



mineral resources

Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

A DESKTOP HERITAGE ASSESSMENT STUDY FOR A PROSPECTING RIGHTS APPLICATION ON FARMS:

Farm Name	Farm Number	Portion(s)
Springfontein	177	RE
Springfontein	177	5
Springfontein	177	6
Kerschbosch	175	RE
Kerschbosch	175	1
Klipfontein	139	RE
Klipfontein	139	1
Klipfontein	139	6
Driehoeksfontein	176	RE
Driehoeksfontein	176	2
Adjoining Springfontein	174	

IN THE MALMESBURY MAGISTERIAL DISTRICT, SALDANHA BAY MUNICIPALITY, WESTERN CAPE PROVINCE

For:

***PROSPECTING RIGHT APPLICATION WC30/5/1/1/2/100143PR
March 2013***

The Applicant: Adelaide Ruiters

1612THE OVAL HENLEY ON KLIP

Tel: **084 7234555**

Tel: **011 615 7840**

Fax: **011 615 7845**

E-mail: adelaidr2009@gmail.com

The South African Heritage Resources Agency (SAHRA) or one of its subsidiary bodies needs to comment on this report and clients are advised not to proceed with any action before receiving these.

SUMMARY

Adelaide Ruiters, The Applicant conducted a scoping level desktop heritage assessment for a Prospecting Right Application (PRA) on the following farms in the Magisterial District of Malmesbury of the Western Cape Province:

Farm Name	Farm Number	Portion(s)	Land Owner	Title Deed Number
Springfontein	177	RE	Springfontein Trust	T103744/1997
Springfontein	177	5	Rust Johannes Petrus	T4279/1991
Springfontein	177	6	Rust Johannes Petrus	T24212/1993
Kerschbosch	175	RE	Springfontein Trust	T103744/1997
Kerschbosch	175	1	Rust Izak Cornelius	T24214/1993
Klipfontein	139	RE	Droefontein Plase PTY Ltd	T20572/1976
Klipfontein	139	1	Droefontein Plase PTY Ltd	T20572/1976
Klipfontein	139	6	Bestbier Family Trust	T13431/2008
Driehoeksfontein	176	RE	Rust Izak Cornelius	T24214/1993
Driehoeksfontein	176	2	Rust Johannes Petrus	T4279/1991
Adjoining Springfontein	174		Springfontein Trust	T103744/1997

The aims of the study were to determine if there are any possible archaeological and historical sites, and features in the area that need be taken into consideration when

prospecting work commences that could be potentially impacted upon by future mining operations.

Various sources were consulted for the desktop study. From this it is clear that there are a number of known heritage resources in the larger geographical area but that there are no known sites within the boundaries of the prospecting area. There is a possibility however that a number of previously unknown sites might exist here.

A number of recommendations are put forward at the end of this report. If these are implemented, from a Cultural Heritage point of view, there would be no objection to the proposed mining exploration.

1. INTRODUCTION

The Applicant conducted a scoping level desktop heritage assessment for a Prospecting Right Application (PRA) on the following farms in the Malmesbury Magisterial District of the Western Cape Province:

Farm Name	Farm Number	Portion(s)
Springfontein	177	RE
Springfontein	177	5
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Driehoeksfontein	176	2
Adjoining Springfontein	174	

The aims of the study were to determine if there are any possible archaeological and historical sites, and features in the area that need be taken into consideration when prospecting work commences and that could be potentially impacted upon by future mining operations.

2. TERMS OF REFERENCE

The Terms of Reference for the study were to:

1. to conduct a scoping level desktop heritage assessment in order to determine the possible existence of the archaeological and historical (cultural heritage) sites and features in the area where mining prospecting is proposed to take place, and which could be impacted on by future mining operations

3. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

3.1 The National Heritage Resources Act

According to the above-mentioned act the following is protected as cultural heritage resources:

- a. Archaeological artifacts, structures and sites older than 100 years
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts

- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The national estate includes the following:

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

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources. An HIA must be done under the following circumstances:

- a. The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length
- b. The construction of a bridge or similar structure exceeding 50m in length
- c. Any development or other activity that will change the character of a site and exceed 5 000m² or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m²
- e. **Any other category provided for in the regulations of SAHRA or a provincial heritage authority**

Structures

Section 34 (1) of the mentioned act states that no person may demolish any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

A structure means 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.

Alter means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.

