Heritage Walkthrough

FOR THE PROPOSED CONSTRUCTION OF THE GAROB WIND ENERGY FACILITY ON PORTION 5 OF THE FARM NELS POORTJE 103, COPPERTON, NORTHERN CAPE PROVINCE

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EXECUTIVE SUMMARY

Site name and location: Garob wind energy power generation facility and associated infrastructure on portion 5 of the farm Nelspoortje 103, Northern Cape Province

Purpose of the study: Heritage Walk through of the proposed development to determine the presence of cultural heritage sites and the impact of the proposed infrastructure on these non-renewable resources.

1:50 000 Topographic Map: 2922 CD.

EIA Consultant: Savannah Environmental (Pty) Ltd

Developer: Enel Green Power SA

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

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Date of Report: 21 October 2015 Revised 28 October 2015

Findings of the Assessment:

The impacts to heritage resources by the proposed development are considered to be low. Six heritage features were recorded during the walk through of the infrastructure for the project. These consist of 3 locations where stone cairns were recorded and 3 LSA sites. None of the sites will be directly impacted on by tower positions or infrastructure but a secondary impact is possible during the construction phase of the project. Therefore some recommendations are made to protect the sites from accidental damage during the construction phase of the project and are discussed in Section 8 of this report.

No cultural landscape elements were noted. An independent visual assessment was conducted as part of the EIA for the project and therefor visual impacts are not addressed as part of the walk through.

No red flags were identified during the walk through of the project and if the recommendations made in this report are adhered to and based on the approval from SAHRA we are of the opinion that the project can proceed.

Disclaimer: *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.*

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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
EMPR: Environmental Management Programme
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
SAHRIS: South African Heritage Resources Information System

**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 (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

1. BACKGROUND INFORMATION

Heritage Contracts and Archaeological Consulting CC has been contracted by Red Cap Investments on behalf of Garob wind Farm (Pty) Ltd to conduct a heritage walkthrough for the proposed Garob wind energy project, located close to Copperton in the Northern Cape Province. The report forms part of the Environmental Management Programme (EMP) for the proposed project.

The aim of the study is to survey the proposed tower positions and all associated infrastructure to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard 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. It is also conducted to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

The report outlines the approach and methodology utilized before and during the survey, which includes: Phase 1, review of the HIA for the proposed project; Phase 2, the physical surveying of the area on foot and by vehicle; Phase 3, reporting the outcome of the study.

During the survey six heritage features were identified. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report.

This report must also be submitted to SAHRA for review.

1.1 Terms of Reference

Field study

Conduct a field study to:

a) visit the proposed

- tower positions (incl. foundations) and hardstands covering 150 m x 100 m area
- roads (incl. underground electrical cable routes & temporary access roads) covering a 40 m wide corridor
- substation & site camp areas
- Loop in loop out overhead electrical cable route between substation & existing Cuprum line
- Overhead cable route from structure on existing Cuprum line just east of loop in loop out connection through to Cuprum Substation

to locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest;

b) record GPS points of identified as significant areas;

c) determine the levels of significance of the various types of heritage resources affected by the proposed towers.

Reporting

Report on the identification of anticipated and cumulative impacts the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project; i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with the relevant legislation and the code of ethics and guidelines of ASAPA.

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

1.2. Archaeological Legislation and Best Practice

Phase 1, an AIA or a HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of a heritage specialist input is to:

- » Identify any heritage resources, which may be affected;
- » Assess the nature and degree of significance of such resources;
- » Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- » Assess the negative and positive impact of the development on these resources;
- » Make recommendations for the appropriate heritage management of these impacts.

The AIA or HIA, as a specialist sub-section of the EIA, is required under the National Heritage Resources Act NHRA of 1999 (Act 25 of 1999), Section 23(2) (b) of the NEMA and Sections 39(3) (b) (iii) of the MPRDA.

The AIA should be submitted, as part of the EIA, BIA or EMP, to the PHRA if established in the province or to SAHRA. SAHRA will be ultimately responsible for the professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 AIA reports and additional development information, as per the EIA, BIA/EMP, to be submitted in duplicate to SAHRA after

completion of the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level).

Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with SAHRA. ASAPA is a legal body, based in South Africa, representing professional archaeology in the SADC region. ASAPA is primarily involved in the overseeing of ethical practice and standards regarding the archaeological profession. Membership is based on proposal and secondment by other professional members.

Phase 1 AIAs are primarily concerned with the location and identification of sites situated within a proposed development area. Identified sites should be assessed according to their significance. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by SAHRA, are to be used as guidelines in the developer's decision making process.

Phase 2 archaeological projects are primarily based on salvage/mitigation excavations preceding development destruction or impact on a site. Phase 2 excavations can only be conducted with a permit, issued by SAHRA to the appointed archaeologist. Permit conditions are prescribed by SAHRA and includes (as minimum requirements) reporting back strategies to SAHRA and deposition of excavated material at an accredited repository.

In the event of a site conservation option being preferred by the developer, a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement.

After mitigation of a site, a destruction permit must be applied for from SAHRA by the client before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5]) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation. If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare.

Authorisation for exhumation and reinternment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. To handle

and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

1.3 Description of Study Area

1.3.1 Location Data

The proposed development will be located on portion 5 of the farm Nelspoortje 103 to the west of Prieska in the Northern Cape Province (Figure 1). The site is bordered by the 357 provincial road to the south and an Eskom power line traverses the site from east to west in the northern portion of the study area. There are various drainage lines draining the study area all flowing in a south westerly direction. No major landscape features like pans or hills occur on site although some small ridges are found in the western and northern portions of the study area. The vegetation is predominantly Bushmanland Arid Grassland vegetation in the Nama-Karoo biome (Mucina & Rutherford 2006) which consists of Karoo scrub and grass and a few isolated *Acacia Karoo* trees. Historical imagery on Google earth indicates that the land has been fallow for a number of years and mostly used for grazing.

