ARCHAEOLOGICAL SCOPING REPORT

Proposed Construction of the 150MW Noupoort Concentrated Solar Power (CSP) Project Northern Cape Province

Client:

Savannah Environmental (Pty) Ltd

Client info:

Thalita Botha

thalita@savannahsa.com

HCAC - Heritage Consultants

Private Bag X 1049
Suite 34
Modimolle
0510

Tel: 082 373 8491
Fax: 086 691 6461
E-Mail: jaco.heritage@gmail.com

Report Author:

Mr. J. van der Walt

Project Reference:

216018

Report date:

January 2016

Revised 2 February 2016

Revised 14 March 2016

Revised 29 March 2016

DOCUMENT PROGRESS
Archaeological Impact Assessment

Document status

Document Version	**v1.4**		
Report Purpose	**Draft for review Savannah Environmental (Pty) Ltd**		
Report Ref. No.	**216018**		
	Name	**Signature**	**Date**
Mapping	**Mr. J. Van der Walt**		**January 2016**
Document Compilation	**Mr. J. van der Walt**		**January 2016**

Distribution List

Date	Report Reference number	Document Distribution	Number of Copies
2016/01/17	216018	Savannah Environmental (Pty) Ltd	Electronic copy
2016/02/02	216018	Savannah Environmental (Pty) Ltd	Amended Electronic copy
2016/03/14	216018	Savannah Environmental (Pty) Ltd	Amended Electronic copy

Indemnity and Conditions Relating to this Report

The findings, results, observations, conclusions and recommendations given in this report are based on the author's best scientific and professional knowledge as well as available information. The report is based on survey and assessment techniques which are limited by time and budgetary constraints relevant to the type and level of investigation undertaken and HCAC CC and its staff reserve the right to modify aspects of the report including the recommendations if and when new information becomes available from ongoing research or further work in this field, or pertaining to this investigation.

Although all possible care is taken to identify sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. Heritage Contracts and Archaeological Consulting CC and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.

This report must not be altered or added to without the prior written consent of the author. This also refers to electronic copies of this report which are supplied for the purposes of inclusion as part of other reports, including main reports. Similarly, any recommendations, statements or conclusions drawn from or based on this report must make reference to this report. If these form part of a main report relating to this investigation or report, this report must be included in its entirety as an appendix or separate section to the main report.

Copyright

EXECUTIVE SUMMARY

Site name and location: CRESCO Energy (Pty) Ltd proposes the construction of a Concentrated Solar Power (CSP) Project and associated infrastructure (known as the Noupoort CSP Project) on the Remaining Extent of the Farm 207, Portion 1 and Portion 4 of the Farm Carolus Poort, situated approximately 4 km north west of Noupoort. The proposed site falls within the jurisdiction of the Umsobomvu Local Municipality and within the greater Pixley ka Seme District Municipality in the Northern Cape Province.

1: 50 000 Topographic Map: 3124 BB.

EIA Consultant: Savannah Environmental (Pty) Ltd.

Developer: CRESCO Energy (Pty) Ltd

Heritage Consultant: Heritage Contracts and Archaeological Consulting CC (HCAC).
Contact person: Jaco van der Walt Tel: +27 82 373 8491 E –mail jaco.heritage@gmail.com.

Date of Report: 17 January 2016.

Findings of the Assessment:

The brief background study indicates that the Central Karoo has a wealth of heritage sites. Archaeological research conducted in the area includes the Seacow Valley project (Sampson 1985) and Hart (1989). In addition to this several CRM projects were conducted in the area providing a good basis for understanding the local archaeology of the area.

Phase 1 AIA's, Booth & Sanker (2012 c and e), were conducted on portion 2 of Carolus Poort and on the Remainder of Farm Carolus Poort RE/ 207 as well as several others in the greater study area e.g. Van Schalkwyk (2012), Hutton (2014) and Orton (2014) and Van Vollenhoven (2014). During these studies several heritage sites were recorded including stone walled herder shelters, Stone Age scatters as well as historical farm steads and graves and similar sites can be expected in the study area.

With cognisance of the recorded archaeological sites in the wider area and in order to comply with the National Heritage Resources Act (Act 25 of 1999) it is recommended that 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. From an archaeological viewpoint the proposed project is considered to be viable.

