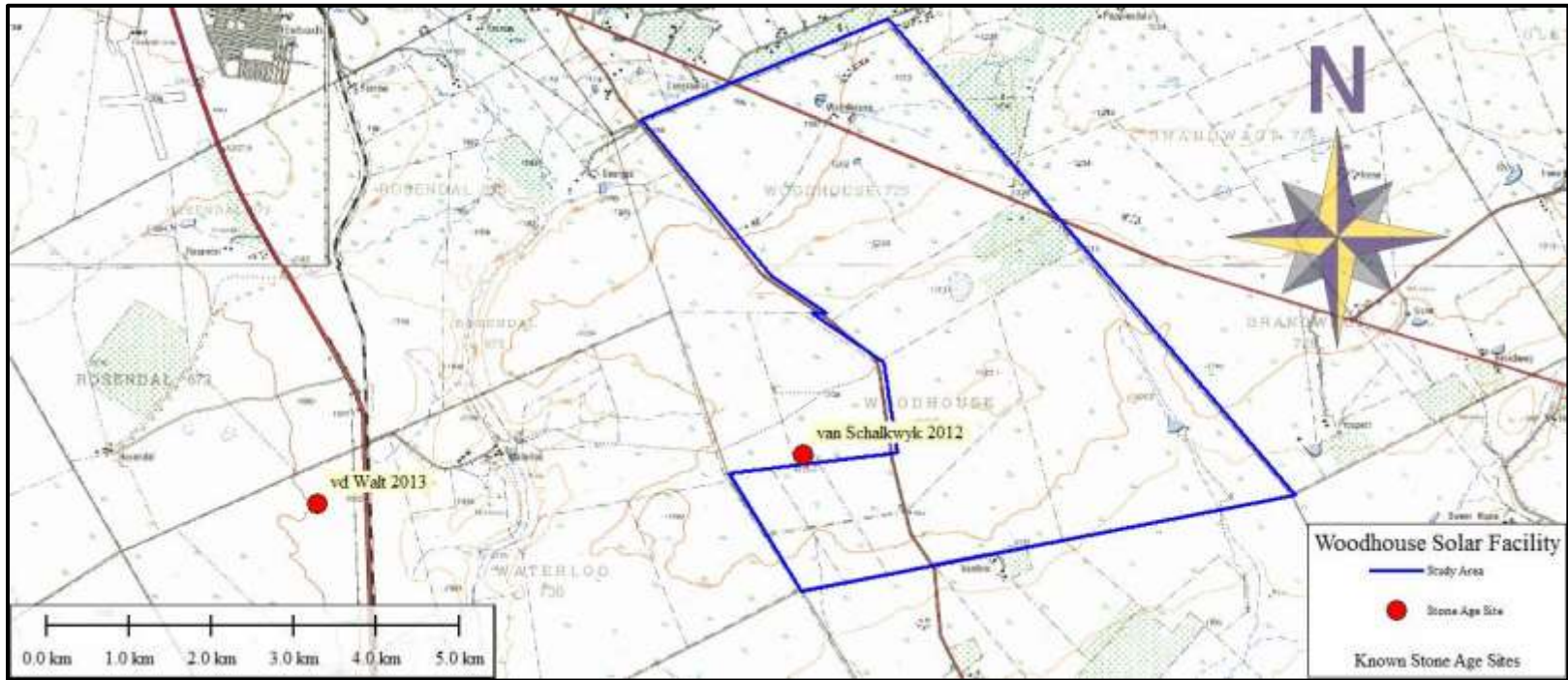


Figure 3. Known sites in relation to the current study area.

4.2.2. Iron Age (general)

The Iron Age as a whole represents the spread of Bantu speaking people and includes both the pre-Historic and Historic periods. It can be divided into three distinct periods:

The Early Iron Age: Most of the first millennium AD.

The Middle Iron Age: 10th to 13th centuries AD

The Late Iron Age: 14th century to colonial period.

The Iron Age is characterised by the ability of these early people to manipulate and work Iron ore into implements that assisted them in creating a favourable environment to make a better living.