Archaeology, palaeontology and meteorites

Section 35(4) of this act deals with archaeology, palaeontology and meteorites. The act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial):

- a. destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological material or object or any meteorite;
- c. trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or paleontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or paleontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and paleontological material or objects, or use such equipment for the recovery of meteorites.
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.

Human remains

Graves and burial grounds are divided into the following:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. human remains

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

- a. destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- b. destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- c. bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated) before exhumation can take place.

Human remains can only be handled by a registered undertaker or an institution declared under the **Human Tissues Act (Act 65 of 1983 as amended)**.

Unidentified/unknown graves are also handled as older than 60 until proven otherwise.

3.2 The National Environmental Management Act

This act states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

4. METHODOLOGY

4.1 Survey of literature

A survey of literature was undertaken in order to obtain background archaeological and historical information regarding the area. Sources consulted in this regard are indicated in the bibliography.

4.2 Field survey

No field survey was conducted in this instance.

5. DESCRIPTION OF THE AREA

The Applicant conducted a scoping level heritage impact assessment for a Prospecting (Mining) Rights Application (Phosphates) on the following Farms in the Saldanha Bay Municipality of the Malmesbury Magisterial District of the Western Cape:

Farm Name	Farm Number	Portion(s)
Springfontein	177	RE
Springfontein	177	5
Springfontein	177	6
Kerschbosch	175	RE
Kerschbosch	175	1
Klipfontein	139	RE
Klipfontein	139	1
Klipfontein	139	6
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The Farms within the prospecting areas, comprises 6204.4775 hectares in total.

The ownership of the farms are reflected in the table under the Summary.

The Prospecting phase is designed to be completed in 5 years allowing for compilation of results and statutory reporting. Each part of each phase is dependant on the success of the previous set of work. Each Phase and sub-phases within these will determine the approach to be taken in subsequent sub- and main phases. The exploration program is by its nature success driven and the extent to which the subsequent phases will be amended and amendments made to financial commitment are dependant on the outcome of previous phase or sub-phase.

The phases and budgets outlined below are provisional and may be amended according to the demands of the project.

The prospecting work programme will take on a phased approach to assess the potential resources in the area.

Phase 1 - Analysis of Existing Data, Field Mapping

The exploration records of all previous work in the area will be re-examined, and the following studies will be carried out:

- Literature review*
- Detailed aerial photograph and satellite image interpretation Literature review*
- Regional airborne geophysics with main emphasis on radio metrics.*
- Reconnaissance geological mapping will also be carried out.*

Phase 2 - Detailed geological mapping, trenching and sampling

Once phase one is complete, phase two will be detailed geological mapping, pitting, trenching, logging and sampling over areas with potential phosphates

- Pitting, trenching, logging and sampling over areas with potential phosphates*
- Analysis of any phosphate intersections*
- Geological interpretation including profiles and plans*
 - Rehabilitation*

These records will need to be captured into a GIS format for geological modeling and exploration scheduling analysis.

This work will form an initial desktop and surface fieldwork study to be continued during the period that the prospecting permit application is being assessed and, presumably, approved. A period of 6 months is estimated for this.

Phase 3 –Detailed Exploration Activities (Diamond Drilling, Metallurgical test work)

In the event that the present application is approved and areas with possible phosphate mineralization are identified, this identified prospective ground will require subsurface investigation.

Diamond (DD) or reverse circulation (RC) drilling of the prospective areas will commence to establish geological continuity though a few additional drill-holes may be required to probe problematic areas. Geological borehole logging will also be carried out.

Analysis of phosphate intersections will be conducted immediately the hole is completed. For budgeting purposes, it is assumed that 100 proximate analyses will be made.

It is anticipated that initially approximately 28 drill-holes will be drilled. Drill holes could vary in depth from 25 to 80m, with an average depth in the order of 50 meters. The total amount of drilling to be budgeted for at this stage is 1400 meters. Dependant on the results of this drilling further drilling may be required.

The geological information generated will be used to model and estimate resources and reserves.

Once sufficient tonnage and grade of phosphate ore have been established in the project area to sustain a viable mining operation, it will be necessary to determine the metallurgical characteristics of the product (i.e. potential beneficiation of the ore to a phosphate concentrate)

South African phosphate ores usually consist of a mixture of phosphate, clay and sand. The unit value of each of these components varies enormously. Wash ability (washing and screening) and flotation processes are normally used to upgrade the ore to a marketable product serve to determine the optimum recovery of high value material and minimum of waste.