Contents

Indemnity and Conditions Relating to this Report 3

Copyright 4

EXECUTIVE SUMMARY 5

ABBREVIATIONS 8

GLOSSARY 8

1. INTRODUCTION 9

1.1 Terms of Reference 11
1.2 Nature of the development 12
1.3 The receiving environment 12
2. APPROACH AND METHODOLOGY 13

2.1 Literature review 13
2.2 Information collection 13
2.3 Public consultation 13
2.4 Google Earth and mapping survey 13
2.5 Genealogical Society of South Africa 13
2.6. Restrictions 13
3. LEGISLATION 14

3.1 Heritage Site Significance and Mitigation Measures 15
4. REGIONAL OVERVIEW 16

4.1 General Information 16
4.1.1. Literature search 16
4.1 2. Public consultation 16
4.1.3. Google Earth and mapping survey 16
4.1.4. Genealogical Society of South Africa 16
5. ARCHAEOLOGICAL AND HISTORICAL INFORMATION AVAILABLE ON THE STUDY AREA 16

6 PROBABILITY OF OCCURRENCE OF SITES 18

7. ASSUMPTIONS AND LIMITATIONS 19

8. FINDINGS 19

8.1. Archaeology 19
8.1.1 Archaeological finds 19
8.1.2 Nature of Impact 19
8.1.3 Extent of impact 19
8.2. Historical period 20
8.2.1 Historical finds: I 20
8.2.2 Nature of Impact 20
8.2.3 Extent of impact 20
8.3. Burials and Cemeteries 20
8.3.1 Burials and Cemeteries 20
8.3.2 Nature of Impact 20
8.3.3 Extent of impact 20
9. POTENTIAL SIGNIFICANCE OF HERITAGE RESOURCES 23

10. CONCLUSIONS AND RECOMMENDATIONS 23

11. PLAN OF STUDY 25

12. LIST OF PREPARERS 26
13. STATEMENT OF COMPETENCY 26
14. REFERENCES 27

Figures

Figure 1. Locality map. 10
Figure 2. Areas of possible heritage interest. 22

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) was contracted by Savannah Environmental (Pty) Ltd to conduct a Heritage Scoping Study for the proposed Noupoort CSP development. The heritage scoping report forms part of the EIA for the proposed project.

The aim of the scoping report is to conduct a desktop study to identify possible heritage resources within the project area and to assess their importance within a Local, Provincial and National context. The study furthermore aims to assess the impact of the proposed project 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 project. The report includes information collected from various sources and consultations. Possible impacts are identified and mitigation measures are proposed in the following 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.

