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DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

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Environmental Impact Assessment for the Proposed St Helena Community Wind Farm Development, Western Cape Province

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General declaration:

- I act as the independent specialist in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of section 24F of the Act.

Signature of the specialist:

Name of company (if applicable):

Date:

14 November 2001
Environmental Impact Assessment for the Proposed
St Helena Community Wind Farm Development,
Western Cape Province

HERITAGE IMPACT ASSESSMENT

LITA WEBLEY, LIESBET SCHIETECATTE & TIM HART
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9 September 2011
DECLARATION OF INDEPENDENCE

I, Lita Ethel Webley as duly authorised representative of Archaeology Contracts Office at the University of Cape Town, hereby confirm my independence (as well as that of Archaeology Contracts Office) as the Heritage Specialist for the St Helena Community Wind Farm Development and declare that neither I nor the Archaeology Contract Office have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which Arcus GIBB was appointed as environmental assessment practitioner in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), other than fair remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act for the St Helena Community Wind Farm Development. I further declare that I am confident in the results of the studies undertaken and conclusions drawn as a result of it. I have disclosed, to the environmental assessment practitioner, in writing, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act. I have further provided the environmental assessment practitioner with written access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not. I am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2010 and any other specific and relevant legislation (national and provincial), policies, guidelines and best practice.

Signature: L. E. Webley

Full Name: Lita Ethel Webley
Date: 15 September 2011
Title / Position: Principle Investigator
Qualification(s): PhD
Experience (years/ months): 15 years
Registration(s): Member of the Association of Southern African Professional Archaeologists
EXECUTIVE SUMMARY

The Archaeology Contracts Office at the University of Cape Town was appointed by Arcus Gibb (Pty) Ltd on behalf of the proponent Just Energy to conduct a Heritage Impact Assessment on the Farm Langeklip, near St Helena Bay in the Western Cape Province. The proponents propose to construct a 25 MW wind farm (comprising 8 turbines and associated infrastructure) on the land, which belongs to the Seeland Development Trust, for the benefit of the community members, most of whom live in the nearby township of Laingville.

The field survey was undertaken on the 12 September 2011 by Lita Webley and Liesbet Schietecatte. The assessment of the Built Environment was undertaken by Tim Hart.

The heritage indicators are:

- No significant archaeological sites were identified during the field survey;
- The farmhouse of Langklip dates to the late 19th century and has been significantly modified. It is considered to be of Grade 3C significance. The distance between the farmhouse and Turbine 1 (the closest turbine) is 600m. This buffer is considered adequate for purposes of this study;
- If there is any intention to use the farmhouse of Langklip during the operational phase of the wind farm, then any alterations to the exterior of the building will require a permit from HWC;
- The turbines are placed between 1-2km from the MR533, which links the R399 to Stompneus Bay, Laingville and St Helena Bay. The route has not been described as scenic route but sections have high visual appeal and a buffer may be recommended;
- It will be difficult to mitigate the visual impact of the proposed development on the cultural landscape, due to the fact that the turbines will be placed on the top of the Patrysberg, which represents the highest point on the Vredenburg peninsula. Turbines 1, 2, 3, 4 and 8 are most prominent, with Turbines 5, 6 and 7 only slightly obscured by the topography. Turbine 8 is highly visible from the R399 and the MR533. The Visual Impact Specialist will have to provide input into the most feasible mitigation measures. One suggestion is to use the shortest turbines with a height of 50m;
- An additional three Wind Farms have been proposed for the Vredenburg Peninsula. Since there is no clarity on how many of these wind energy facilities will receive official approval, the cumulative impacts are difficult to measure.

During the Construction Phase of the project:

- Any alterations to the final layout of the WEF, including changes to the turbine positions and road alignments will have to be field-proofed;
- If any sub-surface archaeological material is uncovered during construction, this should be reported to Heritage Western Cape;
- If any human remains are uncovered during construction, work will have to cease in that area, and the matter should be reported to the SAHRA Burials Unit;
- Re-use or changes to any buildings greater than 60 years of age will need a permit for alteration from the Heritage Western Cape.

During the De-Commissioning Phase:

- Guarantees for demolition of turbines after their useful life must be in place as a condition of approval.
ENVIROMENTAL IMPACT ASSESSMENT FOR THE PROPOSED ST HELENA COMMUNITY WIND FARM DEVELOPMENT, WESTERN CAPE PROVINCE:
HERITAGE IMPACT REPORT

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Figure 2: The location of the 8 turbines (and associated infrastructure) as well as internal access roads (Graphic supplied by client).

Figure 3: The locations of farm buildings at Patrysberg and Langeklip, the distribution of the turbine positions and the GPS tracks recorded during the survey.

Figure 4: The 1938 aerial overlay of the Langklip farmhouse. The buildings encircled in colour are still standing.

APPENDICES

Appendix 1: Archaeological sites.

ABBREVIATIONS

DEA  Department of Environmental Affairs
ESA  Early Stone Age
GPS  Global Positioning System
HIA  Heritage Impact Assessment
HWC  Heritage Western Cape
LSA  Late Stone Age
MSA  Middle Stone Age
NHRA  National Heritage Resources Act
SAHRA  South African Heritage Resources Agency

GLOSSARY

Archaeology: Remains resulting from human activities which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures.
Early Stone Age: The archaeology of the Stone Age between 700 000 and 2500 000 years ago.

Fossil: Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.

Heritage: That which is inherited and forms part of the National Estate (Historical places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999.

