

**ARCHAEOLOGICAL IMPACT ASSESSMENT  
PROPOSED PROSPECTING FOR PHOSPHATE ON  
PORTIONS 7 AND 12 OF THE FARM LANGEBERG  
185 AND FARM 1043 LANGEBERG  
(MALMESBURY DISTRICT)  
LANGEBAANWEG**

Prepared for:

**SITE PLAN CONSULTING**

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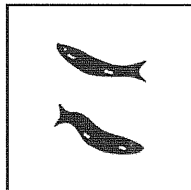
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## Executive summary

An Archaeological Impact Assessment of proposed prospecting for phosphate, on Portions 7 and 12 of the Farm Langeberg 185 and Farm No. 1043 Langeberg (Malmesbury), near Langebaanweg on the West Coast, has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated prior to, proposed prospecting activities.

The proposed site is situated west of the Langebaanweg Air Force Base and both south and north of the R45 (Hopefield Road). A portion of the affected property is located directly to the north of the West Coast Fossil Park, while a large portion is also situated west of the R27 (West Coast road).

It is estimated that more than 95% of the subject property has already been heavily transformed as a result of years of agricultural activity. There is virtually no natural vegetation occurring on the proposed site.

While the entire property measures more than 2 200 ha in extent, only three target areas, measuring 399 ha, have been identified for prospecting purposes.

The aim of the archaeological study is to locate and map archaeological sites and remains that may be impacted by proposed prospecting activities, to assess the significance of the potential impacts and to propose measures to mitigate against any potential long term impacts should prospecting proceed to full scale mining.

Consulting palaeontologist, Dr John Pether, has been commissioned to undertake a Phase 1 Palaeontological Impact Assessment (desk top study) of the proposed project.

The following findings were made:

- A few Later Stone Age, Middle Stone Age and Early Stone Age tools were documented during the study but these are spread very thinly and unevenly over the surrounding landscape. The archeological remains occur in severely disturbed contexts and have been rated as having low local significance.
- Some fragmented fossil bone was found in an old limestone quarry opposite the Transnet Iron Ore Railway Line west of the R27 (West Coast Road)
- The remains of an abandoned farm workers cemetery were documented in one of the proposed target areas. Sadly, this 'site' has been severely damaged by ploughing activities, but the integrity of the site (as a place of memory) remains intact. At least 35 graves (or their remains) were counted, most of them comprising piles of Koffieklip. All burials sites and graves are protected under the National Heritage Resources Act (No of 1999) and may not be damaged or disturbed without a permit issued by the South African Heritage Resources Agency (SAHRA).

With regard to the proposed prospecting for phosphate on Portions 7 and 12 of the Farm Langeberg 185 and Farm 1043 Langeberg, the following recommendations are made.

- A specialist palaeontologist must be appointed to inspect and examine all prospecting test pits, for possible vertebrate fossils (bones).
- The farm workers cemetery in Block F must be fenced off prior to any planned prospecting on the property and must remain fenced off and protected in perpetuity.
- Should any human remains be disturbed, exposed or uncovered during excavations and earthworks, these must immediately be reported to the archaeologist or the South African Heritage Resources Agency (Dr A. Jerardino 021 462 4502), or Heritage Western Cape (Mr Nick Wiltshire 021 483 9685).

**These measures must be included in the Environmental Management Plan (EMP) for the proposed project.**

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## **1. INTRODUCTION**

Site Plan Consulting, on behalf of Gecko Fest (Pty) Ltd requested that the Agency for Cultural Resource Management conduct an Archaeological Impact Assessment for the proposed prospecting for Phosphate (Calcium Phosphate), on Portions 7 and 12 of the Farm Langeberg 185 and Farm No 1043 Langeberg (Malmesbury), near Langebaanweg on the Cape West Coast.

Methods of prospecting will entail excavator trial pits to a depth of approximately 5m and tracked percussion drill rigs to a depth of 12m. Trial pits may be up to 5m long. In total, 270 test pits will be excavated (Site Plan Consulting 2008).

The extent of the three properties is 2 274.13 ha. However, only three target areas measuring 399 ha have been identified for prospecting purposes. The main prospecting area is located immediately to the north and east of the old Chemfos Phosphate Mine/West Coast Fossil Park alongside the R45 (Hopefield Road).

The aim of prospecting activities is to determine the extent of the phosphate deposits which occurs in a subsurface Koffieklip layer, which is overlain by younger Langebaan Limestone sands (Site Plan Consulting 2008).

Consulting palaeontologist, Dr John Pether, has been commissioned to undertake a Palaeontological Impact Assessment (desk top study) of the proposed project.

The aim of this study is to locate and map archaeological heritage sites and remains that may be negatively impacted by proposed prospecting activities, to assess the significance of the potential impacts and to propose measures to mitigate against any potential long term impacts should prospecting proceed to full scale mining.

