

HERITAGE SCOPING REPORT

For the Proposed Botterblom Wind Energy Facility Northern Cape Province, South Africa

Client:
Enviro-Insight CC

Client information:
Corné Niemandt

E – Mail: corne@enviro-insight.co.za



HCAC - Heritage Consultants

Private Bag X 1049

Suite 34

Modimolle

0510

Tel: 082 373 8491

Fax: 086 691 6461

E-Mail: jaco@heritageconsultants.co.za

Report Author:

Mr. J. van der Walt

Project Reference:


2121

Report date:

May 2021

DOCUMENT PROGRESS
Heritage Scoping Report

Document status

| | | | |
|-----------------------------|------------------------------------|--|-------------|
| Document Version | v1.0 | | |
| Report Purpose | Draft for review Enviro-Insight CC | | |
| Report Ref. No. | 2121 | | |
| | Name | Signature | Date |
| Document Compilation | J. van der Walt |  | May 2021 |

Distribution List

| Date | Report Reference number | Document Distribution | Number of Copies |
|-------------|--------------------------------|------------------------------|-------------------------|
| 12 May 2021 | 2121 | Enviro-Insight CC | Electronic copy |

Amendments on document

| Date | Report Reference Number | Description of Amendment |
|-------------|--------------------------------|---------------------------------|
| | | |

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 Heritage Contracts and Archaeological Consulting (HCAC) 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. HCAC 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

Copyright on all documents, drawings and records, whether manually or electronically produced, which form part of the submission and any subsequent report or project document, shall vest in HCAC CC.

The Client, on acceptance of any submission by HCAC and on condition that the Client pays to HCAC the full price for the work as agreed, shall be entitled to use for its own benefit:

- » The results of the project;
- » The technology described in any report; and
- » Recommendations delivered to the Client.

Should the Client wish to utilise any part of, or the entire report, for a project other than the subject project, permission must be obtained from HCAC to do so. This will ensure validation of the suitability and relevance of this report on an alternative project.

EXECUTIVE SUMMARY

FE Botterblom (Pty) Ltd (hereafter the Applicant) is proposing the development of a wind energy facility (WEF) and associated infrastructure on a site located approximately 53 kilometres (km) north of Loeriesfontein in the Northern Cape province of South Africa. The proposed development, to be known as Botterblom WEF, will generate electricity which will feed into the National Grid. Enviro-Insight has been appointed as the independent Environmental Assessment Practitioner (EAP) to undertake the requisite environmental impact assessment (EIA) process for the WEF. HCAC was appointed to conduct a Heritage Impact Assessment for the project, this report is for the scoping phase of the project and is based on a desktop study.

A marked paucity of Stone Age material is evident for the greater study area (Morris 2013; van der Walt 2012 and Fourie 2011). Closer to the study area, on the crests of small hills several LSA sites is recorded (van Schalkwyk 2011, Webley and Halkett 2012, Orton 2014, van der Walt 2014). Further away, in the area around Klawervlei and Waterkuil (Morris 2013). Later Stone Age sites on dunes at the fringes of pans are plentiful. From these studies, it is clear that the distribution of sites may be highly structured relative to resources, principally water (e.g., Beaumont *et al.* 1995) and on the crests of small hills possibly providing vantage points. Recorded features in the study area include Later Stone Age sites with a background scatter of Middle Stone Age artefacts (Beaumont *et al.* 1995). Recorded lithics are mainly on cryptocrystalline quartz probably derived from numerous dolerite dykes and sills in the Loeriesfontein area, associated with several breccia pipes described in the literature. These hydrothermal vent complexes are likely to have produced a variety of fine-grained siliceous materials, including cryptocrystalline quartz that was preferred for tool making by Stone Age communities. In addition to the Stone Age sites a historical farmstead, and memorial is also on record for the study area.

It is recommended that the study area should be subjected to Heritage Impact Assessment and during this study the potential impact on heritage resources will be determined as well as levels of significance of recorded heritage resources. The HIA should also provide management and mitigation measures should any significant sites be impacted upon, ensuring that all the requirements of the SAHRA are met. The study area is of moderate to high paleontological sensitivity and according to the SAHRIS palaeontological sensitivity map must be subjected to a desktop palaeontological assessment in the impact assessment phase.