1.3.2. Location Map

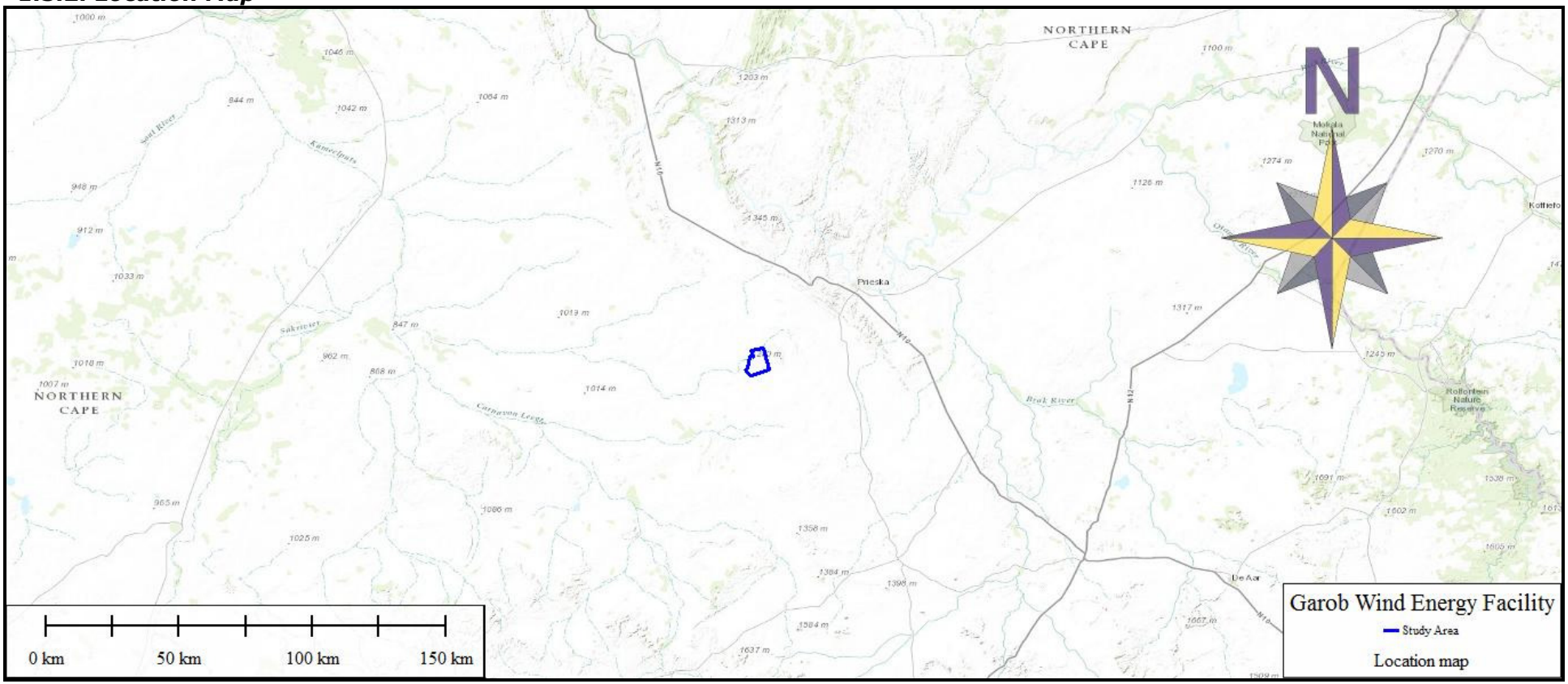


Figure 1: Locality Map

2. APPROACH AND METHODOLOGY

The methodology used for a walk through is different to the methodology for projects where AIA's or HIA's are needed. A scoping report (Van der Walt 2012a) was compiled as part of the EIA and subsequently an AIA (van der Walt 2012b) was conducted. For the EMPr for the project a heritage walk through survey is now required as the layout of the facility changed slightly from that assessed in the EIA. Since the initial HIA for the project dealt with obtaining desktop information to contextualise the study area, this is not repeated during the walk through phase. However to understand the heritage context of the study area the following phased approach was utilised for this project.

2.1 Phase 1

Phase 1 included a studying the scoping study conducted for the project (Van der Walt 2012a) as well as thee AIA (van der Walt 2012b). This was complimented by consulting previous CRM reports (SAHRIS) conducted in the area after the report was done. 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.

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located; these locations were marked and visited during the field work phase. The database of the Genealogical Society was consulted to collect data on any known graves in the area.

2.2 Phase 2 - Physical Surveying

A field survey of the 55 towers (incl. foundations) and hardstand areas covering 150 m x 100 m, loop in loop out connection from substation to existing overhead Cuprum power line, existing overhead Cuprum cable route from structure just east of loop in loop out tie in point to Cuprum Substation, substation, switching station, site camps and r o a d access routes (incl. cable trenches & temporary roads) covering 40 meter corridor was conducted by a group of specialists (ecologist, engineers etc.) who assisted in locating graves sites and sites of archaeological significance. The heritage component focused on the proposed infrastructure while giving special attention to drainage lines, hills and outcrops, high lying areas and disturbances in the topography. The proposed tower positions and infrastructure were surveyed on foot by a professional archaeologist from the 14th to 16th October 2015.

Sites recorded was plotted on 1:50 000 maps and their GPS co-ordinates noted. Digital photographs were taken at all the sites.

2.3. Restrictions

Due to the fact that most cultural remains may occur below surface, the possibility exists that some features or artefacts may not have been discovered/ recorded during the survey. Thick vegetation in certain portions restricted accessibility to infrastructure as well as archaeological visibility. Only the proposed development footprint was surveyed as indicated in the location maps, and not the entire farm. A 40 meter corridor for the roads was assessed. This study did not assess living or intangible heritage.

The description of the proposed project and deviations from the areas initially investigated, provided by the client, is assumed to be accurate as well as the results of the van der Walt 2012a & b studies. Although Heritage Contracts and Archaeological Consulting CC surveyed the area as thoroughly as possible, it is incumbent upon the developer to stop operations and inform the relevant heritage agency should further cultural remains, such as stone tool scatters, artefacts, bones or fossils, be exposed during the process of development. Any changes or deviations to the layout will have to be assessed separately.

3 NATURE OF THE DEVELOPMENT

The proposed wind energy facility will have a maximum generating capacity of 135 MW. The following associated infrastructure (Figure 6) is part of the project proposal and were assessed during the AIA:

- 55 Wind Turbines of between 2 – 3 mw in capacity.
- Concrete foundations to support the turbines.
- Cabling between the turbines, to be laid underground where practical.
- An on-site substation and switching station to facilitate the connection between the wind energy and the electricity grid.
- An overhead power line.
- Internal access roads to each turbine.
- Workshop/ area of control, maintenance and storage area.

4. ARCHAEOLOGICAL AND CULTURAL HISTORIC BACKGROUND

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 farm Nelspoortje No. 103 is located. Sources included secondary source material, maps and archival documents. Although many sources exist on the history of towns and districts, it is often difficult to compile histories that focus on very specific parts of the area, such as individual farms. No documents could be found in the National Archives of South Africa that specifically refer to this farm.

4.1. A Brief History of Human Settlement And Black And White Interaction In The Copperton Area

In order to understand the historical context of a certain area, it is necessary to consider the geographic and climatic nature of the region in question. The town of Copperton is located in a region in South Africa known as the Upper Karoo. One gets a good idea of what the natural landscape in the Upper Karoo was like between the late 1700s and early 1800s when one reads the transcripts of some of the early European travellers who passed through the area. One C. J. Skead compiled a book in which many of these texts are assembled. In November 1900, the traveller W. Somerville wrote about the Groot Riviers Poort, or Prieskapoort, 10km south of Prieska and therefore not very far from Copperton. He noted that grasslands and thorn trees covered the landscape, but that no tree was to be seen. When he neared the Orange River, he noted that the banks were covered with wood, but only along the margin of the river. These were mainly willow and karee trees. Along the tributary streams were thorn trees (Skead 2009: 87).
Exactly one year later, One P. B. Borcherds wrote about the Grootrivierpoort at Prieska, making similar remarks about the flora as Somerville did. He also noted that the *poort* at the entrance to the Orange River was known by the "natives" under the name of t'Gariep. When this traveller passed along the banks of the Orange River near Prieska in the same year, he made notes on the Bushmen, who were still present in the area at that time. Regarding the manufacturing of bows and arrows by the Bushmen, he noted that the wood of the bow was of a type of tree commonly known as *caree boomen,* which was very tough and pliable. The arrows were made of a type of reed fairly common along all springs and river flowing there, known as *fluitjies riet*.