Wash ability and flotation tests are performed under laboratory conditions, but require fairly large samples. For this purpose it is envisaged that surface trenching will provide about 500kgs for this test work. These trenches will be positioned to provide a representative sample of the ore body. Pilot plant testing requires a 40 tone-bulk sample, hence the inclusion of a bulk sample in the application.

Rehabilitation to be implanted at end of phase

Phase 4 - Feasibility Study

The final phase of the prospecting programme would involve preparation of a feasibility study. This would include:

- Planning the mine layout*
- Design of washing and floatation plant and tailings disposal*
- Planning the infrastructure requirements*
- Environmental management planning*
- Financial modeling*
- Market analysis*
- Analysis of transport logistics to markets*
- Assessment of personal and training requirements*
- Assessment of socio-economic factors*

A full feasibility study is multidisciplinary in nature, and requires the highest levels of expertise available. Such studies are both costly and time consuming.

The budget is as follows:

<i>ACTIVITY</i>	YEAR 1 Expenditure (R')	YEAR 2 Expenditure (R')	YEAR 3 Expenditure (R')	YEAR 4 Expenditure (R')	YEAR 5 Expenditure (R')
PHASE 1 (e.g. 12 months) Tenure Acquisition (Prospecting fees ,EMP &SOP)	100 000				
<i>Literature Review</i>	30 000				
<i>Remote Sensing</i>	30 000				
<i>Airborne Geophysical Interpretation</i>	20 000				
<i>Reconnaissance Geological Mapping</i>	50 000				
PHASE 2 (e.g. 24 months)					
<i>Geological Mapping</i>	100 000	100 000			
<i>Trenching & Sampling</i>	100 000	100 000			
PHASE 3 (e.g. 12 months)					
<i>Drilling (DD & RC)</i>		2 000 000	2 000 000		
<i>Bulk Sample</i>			50 000		
<i>Metallurgical Test work</i>			1 500 000		
<i>Geological Modeling & Resource Evaluation</i>			500 000	250 000	
PHASE 4 (e.g. 12 months)					
<i>Pre-feasibility</i>				500 000	500 000
<i>Feasibility</i>				500 000	500 000
<i>Rehabilitation(total R67 619.23)</i>	22 539.74	22 539.74	22 539.74		67 619.23
<i>Annual Total</i>	452 539.74	2 222 539.74	4 072 539.74	1 250 000	1 000 000
				Total Budget	8 997 619.23

Appendix 1: Location of area in relation to cultural and other mining and industrial activities in the area

Appendix 2: Aerial view of area, showing the prospecting area

6. DISCUSSION

The first step in this desktop study was to look at existing maps (1:50 000 and 1:250 000 topographic maps and aerial images (Google Earth) of the study area in order to see if any possible heritage resources could be identified from these sources.

From the 1:50 000 topographic map available it is clear that agricultural activities (ploughing/crop growing) has impacted on the area in the past. According to the maps, there are settlements or presence of ruins or other buildings within the actual prospecting area. Close by is the Gecko Fert Phosphate mine 0,5km away, 14,2 km to the prospecting area is the Lafarge Mining Operation, and within 10 km is the Namakwa Sands Oryx Mining Operation, 11 km the Mittal Saldanha Steel Mill as well as the Saldanha Industrial Development Zone 10 km from the site. The Saldanha Airport is also within .km of the prospecting area and the Lanagebaan Weg Airforce Base is 2km from the site. The prospecting site is 19 km from Saldanha Bay.

It is therefore clear that significant human impact, industrial and mining related impact has been taking place in the area over recent years, and if any sites of archaeological and historical significance did exist here in the past it would have been destroyed or disturbed to a very large degree. However, traces of their existence could still be identified when a physical assessment of the area is undertaken.

Furthermore, the homestead and outbuildings shown on the map (there are about 14 of them indicated on the map) might have some heritage significance and it is listed as a ruin on the topographic map, and these will have to be assessed during a phase 1 Heritage Impact Assessment of the area once full-scale mining operations commence. It has to be noted though that the homestead and these out buildings fall within the prospecting area. It is also recommended that prospecting steers clear of these structures to avoid negatively impacting on them. The presence of graves near these structures and sites are also always a distinct possibility and this will have to be taken into consideration during prospecting and planning phases of the project.