Holocene: The most recent geological time period which commenced 10 000 years ago.

Late Stone Age: The archaeology of the last 20 000 years associated with fully modern people.

Middle Stone Age: The archaeology of the Stone Age between 20 000-300 000 years ago associated with early modern humans.

National Estate: The collective heritage assets of the Nation.

Palaeontology: Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

Pleistocene: A geological time period (of 3 million – 20 000 years ago).

SAHRA: South African Heritage Resources Agency – the compliance authority which protects national heritage.

Structure (historic): Any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith. Protected structures are those which are over 60 years old.

Wreck (protected): A ship or an aeroplane or any part thereof that lies on land or in the sea within South Africa is protected if it is more than 60 years old.
1 INTRODUCTION

1.1 Background

The Archaeology Contracts Office at the University of Cape Town was appointed by Arcus Gibb (Pty) Ltd on behalf of the proponent Just Energy to conduct a Heritage Impact Assessment on the Farm Langeklip 47, near St Helena Bay in the Western Cape Province (Figure 1). The proponent proposes to construct a 25 MW community wind farm on the land, which belongs to the Seeland Development Trust, for the benefit of the community members, most of whom live in the nearby township of Laingville.

The aim of the project is to establish a community-based independent power generation plant whereby the Trust will benefit from an equity share as well as a regular lease payment, which will be used for the social and economic benefit of the 8000 – 10 000 inhabitants of the local township. In addition to providing income to the community, the project will also contribute renewable energy into the South African electricity grid.

Figure 1: The location of the farm Langeklip (Erf 47) on Patrysberg, located on the eastern section of the Vredenburg Peninsula (1:50 000 map sheet 3218CA-CC Velddrif). Map supplied by client.
1.1.1 The Development Proposal

Since the study area is already zoned agricultural, and that farming will continue under the turbines, it is anticipated that no rezoning will be required.

The project will include (Figure 2):

- 8 wind turbines;
- The turbines will have a height of between 50m and 100m and the blade lengths will vary between 25m and 45m;
- Turbines typically require concrete foundations of about 30m x 30m x 3m set in the ground surface to support the turbine towers;
- Switchgear buildings of 12m x 8m (per 4 turbines);
- A control room of 12m x 12m;
- Transfer buildings of 6m x 6m per turbine;
- There will be underground cables between turbines;
- There will be a permanent net mast of 85m – 100m;
- Overhead/underground power line (132kV distribution lines) feeding into the Eskom electricity distribution network which crosses the property;
- A substation 66/22kV of 20m x 20m, and a building of 10m x 10m;
- An access road to the site from the main road as well as internal access roads to each wind turbine, and the substations of 8m in width;
- Laydown areas;
- Temporary area for sand.
Figure 2: The location of the 8 turbines (and associated infrastructure) as well as internal access roads in light grey (Graphic supplied by client)
1.2 Legislative and Policy Context

The basis for all heritage impact assessment is the National Heritage Resources Act 25 (NHRA) of 1999, which in turn prescribes the manner in which heritage is assessed and managed. In the case of Environmental Impact Assessments in the Western Cape, the guidelines published by the Provincial Department of Environment Affairs and Tourism are directly based on the provisions of the National Heritage Resources Act.

The National Heritage Resources Act 25 of 1999 has defined certain kinds of heritage as being worthy of protection, by either specific or general protection mechanisms. In South Africa the law is directed towards the protection of human made heritage, although places and objects of scientific importance are covered. The National Heritage Resources Act also protects intangible heritage such as traditional activities, oral histories and places where significant events happened. Generally protected heritage which must be considered in any heritage assessment includes:

- cultural landscapes (described below),
- buildings and structures (greater than 60 years of age),
- archaeological sites (greater than 100 years of age),
- palaeontological sites and specimens,
- shipwrecks and aircraft wrecks,
- graves and grave yards.

Section 38 of the NHRA requires that Heritage Impact Assessments (HIAs) are required for certain kinds of development such as rezoning of land greater than 10,000 sq m in extent or exceeding three or more sub-divisions, or for any activity that will alter the character or landscape of a site greater than 5,000 sq m.

1.2.1 Cultural Landscape

Section 3(3) of the NHRA, No 25 of 1999 defines the cultural significance of a place or objects with regard to the following criteria:

(a) its importance in the community or pattern of South Africa’s history
(b) its possession of uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage
(c) its potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage
(d) its importance in demonstrating the principal characteristics of a particular class of South Africa’s natural or cultural places or objects
(e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group
(f) its importance in demonstrating a high degree of creative or technical achievement at a particular period
(g) its strong or special association with a particular community or cultural group for social cultural or spiritual reasons
(h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa; and
(i) sites of significance relating to the history of slavery in South Africa.
1.2.2 Scenic Routes

While not specifically mentioned in the NHRA, No 25 of 1999, Scenic Routes are recognised by DEA&DP as a category of heritage resources. In the DEA&DP Guidelines for involving heritage specialists in the EIA process, Baumann & Winter\(^2\) comment that the visual intrusion of development on a scenic route should be considered a heritage issue.

1.2.3 Heritage Grading

Heritage resources are graded following the system established by Baumann and Winter\(^3\) in the guidelines for involving heritage practitioners in EIA's (Table 1).

Table 1: Grading of heritage resources after Baumann and Winter\(^4\).