Contents

| | |
|--|----|
| Indemnity and Conditions Relating to this Report | 3 |
| EXECUTIVE SUMMARY | 5 |
| ABBREVIATIONS | 8 |
| GLOSSARY | 8 |
| 1. INTRODUCTION | 9 |
| 1.1 Terms of Reference | 12 |
| 1.2 Nature of the development | 12 |
| 1.3 The receiving environment | 13 |
| 2. APPROACH AND METHODOLOGY | 13 |
| 2.1 Literature search | 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 |
| 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 | 17 |
| 4.1.3. Google Earth and mapping survey | 17 |
| 4.1.4. Genealogical Society of South Africa | 17 |
| 4.2. Palaeontology | 18 |
| 4.3 Archaeological and Historical Information Available on the Study Area” | 19 |
| 4.3.1. Stone Age | 19 |
| 4.3.2. Historical aspects | 20 |
| 4.3.3. Anglo-Boer War | 20 |
| 4.3.4. Cultural Landscape | 20 |
| 5. PROBABILITY OF OCCURRENCE OF SITES | 20 |
| 6. ASSUMPTIONS AND LIMITATIONS | 22 |
| 7. FINDINGS | 22 |
| 8. POTENTIAL SIGNIFICANCE OF HERITAGE RESOURCES | 24 |
| 9. CONCLUSION AND PLAN OF STUDY FOR EIA | 25 |
| 10 LIST OF PREPARERS | 25 |
| 11. STATEMENT OF COMPETENCY | 25 |
| 12. STATEMENT OF INDEPENDENCE | 26 |
| 13. REFERENCES | 27 |

Figures

Figure 1. Regional setting of the study area. 10
Figure 2. Proposed layout of the WEF. 11
Figure 3. Palaeontological sensitivity map of the study area (blue polygon). 18
Figure 4. Known sites in relation to the lay out. 23
Figure 5. Farmstead in the study area. 24
Figure 6. Inscription on the memorial. 24
Figure 7. General view of the memorial. 24

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 was contracted by Enviro-Insight CC Ltd to conduct a heritage scoping study for the proposed Botterblom WEF. The project is located approximately 53km north of Loeriesfontein, 87 km west of Brandvlei and 146 km south of Pofadder in the Northern Cape (Figure 1 to 2). The heritage scoping report forms part of the EIA for the proposed project.

The aim of the scoping report is to identify possible heritage resources within the project area and to submit appropriate recommendations with regards to the responsible cultural resources management measures that might be required 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.