The Google Earth images of the area confirm the disturbed nature of the area, and it was not possible to identify any sites or features of any cultural heritage (archaeological or historical) significance in the immediate area. The only cultural area identified is 5,9 km away from the prospecting site namely the West Coast Fossil Park and the West Coast National Park 8,2 km away as well as archaeological sites in the broader areas such as Witklip (19,6 km), Kasteelberg (30km), Hoedjiespunt (17,4 km) and Sea Harvest (17 km) and Heuningklip 17,6 km. The topographic map 1:50 000 indicated there are ruins namely the old farm homestead and outbuildings are within the prospecting right area.

A short, general, background to archaeology is given in the following section, after which the archaeology and history of the area for which the prospecting rights application has been made (and its broader geographical context) will be discussed. **Based on the desktop heritage assessment undertaken for this development (a Mining Prospecting Rights Application), it is clear that the area has been studied archaeologically and historically in much detail, although more is known about the cultural heritage of the wider geographical area and the cultural heritage of the development area has to be interpreted within this context.**

6.1 The Cultural Landscape

The Prospecting Site is between Saldanha Bay and Vredenburg. The area consists mainly of landscapes modified by agriculture interspersed with patches of indigenous vegetation such as Strandveld of West Coast Renosterveld on the numerous prominent granite extrusions of the underlying Vredenburg pluton. Successions of older and more recent sands cover the surface. The remaining natural vegetation is described as Strandveld or West Coast Renosterveld and sheep and cattle graze the wheat stubble and natural vegetation. In the past, and to date, fishing plays a major economic role in the region and the town Saldanha has a thriving fishing community and fish processing facilities. The Sea Harvest factory in Saldanha is still in operation. The Saldanha Industrial Development Zone is also a project that has been implemented to assist the industrial economic development of the area, and therefore Saldanha bay and its greater area has been identified by the South African Government as an Area to be developed for further industrial growth so as to provide the much needed economic growth that will ultimately lead to job creation in this area. (The Applicant, through this prospecting right application, if successful, and if a mining right is eventually granted, envisages to contribute towards the further industrial and economic development of the area and to ultimately beneficiate the phosphates at the Saldanha IDZ Zone by setting up a fertilizer beneficiation plant)

There are also various mining activities adjacent to the proposed prospecting site, such as Gecko Fert Phosphate Mine, Lafarge Aggregates Mining, Namakwa Sands and the Saldanha Steel Mill operation. Mining is therefore part of the area's cultural landscape and a source of the area's economic development.

Vredenburg is a thriving town that along with Saldanha bay and it forms the centre of the local economy on the West Coast. The construction of industrial facilities such as the oil storage depot, iron ore smelter, heavily mineral separation plant and development of the iron ore export terminal has meant an influx of people and resultant increase in urbanization and industrialization. The bay has been modified by the construction of a substantial breakwater linking hoedjiespunt to Marcus Island to ensure safe anchorage for the numerous bulk carriers and tankers docking there.

6.2 Pre-Colonial Archaeology

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 on, and to the north and south from Greenburg Peninsula (Halkett & Hart 1993, Halkett et al 2003, Klein et al. 2004, Berger and

Parkington 2005a,b). Associated with these middens are MSA stone artifacts and an anatomically modern human tooth from the Sea Harvest site (Grine&Klein 1993), and other anatomically modern post cranial remains from Hoedjiespunt, all clearly older than 50 000 years. The presence of the so-called Saldanha skull fragment and the not infrequent finds of distinctive ESA artifacts including hand axes, attests to a much more ancient use of the area, although, the coastal morphology has changed over time.

Hunter-gatherers living on the west coast of South Africa during the latter part of the Holocene made use of the coastal resources (perhaps seasonally). Archaeological excavations at sites such as Duyker Eiland on the coast near Britannia Bay (Robertshaw 1979) confirm the importance of shellfish such as mussel and limpet in the diet forming a dependable and easily accessible protein resource during these times. In addition, the excavations of other sites on the Vredenburg Peninsula (see Malan et al in prep). Have confirmed the importance of coastal resources such as seals, marine birds, crayfish and beached whales. We know this peninsula was particularly attractive to hunter-gatherers, and later pastoralist groups because of its wealth of marine and terrestrial resources. Archaeologists have postulated that the first pastoralist groups (with cattle, sheep and pottery) entered South Africa along the West Coast some 2000 years ago (Smith 2006).