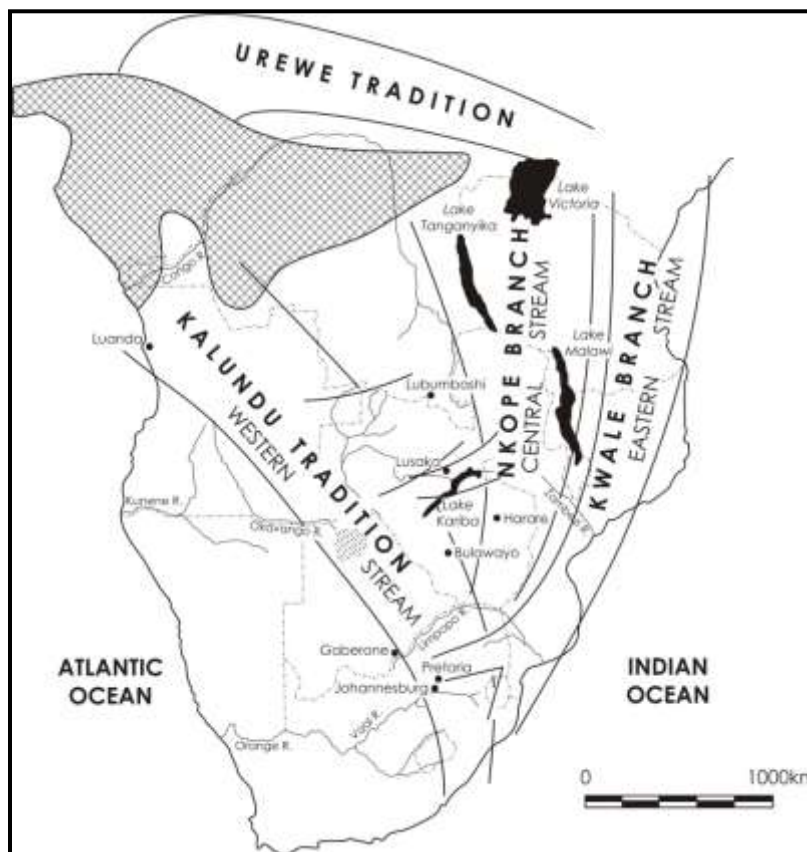


Figure 4: Movement of Bantu speaking farmers (Huffman 2007)

No Sites dating to the Early or Middle Iron Age have been recorded or are expected for the study area. The same goes for the Later Iron Age period where the study area is situated outside the western periphery of distribution of Late Iron Age settlements in the North West Province, although Breutz (1959) indicates that in the larger area stone walling associated

with the Tswana occupation of the area can be expected and it is not impossible to encounter Iron Age Settlements.

To the north east of the study area the area is well known for Later Iron Age stone walled settlements archaeologically referred to as Molokwane settlements (Pistorius 1992, Booyens 1998, Huffman 2007), to the east towards Klerksdorp and Potchefstroom some 88 stone walled settlements are recorded (Bergh 1999). No sites dating to this period is expected for the study area.

5. HISTORICAL BACKGROUND

The following section will endeavour to give a brief overview of the history of the area and district in which it is located.

5.1. Historiography and Methodology

It was necessary to use a range of sources in order to give an accurate account of the history of the area in which the study area is located. Sources include secondary source material, maps, electronic sources and archival documents. This study is by no means all-inclusive, and there are doubtlessly still sources to be found on the history of the property and area researched in this study.