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<th>Level of significance</th>
<th>Description</th>
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<tr>
<td>1</td>
<td>National</td>
<td>Of high intrinsic, associational and contextual heritage value within a national context, i.e. formally declared or potential Grade 1 heritage resources.</td>
</tr>
<tr>
<td>2</td>
<td>Provincial</td>
<td>Of high intrinsic, associational and contextual heritage value within a provincial context, i.e. formally declared or potential Grade 2 heritage resources.</td>
</tr>
<tr>
<td>3A</td>
<td>Local</td>
<td>Of high intrinsic, associational and contextual heritage value within a local context, i.e. formally declared or potential Grade 3A heritage resources.</td>
</tr>
<tr>
<td>3B</td>
<td>Local</td>
<td>Of moderate to high intrinsic, associational and contextual value within a local context, i.e. potential Grade 3B heritage resources.</td>
</tr>
<tr>
<td>3C</td>
<td>Local</td>
<td>Of medium to low intrinsic, associational or contextual heritage value within a national, provincial and local context, i.e. potential Grade 3C heritage resources.</td>
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1.2.4 Wind Energy Guidelines

International literature indicates that visual impact and changes to the sense of place or setting are among the most contentious issues that the wind energy industry has had to face in terms of finding social acceptability. The proliferation of wind energy facilities in South Africa, in the absence of heritage guidelines or policy, is a cause of concern in terms of cumulative impacts. Wind energy facilities which require vast amounts of landscape pose significant impacts in terms of loss of iconic vistas, and landscape character change, especially in the Cape Province where the identity of the region is strongly linked to its spectacular landscape character.

A pilot study commissioned by the Provincial Government of the Western Cape “Towards a Regional Methodology for Wind Energy Site Selection in the West Cape region”\(^5\) is the only locally available policy guideline with respect to wind farms. The study looked at landscape character rather than at the “cultural landscape” or “heritage” but concluded that wind energy facilities can have a profound impact on the landscape in terms of quality of place. In general terms it recommends a buffer of at least 500 m between a wind turbine and heritage sites.
Neither SAHRA nor HWC have developed policies with respect to heritage and renewable energy although the issue has received considerable attention in European countries.

A recent decision by the Department of Environmental Affairs with respect to Wind Energy Facilities is discussed below to illustrate the kind of outcome which may be anticipated. In the Environmental Authorisation (12/12/20/1581) for the “West Coast 1 Wind Energy Facility” on the Vredenburg Peninsula (2010), the Department implemented a:

- 2km buffer around the Provincial Heritage Site (Grade 2) of Kasteelberg;
- 2km buffer along local roads, through the proposed wind energy facility, which have high scenic value.

### 1.2.5 Permit requirements

A permit, issued by Heritage Western Cape, will be required if:

- Any houses or structures such as barns, kraals, etc older than 60 years are demolished;
- Any archaeological sites are destroyed.

Human remains are considered a national issue in terms of the National Heritage Resources Act 25 of 1999. Section 36 of the Act and the regulations attached thereto are implemented by the SAHRA Burials Unit in Pretoria. They are the permitting authority and are responsible for the issuing of exhumation/grave relocation permits.

If human remains are uncovered during the development they may only be excavated or exhumed with a permit issued by the SAHRA Burials Unit.

### 1.3 Assessment Methodology

The source of information that is used for this process is based on an extensive database of published and unpublished information which is available for the Vredenburg Peninsula. The field survey was conducted by Lita Webley and Liesbet Schietecatte on the 12 September 2011. Both 4 wheel drive and foot surveys were conducted to examine the position of the turbines and the access roads. The position of the turbines (towers) was pre-loaded onto a Garmin 60CSx. Tracks were recorded (Figure 3) and digital photographs were taken in the field. Comments on the farm buildings at Langklip were obtained from Tim Hart.

We interviewed Mr Johan Lewin of the Seeland Development Trust regarding the history of the property. However, the Trust acquired the 926ha farm through the Land Reform Programme by the Department of Land Affairs in 2006. The previous land owner was a Mr J Laubscher, probably of the same Laubscher family who have farmed in this area for several generations.

#### 1.3.1 Limitations

- Thick vegetation over much of the area meant that it was difficult to examine the soil surface closely. This was particularly pertinent at Turbines 5-8.
2 DESCRIPTION OF AFFECTED ENVIRONMENT

The farm Langeklip is located on an elevated ridge called “Patrysberg” on the Vredenburg peninsula some 5km from the town of St Helena Bay and to the north-east of the town of Vredenburg (Figure 1). The MR533, which connects the R399 with the coastal towns of St Helena Bay, Stompneus Bay and Britannia Bay, runs parallel to the Patrysberg.

The geological structures exposed on the mountain consist of the granite rocks of the Vredenburg pluton of the Cape Granite Suite, interspersed with thin sands (Plate 1). It is the granites which form the distinctive topography of rolling hills with domes and pinnacles of granite outcrops. The vegetation on the undisturbed lands is variously described as Strandveld or West Coast Renosterveld. The vegetation is a short scrub with taller shrubs in protected places amongst the granite boulders. The vegetation is dense particularly around turbines 5 - 8, where it is waist high (Plate 2). Aerial photographs and foot surveys suggest that much of the area was ploughed in the past and the ground cover is less dense around turbines 1, 2 and 4. The farm is used for the cultivation of wheat and for sheep farming.

Plate 1: View of the Patrysberg from R399 between Velddrif and Vredenburg.