The most important pastoralist site on the Vredenburg Peninsula (and arguably in South Africa) is that of Kasteelberg, which is located on the farm Rooiheuvel (Smith 2006). The hill is part of a granite batholiths standing some 187 m above sea level and surrounded by agricultural lands. A site survey by Sadr et al 1992 identified at least 36 discrete occupation areas around the hill ranging from Middle Stone Age scatters to Later Stone Age sites with pottery, suggesting an established pattern of occupation extending back into the distant past. It would appear that Kasteelberg was particularly the focus of settlement within the last 2000 years by early pastoralist groups. At least 10 archaeological sites have been excavated around the hill and there are more than 100 bedrock grinding grooves on the flat rocks around the site.

Kasteelberg was identified in the late 1990's as a site worthy of declaration as a National Monument under the old legislation (National Monuments Act of 1969), as amended), but changes in legislation at the time interrupted the process. Heritage Western Cape is in the process of declaring Kasteelberg complex and its surroundings as a provincial heritage site.

Other important archaeological sites in the vicinity of Kasteelberg include Witklip, a small shelter below a granite boulder situated on the western outskirts of Vredenberg. Excavations at the site by Smith (2006) suggest that this was a hunter-gatherer settlement dating back to between 3000 and 500 BP. The site of Heuningklip, an open shell midden site on a granite hill to the east of Vredenburg, also contains a number of bedrock grooves similar to those at Kasteelberg.

The archaeological sites on the Vredenberg Peninsula date predominantly to the later part of the Stone Age although earlier material dating to the mid-late mid Holocene is found in the area and probably represent the debris of early San hunters gatherers. The broader survey of the Vredenburg Peninsula by Sadr (2009) has identified at least 99 archaeological sites occurring predominantly around granite koppies, with many more found in open wheat fields during ongoing commercial archaeological impact assessment surveys (Webley & Orton

2010). Despite the number of sites found during the Sadr survey, it was not comprehensive and more sites will continually be found.

On the site of the prospecting area, there are no known archaeological sites belonging to the Pre-Colonial Archaeological era

6.3 Colonial Archaeology

Historical research shows that during the 18th century the Vredenburg Peninsula formed part of the traditional grazing lands of the Cochequa, a Khoekhoen pastoralist group. Smith (2006) has postulated a seasonal transhumant cycle between the coast and the interior which was disrupted by Dutch settlement. The Saldanha Bay area was the focus of the intense competition between French and Dutch interest 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 in the area and became known Soldatenpost. (Sleigh 1993).

No historical archaeological research has been conducted on the Vredenburg Peninsula and Phase 1 Archaeological impact Assessments do not necessarily discuss historical remains relating to the colonial period, or the built environment. Recent research (Malan et al, in prep) shows that during the colonial times there was in fact a thriving industry based on marine products centered on the Vredenburg Peninsula, with most of the product sent to the settlement in Cape Town to feed its growing population.

On the proposed prospecting site, there are no known archaeological sites that relate to the colonial archaeological period

6.4 Paleontology

An extensive bibliography relating to the Langebaan fossils and general area is presented in Hendey (1982) who also gives a summary of the geology of the area. Dr John Pether (2008) made the following comment in relation to the ore terminal expansion project at the Port of Saldanha : *Little detail is known of the wider Saldanha-area coastal plain due to the lack of natural exposures although some widely spaced information has come from Department of Water Affairs boreholes. However, nearly every excavation made in the past into the “fossil” dunes and beaches in the area has yielded fossils of one kind or another. Unfortunately, other than some ad hoc recoveries, many “windows of opportunity” in the area were missed and lost.* He repeated the same statement when he did the detailed assessment of the West Coast one Wind Farm. During both these heritage assessments, no red flag paleontological issues were identified there and the same is likely to be true for this prospecting right application, since these studies were performed in the same area.

Softer deposits sandwiched between hard calcrete successions often erode when calcrete profiles are exposed due to erosion. Cavities that form often became the dens of carnivores, especially brown hyenas. In so doing, they introduced the bones of scavenged and predated animals to the dens, sometimes to be preserved by shifting sands. An example of such a site is Hoedjiespunt 1 at Saldanha Bay (Berger and Parkington 2005a,b). In the process, brown hyenas also became the unwitting collectors of the bones of ancient humans. The possibility of bone accumulations occurring within calcrete successions signals the need for effective

monitoring of drilling of the boreholes in the event that paleontological material is present. Effective paleontological mitigation at the prospecting site is likely to have substantial paleontological heritage/scientific benefits.