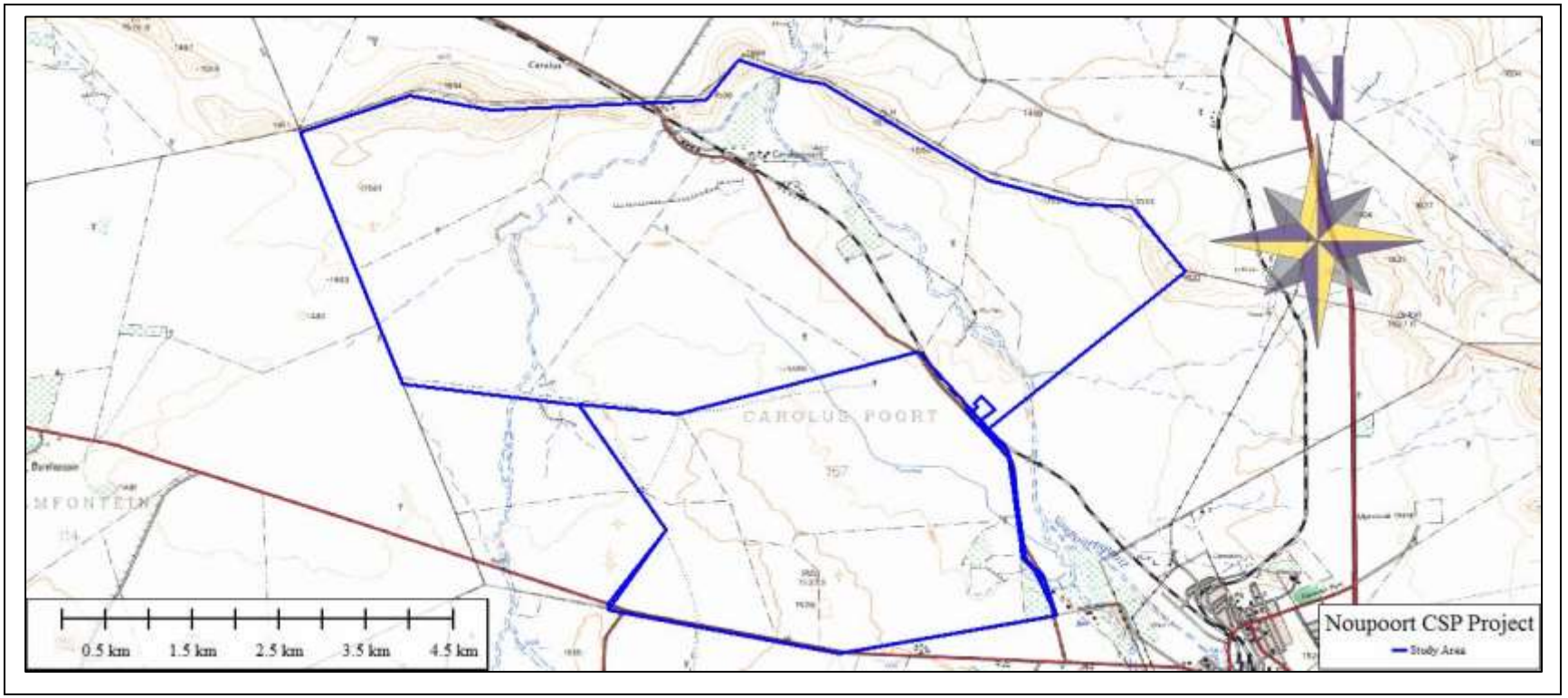

Figure 1. Locality map illustrating the project site for the Noupoort CSP Project.

1.1 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 project. 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 specialist Heritage 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 project 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 project. 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.

1.2 Nature of the development

The proposed Noupoort CSP Project will utilise parabolic trough technology. The parabolic trough system is comprised of a heat collection system (solar field) and an Energy Centre. The heat from the solar field creates steam from the heat transfer fluid (HTF) in a closed loop system which heats the storage medium in the Energy Centre. The HTF (water) in a separate closed loop system is then heated, creating steam and releasing it directly into the turbine inlet, which turns the turbine creating electricity. The parabolic trough system will have a generating capacity of up to 150MW and can produce steam over a period of 12-18 hours (6 solar hours on average, plus an additional 6 - 12h from storage, depending on Energy Centre discharge rate). The project site encompasses 3460 ha and the development area is approximately 900 ha.

Infrastructure associated with the CSP Plant includes:

» Solar collector field comprising of all systems and infrastructure related to the control and operation of the parabolic troughs;
» Energy Centre;
» Power Block;
» On-site project substation;
» A new 132kV power line to connect the on-site substation to the Eskom's electricity grid;
» Access roads and fencing around the development area; Lined evaporation ponds;
» Gas boiler for the start-up process of the facility;
» Water supply pipeline;
» On-site water storage tanks/reservoirs;
» Water treatment facility;
» Plant assembly facility;
» Offices and workshop areas for maintenance and storage; and
» Temporary laydown areas.

1.3 The receiving environment

CRESCO Energy (Pty) Ltd proposes the construction of a Concentrated Solar Power (CSP) Project and associated infrastructure (known as the Noupoort CSP Project) on the Remaining Extent of the Farm 207, Portion 1 and Portion 4 of the Farm Carolus Poort 167, situated approximately 4 km north west of Noupoort. The proposed site falls within the jurisdiction of the Umsobomvu Local Municipality and within the greater Pixley ka Seme District Municipality in the Northern Cape Province.

The vegetation is predominantly False Upper Karoo (Mucina & Rutherford 2006). Historical imagery on Google earth indicates that the land has been fallow for a number of years. The site is located at 31° 09' 59.0314" S, 24° 55' 04.7556" E.

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 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 of this report):

2.1 Literature review

A review was conducted utilising data for information gathering from published articles on the archaeology and history of the area. The aim of this is to extract data and information on the area in question, looking at archaeological sites, historical sites and graves of the area.

2.2 Information collection

The SAHRA report mapping project (Version 1.0) and SAHRIS 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.

2.3 Public consultation

No public consultation was conducted by the heritage consultant during the scoping phase.

2.4 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.

2.5 Genealogical Society of South Africa

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

2.6. Restrictions

This study did not assess the impact on intangible resources or the palaeontological component of the project.