The Bushmen apparently used the poison of venomous plants and poison extracted from the fangs of snakes to smear on their arrow points. These people also found sustenance in a type of small bulb, commonly called *mans uitjies* by the Khoikhoi, which were described to be the size of small marbles and not unpleasant in taste (Skead 2009: 87-88).

In September 1822, W. J. Burchell passed through Prieska, as well as the area to the south and southwest thereof. Some 50km southwest of Prieska, he found a large muddy dam, which was situated in a very extensive hollow flat. This would become a lake in the rainy season. There was apparently still some clean water to be found. The area around this was hard and dry, and plentifully strewed with stones and low shrubs. Burchell passed through Prieska to the Orange River in the same month. He noted that none of the bushes exceeded a foot in height. Nearer to the Orange River, the travelling party found a group of Khoikhoi camped in a grove.

By 1903, Copperton was located in an area in which the annual rainfall measured between 10 and 20 inches, and was therefore quite arid. The farm area is located in a summer rainfall region. By the early 1900s, the Prieska district, in which Copperton would be located, could not be considered a very agriculturally active area. Only between 25 and 50 sheep were kept per square mile, and only between 2 and 5 heads of cattle. The area where Copperton was later founded would have been too dry and too far from the Orange River to allow for the growing of crops (Burton 1903: 40; 256).
The farm Nelspoortje No. 103 is located in close proximity of the small town of Copperton, and the history of this town is therefore of importance. On 16 November 1991, an article was published in *Die Burger* with regards to the town Copperton. It was asserted that the old deserted Northern Cape mining town would be developed and populated as a "Volkstaatsdorp" (city state / Volkstaat town) by the Oranje Development Corps. It was said that Copperton would then be the second Volkstaat town in South Africa that had been developed exclusively to be inhabited by whites. Earlier that year, Orania had been developed as such a town. Though the town of Copperton had been abandoned at the time, a business centre, primary school, nursery school, an office development and a drive-in theatre had been developed. About 50% of the town's streets were tarred (Anon 1991: 2).

In November 1991, the Weekend Argus also published an article regarding the development of Copperton as an Orania-like town. It was noted that the 300 hectares mine area near the town would be used for industrial development, and that agriculture, as well as light industry such as steel, rubber and textile industries, were expected to be developed in the town. It could not be ascertained whether this town was eventually developed in this way (Anon 1991: 5).
In an article in the Patriot, dated December 1995, some background information is given on the history of the town of Copperton. This town is not very old, as it was only developed in 1972 with the establishment of a copper mine in the area. The mine closed in 1992, and Copperton was sold to a private person, on the condition that the houses in the town would be demolished. About 300 houses were broken down, when it was decided that some homes would be kept in order to develop a retirement town. These houses were apparently solidly built, with stone walls and corrugated roofs. It was noted that the area was very sparsely populated, and that the farmers in the area farmed with sheep. Next to the Orange River, maize and grapes were planted. It was noted that the closest hospitals were located at Prieska, some 35 to 40 minutes' drive from Copperton, and linked with a tarred road (Anon 1995: 4).

4.2. Historical Overview of the study area.

Unfortunately, no documents referring to this farm could be found at the National Archives of South Africa. It is however possible to draw some conclusions with bits and pieces of information that could be found elsewhere.

It seems that the Messrs. Loots applied to buy the farm Nelspoortje, at that time known as Lot 4826 and located in the Prieska district, between 1889 and 1890 (Cape Town Archives Repository *KAB, LND: 1/327 L3329).*

Unfortunately, for the purpose of this report it was not possible to find records with regards to the ownership of Nelspoortje from the late 1800s onwards. It is likely that such records will be available in the Cape. It was however found that one Gideon Bertus Jacobs became the owner of Portion 6 of the farm in 1981 (Deeds Office Property 2012).

Beaumont *et al.* (1995: 240) observed that "thousands of square kilometres of Bushmanland are covered by a low density lithic scatter". These artefacts are generally very well weathered and mostly pertain to the ESA and MSA. Occasional LSA artefacts are also noted. What is noteworthy of the Northern Cape archaeological record is the presence of pans which frequently display associated archaeological material. Of interest here is the work of Kiberd (2001, 2005, 2006) who excavated Bundu Pan, some 25 to 30 km northwest of Copperton. The site yielded ESA, MSA and LSA horizons and the artefacts were accompanied by warthog and equid teeth to name a few (Beaumont *et al.* 1995).

Orton (2011) noted that to the northwest, west and southwest of Copperton sites have been investigated by Beaumont and colleagues (1995), Smith (1995a) and Parsons (2003, 2004, 2007, 2008) yielding LSA deposits. Work on these sites led to a distinction between hunter-gatherer and herder sites, based on stone artefact assemblages (Beaumont *et al.* 1995). All these Later Stone Age sites have very few, if any, organic items on them. The only organic material found on sites like these is fragments of ostrich eggshell probably belonging to broken water containers. Such flasks have been widely recorded across the Northern Cape (Morris 1994).

Two previous heritage studies were conducted to the west of the study area (SAHRA report mapping project V1.0) by K van Ryneveld (2006 a,b,c). More recently J Orton (2012) conducted a study to the south west of the study area on the farm Hoekplaas and Wiltshire (2011) on portion 3 and 4 of the farm Nelspoortjie (now called Vogelstruisfontein). Recently a study (Ndlovu & Magoma 2013) was conducted on a very large area to the east of the current study area for Zinc prospecting but surprisingly found no Stone Age material. All the other studies recorded ESA, MSA and LSA artefacts scattered over the landscape with MSA and LSA sites centred around pans. Orton also recorded stone walled enclosures.

5. 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, or a representative sample, depending on the nature of the project. In the case of the proposed power line the local extent of its impact necessitates a representative sample and special attention was given to the proposed tower positions. 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. The following criteria were used to establish site significance:

- The unique nature of a site;
- The integrity of the archaeological/cultural heritage deposits;
- 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/is known);
- The preservation condition of the sites;
- Potential to answer present research questions.

Furthermore, The National Heritage Resources Act (Act No 25 of 1999, Sec 3) distinguishes nine criteria for places and objects to qualify as 'part of the national estate' if they have cultural significance or other special value. These criteria are:

- Its importance in/to the community, or pattern of South Africa's history;
- Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- Sites of significance relating to the history of slavery in South Africa.

5.1. Field Rating of Sites

Site significance classification standards prescribed by SAHRA (2006), and approved by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 8 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

6. WALK THROUGH FINDINGS-DESCRIPTION OF SITES

This report deals with the heritage walk through of the proposed Garob Wind Energy Facility. Although the facility was assessed during the EIA phase for the project, a walkthrough of the facility is required as the layout of the facility changed slightly from that assessed in the EIA, with four towers that were moved, this was also a condition of the EA (Table 1). A further five towers were moved during the walkthrough subsequent to recommendations made by the specialists.