7. CONCLUSIONS AND RECOMMENDATIONS

Based on the desktop heritage assessment undertaken for this development (a Mining Prospecting Rights Application), it is clear that the area has been studied archaeologically and historically in much detail, although more is known about the cultural heritage of the **wider geographical area** and the cultural heritage of the development area has to be interpreted within this context.

From an archaeological perspective, the coastal zone is particularly sensitive, although archaeological surveys of Sadr on both coastal and inland areas of the peninsula (Sadr 2009) and an archaeological research programme focused on Kasteelberg, indicate that the interior of the Vredenberg peninsula is equally rich in archaeological heritage. The broader area has attracted international attention due to the presence of Middle Stone Age sites and those that show evidence of early use of marine resources and archaeological and paleontological sites that contain ancient human remains,

Without a physical site assessment the presence or absence of Archaeological sites, features or objects can not be determined, but it is possible that these might be present. There are also no known historical structures and features on the actual prospecting site, however, such structures (the homestead) do exist about 3 km from the site on the farm. The presence of graves is always a distinct possibility when farmsteads, laborer structures and rural settlements are present. Sometime the graves are unmarked or only low, stone packed features.

In the light of the above the following recommendations are made:

- 1. that all graves and other cultural heritage resources should be avoided at all costs during the prospecting and any other studies, and that a buffer zone of at least 100m should be placed around these should these be encountered. If any sites are identified then these should be reported to a heritage specialist (archaeologist) for investigation as well as the relevant government authority**
- 2. that a full Phase 1 Heritage Impact Assessment for the area be undertaken before full-scale mining activities commence in the area. This application is for a prospecting right.**

Finally, it should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts are always a distinct possibility. Care should therefore be taken during any development activities that if any of these are accidentally discovered, a qualified archaeologist be called in to investigate.

8. REFERENCES

Topographic Locality map 1:50 000: 3217DB&DD Vredenburg 5th edition 2003

Topographic Locality map 1:50 000: 3218CA&CC Velddrif 5th edition 2003
Topographic Locality map 1:250 000: 3281 Clanwilliam 5th edition 2003

Aerial views of the development area: Google Earth 2012

Almond,J.& Pether,J.2008. Paleontological Heritage of the Western Cape. Interim Technical Report for Heritage Western Cape

Bateman,P.1946. Archaeological notes on the Saldanha Bay district. South African Archaeological Bulletin1,41-45

Berger,L.R. & Parkington,J.E.2005a. A new Pleistocene hominid-bearing locality at Hoedjiespunt, South Africa. American Journal of Physical Anthropology,v98 (4)

Berger,L.R. & Parkington,J.E. 2005b. A Middle Pleistocene human tibia from Hoedjiespunt, Western Cape, South Africa. South African journal of Science,96.

Grine,F.E. & Klein,R.G. 1993. Late Pleistocene Human Remains from the Sea Harvest Site, Saldanha Bay, South Africa. South African Journal of Science 89

Hart,T.& Halkett,D.1992. A first phase archaeological survey of Wilde Varkens Valey 48. Prepared for Willem Buhrmann Associates. Archaeology Contracts Office, University of Cape Town

Hart, T.J. 2003 Heritage Impact Assessment of a Portion of the Farm Pienaars Poort owned by National Ports Authority (NPA), Saldanha Bay. Archaeology Contracts Office, University of Cape Town

Hart, T.J & Halkett,D.J. 2002. Initial Archaeological and Paleontological Assessment of a Portion of Erf 471 Veldrif, Western Cape. Unpublished report prepared for Ninham Shand. Archaeology Contracts Office, University of Cape Town

Halkett,D. & Hart,T.1993. Excavations at six archaeological sites in the near shore diamond mining area, Brandsebaai, Namakqualand. Unpublished reported Beers Namaqualand Mines Division

Halkett ,D and ACO Associates. Assessment for propose wind energy facility on the Vredenburg Peninsula,Saldanha Bay Municipality, Western Cape

Klein R.G.,Avery,G,Cruz-Uribe,K.,Halkett,D.J, Parkington,J.E.,Steele,T,Volman,T.Pt.& Yates,R.J. 2004. The Ysterfontein 1 Middle Stone Age Site, South Africa, and early human exploitation of coastal resources. Proceedings of the National Academy of Sciences of the United States of America 101