5.2. Maps of the Area under Investigation

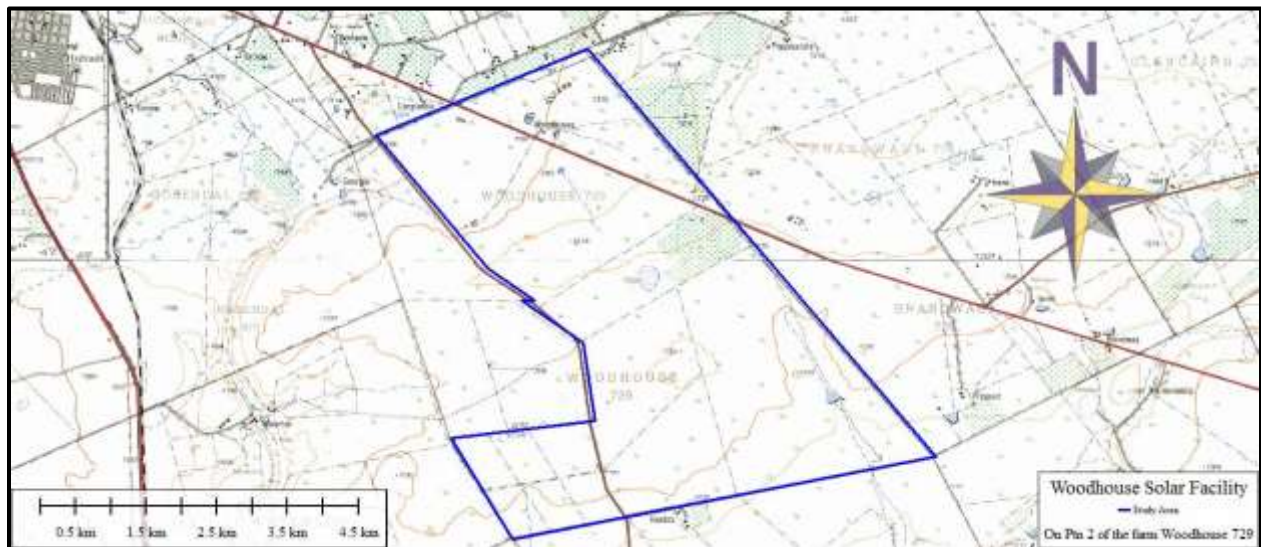


Figure 5: Topographic map of the study area



Figure 6: 1885 Map showing the area of Stellaland, Vryburg and the farm area under investigation were located in this district. The map indicates Stellaland before unification with Goshen to the North East (The British Empire 2011)

5.3. A Brief History of Human Settlement and Black And White Interaction In The greater study Area

A farm does not exist in isolation, and it is important to understand the social history of the surrounding area. It is essential to consider the history of towns in the vicinity of the property under investigation, since these social centres would have affected those individuals living in the rural areas. In the case of Vryburg it is interesting to note that this town was once the capital of an independent republic – Stella Land.

The area was initially under the control of competing Griqua and Tswana groups (Rolang), while the United Kingdom laid claim to it as part of the emerging protectorate of British Bechuanaland. One of the indigenous groups was under the leadership of chief Mankoroane of the Thlaping who were loyal to the British and another one under the leadership of chief Massouw of the Korana (they were loyal to the Boers). When a feud erupted between Mankoroane and Massouw, each side resorted to recruiting volunteers, promising them land in return for their assistance. More than 300 Boer Soldiers joined Massouw, with the promise of being paid in land for their services as mercenaries. Massouw and his army soon had the overhand and subsequently a peace agreement was signed by Mankoroane on 26 June 1882. The Boer volunteers would as per this agreement be granted land and the boundaries of their areas would be determined by both Mankoroane and Massouw. In September 1882 the town of Vryburg was laid out. Work was halted as Makuroane did not

name a representative but the town was nonetheless laid out by the end of 1882. The Republic of Stellaland was proclaimed by GJ van Niekerk on 6 August 1883.

The neighbouring land Goshen had a similar tale – Moshwete and Montshiwa took up arms against each other in 1881. Moshwete also made use of Boer volunteer soldiers under leadership of Gey van Pittius. On 11 January 1882 they entered into a formal agreement with Moshwete where the volunteers would each receive a farm for their efforts. Two days later the volunteers declared themselves an independent community. The war against Montshiwa continued, but ended in a peace agreement on 24 October 1882. Both the independent community (they appointed a management body) and Montshiwa appointed commissions to establish boundaries of the new area. However due to a lack of cooperation between the commissions and the Rolang's negativity towards the Boer volunteers the final arrangements were never made. It was also clear that Moshwete was unwilling to cooperate.

The two states later unified and were known as the United States of Stellaland. In 1884 the existence of the two states were under threat from Britain as the Convention of London determined that the boundaries of the Transvaal were moved to such an extent that the western border of the Transvaal now went through the middle of both Stellaland and Goshen. Montshiwa also determined that due to this, he was no longer bound by the provisions of the peace agreement and there were some skirmishes between Montshiwa and his followers and the Goshenites. The future of the area was no longer in the hands of either party when in 1885 Sir Charles Warren and his army of 4000 men were sent to defend the western border of the Transvaal. Without one shot being fired what remained of Goshen and Stellaland were reclaimed as part of British Bechuanaland and Warren proclaimed this on 30 September 1885.