Table 1: Numbers of towers (new numbering system) that were relocated

WTG No	Distance Moved (centre to centre)
WTG11	50 m
WTG25	60 m
WTG31	17 m
WTG33	50 m
WTG 26	50 m
WTG 39	5 m
WTG 44	25 m
WTG 45	11 m
WTG 46	20 m

During the initial AIA (van der Walt 2012b) for the project ten sites were recorded consisting of seven Stone Age sites (Site 1, 3, 4 5, 7, 8, and 10) a stone kraal (Site 2 that is a no-go area in development with a 100m buffer from the kraal wall) and 2 historical sites consisting of porcelain, glass and metal artefacts (Site 6) as well as historical/ recent exploration or quarrying (Site 9). The layout of the proposed facility was designed to preserve all these sites *in-situ* and towers and infrastructure were placed away from these sites so that **no impact** will occur on these sites.

From previous work on the farm (van der Walt 2012b) Stone Age material is expected scattered in varying densities throughout the study area, this was corroborated during the current walkthrough. Low density scatters in the study area (between 3 - 5 artefacts per m²) are regarded as back ground scatter and were not recorded during the walk though as this was done during the AIA. Most of the towers are located on high lying areas like quartzite ridges (Figure 2) and elevated areas where gravel and hard packed (deflated) Aeolian sand is found on top of a calcrete layer (Figure 3) and no archaeological deposit occur in these areas.

During the walk through for the project 6 heritage features were recorded (Figure 6) in areas **not covered** in the initial AIA. These consist of stone cairns and ephemeral LSA camps; please refer to section 6.2 for site descriptions. No ESA/MSA knapping or quarry sites were recorded although the above mentioned LSA ephemeral camps were recorded in lower lying areas where deeper Aeolian sand occurs. All recorded occurrences were given a field number (Table 2). GPS points were taken at such places and selections of artefacts were photographed.

The study area is characterised by gravel and hard packed (deflated) Aeolian sand on top of a calcrete layer in most of the study area. In these areas MSA tools on the locally available quartzite and quartz are found in abundance with LSA material (to a lesser degree) on CCS. MSA artefacts consisted of large flakes, radial and bipolar cores, points, end scrapers, large utilized and retouched blade tools, and utilized and retouched flakes. Localised MSA quarries exploiting quartz outcrops, quartzite ridges, bedrock and boulders is a widespread occurrence with numerous quarries recorded in the area (Wiltshire 2011; van der Walt 2012) although none is recorded in the development footprint. LSA tools (scrapers, retouched and

utilised flakes, blades and small round cores) were found in comparatively fewer concentrations compared to the MSA tallies.

Where the Aeolian sand overlay the calcrete, artefact counts drastically drop although the odd tool was observed in these areas. In these areas vegetation is also much higher with grasses and shrubs standing 50-70 cm high hampering archaeological visibility. In these areas 3 LSA sites were recorded. The area of deep Kalahari sands and calcrete exposures is easily visible on Google.

A track log of the areas covered during the survey is included in Annexure B. Although the vegetation is very thick on some portions of the study area, most areas have better visibility and it was possible to visit all the towers physically or to get close enough to assess the towers visually.

Figure 2. Location of WTG 46 on Quartzite ridge.

Figure 3. Calcrete and gravel characterising the study area.

Figure 4. Range of artefacts and raw material. Scale in cm.

Figure 5. Deep Kalahari sand in lower laying areas.

6.1. Site Distribution Map

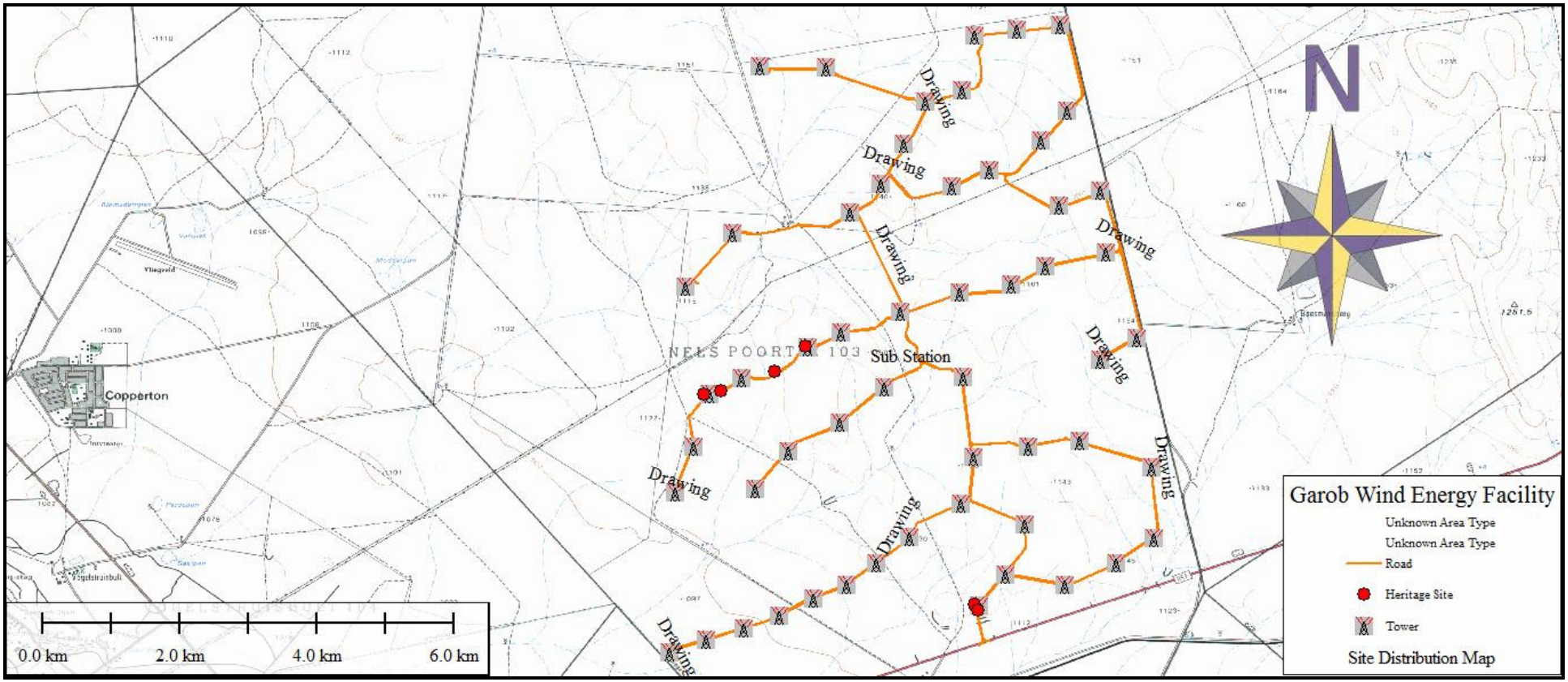


Figure 6: Site distribution map.