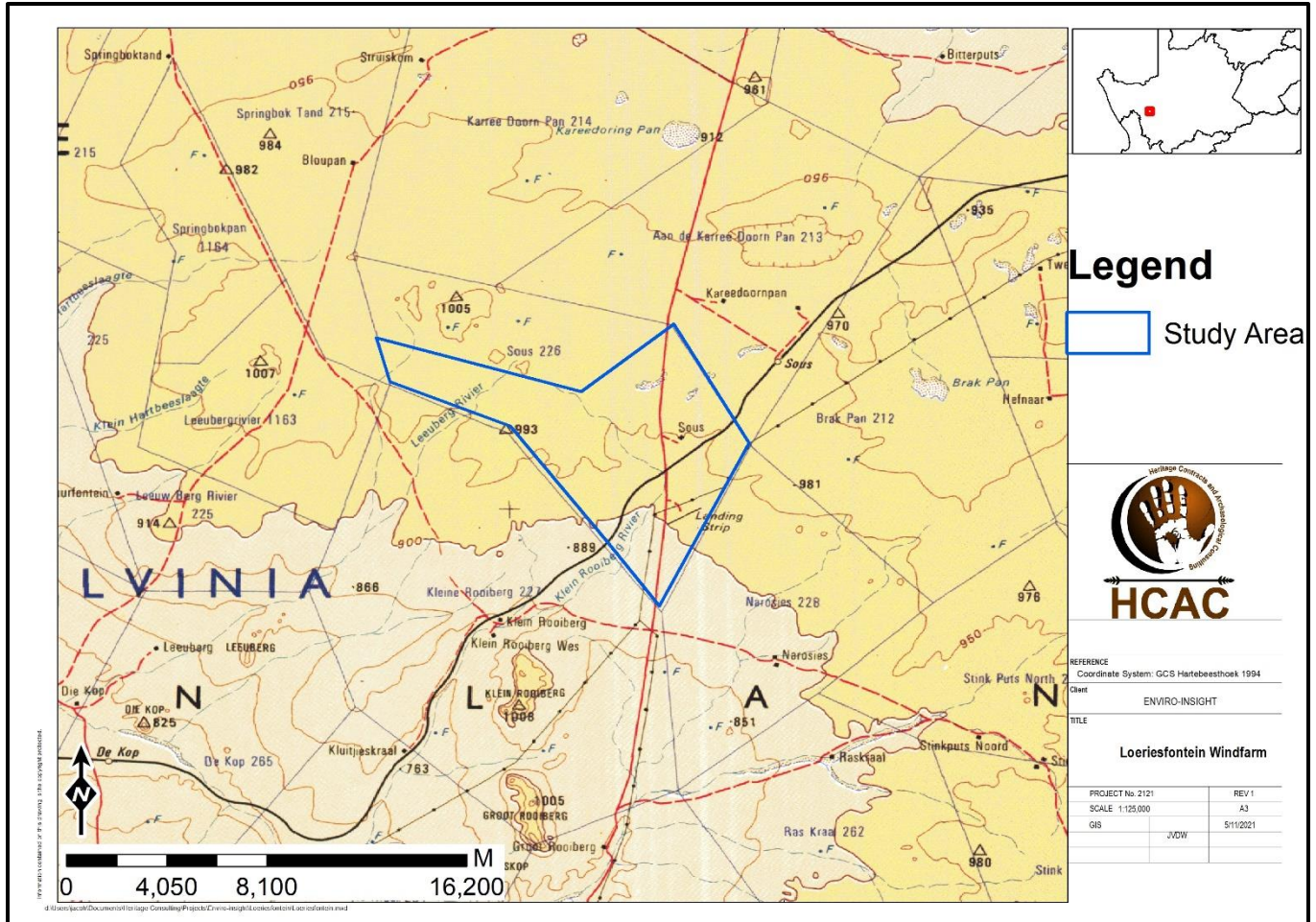


Figure 1. Regional setting of the study area.

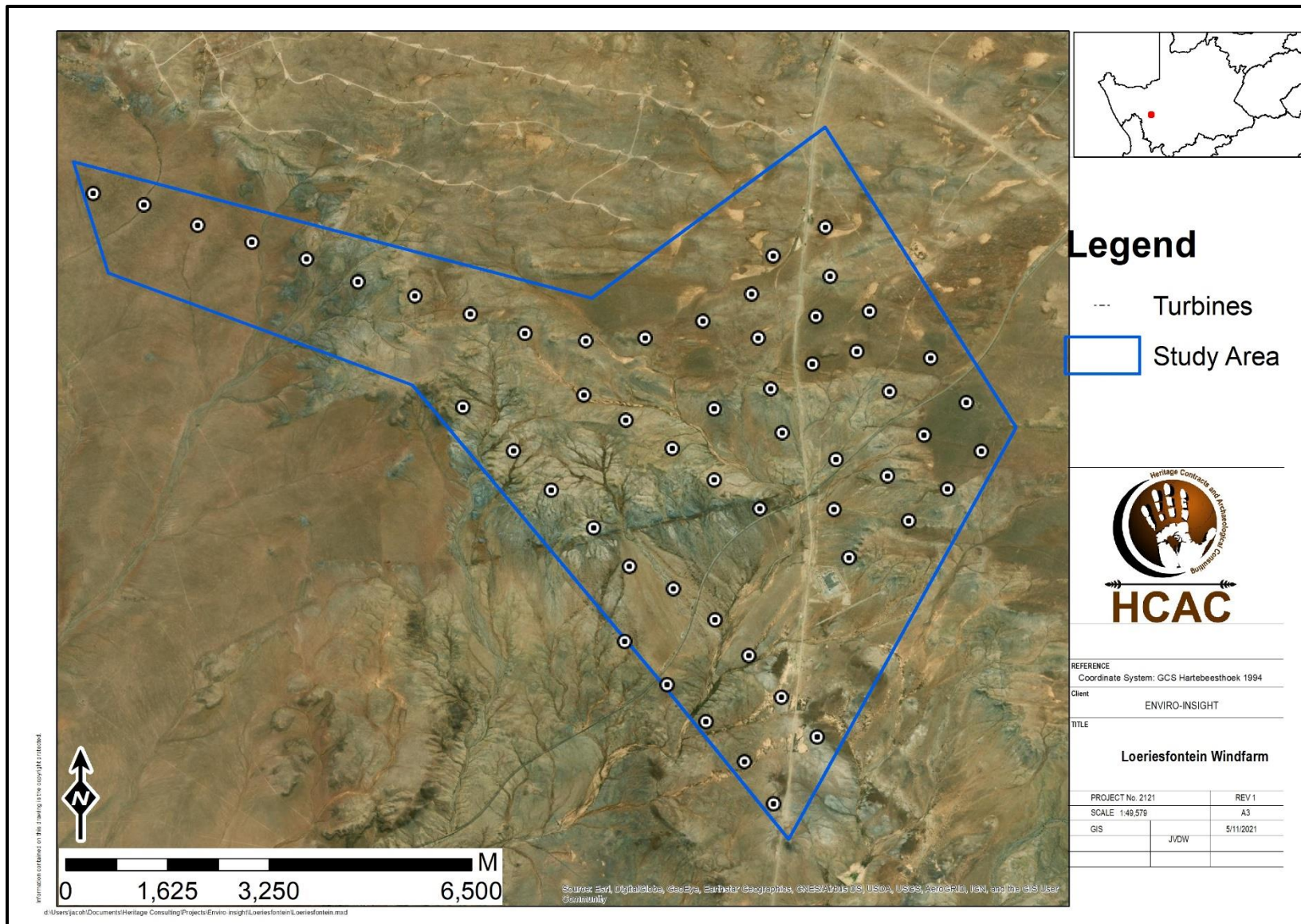


Figure 2. Proposed layout of the WEF.