3. LEGISLATION

For this project 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 or 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 this 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 were used to establish site significance:

- 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. The recommendations for each site should be read in conjunction with section 11 of this report.

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 General Information

4.1.1. Literature search

Several previous studies have been conducted in the Noupoort area. Studies consulted for this report include Van Schalkwyk (2012), Hutton (2014), Booth & Sanker (2012c, e) and Orton (2014) who conducted studies on the same properties and recorded graves, historical homesteads and stone walled shelters and structure, rock art and the Blydefontein Rock Shelter. Booth & Sanker (2012 c, e) recorded various Stone Age scatters, Rossouw (2010) recorded Stone Age scatters and a quarry site (MSA) and Van Vollenhoven (2014) recorded a large graveyard.

4.1 2. Public consultation

No public consultation was conducted by the heritage consultant during the scoping phase.

4.1.3. Google Earth and mapping survey

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

4.1.4. Genealogical Society of South Africa

No grave sites are indicated within the study area, although a military cemetery is located 2km to the east.

5. ARCHAEOLOGICAL AND HISTORICAL INFORMATION AVAILABLE ON THE STUDY AREA

Southern African archaeology is broadly divided into the Early, Middle and Later Stone Ages; Early, Middle and Later Iron Ages; and Historical or Colonial Periods. Relevant to the study area is the Stone Age.

South Africa has a long and complex Stone Age sequence of more than 2 million years. The broad sequence includes the Later Stone Age, the Middle Stone Age and the Earlier Stone Age. Each of these phases contains sub-phases or industrial complexes, and within these we can expect regional variation regarding characteristics and time ranges. For Cultural Resources Management (CRM) purposes it is often only expected/ possible to identify the presence of the three main phases.

Yet sometimes the recognition of cultural groups, affinities or trends in technology and/or subsistence practices, as represented by the sub-phases or industrial complexes, is achievable (Lombard 2011). The three main phases can be divided as follows;

- Later Stone Age; associated with Khoi and San societies and their immediate predecessors. Recently to ~30 thousand years ago

- Middle Stone Age; associated with Homo sapiens and archaic modern humans. 30-300 thousand years ago.

- Earlier Stone Age; associated with early Homo groups such as Homo habilis and Homo erectus. 400 000-> 2 million years ago.

The central Karoo has been a focus of archaeological research since the 1960's and closer to the study area Garth Sampson undertook the Seacow Valley research project in the area to the west of Noupoort (Sampson 1985). This included a survey of approximately 5000 km² of the upper and middle parts of the catchment. Many pre-colonial stone-built structures were recorded across the landscape and were interpreted to be the kraals of Stone Age herders. The herders are believed to have lived in the valley and the age of the kraals are between AD 1000 and AD 1750 (Sampson 2010).

Hart (1989) assembled a typology of kraal types based on analysis of the shapes of the structures. The analysis of the pottery of the Seacow Valley indicated that a number of stylistic changes took place (Sampson *et al.* 1989). Direct dating of potsherds (Sampson 2010; Sampson *et al.* 1997; Sampson & Vogel 1995) indicated that the pottery sequence dated back 1000 years. This information confirmed the ages of the kraals.

Sampson (2010) concluded that three different economies existed in the last 1000 years in the Seacow Valley. These were represented by hunter-gatherers, the so-called 'hunters-with-sheep' and herders. Relationships between the proponents of these three economies are likely to have been quite variable (Smith 1998).

Pre-colonial kraals and their distribution on the southern African landscape are not understood well. The majority of those recorded lie within the Seacow Valley (Orton 2014). They have also been found as isolated occurrences in amongst others, Sutherland (Hart 2005; Orton & Halkett 2011). They are differentiable from colonial period stone-walled structures by their construction styles: pre-colonial kraals tend to be organic in plan form and built from piled stones and colonial period structures (whether kraals or serving other purposes) were more geometric and built from two packed skins with a rubble fill (Hart 1989). While colonial structures are often clear when located, pre-colonial kraals can be very difficult to spot after many centuries of natural degradation (Orton 2014).

Various other heritage studies have been conducted in the vicinity of Noupoort more recently. The results show the presence of scatters of MSA and LSA artefacts across the landscape (Booth 2011a, 2011b; Booth & Sanker 2012a, 2012b, 2012c, 2012d, 2012e). Knapping sites could be discerned with in some studies with one indicated as being at the foot of a koppie (Booth & Sanker 2012a, 2012c).