Plate 2: View of the top of the Patrysberg covered in waist high vegetation, between Turbines 7 and 8.
2.1 Pre-Colonial Archaeological Background

The West Coast of South Africa has been settled for at least 100,000 years. There are shell middens dating to the Middle Stone Age (MSA) both north and south of the Vredenburg peninsula. Associated with these middens are MSA stone tools and a single clearly modern human tooth from Sea Harvest.

Hunter-gatherers living on the west coast of South Africa during the latter part of the Holocene (last 10,000 years) made seasonal use of the coastal resources. The excavations of numerous sites on the Vredenburg peninsula have shown that hunter-gatherer, and later pastoralist, groups utilized resources such as seals, marine birds, crayfish and beached whales. Archaeologists have postulated that the first pastoralist groups (with cattle, sheep and pottery) entered South Africa along the West Coast some 2000 years ago.

The most important pastoralist site on the Vredenburg peninsula (and arguably in South Africa) is that of Kasteelberg, which is located on the farm Rooiheuwel of Boebezaks Kraal. The Kasteelberg koppie is located 8.2km due west of the Study Area. The granite koppie is surrounded by agricultural lands and is highly visible from adjoining properties. Shell midden deposits on the slopes of the koppie include sheep and cattle bones, pottery and stone artefacts. These sites are critical to our understanding of the introduction of pastoralism into southern Africa.

Other important archaeological sites on the peninsula include the cave site of Witklip, situated in a granite koppie at the town of Vredenburg. It is 9km from the coast. Heuningklip, some 8km to the south-east of Langeklip, is also an open site on a granite hill overlooking the surrounding landscape. All these sites are on koppies which dominate the surrounding landscape, suggesting that these elevated localities were preferred for prehistoric occupation.

A selective archaeological survey of the Vredenburg Peninsula was undertaken by Sadr and others and they recorded 129 archaeological sites, mainly around granite koppies. However, their survey did not extend to the Patrysberg. Webley & Orton also surveyed large areas of farmland between Kasteelberg and Patrysberg for a proposed wind energy facility. They noted that archaeological sites tend to be concentrated around granite koppies, but they did find some sites in ploughed lands.

The archaeological sites at Kasteelberg have featured prominently in the academic literature concerned with identifying pastoralist sites. Can archaeologists identify the ancestors of the 17th century Khoekhoen groups encountered by the Cape by early Dutch colonists? Were they a different group from the San hunter-gatherers or could San acquire sheep and cattle and become pastoralists? The “Great Debate”, which has attracted the views of both archaeologists and historians working in southern Africa and elsewhere, is concerned with whether the pastoralists had a different cultural signature from the hunter-gatherer groups. Much of this research in centred on the Vredenburg peninsula, highlighting its archaeological importance.

2.2 Colonial Background and Built Environment

No historical archaeological research has been conducted on the Vredenburg Peninsula and Phase 1 Archaeological Impact Assessments very rarely discuss historical remains relating to the colonial period or the built environment.
Early travellers reported that large numbers of cattle and sheep were being pastured around St Helena Bay on the Vredenburg peninsula by the 17th century. Nienaber in his review of the historic accounts, confirms that the Chariguriqua (later the Griqua?), a Khoekhoe group, occupied the area around St Helena Bay during the 17th century, with the Cochoquas or Saldanhars further to the west around Saldanha Bay. The name “Boebezaks Kraal” implies the presence of a Khoekhoe group in this area. Smith has postulated a seasonal transhumant cycle for the Khoekhoe groups between the coast and the interior which was later disrupted by the Dutch settlement.

The Saldanha Bay area was the focus of intense competition between French and Dutch interests during the 17th and 18th centuries, with a number of military outposts established in the area to provide protection for fishing and sealing interests. One such post was established at St Helena Bay in 1734. The post, Soldatenpost, has not been identified but the farm of that name is located to the north of the Study Area. A map by Frederici, dated 1788, shows an approximate location for the outpost but the map is very inaccurate and it is impossible to be exact. The map also indicates the approximate location of the original Patrysenberg farmstead to the east of the Patrysberg.

Farmers in the area recommended to the VOC that the outpost should be established at the foot of the Patrysenberg, on a loan farm belonging to H.O. Eksteen. The farm Patrysenberg is important to this study as Lange Klip 47 originally formed part of the farm Patrysenberg 43 (No. 1016/1857). There is a great deal of information available on the history of Patrysenberg because of its strategic position on the Vredenburg peninsula. In 1745 the VOC negotiated with the widow of H.O. Eksteen promising that she could obtain ownership of her loan farm, De Patrijse Berg in St Helena Bay, if she provided the soldiers at the outpost with supplies. When the outpost was occupied in 1781, the soldiers were quartered on the farm Patrijzenberg belonging to Pieter Laubscher (Eksteen’s son-in-law).

In 1803, the Governor J.W. Janssens visited the farm Patrijzenberg of the Veldkornet J. Laubscher (Pieter’s son). There was a government building on the farm which was occupied by the “flagman” of the post. According to Sleigh, the flagman had to walk for approximately 30min to the right of his house (which Sleigh interprets as 3km south-east) to reach the signal station on the highest point of the Patrysberg (at 265 m above sea level), where the signal post was positioned. Here he sent signals to Saldanha Bay by flags. It was postulated during the Scoping study that the flag pole may have been positioned at Stemmet’s Kop on the top of the Patrysberg and within the Study Area.

The farm Patrysenberg features prominently in all these early records of European settlement on the Vredenburg Peninsula. Subsequently, the farm was subdivided into a number of smaller farms, one of them becoming Lange Klip 47. The Surveyor General Diagram (No. 1318/1881) shows that this subdivision took place in 1882.