Table 1: Identified heritage features with Coordinates

Field Number	Type Site	Cultural Markers	Coordinate (accuracy 4 meters)	Impact
167	Recent/historic	Stone cairn	29° 57' 03.3228" S 22° 25' 20.6795" E	Secondary impact from construction of tower WTG 40
169	Recent/historic	Stone cairn	29° 57' 06.2495" S 22° 25' 21.9864" E	Secondary impact from construction of tower WTG 40
186	Recent/historic	Stone cairn	29° 55' 02.0000" S 22° 24' 01.0001" E	Secondary impact from construction of road
171	LSA	Ostrich eggshell fragments, ceramics and lithics	29° 55' 13.4112" S 22° 23' 46.2516" E	Secondary impact from construction of road
172	LSA	Ostrich eggshell fragments and lithics	29° 55' 22.7280" S 22° 23' 21.1057" E	Secondary impact from construction of tower WTG 40
173	LSA	Ostrich eggshell fragments and lithics	29° 55' 24.4091" S 22° 23' 13.2252" E	Secondary impact from construction of tower WTG 17

6.2. Feature Descriptions

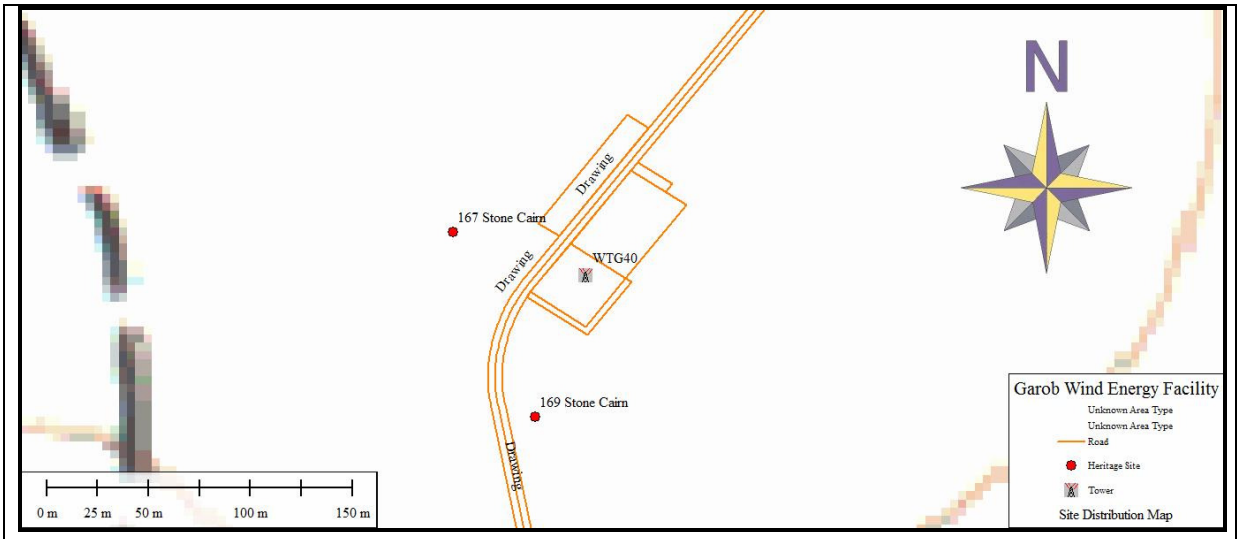
6.2.1. Field Number 167, 169 and 186 – Stone Cairns

Field Number	167, 169 and 186
Type of Site	Recent/historic
Geographical Setting	High lying areas e.g. quartzite ridges
Site Components	Unknown
Describe any disturbance to the site	None
Threats or sources of risk on the site	Sheet erosion
Description and type of artefacts, approximate age and significant features of the site (Raw material, source of raw material, density).	**167** consist of a circular stone cairn of approximately 1 meter in diameter and 30 cm high. **169** consist of a smaller stone cairn measuring 60 cm in diameter and 10 cm high. **186** consist of three stone cairns placed in a line. The largest cairn measures approximately 2 meters wide an 80cm high. The other two cairns are much smaller and measure less than a meter in diameter and approximately 40 cm high.
Estimation or measurement of site extent	Each feature is localized with no other cultural material.
Depth and stratification of the site	None visible and none expected as the features are located on ridges with very little soil substrata.

Figure 7: Feature 167

Figure 8: Feature 169

 Figure 9: Large cairn at feature 186	 Figure 10: Smaller cairn at feature 186
Statement of Significance	The purpose of the cairns is unknown, but it is assumed that it is related to activities such as building or the remnants of exploration activities that took place in the recent past and would then be of Low Significance. Worst case scenario these cairns could mark informal graves (but is unlikely) and would then be of high significance.
Field Rating (Recommended grading or field significance) of the site:	Generally Protected B (GP.B),
Impact Evaluation of development on site	Secondary impact by tower TWG 40 on feature 167 and 169 Secondary impact by tower TWG 18 on feature 186



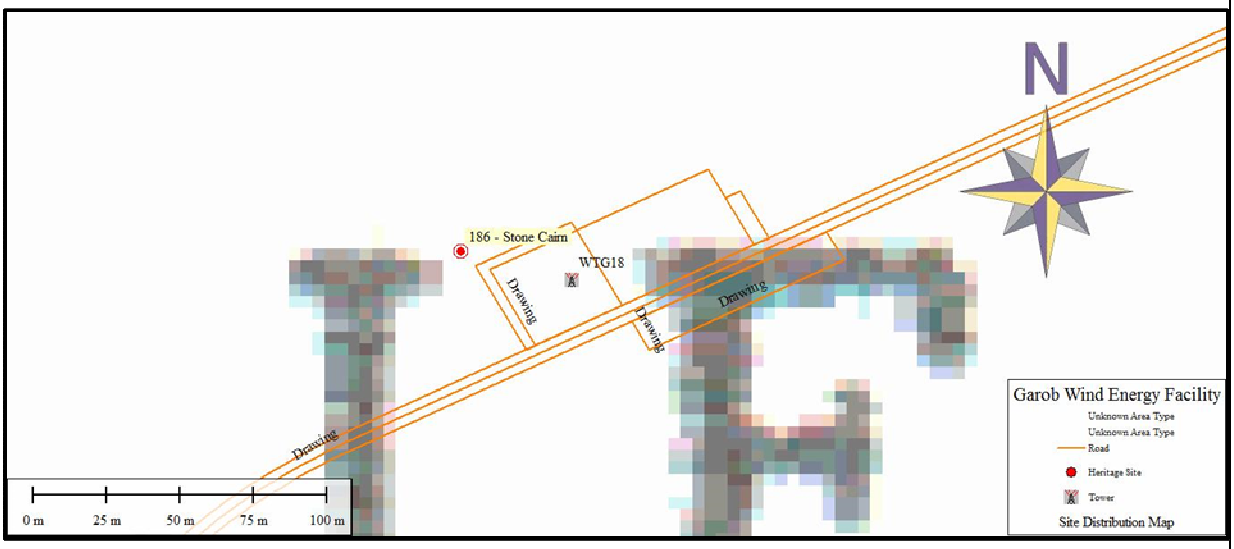


Figure 11 a and b: Location of features 167 and 169 in relation to WTG 40 and 186 in relation WTG18

Recommendations	Feature 169 and 167 should be demarcated from the construction area with at least a 15 m buffer zone. Due to environmental constraints only a 5 meter buffer is possible for Feature 186 to protect against damage during construction.