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.

- » Report

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 will be identified, and those issues requiring further investigation through the IA Phase highlighted. Reporting will aim to identify the potential impacts of the proposed project activity on heritage resources. 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 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 Botterblom WEF will consist of up to 54 wind turbines, with a generation capacity of up to 6.5 MW per turbine. Each turbine will have a hub height of up to 150m and a rotor diameter of up to 175m. The final turbine model to be utilised will only be determined closer to the time of construction, depending on the technology available at the time. Additional ancillary infrastructure to the WEF would include underground and above-ground cabling between project components, onsite substation/s, foundations to support turbine towers, internal/ access roads (up to 10 m in width) linking the wind turbines and other infrastructure on the site, and permanent workshop area and office for control, maintenance, and storage. As far as possible, existing roads will be utilised and upgraded (where needed) with the relevant stormwater infrastructure and gates constructed as required. The perimeter of the proposed WEF may be enclosed with suitable fencing. A formal laydown area for the construction period, containing a temporary maintenance and storage building along with a guard cabin will also be established.

Additionally, the Applicant is proposing to construct the associated on-site substation and power line, both with a capacity of up to 132kV. This would feed into the existing national electricity grid at the Helios Main Transmission Substation (MTS) located within the property itself. This associated electrical infrastructure will require a separate Environmental Authorisation and is being conducted as a part of a separate Basic Assessment (BA) process.

1.3 The receiving environment

The study area comprises relatively flat or gently undulating plains with shallow soil and shale exposures subject to considerable sheet erosion. Vegetation is sparse so that archaeological traces, likely to be at the surface in this erosional context, are likely to be very visible. If the site is visited in future sites might be exposed through sheet erosion.

Loeriesfontein falls within the bioregion described by Mucina *et al* (2006) as the Trans-Escarpment Succulent Karoo Bioregion and within the Succulent Karoo Biome. The vegetation type which occurs on the site is described as Hantam Karoo. Land use in the study area is characterized by agriculture, dominated by sheep farming; however, the carrying capacity of the region is very low. The study area is flat with rolling topography. Larger hills are present at a distance from the site to the South-west. The climate can be described as arid to semi-arid with rainfall occurring from November to April.

2. APPROACH AND METHODOLOGY

The assessment is to be undertaken in two phases, a Scoping phase and a Heritage Impact Assessment phase as part of the Environmental Impact Assessment process, this report concerns the scoping phase. The aim of the scoping phase is to assess the study area at a desktop level to compile a background history of the study area, 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 search

A literature search was conducted utilising data 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

SAHRIS was consulted to 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

A full public consultation process will be facilitated by Enviro Insight CC. Any heritage concerns raised during this process will be addressed in the HIA.

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.

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 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 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 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 10 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

The following reports were conducted in the immediate vicinity of the study area and were consulted for this report:

| Author | Year | Project | Findings |
|------------------------|------|---|--|
| Morris, D. | 2007 | Archaeological Specialist input with respect to the upgrading railway infrastructure on the Sishen-Saldanha ore line in the vicinity of Loop 7a near Loeriesfontein. McGregor Museum. | Minimal finds of Stone Age artefacts |
| Fourie, W. | 2011 | Heritage Impact Assessment for the proposed Solar Project on the farm Kaalspruit, Loeriesfontein. | Lithic Scatter |
| Almond, J. E. | 2011 | Palaeontological Desktop Study for the Proposed Mainstream Wind Farm Near Loeriesfontein, Namaqua District Municipality, Northern Cape Province. | 2 sites were recorded |
| Van Schalkwyk, J. | 2011 | Heritage Impact Assessment for the proposed establishment of a wind farm and PV facility by Mainstream Renewable Power in the Loeriesfontein Region, Northern Cape Province. | LSA Sites |
| Van der Walt, J. | 2012 | Archaeological Impact Assessment for the proposed Hantam PV Solar Energy Facility on the farm Narosies 228, Loeriesfontein, Northern Cape Province | No Sites |
| Webley, L. Halkett, D. | 2012 | Heritage Impact Assessment: Proposed Loeriesfontein Photo-Voltaic Solar Power Plant On Portion 5 of the Farm Klein Rooiberg 227, Northern Cape Province. | LSA Sites |
| Morris, D. | 2013 | Specialist Input for the Environmental Basic Assessment And Environmental Management Program for the Khobab Wind Energy Facility: Power Line Route Options, Access Road And Substation Positions. | LSA Sites |
| Orton, J. | 2014 | Heritage Impact Assessment for the proposed re-alignment of the authorized 132kV Power Line for the Loeriesfontein 2 WEF, Calvinia Magisterial District, Northern Cape | LSA sites, historical farmstead and engravings |
| Van der Walt, J. | 2017 | Heritage walk down Helios Power Line | Stone Age Artefacts and historical farm stead |

4.1 2. Public consultation

A public participation process is facilitated by Enviro Insight as per the EIA process and the results will be included in the HIA.