With regard buildings of historic significance in the vicinity, Fransen notes that only the 19th century farmhouse of Honingklip (now Heuningklip, some 8km to the south-east of Langeklip), is one of the few major old houses in the Vredenburg peninsula.
3 FINDINGS

The turbine locations, access roads and underground cable positions were surveyed during the fieldwork (Figure 3).

Figure 3: The locations of farm buildings at Langeklip (within the red circle), the distribution of the turbine positions and the GPS tracks recorded during the survey.

3.1 Pre-Colonial and Historical Archaeology

Prior to the field survey, it was anticipated that scatters of archaeological material (possibly even shell middens) would be found around granite koppies on the top of the Patrysberg (Figure 3).

However, only very ephemeral scatters of stone tools were recovered across most of the mountain (Appendix 1). These scatters of stone tools were in very low numbers and did not warrant recording as an archaeological site. Only one site (Site 001) was recorded at the top of Stemmet’s Kop, in the general location of Turbine 4.

The survey did not identify any shell scatters, stone ruins or any historical archaeological material on the top of the mountain.

3.2 Built Environment

While the historical records indicate that the farm Patrysenberg dates back almost 200 years, the sub-division of the farm and the creation of the portion known as Lange Klip 47 dates to 1882. Prior to fieldwork, it was anticipated that historic structures might occur on the property.

The farm complex of Langklip is situated outside the boundary of the proposed wind energy facility. A buffer zone of 600 m between existing structures and the closest turbine has been established.
The current farm complex consists of a cluster of buildings (Appendix 2), including the main house which has been significantly modified. There are some modern sheds behind the house, a shed with a date of 1948, a modern house, a number of worker’s cottages and one ruined stone building. No family or farm worker graves were recorded.

Some of these structures can be identified on the 1938 aerial photograph of the area. The main farmhouse has features which suggest a late 19th century date but it has been considerably modified and is likely to be graded as Grade 3C. One of the farm worker’s cottages is also reflected on the old photograph. In addition, the ruined stone building is also present. There are two anomalies which suggest a more recent date for the ruin, including a 20th century addition of a chimney and a recent concrete floor. It is possible that this building may originally have been a shed which was later converted into a dwelling.

None of these buildings will be directly impacted by the wind energy facility. The Langklip farm complex will only be indirectly impacted by the proposed WEF.

3.3 CULTURAL LANDSCAPE

Inland of the coastal zone, the Vredenburg peninsula is composed predominantly of farm land, which is used for wheat production and livestock grazing. The rolling farmlands are interspersed with granite koppies. Farmsteads, many dating to the mid-19th century and earlier, are spread across the landscape. They are frequently associated with stands of Eucalyptus sp. trees. Farming characterises the landscape but this rural character is being rapidly eroded by housing developments and the construction of industrial facilities, particularly south of Vredenburg.

The Patrysberg Mountain has landmark status on the Vredenburg peninsula as it is a prominent landscape feature with panoramic views of the surrounding landscape and towards St Helena Bay, Velddrif and the estuary of the Berg River.
4 IMPACTS AND ISSUES IDENTIFICATION

Wind energy facilities are big developments that can produce a wide range of impacts that will affect the heritage qualities of an area. Typically each turbine can be up to 100m high with blades/rotors up to 50m in radius. Each turbine site needs road access that can be negotiated by a heavy lift crane(s) which means that in undulating topography (such as in the study area) deep cuttings and contoured roads will have to be cut into the landscape to create workable gradients. During the construction phase each of the turbine sites will have to be leveled off to create a solid platform for cranes as well as a lay-down area for materials. This will involve earthmoving and road construction, followed by the bringing in of materials and plant. The actual construction of the turbines will involve excavation into the land surface to a depth of 3m and over an area of 400m$^2$ for the concrete base. The pre-fabricated steel tower is bolted on to the base and erected in segments. The nacelle containing the generator is finally attached followed by the rotors. The turbines are connected to underground cables to a sub-station(s) (positioned to be determined) where after the generated current will be fed to the national grid via 132kV transmission lines.

During the operational life of the wind farm, it is expected that physical impacts to heritage will diminish or cease. Impacts to intangible heritage are expected to occur. Such impacts relate to changes to the feel, atmosphere and identity of a place or landscape. Such changes are evoked by visual intrusion, noise, changes in land use and population density. In the case of this project, impacts to the rural landscape and wilderness qualities are of concern. The point at which a wind turbine may be perceived as being “intrusive” from a given visual reference point is a subjective judgment, however it can be anticipated that the presence of a number of such facilities on the Vredenburg peninsula will destroy many of the intangible and aesthetic qualities for which the area is valued. The fact that turbines are continuously revolving results in a visual impact that can be very disturbing and destructive to the sense of serenity of a place.

- Due to the size of the turbines the visual impacts will be difficult to mitigate (they are easily visible from 10 km) in virtually all landscapes (personal observations), however studies suggest\(^\text{17}\) that they are perceived to be aesthetically/artistically more acceptable in agricultural or manicured landscapes;
- The fact that the turbines are in continuous motion creates a visual impact more severe than that caused by static objects and buildings;
- Residual impacts can occur after the cessation of operations. The large concrete base will remain buried in the ground indefinitely. Bankruptcy or neglect by a wind energy company can result in turbines standing derelict for years creating a long term eyesore.