6.2.2. Field no 171, 172 173 – Ephemeral LSA

Field Number	171, 172 and 173
Type of Site	Archaeological
Geographical Setting	Low laying areas characterised by thick Kalahari sand
Current Condition of site	Pristine
Description and type of artefacts, approximate age and significant features of the site.	The sites are marked by a low density scatter (> 4 artefacts per m²) of lithics consisting mostly of miscellaneous flakes and scrapers on quartzite and CCS. Unworked ostrich eggshell is found scattered around the sites and all of them are marked by Shepherd's trees. At Field number 171 one thin walled ceramic piece was recorded. There is not sufficient surface material to date the site to the Springbokoog, Swartkop or Doornfontein industries, LSA sites however date to younger than 30 000 years ago.
Estimation or measurement of site extent	Each site measures approximately 6x4 meters.
Depth and stratification of the site	Unknown

Figure 12: Artefacts from field number 171. Scale is in 10cm

Figure 13: Site viewed from the south east.

Figure 14:Artefacts from field number 172

Figure 15: Shepherds tree from field number 173 marking sites

Statement of Significance	Medium Significance
Field Rating (Recommended grading or field significance) of the site:	Generally Protected B (GP.B)
Impact Evaluation of development on site	Secondary impact by road between TWG Alt 14 and 17 on feature 172. Secondary impact by road between TWG Alt 14 and 18 on feature 171. Secondary impact by TWG 17 on feature 173

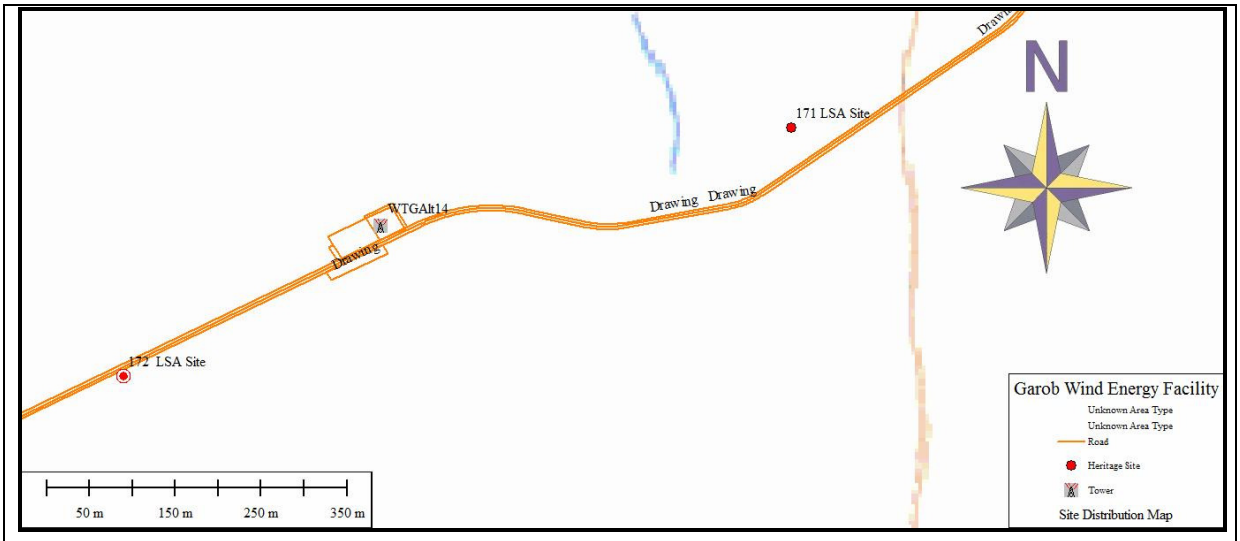


Figure 16: Field number 171 and 172 in relation to infrastructure

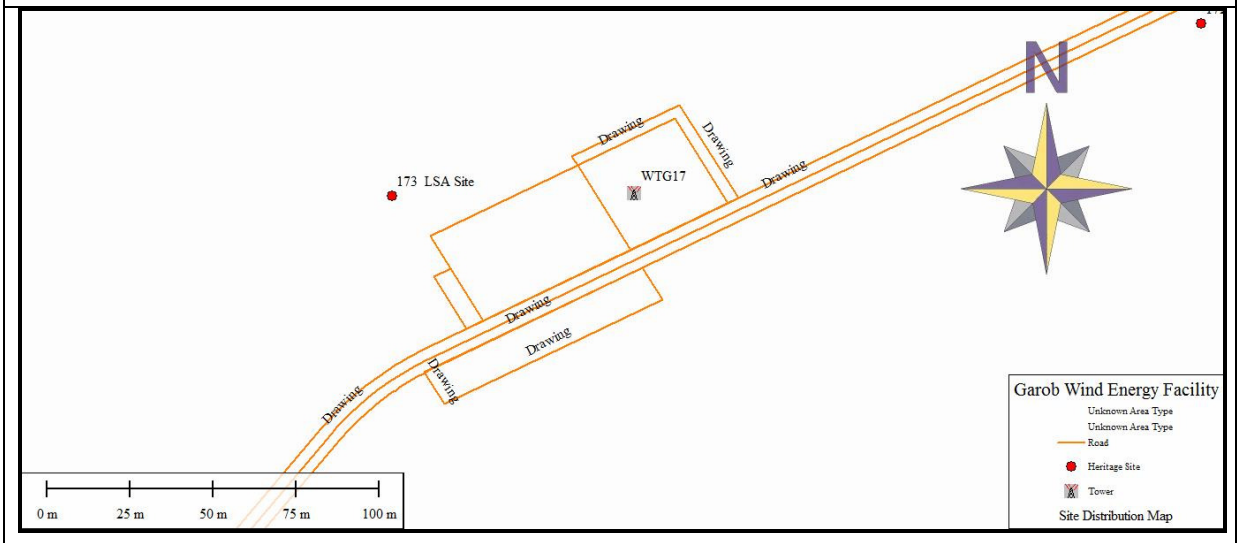


Figure 17: Field number 173 in relation TWG 17

Recommendations	173 Should be demarcated from the construction area with a 10 m buffer to protect it from damage during construction

7. Potential Impact

7.1. Pre-Construction phase:

It is assumed that the pre-construction phase involves the removal of topsoil and vegetation as well as the establishment of road infrastructure needed for the construction phase. These activities can have a negative and irreversible impact on all of the recorded heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

7.2. Construction Phase

During this phase the impacts and effects are similar in nature but more extensive than the pre-construction phase. These activities can have a negative and irreversible impact on all of the recorded heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

7.3. Operation Phase:

No impact is envisaged for the recorded heritage resources during this phase.

8. CONCLUSIONS AND RECOMMENDATIONS

This report deals with the heritage walk through of the proposed Garob Wind Energy Facility. Although the facility was assessed during the EIA phase for the project (van der Walt 2012b) a walkthrough of the facility is required as the layout of the facility changed slightly from that assessed in the EIA with four towers that were moved. During the initial AIA (van der Walt 2012b) for the project ten sites were recorded consisting of seven Stone Age sites (Site 1, 3, 4 5, 7, 8, and 10) a stone kraal (Site 2 that is a no-go area in development with a 100 m buffer from the kraal wall) and 2 historical sites consisting of porcelain, glass and metal artefacts (Site 6) as well as historical/ recent exploration or quarrying (Site 9). The layout of the proposed facility was designed to preserve all these sites *in-situ* and towers and infrastructure was placed away from these sites so that no impact will occur on these sites.