4.1.3. Google Earth and mapping survey

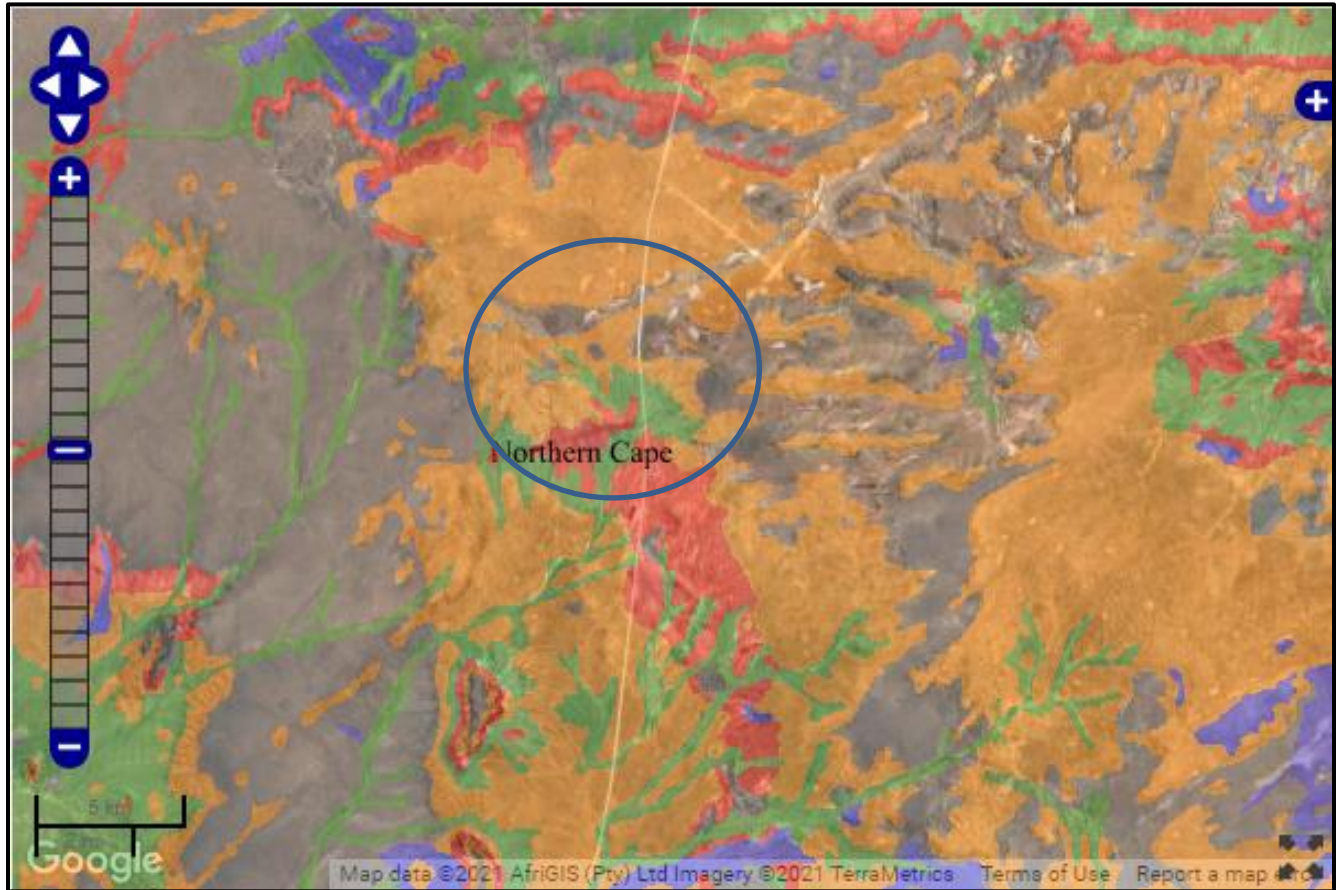
Google Earth and 1:50 000 maps of the area was utilised to identify possible places where archaeological sites might be located.

4.1.4. Genealogical Society of South Africa

No grave sites are indicated within the study area.

4.2. Palaeontology

The study area ranges from moderate to very high palaeontological sensitivity (Figure 3) and further studies will be required in the EIA phase.



| 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. |

Figure 3. Palaeontological sensitivity map of the study area (blue polygon).

4.3 Archaeological and Historical Information Available on the Study Area”

The archaeological record for the greater study area consists of the Stone Age and Iron Age.

4.3.1. 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.