4.1 Impacts on Pre-Colonial and Historical Archaeology

It is not anticipated that the impacts on the archaeology of the area will be significant. Only one relatively dense scatter of stone artefacts (Site 001) was recorded. No shell midden accumulations were recorded in the study area. No historical archaeological material was recorded.
4.1.1 Nature of Impacts

The main cause of impacts to archaeological sites is physical disturbance of the material and its context. The heritage and scientific potential of an archaeological site is highly dependent on its geological and spatial context. This means that even though, for example, a deep excavation may expose archaeological artefacts, the artefacts are relatively meaningless once removed from the area in which they are found. Large scale excavations may damage archaeological sites, and construction of roads and laydown areas, and injudicious use of off-road vehicles can also contribute to high levels of impact.

4.1.2 Extent of Impacts

In the case of the proposed wind energy facility, it is expected that impacts on the pre-colonial and historical archaeology will be quite limited (local) but nevertheless possible. There is a chance that the excavations for the tower bases could potentially impact buried archaeological material including human remains, similarly excavations of cable trenches and clearing of access roads could impact on material that lies buried in the surface soils. Potential impacts caused by the power lines as well as proposed access roads are similarly likely to be limited and local.

Table 2: Potential Impacts on Pre-Colonial and Historical Archaeology

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Without Mitigation</th>
<th>With Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nature</td>
<td>Negative</td>
<td>Neutral</td>
</tr>
<tr>
<td>Extent</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Duration</td>
<td>High (the destruction of archaeological sites is permanent)</td>
<td>N/a</td>
</tr>
<tr>
<td>Intensity</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Potential for impact on irreplaceable resources</td>
<td>High (archaeological sites cannot be replaced)</td>
<td>Low</td>
</tr>
<tr>
<td>Consequences</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Probability</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Significance</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>

4.2 Impacts on the Built Environment

The farmhouse of Langklip is older than 60 years and is protected in terms of Section 34 of the NHRA. It has, however, been significantly modified. The closest turbine position to the farmhouse is Turbine 1 (Figure 3). It is situated some 600m from the house. All impacts would be indirect, relating to the context and sense of place in which the structures find themselves.

Heritage resources are likely to be graded as Grade 3 and various sub-categories of Grade 3 are recognised, namely Grade 3A, 3B and 3C. The latter is defined as having:

Intrinsic Significance
Historical fabric is significantly altered (scale and form still intact)
Limited evidence for historical layering
Few elements of construction are authentic
Remaining fabric has historical value (older than 60 years)
Remaining fabric contributes to understanding of uses and roles of place over time

**Associational Significance**
Limited association with historic person/s or social grouping/s
Limited association with historic events and activities
Limited association with the uses or roles of a place over time
Limited value in terms of public memory
Limited association with living heritage

**Contextual Significance**
Contributes to the broader historical, visual-spatial character of a place
Contributes to the environmental quality of a Grade 3A/B heritage resource

In the context of the above definition, the Langklip farmhouse would probably be considered a Grade 3C site. Its significance contributes to the character or significance of its environs.

### 4.2.1 Nature of the Impact

Historic farm structures (and these include old sheds, stone kraals and family cemeteries) are sensitive to physical damage such as demolition as well as neglect. They are also context sensitive, in that changes to the surrounding landscape will affect their significance. The farmstead and associated farm buildings in this study area will not be directly impacted. The impact will be of a visual nature but due to the degraded nature of the farm house, this is not considered a significant impact.

### 4.2.2 Extent of the Impacts

Direct impacts are not expected on farm buildings during the construction phase of the development. However, if the proposed activity results in changes to the way in which the historic farm house is utilized, or affects the context, then negative impacts may result. For example, the farmhouse is currently being used as an office to run the farm. If the farm house is used for the operation of the WEF, and this requires any alterations to the building, then negative impacts can be expected to the building which is older than 60 years of age.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Without Mitigation</th>
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<tbody>
<tr>
<td>Nature</td>
<td>Negative</td>
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</tr>
<tr>
<td>Extent</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Duration</td>
<td>High (the destruction of significant buildings is permanent)</td>
<td>N/a</td>
</tr>
<tr>
<td>Intensity</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Potential for impact on irreplaceable resources</td>
<td>High (significant buildings cannot be replaced)</td>
<td>Low</td>
</tr>
<tr>
<td>Consequences</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Probability</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Significance</td>
<td>Low</td>
<td>Low</td>
</tr>
</tbody>
</table>
4.3 Impacts on the Cultural Landscape

Cultural landscapes are highly sensitive to cumulative impacts and large scale development activities that change the character and public memory of a place. The construction of a WEF on the top of the Patrysberg may result in changes to the overall sense of place of the Vredenburg peninsula.

The Patrysberg is the highest spot on the Vredenburg peninsula and the proposed wind turbines will be visible for many kilometres in all directions. Turbines 1, 2, 3, 4 and 8 will be visible from the towns of Laingville and Veldrif, while Turbine 8 (located on the very edge of the mountain) will be highly visible to motorists on the R399 and the MR533.

While this impact may be considered local in terms of physical extent, there may be wider implications in terms of the change in “identity” of the area and the cumulative impacts this could have on future tourism potential.

In terms of this study, it should be noted that there are at least three other WEF’s proposed in close proximity to the proposed St Helena Bay WEF\textsuperscript{18}:

- Mainstream Energy WEF (98-129 turbines) on the farm Nooitgedacht (adjacent Langeklip 47, to the south);
- Moyeng West Coast 1 (55 turbines) located to the west of the study area;
- The Terra Power Solutions Britannia Bay (20 turbines) located to the north-west of the study area.