The town of Noupoort was established after the railway line from De Aar to Cape Town was completed in 1881. By 1937 the town was managed by a village administration board, but by 1942 Noupoort became a municipality, still mostly revolving around the railway station.

It is still used as a traction changeover facility from diesel to electric locomotives and up to a 100 trains passed through Noupoort daily.

Noupoort became a busy British Military centre during the Anglo Boer War; General French occupied the town in 1899, 20 November. He used the town as a vantage point from where he built up his forces for the advance on Colesberg. The Boers withdrew from Colesberg on 25 Feb 1900. The town also housed a big base hospital with over 800 wounded soldiers (Schoeman2013). The local cemetery has a garden of remembrance for those killed in the war.

On 17 December 1901 the Boers were forced to cross the railway line south of Noupoort in full view of the British Blockhouses. There was some action in which Commandant Kritzinger was badly wounded and the Hollander Artillery officer Boldingh was killed (Schoeman 2013).

6 PROBABILITY OF OCCURRENCE OF SITES

Phase 1 AIA's, Booth & Sanker (2012 c and e), were conducted on portion 2 of Carolus Poort and on the Remainder of Farm Carolus Poort RE/ 207 and several others in the greater study area e.g. Van Schalkwyk (2012), Hutton (2014) and Orton (2014) and Van Vollenhoven (2014). During these studies several heritage sites were recorded including stone walled herder shelters, Stone Age scatters as well as historical farm steads and graves. 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 and areas of possible heritage sensitivity are mapped (Figure 2). 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.

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 having heritage 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*.

*Archaeologica*l remains dating to the following periods can be expected within the study area:

» Stone Age finds

ESA: *Medium to high Probability*
MSA*: High Probability*
LSA: Medium to High Probability
LSA –Herder: High Probability

» Iron Age finds

EIA: *Not applicable*
MIA*: Not applicable*
LIA: Not applicable

» Historical finds

Historical period: *High Probability*
Historical dumps: *Medium Probability*
Structural remains: *Medium Probability*
Cultural Landscape*: Medium probability*

» Living Heritage
For example rainmaking sites: *Low Probability*

» Burial/Cemeteries

Burials over 100 years: Low - medium *Probability*
Burials younger than 60 years*: High Probability*

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

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

In terms of the current area of investigation several areas of interest are noted on Google images of the study area as well as on 1974 maps of the area (Figure 2). These consist of open areas that might contain dense artefact scatters as recorded on portion 2 of Carolus Poort (Booth and Sanker 2012 c, e), old water furrows and a possible ridge in the southern portion of the study area. Areas like these might contain Stone Age material. Pans and drainage lines could also be areas of interest and are mapped in higher detail by the ecologists.

Based on the results of the heritage scoping study the following heritage sites, features and objects can be expected within the study area.

8.1. Archaeology

8.1.1 Archaeological finds

The brief background study indicates that the Northern Cape has a wealth of heritage sites and if any ridges, hills, pans, drainage lines or dongas occur in the study area Stone Age artefact scatters might be expected. Concentrations of stone tools point to activities that took place at various stages over the past 1.5 million years, representing the different groups of people who inhabited or moved across the landscape over time. Herder shelters are expected along ridges (Sampson 1985).

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 low impact on a local scale.

8.2. Historical period

8.2.1 Historical finds: I

Historical finds include middens, structural remains and cultural landscape. The study area has been fallow for a number of years and no agricultural activities occurred except small cultivated lands north east in the project site.. It is assumed that the study area is currently utilised for grazing, as well as in the past, and features dating to this period associated with farming can occur as is evident by water furrows indicated on maps of the study area. The age of these structures historically used for agriculture are unknown. Noupoort was a busy military centre during the war and Anglo Boer war artefacts can also be expected in the broader area.

8.2.2 Nature of Impact

The construction of the project can directly impact on both the visual context and sense of place of historical sites.

8.2.3 Extent of impact

The construction of the project could have a low 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.

Table 1: Impact Assessment summary

Impact on Heritage resources
Construction activities of the proposed project could directly impact on graves, archaeological sites and historical sites, should this occur within the development footprint.