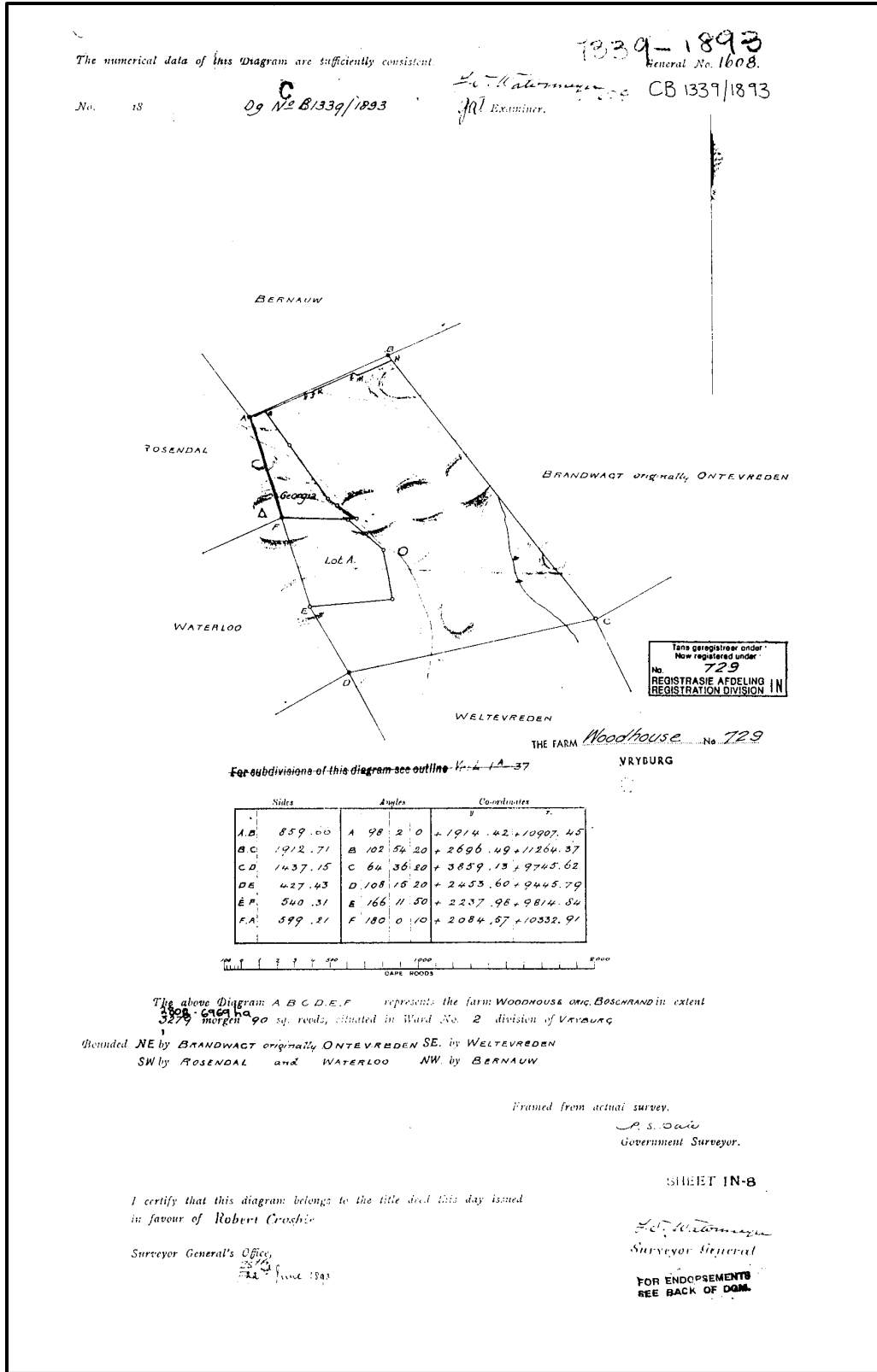


Figure 7: A Diagram issued by the Chief Surveyor General in 1893 indicating the holder of the title deed of the farm as one Robert Croshie.

6 PROBABILITY OF OCCURRENCE OF SITES

Based on the above information, it is possible to determine the probability of finding archaeological and cultural heritage sites within the study area to a certain degree. For the purposes of this section of the report the following terms are used – low, medium and high probability. Low indicates that no known occurrences of sites have been found previously in the general study area, medium probability indicates some known occurrences in the general study area are documented and can therefore be expected in the study area and a high probability indicates that occurrences have been documented close to or in the study area and that the environment of the study area has a high degree of probability for having sites.