A marked paucity of Stone Age material is evident for the greater study area (Morris 2013; van der Walt 2012 and Fourie 2011). The area is characterised by highly eroded undulating surfaces and plains that lack features that might have focused past human activity. In contrast to this type of environment numerous small hills and pans occur to the west. On the crests of these small hills several LSA sites is recorded (van Schalkwyk 2011, Webley and Halkett 2012, Orton 2014, van der Walt 2014). Further away, in the area around Klawervlei and Waterkuil (Morris 2013) Later Stone Age sites on dunes at the fringes of pans are plentiful. From these studies, it is clear that the distribution of sites may be highly structured relative to resources, principally water (e.g., Beaumont *et al.* 1995) and on the crests of small hills. Recorded features include LSA sites with a background scatter of MSA artefacts (Beaumont *et al.* 1995). Recorded lithics are mainly on cryptocrystalline quartz probably derived from numerous dolerite dykes and sills in the Loeriesfontein area, associated with several breccia pipes described in the literature. These hydrothermal vent complexes are likely to have produced a variety of fine-grained siliceous materials, including cryptocrystalline quartz.

4.3.2. Historical aspects

The project is in close proximity of the small town of Loeriesfontein, and the history of this town is therefore of importance. There are various theories as to where the name “Loeriesfontein” had its origin. The most likely of these is that the town is named after the Grey Loerie, a bird species that was apparently abundant in the area in the past. It is not known when this name first came into use. (Möller 1988)

One of the earliest white travelers who surveyed and drew maps of the area in which Loeriesfontein is today situated, was the secretary of Lord Macartney, John Barrow. In the late 1790s, Barrow drew up a map of the Northern Cape area. Place names like Kubiskow, Kamdani, Hantam River and Onder-Bokkeveld were indicated on the map, but Loeriesfontein was not yet present. Loeriesfontein was, in fact, first indicated on a map in 1860. In that year, the Land Surveyor, J. M. Wentzel received an order to measure and draw up the crown land farm known as Loeriesfontein. (Möller 1988).

In 1899, the first police station and police cells were erected at Loeriesfontein. By January 1904, when Loeriesfontein elected its first Town Council, there were 643 white and 436 coloured individuals living there. The first white church in the town was established in 1916. (Möller 1988) The town received municipal status in 1958, and hereafter several other developments took place. Loeriesfontein was provided with electricity in June 1960, and in 1972 the town got its own coat of arms. In 1985, the town had a population of 357 whites, 1538 coloureds and 15 blacks. (Möller 1988)

The Cape Military Police Station seems to have been located on the farm, Narosies, up until 1905, when it was abolished. (Cape Town Archives Repository 1905) This may serve as evidence that the farm was in public ownership in the early 1900s.

4.3.3. Anglo-Boer War

There are no battlefields or concentration camp sites close to the study area.

4.3.4. Cultural Landscape

The area is undeveloped and characterised by sparse vegetation used for grazing. The pre-colonial landscape consists of widespread Stone Age occupation. The study area is surrounded by renewable energy facilities, gravel roads, power lines and railroad infrastructure and the proposed development and will have an impact on the cultural landscape.

5. 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 having sites.

» Palaeontological landscape

Fossil remains. *Medium - High probability.*

» 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: Medium to High Probability

MSA: Medium to High Probability

LSA: Medium to High Probability

LSA –Herder: Medium to High Probability

» Iron Age finds

EIA: Low Probability

MIA: Low Probability

LIA: Low -Medium Probability

» Historical finds

Historical period: Medium to High Probability

Historical dumps: Low-Medium Probability

Structural remains: Medium to High Probability

Cultural Landscape: low probability

» Living Heritage

For example, rainmaking sites: Low Probability

» Burial/Cemeteries

Burials over 100 years: Medium to High Probability

Burials younger than 60 years: Medium to High Probability

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

6. ASSUMPTIONS AND LIMITATIONS

The study area was not subjected to a field survey and this together with an impact assessment will be conducted in the EIA phase. It is assumed that information obtained for the wider area is applicable to the study area. The authors acknowledge that the brief literature review is not exhaustive on the literature of the area. Due to the subsurface nature of archaeological artefacts, the possibility exists that some features or artefacts may not have been discovered/recorded during the survey, similarly the possible occurrence of graves and other cultural material cannot be excluded. This study did not assess the impact on medicinal plants and intangible heritage as it is assumed that these components would have been highlighted through the public consultation process if relevant. It is possible that new information could come to light in future, which might change the results of this scoping report.

7. FINDINGS

Previous studies in the area recorded several heritage sites mostly related to the Stone Age (LSA sites and MSA background scatter). These sites are marked by ostrich eggshell fragments and lithics on CCS and hornfells often on elevated areas and close to water sources. The distribution of the Stone Age sites is spatially illustrated in Figure 4. A historical farmstead (Figure 5), and memorial is also on record for farm Sous 226 at S30° 28' 33.2", E19° 33' 52.4" (Figure 6). This farmstead was also recorded by Orton (2014) and Van der Walt (2017).