Issue	Nature of Impact	Extent of Impact	No-Go Areas
Disturbance and destruction of historical, archaeological sites and graves.	Construction activities could cause irreversible damage or destroy heritage resources and depletion of the archaeological record of the area.	Low to Medium on a local scale.	None identified. To be confirmed through fieldwork

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 Middle Stone Age and LSA artefact scatters of medium to high heritage significance and grave sites can be expected. It should be possible to mitigate impacts to sites by micro adjustments to the layout to preserve the sites. Alternatively grave sites can be relocated and Stone Age sites can be test excavated and mapped if warranted by the site. All these mitigation measures will require adherence to the NHRA and the required permits from the SAHRA.

Gaps in knowledge & recommendations for further study
The study area has not been subjected to a cultural resource survey 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.

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

- Direct impacts to heritage resources including damage and destruction of sites
- Possible 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 renewable energy and associated developments in the area.
- Residual risks for the proposed project include depletion of the archaeological record of the wider Noupoort region.

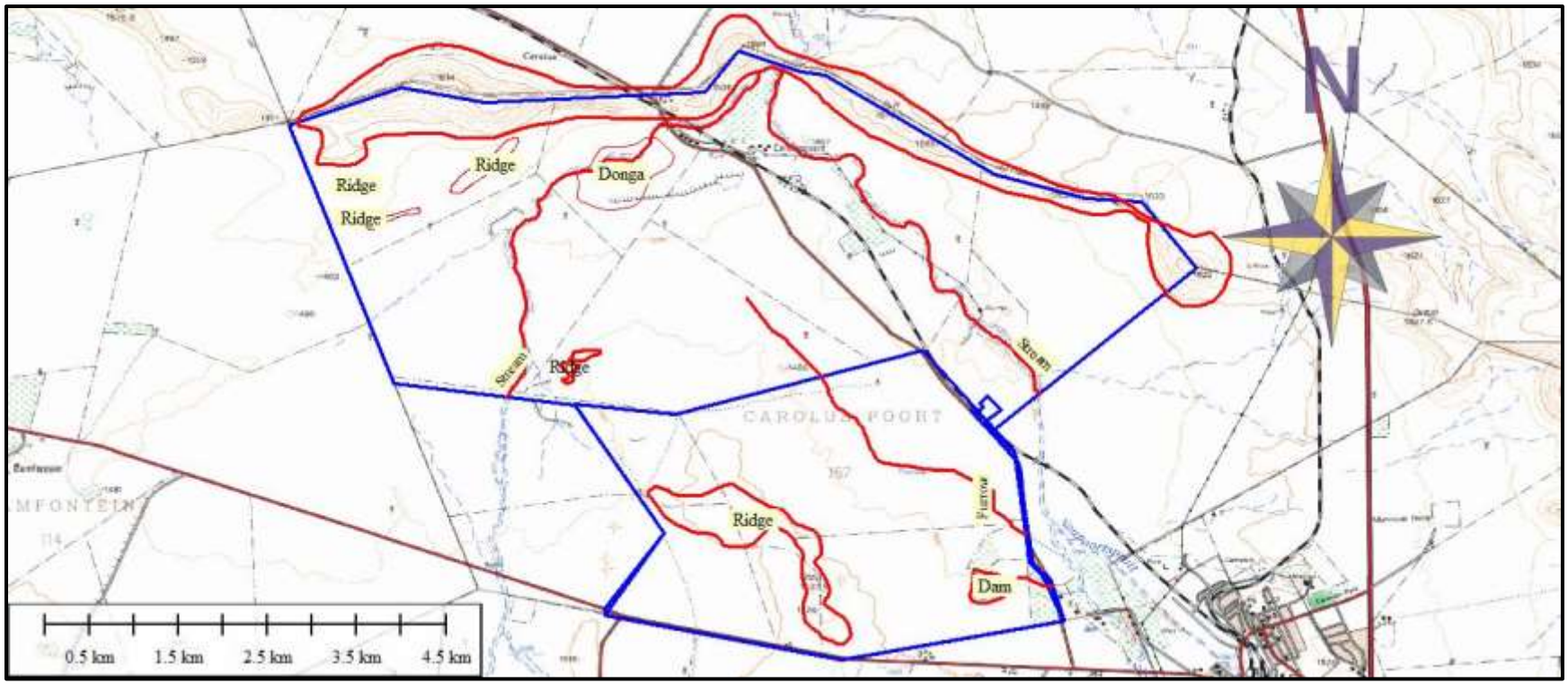

Figure 2. Areas of possible heritage interest.