» Archaeological and Cultural Heritage Landscape

NOTE: *Archaeology is the study of human material and remains (by definition) and is not restricted in any formal way as being below the ground surface.*

Archaeological remains dating to the following periods can be expected within the study area:

» Stone Age finds

ESA:	<i>Low Probability</i>
MSA:	<i>Medium - High Probability</i>
LSA:	<i>Medium – High Probability</i>
LSA –Herder:	<i>Low Probability</i>

» Historical finds

Historical period:	<i>Medium –High Probability</i>
Historical dumps:	<i>Medium –High Probability</i>
Structural remains:	<i>High Probability</i>
Cultural Landscape:	<i>Low - Medium probability</i>

» Living Heritage

For example rainmaking sites: *Low Probability*

» Burial/Cemeteries

Burials over 100 years:	<i>Medium Probability</i>
Burials younger than 60 years:	<i>Low - Medium Probability</i>

Subsurface excavations including ground levelling, landscaping, and foundation preparation can expose any number of these.

7. ASSUMPTIONS AND LIMITATIONS

The study area was not subjected to a field survey as this will be done in the EIA phase. It is assumed that information obtained for the wider area is applicable to the study area.

8. FINDINGS

No red flags were identified for any of the project components during this scoping study. These assumptions will have to be verified during the field work and Impact Assessment Phase of the projects, but the following heritage resources can be expected.

8.1. Archaeology

8.1.1 Archaeological finds

There is a medium - high likelihood of finding MSA and LSA stone artefacts scattered over the study area. There is a higher possibility of finding Stone Age sites close to water sources like the recorded drainage channels and pans (Figure 2).

8.1.2 Nature of Impact

The construction phase of the project could directly impact on surface and subsurface archaeological sites.

8.1.3 Extent of impact

The project could have a medium impact on a local scale.

8.2. Historical period

8.2.1 Historical finds: I

Historical finds include middens, structural remains (beacons, kraals etc.) and cultural landscape. The desktop study highlighted that the farm was surveyed by the Chief Surveyor General in 1893 (Figure 7). The title deed at that time belonged to Robert Croshie and the farm was possibly inhabited from this time. Farming infrastructure older than 60 years can be expected in the study area.

8.2.2 Nature of Impact

The construction of the facilities can directly impact on both the visual context and sense of place of historical sites. A farm house complex is located within the study area (Figure 5) but it is unknown if these structures are older than 60 years and protected by legislation. As per the background study the area was inhabited by settlers and farmers from the late 1800's and if any structures or features older than 60 years remain it will be protected by legislation.

8.2.3 Extent of impact

The project could have a low – medium impact on a local scale.

8.3. Burials and Cemeteries

8.3.1 Burials and Cemeteries

Graves and informal cemeteries can be expected anywhere on the landscape.

8.3.2 Nature of Impact

The construction and operation of the proposed project could directly impact on marked and unmarked graves

8.3.3 Extent of impact

The project could have a low to medium impact on a local scale.

Impact of the proposed projects on heritage resources

Impact on Heritage resources			
The construction and operation of the proposed project could directly impact on graves, archaeological sites and historical sites.			
Issue	Nature of Impact	Extent of Impact	No-Go Areas
Disturbance and destruction of archaeological sites and graves.	Construction and operational activities could cause irreversible damage or destroy heritage resources and depletion of the archaeological record of the Vryburg area.	Low to Medium on a local scale.	None currently identified
Description of expected significance of impact			
Significance of sites, mitigation and significance of possible impact can only be determined after the field work has been conducted, but based on previous work in the area Stone Age sites of Medium to Medium high significance can be expected.			
Gaps in knowledge & recommendations for further study			
The study area has not been subjected to a cultural resource study and it is assumed that information obtained for the wider region is applicable to the study area. To address these gaps it is recommended that a field study should be conducted to confirm the presence of heritage resources after which mitigation will be recommended.			