The potential for significant alteration to the cultural landscape and sense of place is an issue that will need to be assessed by the visual impact specialist. Careful placement of the turbines, as well as using the shortest turbines, will be required to ensure that the impact is kept to a minimum.

Table 4: Potential Impacts on the Cultural Landscape

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Without Mitigation</th>
<th>With Mitigation</th>
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<tbody>
<tr>
<td>Nature</td>
<td>Negative</td>
<td>Negative</td>
</tr>
<tr>
<td>Extent</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Duration</td>
<td>High (for the duration of the WEF)</td>
<td>N/a</td>
</tr>
<tr>
<td>Intensity</td>
<td>High</td>
<td>High</td>
</tr>
<tr>
<td>Potential for impact on irreplaceable resources</td>
<td>High (significant viewsheds cannot be replaced)</td>
<td>N/a</td>
</tr>
<tr>
<td>Consequences</td>
<td>High</td>
<td>Medium</td>
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<tr>
<td>Probability</td>
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<td>High</td>
</tr>
<tr>
<td>Significance</td>
<td>High</td>
<td>High</td>
</tr>
</tbody>
</table>

4.4 Potential Mitigation Measures

- The best way to manage impacts to archaeological material is to avoid impacting them. No significant archaeological sites were identified during the field survey and no mitigation measures will be required;
• The distance between the farmhouse of Langklip and Turbine 1 (the closest turbine) is 600m. This buffer is adequate for purposes of this study;

• If there is any intention to use the farmhouse of Langklip for purposes of the operation of the wind farm, then any alterations to the exterior of the building will require a permit from HWC;

• Both DEA and HWC have requested 2km buffer zones along local roads of scenic value on the Vredenburg Peninsula. If such a buffer zone is implemented along the MR533 then some of the turbine positions will have to be re-positioned;

• It will be difficult to mitigate the visual impact of the proposed development on the cultural landscape, due to the fact that the turbines will be placed on the top of the Patrysberg, which represents the highest point on the Vredenburg peninsula. Turbines 1, 2, 3, 4 and 8 are most prominent, with Turbines 5, 6 and 7 only slightly obscured by the topography. The Visual Impact Specialist will be required to make an input into the most feasible mitigation measures. One suggestion is to use the shortest turbines at 50m.
5 EMP – HERITAGE MANAGEMENT PLANNING

Action required during the construction, maintenance and de-commissioning of the WEF:

If there are any changes to the layout of the facility after submission to DEA, then further field surveys should be undertaken to assess possible impacts.

5.1 Below-ground heritage resources

During the construction phase of the project, significant archaeological or palaeontological material may be uncovered. If they are not adequately dealt with, they may be accidentally destroyed. In order to reduce the impacts on below-ground heritage resources, any finds unearthed during construction activity should be reported to an archaeologist and Heritage Western Cape immediately. The person responsible for reporting any finds that evoke concern should be a senior person on site, or an environmental control officer who is on site during construction.

5.2 Human remains

During the construction phase of the project, buried human remains may be uncovered. If they are not adequately dealt with, they may be accidentally destroyed. Human remains can occur anywhere on the landscape. Most archaeological firms retrieve several skeletons a year from various development projects around the province, so finds of this nature are not necessarily rare. Human remains are protected by several sets of legislation which means that certain protocols must be followed in the event of a find.

- Leave the remains in place, nothing should be moved;
- Cordon off the area;
- Call the archaeologist at Heritage Western Cape (021 483 9685);
- Once an archaeologist has examined the find, the archaeologist/SAHRA should contact SA Police services and the state pathologist to report human remains;
- If the human remains are found to be a legitimate burial or a pre-colonial burial, an emergency exhumation permit will be issued by SAHRA or HWC (if exhumation is needed); and
- If a crime is suspected, a police docket will need to be opened.

5.3 De-commissioning

- Guarantees for demolition of turbines after their useful life must be in place as a condition of approval. Abandoned turbines can have a significant negative visual impact on the cultural landscape.
6 CONCLUSION

The study has shown that impacts to archaeological heritage and built environment heritage are likely to be of low significance, but significant long term changes to the appearance of the landscape and “sense of place” are likely to occur during the operational phase.

The accumulative impact of up to four wind farms on the Vredenburg Peninsula is difficult to measure. The Cape West Coast is known for its spring flower displays and scenic landscapes. The proliferation of wind farms in the absence of adequate policy is a direct threat to this heritage.

6.1 Recommendations

- Road alignments must be planned in such a way that the minimum of cut and fill operations are required;
- Existing farm tracks should be used where possible to minimise the amount of change to the landscape;
- The visual impact specialist will need to consider the placement of the turbines to minimise their visual impact on the landscape;
- Any changes to the final layout of the WEF, including changes to the turbine positions and road alignments will have to be field-proofed by an archaeologist;
- Re-use or changes to any buildings greater than 60 years of age will need a permit for alteration from the Heritage Western Cape;
- If any sub-surface archaeological material is uncovered during construction, this should be reported to Heritage Western Cape; and
- If any human remains are uncovered during construction, work will have to cease in that area and the matter should be reported to the SAHRA Burials Unit.

During the De-Commissioning Phase:

- Guarantees for demolition of turbines after their useful life must be in place as a condition of approval.
Prior to the field survey, it was anticipated that scatters of archaeological material (possibly even shell middens) would be found around granite koppies on the top of the Patrysberg (Figure 3).