9. POTENTIAL SIGNIFICANCE OF HERITAGE RESOURCES

Based on the current information obtained for the area at a desktop level it is anticipated that any sites that occur within the proposed development area will have a Generally Protected B (GP.B) or lower field rating apart from graves and rock art that could have a Generally Protected A (GP.A) field rating and all sites should be mitigatable and no red flags are identified on a desktop level.

10. CONCLUSIONS AND RECOMMENDATIONS

The brief background study indicates that the Central Karoo has a wealth of heritage sites. Archaeological research conducted in the area includes the Seacow Valley project conducted by Sampson (1985) and further research by Hart (1989). In addition to this several CRM projects were conducted in the area.

Phase 1 AIA's, Booth & Sanker (2012 c and e), were conducted on portion 2 of Carolus Poort and on the Remainder of Farm Carolus Poort RE/ 207 and several others in the greater study area e.g. Van Schalkwyk (2012), Hutton (2014) and Orton (2014) and Van Vollenhoven (2014). During these studies several heritage sites were recorded including stone walled herder shelters, Stone Age scatters as well as historical farm steads and graves and similar sites can be expected in the study area.

If any pans or drainage lines occur in the study area Stone Age artefact scatters might be expected. Every site is relevant to the Heritage Landscape, but it is anticipated that few sites in the study area could have conservation value.

The following conclusions are applicable to the following sites:

» Archaeological sites

Based on other work conducted in the area archaeological sites are expected in the study area. All 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.

» Historical finds and Cultural landscape

It is not anticipated that the built environment will be severely impacted upon as no structures occur within the study area older than 60 years (based on Google Earth). This assumption will however have to be verified in the field. There are however old water furrow and a dam and the age of these structures will have to be determined.

» 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 with in a development. These sites can how ever be relocated if conservation is not possible, but this option must be seen as a last resort and is not advisable. The presence of any grave sites must be confirmed during the field survey and the public consultation process.

» General

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

From an archaeological viewpoint the proposed project is considered to be viable.

11. PLAN OF STUDY

The development triggers the NHRA in the following areas and therefore a Phase 1 AIA is recommended:

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	Internal access roads
Construction of a bridge or similar structure exceeding 50 m in length.	No	
Development exceeding 5000 m²	Yes	Footprint of impact area exceeds 5000m²
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 m²	No	
Any other development category, public open space, squares, parks or recreational grounds	No	

With cognisance of the recorded archaeological sites in the wider area and in order to comply with the National Heritage Resources Act (Act 25 of 1999) it is recommended that 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.

11.1 Reasoned Opinion

If the above recommendations are adhered to and based on approval from SAHRA, HCAC is of the opinion that planning in terms of the development can continue as the impact of the development on the heritage and archaeological record of the area can be mitigated. If during the pre-construction phase or during construction, any archaeological finds are made (e.g. graves, stone tools, and skeletal material), the operations must be stopped, and the archaeologist must be contacted for an assessment of the finds. Due to the subsurface nature of archaeological material and graves the possibility of the occurrence of unmarked or informal graves and subsurface finds cannot be excluded.

12. LIST OF PREPARERS

Jaco van der Walt (Archaeologist and project manager)

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 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 and the DRC 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.

14. REFERENCES

Archaeological Database Wits University 2009

Booth, C. 2011a. A Phase 1 archaeological impact assessment (AIA) for the proposed Kleinfontein Solar Energy Facility on the farm Kleinfontein, portion 4 of 167, situated near Noupoort, Northern Cape Province. Unpublished report prepared for Savannah Environmental (Pty) Ltd. Grahamstown: Albany Museum.

Booth, C. 2011b. A Phase 1 archaeological impact assessment (AIA) for the proposed Solar Facility on the farm Toitdale, portion 1 of 167, situated near Noupoort, Northern Cape Province. Unpublished report prepared for Savannah Environmental (Pty) Ltd. Grahamstown: Albany Museum.

Booth, C. & Sanker, S. 2012a. A Phase 1 archaeological impact assessment for the proposed establishment of the Allemans Fontein Solar Energy Facility on the remainder of farm Allemans RE/83, near Noupoort, Umsombomvu Local Municipality, Northern Cape Province. Unpublished report prepared for Savannah Environmental (Pty) Ltd. Grahamstown: Albany Museum.

Booth, C. & Sanker, S. 2012b. A Phase 1 archaeological impact assessment for the proposed establishment of the Amandla Welanga Solar Energy Facility on the remaining extent of the farm Rietfontein, near Noupoort, Northern Cape Province. Unpublished report prepared for Savannah Environmental (Pty) Ltd. Grahamstown: Albany Museum.