9. POTENTIAL SIGNIFICANCE OF HERITAGE RESOURCES

Based on the current information obtained for the area at a desktop level it is anticipated that open-air archaeological sites that occur within the proposed development area will be of low to medium heritage significance and have a Generally Protected B (GP.B) field rating

and it should be possible to mitigate these sites. However pans and drainage channels could be archaeologically sensitive (due to archaeological deposit and rock art) and should rather be avoided. These sites are provisionally given a field rating of Local Significance (LS) or Generally Protected A (GP.A). Elements relating to the built environment can be expected and it is anticipated that these will be of local significance only. These assumptions will have to be ground-truthed by a field visit. Grave sites are of high social significance and should be avoided.

10. CONCLUSIONS AND RECOMMENDATIONS

This report endeavoured to give a brief account of the history of the study area and the range of heritage resources that could be expected. Some particulars could be traced regarding landscape use and the general history of human settlement in the study area.

Furthermore the study revealed that a range of heritage sites occur in the region and similar sites can be expected for the study area. Pans and rocky ridges could be archaeologically sensitive and are best avoided. Based on information obtained from maps of the area, structures and associated infrastructure older than 60 years can be expected. Although no known grave sites are on record for the study it is likely that some can be expected for the study area. Every site is relevant to the Heritage Landscape, but it is anticipated that a few (i.e. sites with rock art and archaeological deposit and graves) could have conservation value. The following conclusions are applicable to the following sites:

» Archaeological sites

Open air sites could be mitigated either in the form of conservation of the sites with in the development or by a Phase 2 study where the sites will be recorded and sampled before the client can apply for a destruction permit for these sites prior to development. Sites with rock art should be avoided.

» Burial Sites

All grave sites should be identified prior to the development and avoided.

» Historical finds and Cultural landscape

It is not envisaged that the buildings will be directly impacted on by the Woodhouse PV Facility developments. This can only be confirmed during the impact assessment stage however, should the developer plan to demolish any building older than 60 years the site should be assessed by a conservation architect.

» Burials and cemeteries

Formal and informal cemeteries as well as pre-colonial graves occur widely across Southern Africa. It is generally recommended that these sites are preserved when development occurs. These sites can however be relocated if conservation is not possible, but this option must be seen as a last resort and is not advisable.

The following impacts can be expected to heritage resources in the area:

- » Direct impacts to heritage resources including damage and destruction of sites
- » Indirect impacts including impacts on the cultural landscape and sense of place of the area

- » Cumulative impacts including the permanent destruction of heritage resources throughout the wider region due to numerous developments in the area.
- » Residual risks for the proposed project include depletion of the archaeological record of the Vryburg area

General

It is recommended that as part of the public consultation process the presence of graves, archaeological and historical sites should be determined.

11. PLAN OF STUDY

Table 1: NHRA triggers for the development

Action Trigger	Yes/No	Description
Construction of a road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300 m in length.	Yes	Power lines and access roads.
Construction of a bridge or similar structure exceeding 50 m in length.	No	
Development exceeding 5000 m ²	Yes	
Development involving more than 3 erven or sub divisions	No	
Development involving more than 3 erven or sub divisions that have been consolidated in the past 5 years	No	
Re-zoning of site exceeding 10 000 m ²	Yes	PV Plant footprint
Any other development category, public open space, squares, parks or recreational grounds	No	

As per Table 1 the development triggers the requirements of the National Heritage Resources Act of 1999. In order to comply with the National Heritage Resources Act (Act 25 of 1999) a Phase 1 Archaeological Impact Assessment must be undertaken. During this study sites of archaeological, historical or places of cultural interest must be located, identified, recorded, photographed and described. During this study the levels of significance of recorded heritage resources must be determined and mitigation proposed should any significant sites be impacted upon, ensuring that all the requirements of SAHRA are met.

12. LIST OF PREPARERS

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13. STATEMENT OF COMPETENCY

The author of the report is a member of the Association of Southern African Professional Archaeologists and is also accredited in the following fields of the Cultural Resource Management (CRM) Section, member number 159: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation.

Jaco serves as a council member for the CRM Section of the Association of Southern African Association Professional Archaeologists and is also an accredited CRM Archaeologist with SAHRA and AMAFA.

Jaco has been involved in research and contract work in South Africa, Botswana, Mozambique, Zimbabwe, Tanzania as well as the Democratic Republic of the Congo and conducted well over 300 AIAs since he started his career in CRM in 2000. This involved several mining operations, Eskom transmission and distribution projects and infrastructure developments. The results of several of these projects were presented at international and local conferences.

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