Malan, A., Webley,L. Halkett,D.& Hart,T. In prep, People and places on the west coast since ad 1600. In Jerardino,A and Braun,D. (eds) The archaeology of the West Coast of South Africa

Pether,J.2010. Paleontological impact assessment (desktop study): proposed West Coast One wind energy facility, Vredenburg district, Western Cape. Prepared for Savannah Environmental Pty Ltd

Roberts, D. 1997. Fossil Occurrence at the Saldanha Steel Site. An Unpublished report by the Agency for Cultural Resource Management

Sadr,K.2009. Marine shell dates and surface lithic assemblages on the west coast of South Africa. *Journal of Archaeological Science* 36:

Sadr,K.,Gribble,J. & Euston-Brown,G 1992. The Vredenburg Survey,1991-1992 Season. In Smith,A & Mutti,B. (eds) *Guide to Archaeological Sites in the south-western Cape*. For the South African Association of Archaeologists Conference July 509,1992

Sadr,K.,Smith,A.,Plug, I.Orton,J.& Mutti,B.2003. Herders and forages on Kasteelberg. Interim report on excavations 199902002. *South African Archaeological Bulletin* 58

Sleigh,D. 1993. *Die Buiteposte: VOC-buiteposte onder Kaapse bestuur 1652-1795*. HAUM:Pretoria

Smith,A.B. 2006 *Excavations at Kasteelberg and the origins of the Khoehoen in the Western Cape, South Africa*. BAR International Series 1537

Webley,L., Orton,J.& Hart,T 2010. *Heritage Impact Assessment: Proposed West Coast One Wind energy facility, Vredenberg district, Western Cape*

APPENDIX A

DEFINITIONS:

Site:

APPENDIX B

DEFINITIONS/STATEMENTS OF HERITAGE SIGNIFICANCE:

- Historic value:** Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.
- Aesthetic value:** Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
- Scientific value:** Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period
- Social value:** Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
- Rarity:** Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.
- Representivity:** Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province region or locality.

APPENDIX C

SIGNIFICANCE AND FIELD RATING:

1. Cultural significance:

- Low: A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.
- Medium: Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.
- High: Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

2. Heritage significance:

- Grade I: Heritage resources with exceptional qualities to the extent that they are of national significance.
- Grade II: Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate.
- Grade III: Other heritage resources of local importance and therefore worthy of conservation.

3. Field ratings:

- National Grade I significance: Should be managed as part of the national estate.
- Provincial Grade II significance: Should be managed as part of the provincial estate.
- Local Grade IIIA: Should be included in the heritage register and not be mitigated (high significance).
- Local Grade IIIB: Should be included in the heritage register and may be mitigated (high/ medium significance).
- General protection A (IV A): Site should be mitigated before destruction (high/ medium significance).
- General protection B (IV B): Site should be recorded before destruction (medium significance).
- General protection C (IV C): Phase 1 is seen as a sufficient recording of the existing structure and it may therefore be demolished of (low significance) .

APPENDIX D

PROTECTION OF HERITAGE RESOURCES:

1. Formal protection:

Formal protection is applicable to the following:

- National heritage sites and Provincial heritage sites – grades I and II
- Protected areas – which is described as an area surrounding a heritage site
- Provisional protection – described as protection for a maximum period of two years
- Heritage registers – listings of grades II and III
- Heritage areas – areas which include more than one heritage site
- Heritage objects – heritage objects include inter alia archaeological, paleontological, meteorites, geological specimens, visual art, military, numismatic and books.

2. General protection:

General protection is applicable to:

- Objects protected by the laws of foreign states
- Structures – older than 60 years
- Archaeology, paleontology and meteorites
- Burial grounds and graves
- Public monuments and memorials

APPENDIX E

HERITAGE IMPACT ASSESSMENT PHASES

- Phase 1: Pre-assessment or scoping phase – the establishment of the scope of the project and the terms of reference.
- Phase 2: Baseline assessment – the establishment of a broad framework of the potential heritage of an area.
- Phase 3: Assessment of potential impacts – the identification of sites, assessment of their significance, commenting on the potential impact of the proposed development and recommending mitigation measures or the conservation thereof.
- Phase 4: Letter of recommendation for exemption –submitted in the event that no likelihood exists that any sites will be impacted upon.
- Phase 5: Mitigation or rescue – planning the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
- Phase 6: Compilation of and implementation of a management plan – in rare cases where sites are regarded as of high importance such that development cannot be permitted unconditionally.