Booth, C. & Sanker, S. 2012c. A Phase 1 archaeological impact assessment for the proposed establishment of the Carolus Poort Solar Energy Facility on the remainder of farm Carolus Poort RE/207, near Noupoort, Umsombomvu Local Municipality, Northern Cape Province. Unpublished report prepared for Savannah Environmental (Pty) Ltd. Grahamstown: Albany Museum.

Booth, C. & Sanker, S. 2012d. A Phase 1 archaeological impact assessment for the proposed establishment of the Dida Solar Energy Facility on Portion 3 of the farm Rietfontein, near Noupoort, Northern Cape Province. Unpublished report prepared for Savannah Environmental (Pty) Ltd. Grahamstown: Albany Museum.

Booth, C. & Sanker, S. 2012e. A Phase 1 archaeological impact assessment for the proposed establishment of the Inkululeko Solar Energy Facility on Portion 2 of the farm Carolus poort 167, near Noupoort, Northern Cape Province. Unpublished report prepared for Savannah Environmental (Pty) Ltd. Grahamstown: Albany Museum.

Hart, T.J.G. 1989. Haaskraal and Volstruisfontein: Later Stone Age events at two rockshelters in the Zeekoe Valley, Great Karoo, South Africa. Unpublished M.A. dissertation, University of Cape Town.

Hart, T. 2005. Heritage impact assessment of a proposed Sutherland golf estate, Sutherland, Northern Cape Province. Unpublished report prepared for DJ Environmental. Archaeology Contracts Office, University of Cape Town.

Hutten, M. 2014. SiVest Environmental Division Noupoort Wind Energy Facility Heritage Management Plan for construction. Unpublished report prepared for SiVest Environmental Division. Totiusdal: PGS Heritage.

Mucina, L. & Rutherford, M.C. 2006. The Vegetation of South Africa, Lesotho and Swaziland. Strelitzia 19. South African National Biodiversity Institute. Pretoria.

National Heritage Resources Act NHRA of 1999 (Act 25 of 1999)

Orton, J.D. J. 2012. Late Holocene archaeology in Namaqualand, South Africa: hunter-gatherers and herders in a semi-arid environment. Unpublished D. Phil. thesis. Oxford: University of Oxford.

Orton, J.D. 2013. Geometric rock art in western South Africa and its implications for the spread of early herding. *South African Archaeological Bulletin* 68: 27-40.

Orton, J.D. 2014. Specialist Input For The Archaeological Walk Down Survey Of The Proposed Noupoort Wind Energy Facility, Noupoort Magisterial District, Northern Cape

Orton, J.D. & Halkett, D. 2011. Heritage impact assessment for the proposed photovoltaic solar energy facility on the remainder of farm Jakhalsvalley 99, Sutherland Magisterial District, Northern Cape. Unpublished report prepared for The Environmental Evaluation Unit. University of Cape Town: Archaeology Contracts Office.

SAHRA Report Mapping Project Version 1.0, 2009

SAHRIS (referenced 2016)

Sampson, C.G. 1968. *The Middle Stone Age Industries of the Orange River Scheme area*. National Museum, Bloemfontein. Memoir 4: 1-111.

Sampson, C.G. 1985. Atlas of Stone Age Settlements in the Central and Upper Seacow Valley.*National Museum, Bloemfontein, Memoir: 20: 1*-116.

Sampson, C.G. 2010. Chronology and dynamics of Later Stone Age herders in the upper Seacow River valley, South Africa. *Journal of Arid Environments* 74: 842–848.

Sampson, C.G., Hart, T.J.G., Wallsmith, D.L. & Blagg, J.D. 1989. The Ceramic Sequence in the Upper Seacow Valley: Problems and Implications. *South African Archaeological Bulletin* 44: 3-16.

Sampson, C.G., Vogel, J.C. 1995. Radiocarbon chronology of Later Stone Age pottery decorations in the upper Seacow valley. *Southern African Field Archaeology* 4: 84–94.

Schoeman, C. 2013. The Historical Karoo. Traces of the past in South Africa's Arid Interior. Zebra House Press. Cape Town.

Smith, A.B. 1998. Keeping People on the Periphery: The Ideology of Social Hierarchies between Hunters and Herders. *Journal of Anthropological Archaeology* 17: 201–215.