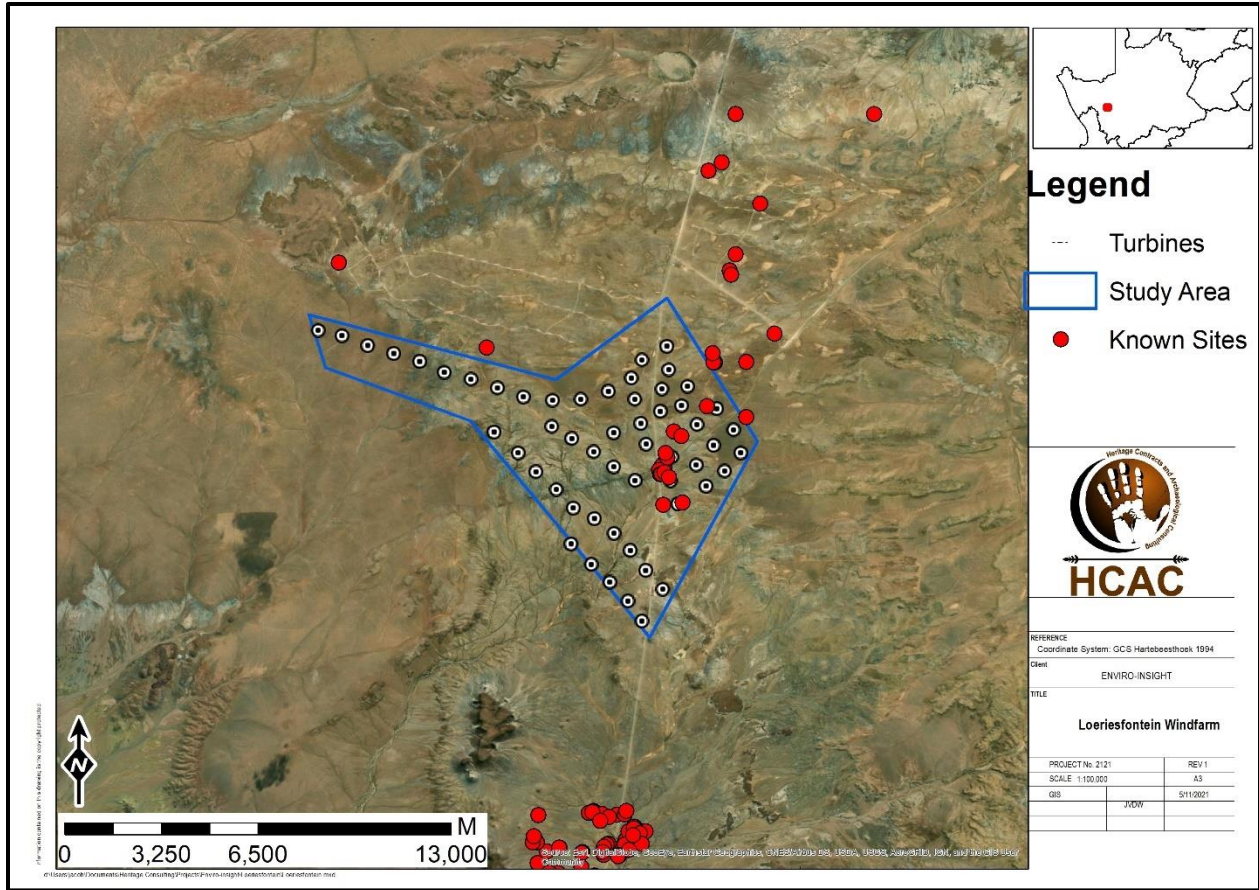


Figure 4. Known sites in relation to the lay out.



Figure 5. Farmstead in the study area.



Figure 6. Inscription on the memorial.



Figure 7. General view of the memorial.

8. POTENTIAL SIGNIFICANCE OF HERITAGE RESOURCES

Based on the current information obtained for the area at a desktop level it is anticipated that any archaeological sites that occur within the proposed development area will have a Generally Protected A (GP.A) field rating and all sites should be mitigatable. Graves are of high social significance (Field rating GP A) and can be expected anywhere on the landscape.

9. CONCLUSION AND PLAN OF STUDY FOR EIA

This scoping study recorded numerous Stone Age features, a historical farmstead, and memorial within the study area. These features, if impacted on, will require mitigation as a second phase of study. Therefore, to comply with the National Heritage Resources Act (Act 25 of 1999) it is recommended that a Phase 1 Heritage Impact Assessment must be undertaken for the study area. During the HIA the potential impact on heritage resources will be determined as well as levels of significance of recorded heritage resources. The HIA will also provide management and mitigation measures should any significant sites be impacted upon, ensuring that all the requirements of the SAHRA are met. The study area is of moderate to very high paleontological sensitivity and according to the SAHRIS palaeontological sensitivity map must be subjected to a desktop palaeontological assessment in the impact assessment phase.