However, only very ephemeral scatters of stone tools were recovered across most of the mountain. The artefacts were easier to identify in previously ploughed lands. They comprised quartz and quartzite flakes, chunks and cores. A single large core of silcrete (Plate 3) was found near the location of Turbine 1, and a single MSA flake (Plate 5) on silcrete was recorded at Turbine 8.

These scatters of stone tools were in very low numbers and did not warrant recording as an archaeological site.

Only one site (Site 001) was recorded (Table 2) around the concrete reservoir at the top of Stemmet’s Kop, in the general location of Turbine 4. There is a greater density of artefacts in this area, comprising quartz and silcrete flakes.
Table 2: Location of archaeological sites.

<table>
<thead>
<tr>
<th>LABEL</th>
<th>LONGITUDE</th>
<th>LATITUDE</th>
<th>Type</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>001</td>
<td>S32 49 58.3</td>
<td>E18 02 36.4</td>
<td>Scatter of stone artefacts (indeterminate age) comprising quartz flakes and cores, silcrete flakes and cores, around a cement reservoir on the top of Patrysberg – called Stemmet’s Kop</td>
<td>Low</td>
</tr>
</tbody>
</table>
According to the historic sources, the farm Patrysenberg was subdivided into a number of smaller farms, one of them becoming the farm Lange Klip 47. The Surveyor General Diagram (No. 1318/1881) shows that this subdivision took place in 1882. The structures on the farm Langeklip are likely to date after 1882.

The Langklip farm complex will only be indirectly impacted by the proposed WEF. A buffer zone of 600 m between existing structures and the closest turbine (Turbine 1) has been established. All impacts would be indirect, relating to the context and sense of place in which the structures find themselves.

The current farm complex consists of a cluster of buildings, including the main house which has been significantly modified (Plate 6). There are some modern sheds behind the house, a shed with a date of 1948 (Plate 9), a modern house occupied by the previous owner Mr J Laubscher, a number of worker’s cottages (Plate 10) and one ruined stone building (Plate 11). No family or farm worker graves were recorded.
Plate 6: The original farmhouse of Langeklip which is now used as offices by the Seeland Community Trust.

The house can be identified in a grove of Eucalyptus trees on the 1938 aerial photograph of the farm (Figure 4) and is circled in red. It is a single-storey, L-shaped house with modern steel windows under a pitched roof of corrugated iron. There is a verandah, but only at the front of the building and this has been enclosed. It too contains steel window frames and a modern door. There are outside steps leading up to a loft door, located on the short leg of the L-shape (Plate 6 & 9). The house is connected to a kitchen area at the back of the building by a flat-roofed link (Plate 7).

Plate 7: The back of the house, showing the flat-roofed extension connecting to the projecting oven and chimney. Note the buttressing at the back of the house, supporting the chimney.

There are no windows at the back of the house (Plate 7), and the flat-roofed extension has a modern “Bo-en-onder” door but no windows. The projecting hearth and chimney stack at the back of the house is called an “abba vuurherd”\textsuperscript{19}, the southern wall of the vaulted oven contains a small window which provides a little light to the top of the wood burning stove or open hearth.
There is a square, brick-lined reservoir at the back of the house which collects the rainwater from the gutters (Plate 7).

The building has features which suggest a 19th century date but it has been considerably modified and is likely to be graded as Grade 3C.

The shed (Plate 10) has the date 1948 engraved in plaster above the door. It (or an earlier core) is shown on the 1938 aerial photograph.

There are three worker’s cottages on the farm; the one is of modern breeze blocks. One cottage is reflected on the 1938 aerial photograph of the farm complex (Plate 11). It has a flat roof, two small, square steel framed windows and a door in the front façade. The chimney is located in one end of the house. A recent corrugated iron lean-to has been added to the front of the house and this hides the second window.
A long, rectangular stone building is located in close proximity to the three worker’s cottages. The age and function of the stone building is unclear but it is shown in the 1938 aerial photograph of the farm complex and is circled in green in Figure 4. The structure is walls of rubble plastered with clay and whitewashed. It is a long, narrow structure, divided into two rooms, with a “chimney” added at one end. The core of the building may originally have consisted of only one room, with the southern room added at a later date. There are wooden window frames and a wooden lintel above the interior door. No historical archaeological material was recorded around the building. The main entrance is situated in the east facing façade.

There are two anomalies which suggest a more recent date for the ruin. The chimney is pulling away from the wall, suggesting it may have been added at a later date. Cemented into the chimney is a modern, screw top bottle, which suggests a late 20th century date. There is also a recent concrete floor in the one room. It is possible that this building may have been a shed which was later converted into a dwelling.
Mr Lewin informed us that is was the oldest structure on the site but this information would have been oral history obtained from the previous owner, Mr Laubscher.

None of these buildings will be directly impacted by the wind energy facility.
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The Surveyor Generals Office, Cape Town.


7 McStay, J. 2010. Preliminary Assessment for Seeland Development Trust Wind Farm, St Helena Bay, Western Cape. Arcus Gibb (Pty) Ltd.

8 Smith, A.B. 2006. Excavations at Kasteelberg and the Origins of the Khoekhoen in the Western Cape, South Africa. BAR International Series 1537.


12 Smith, A.B. 2006. Excavations at Kasteelberg and the Origins of the Khoekhoen in the Western Cape, South Africa. BAR International Series 1537.