The study area is characterised by low density stone tool scatters (between 3 - 5 artefacts per m²) and the scatters are regarded as back ground scatter and are of low significance. However distinct sites do occur and 6 heritage features were recorded in areas **not covered** in the initial AIA. These consist of stone cairns (field number 167, 169 and 186) and ephemeral LSA camps (field number 171, 172 and 173).Please refer to Table 3 for management actions for the recorded features.

Due to the subsurface nature of archaeological material and unmarked graves the possibility of the occurrence of unmarked or informal graves and subsurface finds cannot be excluded. If during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find and therefor chance find procedures should be put in place as part of the EMP. A short summary of chance find producers is discussed below.

Chance finds procedure

This procedure applies to permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.

- If during the construction, operations or closure phases of this project, any person employed by Eskom, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area.
- The senior on-site Manager will inform the ECO of the chance find and its immediate impact on mine operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

If the recommendations as made in section 8 of this report are adhered to (subject to approval from SAHRA) there is from an archaeological point of view no reason why the proposed project should not proceed.

9. PROJECT TEAM

Jaco van der Walt, Project Manager and Archaeologist

Table 2. Heritage Summary and Management Measures

TURBINE COORDINATE LIST					Heritage Feature	Recommended Mitigation
	WGS 84 LO 23 EAST		UTM ZONE 34S			
Name	X	Y	Northing	Easting		
WTG1	3,307,030.66	58,518.59	6,693,630.00	634,638.00	No feature recorded	No pre construction mitigation necessary
WTG2	3,307,045.03	57,677.03	6,693,601.00	635,479.00	No feature recorded	No pre construction mitigation necessary
WTG3	3,310,220.83	59,437.44	6,690,457.00	633,664.00	No feature recorded	No pre construction mitigation necessary
WTG4	3,309,453.24	58,845.58	6,691,214.00	634,269.00	No feature recorded	No pre construction mitigation necessary
WTG5	3,309,139.38	57,365.49	6,691,502.00	635,754.00	No feature recorded	No pre construction mitigation necessary
WTG6	3,308,142.22	56,687.59	6,692,487.00	636,449.00	No feature recorded	No pre construction mitigation necessary
WTG7	3,307,526.19	56,411.21	6,693,098.00	636,736.00	No feature recorded	No pre construction mitigation necessary
WTG8	3,306,566.29	55,803.68	6,694,047.00	637,360.00	No feature recorded	No pre construction mitigation necessary
WTG9	3,306,404.34	54,717.11	6,694,190.00	638,449.00	No feature recorded	No pre construction mitigation necessary
WTG10	3,308,519.49	55,602.64	6,692,091.00	637,527.00	No feature recorded	No pre construction mitigation necessary
WTG11	3,308,089.17	54,955.63	6,692,509.91	638,181.26	No feature recorded	No pre construction mitigation necessary
WTG12	3,307,654.18	54,625.35	6,692,939.00	638,519.00	No feature recorded	No pre construction mitigation necessary

WTG15	3,313,209.95	59,552.44	6,687,471.00	633,497.00	No feature recorded	No pre construction mitigation necessary
WTG16	3,312,546.72	59,323.91	6,688,130.00	633,737.00	No feature recorded	No pre construction mitigation necessary
WTG17	3,311,784.03	59,128.12	6,688,889.00	633,946.00	173 is located close to the tower	173 Should be demarcated from the construction area with a 10 m buffer to protect it from damage during construction. The site should be preserved *in situ* and indicated on development plans of the project.
WTG18	3,311,098.06	57,880.60	6,689,553.00	635,205.00	186 and 171 in road	186 should be demarcated from the construction area with a 5 m buffer to protect it from damage during construction. 171 should be demarcated from the construction area with a 15 m buffer to protect it from damage during construction. The sites should be preserved in situ and indicated on development plans of the project.
WTG19	3,310,584.62	56,717.11	6,690,046.00	636,377.00	No feature recorded	No pre construction mitigation necessary
WTG20	3,310,297.47	55,967.84	6,690,320.00	637,131.00	No feature recorded	No pre construction mitigation necessary

WTG21	3,310,177.22	55,323.70	6,690,429.00	637,777.00	No feature recorded	No pre construction mitigation necessary
WTG22	3,309,032.46	54,728.41	6,691,563.00	638,392.00	No feature recorded	No pre construction mitigation necessary
WTG23	3,308,812.29	54,206.06	6,691,774.00	638,918.00	No feature recorded	No pre construction mitigation necessary
WTG24	3,309,697.29	54,130.63	6,690,888.00	638,978.00	No feature recorded	No pre construction mitigation necessary
WTG25	3,313,147.15	58,534.66	6,687,516.05	634,515.50	No feature recorded	No pre construction mitigation necessary
WTG26	3,312,603.93	58,128.47	6,688,052.00	634,931.00	No feature recorded	No pre construction mitigation necessary
WTG27	3,312,196.37	57,473.33	6,688,448.00	635,593.00	No feature recorded	No pre construction mitigation necessary
WTG28	3,311,676.51	56,918.17	6,688,958.00	636,157.00	No feature recorded	No pre construction mitigation necessary
WTG29	3,311,512.14	55,923.68	6,689,105.00	637,154.00	No feature recorded	No pre construction mitigation necessary
WTG30	3,311,256.83	54,187.51	6,689,330.00	638,894.00	No feature recorded	No pre construction mitigation necessary
WTG31	3,310,945.49	53,761.76	6,689,633.82	639,325.02	No feature recorded	No pre construction mitigation necessary
WTG32	3,315,534.71	59,602.96	6,685,148.00	633,406.00	No feature recorded	No pre construction mitigation necessary
WTG33	3,315,184.44	58,669.31	6,685,481.87	634,345.41	No feature recorded	No pre construction mitigation necessary
WTG34	3,314,743.98	57,799.07	6,685,907.00	635,223.00	No feature recorded	No pre construction mitigation necessary
WTG35	3,314,225.91	57,002.80	6,686,411.00	636,028.00	No feature recorded	No pre construction mitigation necessary

WTG36	3,313,843.50	56,585.32	6,686,786.00	636,452.00	No feature recorded	No pre construction mitigation necessary
WTG37	3,313,358.03	55,936.54	6,687,260.00	637,109.00	No feature recorded	No pre construction mitigation necessary
WTG38	3,312,677.18	55,787.34	6,687,938.00	637,270.00	No feature recorded	No pre construction mitigation necessary
WTG39	3,312,434.69	54,443.09	6,688,157.00	638,618.00	No feature recorded	No pre construction mitigation necessary
WTG40	3,314,834.45	55,700.73	6,685,780.00	637,319.00	Stone Cairn 167 and 169	Feature 169 should be demarcated from the construction area with a 15 m buffer zone and feature 167 with a 15 m buffer zone to protect against damage during construction. The sites should be preserved in situ and indicated on development plans of the project.
WTG41	3,314,386.71	55,380.42	6,686,222.00	637,647.00	no feature recorded	No pre construction mitigation necessary
WTG42	3,313,657.00	55,125.04	6,686,947.00	637,915.00	No feature recorded	No pre construction mitigation necessary
WTG43	3,314,529.64	54,627.66	6,686,066.00	638,397.00	No feature recorded	No pre construction mitigation necessary
WTG44	3,314,203.23	53,979.12	6,686,381.00	639,051.00	No feature recorded	No pre construction mitigation necessary
WTG45	3,313,836.76	53,500.34	6,686,739.00	639,536.00	No feature recorded	No pre construction mitigation necessary