10 LIST OF PREPARERS

Jaco van der Walt (Archaeologist and project manager)

11. 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. He is also a member of the Association of Professional Heritage Practitioners (#114). Jaco is also an accredited CRM Archaeologist with SAHRA and AMAFA.

Jaco has been involved in research and contract work in South Africa, Afghanistan, Botswana, Mozambique, Zimbabwe, Zambia, Guinea, Tanzania, Afghanistan, and the DRC and conducted well over 500 AIAs since he started his career in CRM in 2000. This involved several mining operations, Eskom transmission and distribution projects and renewable energy developments. The results of several of these projects were presented at international and local conferences.

12. STATEMENT OF INDEPENDENCE

I, Jaco van der Walt as duly authorised representative of Heritage Contracts and Archaeological Consulting CC, hereby confirm my independence as a specialist and declare that neither I nor the Heritage Contracts and Archaeological Consulting have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which the client was appointed as Environmental Assessment practitioner, other than fair remuneration for work performed on this project.



SIGNATURE:

13. REFERENCES

- Almond, J. 2011. Proposed Mainstream wind farm near Loeriesfontein, Namaqua District Municipality, Northern Cape Province. Unpublished report.
- Beaumont, P.B., Smith, A.B. & Vogel, J.C. 1995. Before the Einiqua: the archaeology of the frontier zone. In: Smith, A.B. (ed.) Einiqualand: Studies of the Orange River Frontier: 236-264. Cape Town: UCT Press.
- Fourie, W. 2011. Heritage impact assessment: concentrated solar power EIA – Kaalspruit. Unpublished report submitted to SAHRA
- Lombard, M. 2011. Background to the Stone Age of the Kakamas/Keimoes area for CRM purposes. Unpublished report.
- Möller, G.S.J. 1988. *Loeriesfontein. 1860-1987*. Loeriesfontein: Kerkraad van die Ned. Geref. Gemeente.
- Morris, D. 2007. Archaeological specialist input with respect to the upgrading railway infrastructure on the Sishen-Saldanha ore line in the vicinity of Loop 7a near Loeriesfontein. Unpublished report submitted to SAHRA.
- Morris, D. 2010. Specialist input for the scoping phase of the environmental impact assessment for the proposed Pofadder Solar Thermal Facility, Northern Cape Province. Unpublished report submitted to SAHRA.
- Morris, D. 2013. Khobab Wind Energy Facility: Power Line Route Options, Access Road And Substation Positions Specialist Input For The Environmental Basic Assessment And Environmental Management Programme For Proposed Power Line Options For The Loeriesfontein 1 Wind & Loeriesfontein 3 Solar Energy Facility At Sous And Aan De Karee Doorn Pan, North Of Loeriesfontein, Northern Cape Province
- Mucina, L. & Rutherford, M.C. 2006. The vegetation map of South Africa, Lesotho and Swaziland. SANBI, Pretoria.
- National Heritage Resources Act NHRA of 1999 (Act 25 of 1999)
- Orton 2014. J. Heritage Impact Assessment for the proposed re alignment of the authorised 132 Kv Power Line for the Loeriesfontein 2 Wind Energy Facility, Calvinia Magisterial District, Northern Cape.
- SAHRA Report Mapping Project Version 1.0, 2009
- SAHRIS (referenced 2017)
- Van der Walt, J. 2011. Heritage scoping report for the proposed solar energy facility close to Loeriesfontein, Northern Cape. Unpublished report submitted to SAHRA.
- Van der Walt, J. 2012. Archaeological Impact Assessment report for the proposed solar energy facility close to Loeriesfontein, Northern Cape. Unpublished report submitted to SAHRA.
- Van der Walt, J. 2017. The proposed Helios 50kv Powerline near Loeriesfontein, Hantam Local Municipality of the Namakwa District, Northern Cape.
- Van der Walt, J. 2017. Heritage Walkthrough for Phase 2 and 3 of the proposed Hantam PV Solar Solar Energy Facility on the farm Narosies 228 North of Loeriesfontein, Northern Cape Province

Van Schalkwyk, J. 2011. Heritage scoping assessment for the proposed establishment of four wind farms by Mainstream Renewable Power in the Northern and Eastern Cape Provinces. Unpublished report submitted to SAHRA.

Webley, L. and Halkett, D. 2012. Heritage Impact Assessment Proposed Loeriesfontein Photo Voltaic Plant on Portion 5 of the farm Klein Rooiberg 227. Northern Cape Province. Unpublished report.