WTG46	3,312,808.92	53,530.25	6,687,767.00	639,524.00	No feature recorded	No pre construction mitigation necessary
WTGAlt06	3,308,725.49	56,978.55	6,691,909.00	636,148.00	No feature recorded	No pre construction mitigation necessary
WTGAlt09	3,307,364.23	55,956.86	6,693,252.00	637,193.00	No feature recorded	No pre construction mitigation necessary
WTGAlt11	3,306,477.96	55,269.03	6,694,126.00	637,896.00	No feature recorded	No pre construction mitigation necessary
WTGAlt14	3,311,556.87	58,721.92	6,689,109.00	634,356.00	171 in road between WTGAlt 14 and WTG 18 Heritage feature 172 is located in road between WTG Alt 14 and WTG 17	The sites require small adjustments of the road in order to demarcated them from construction activities and prevent damage from construction activities to the sites. The sites should be preserved in situ and indicated on development plans of the project. . Due to environmental constraints only a 10 meter buffer is possible at this location.
WTGAlt16	3,310,875.75	57,465.31	6,689,768.00	635,624.00	No feature recorded	No pre construction mitigation necessary
WTGAlt20	3,309,901.63	54,893.34	6,690,697.00	638,212.00	No feature recorded	No pre construction mitigation necessary
WTGAlt33	3,315,351.66	59,144.98	6,685,323.00	633,867.00	No feature recorded	No pre construction mitigation necessary
WTGAlt34	3,314,985.56	58,229.02	6,685,673.00	634,789.00	No feature recorded	No pre construction mitigation necessary
WTGAlt39	3,312,521.02	55,091.81	6,688,082.00	637,968.00	No feature recorded	No pre construction mitigation necessary
WTGAlt50	3,308,744.76	56,073.89	6,691,874.00	637,052.00	No feature recorded	No pre construction mitigation necessary

WTGAlt58	3,314,537.57	57,378.51	6,686,106.00	635,647.00	No feature recorded	No pre construction mitigation necessary

10. STATEMENT OF COMPETENCY

I (Jaco van der Walt) am a member of ASAPA (no 159), and accredited in the following fields of the CRM Section of the association: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation. This accreditation is also acknowledged by SAHRA and AMAFA.

I have been involved in research and contract work in South Africa, Botswana, Zimbabwe, Mozambique, DRC and Tanzania; having conducted more than 400 AIAs since 2000.

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MAPS

Google Earth. 2012. (1) 30°*09'13.19" S 22°57'07.13" E elev 1064m. [Online]. [Cited 09 April 2012].*

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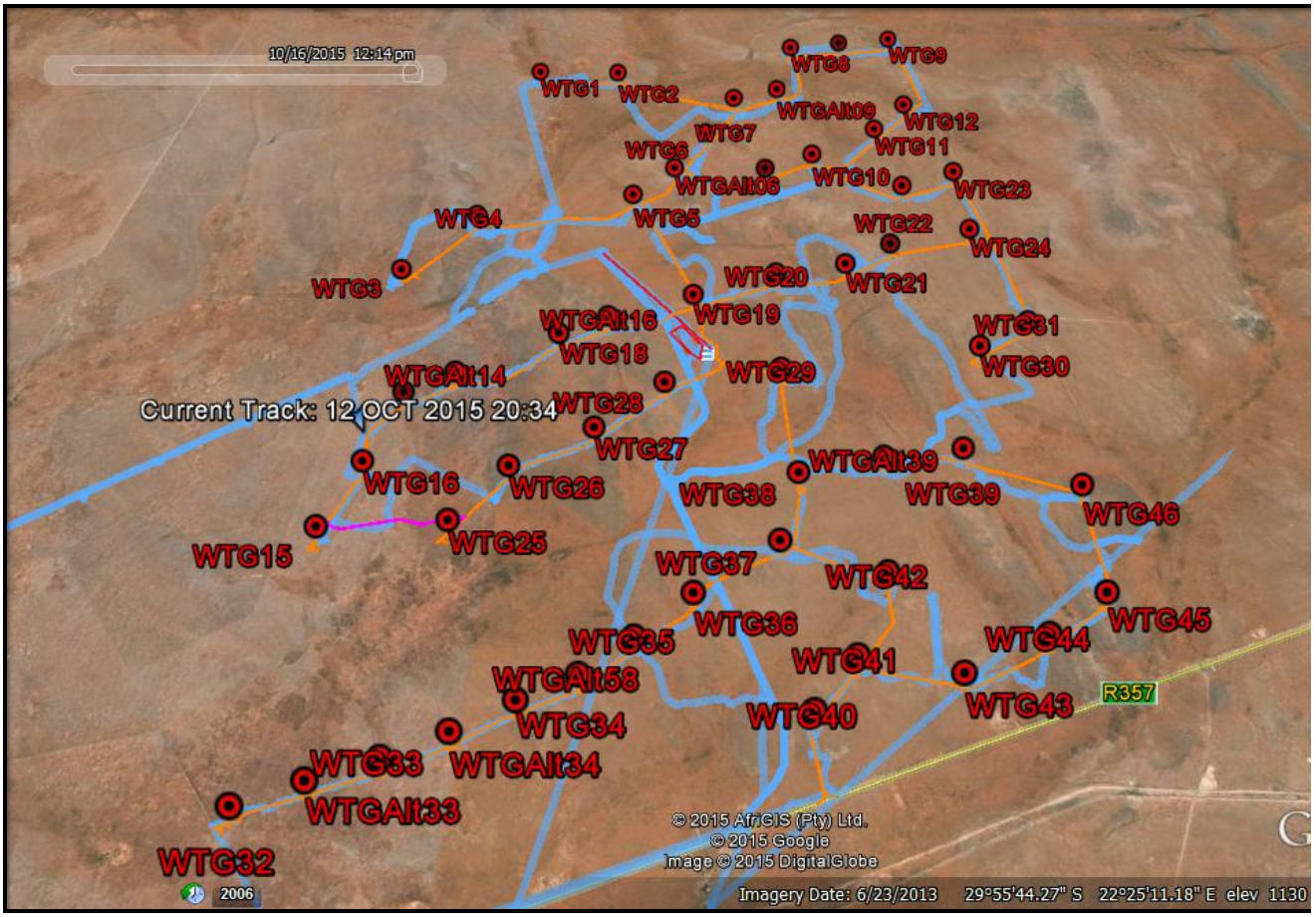
ANNEXURE C

Track log of areas covered in blue


10/16/2015 12:14 pm
WTG1
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WTGAlt09
WTGAlt06
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WTGAlt14
WTGAlt39
WTGAlt58
WTGAlt34
WTGAlt33
Current Track: 12 OCT 2015 20:34
R357
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2006
Imagery Date: 6/23/2013 29°55'44.27" S 22°25'11.18" E elev 1130