## **2. TERMS OF REFERENCE**

The terms of reference for the archaeological study were:

- to determine whether there are likely to be any archaeological sites within the proposed prospecting area;
- to identify and map any sites of archaeological significance within the proposed prospecting area;
- to assess the sensitivity and conservation significance of archaeological sites in the proposed prospecting area;
- to assess the status and significance of any impacts resulting from proposed prospecting; and
- to identify mitigatory measures to protect and maintain any valuable archaeological sites that may exist within the proposed prospecting area.

### 3. THE STUDY SITE

A locality map is illustrated in Figure 1.

An aerial photograph of the proposed site is illustrated in Figure 2.

The proposed mining operation is illustrated in Figure 3. It is important to note that the proposed site layout plan (indicating the locations of proposed test holes on the farm) has taken cognizance of the existing natural vegetation on the site and the relevant grid patterns have been determined to ensure there is no disturbance of any natural vegetation.

The subject property is located immediately west of the Langebaanweg Air Force Base and both north and south of the R45 (Hopefield Road). A large portion of the site is situated west of the R27 (West Coast Road). A portion of the property also lies directly north of the West Coast Fossil Park. It is estimated that more than 95% of the proposed site has been heavily transformed as a result of many years of agricultural activity. Virtually no natural vegetation occurs on the affected property, and it is surrounded by vast tracts of similarly transformed farmland. A large swathe of vegetated dunes occurs in a north south direction, directly north of the West Coast National Park. These dunes will not be mined.

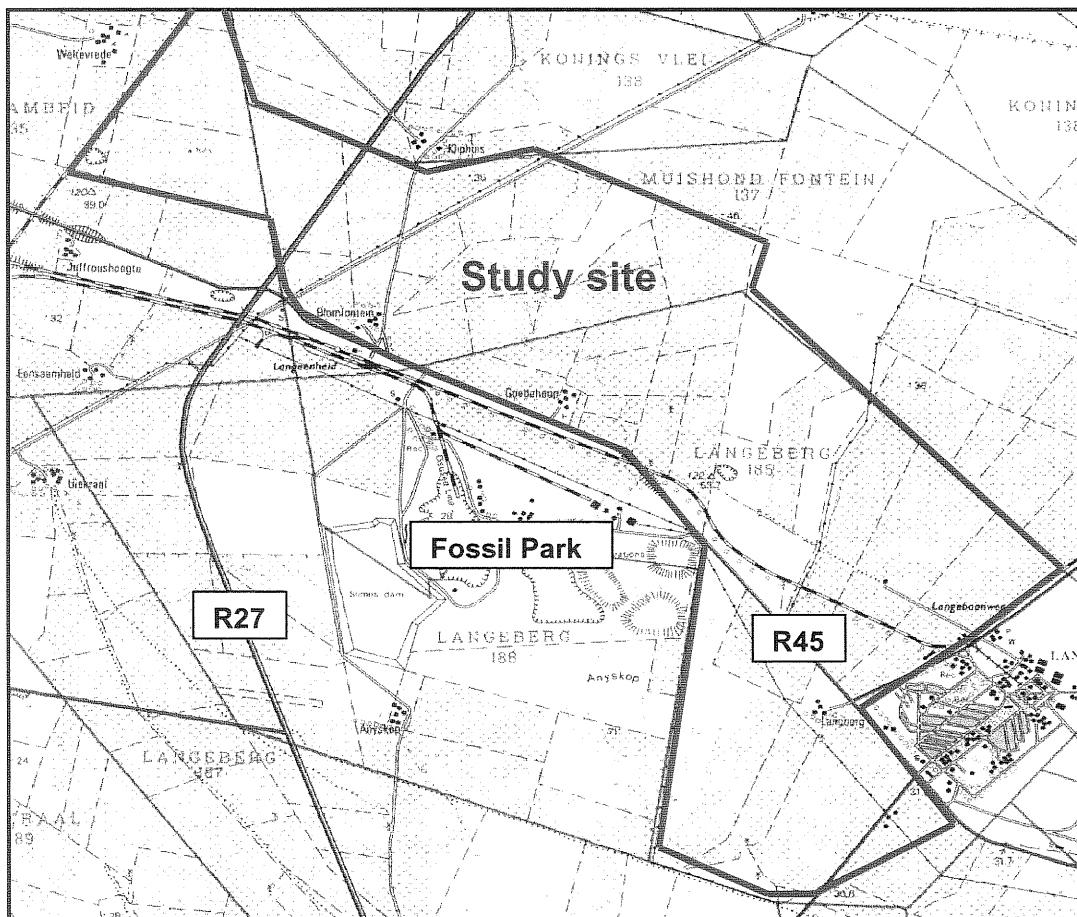


Figure 1. Locality Map (3218CA and CC Veldriff)



Figure 2. Aerial photograph of the study area

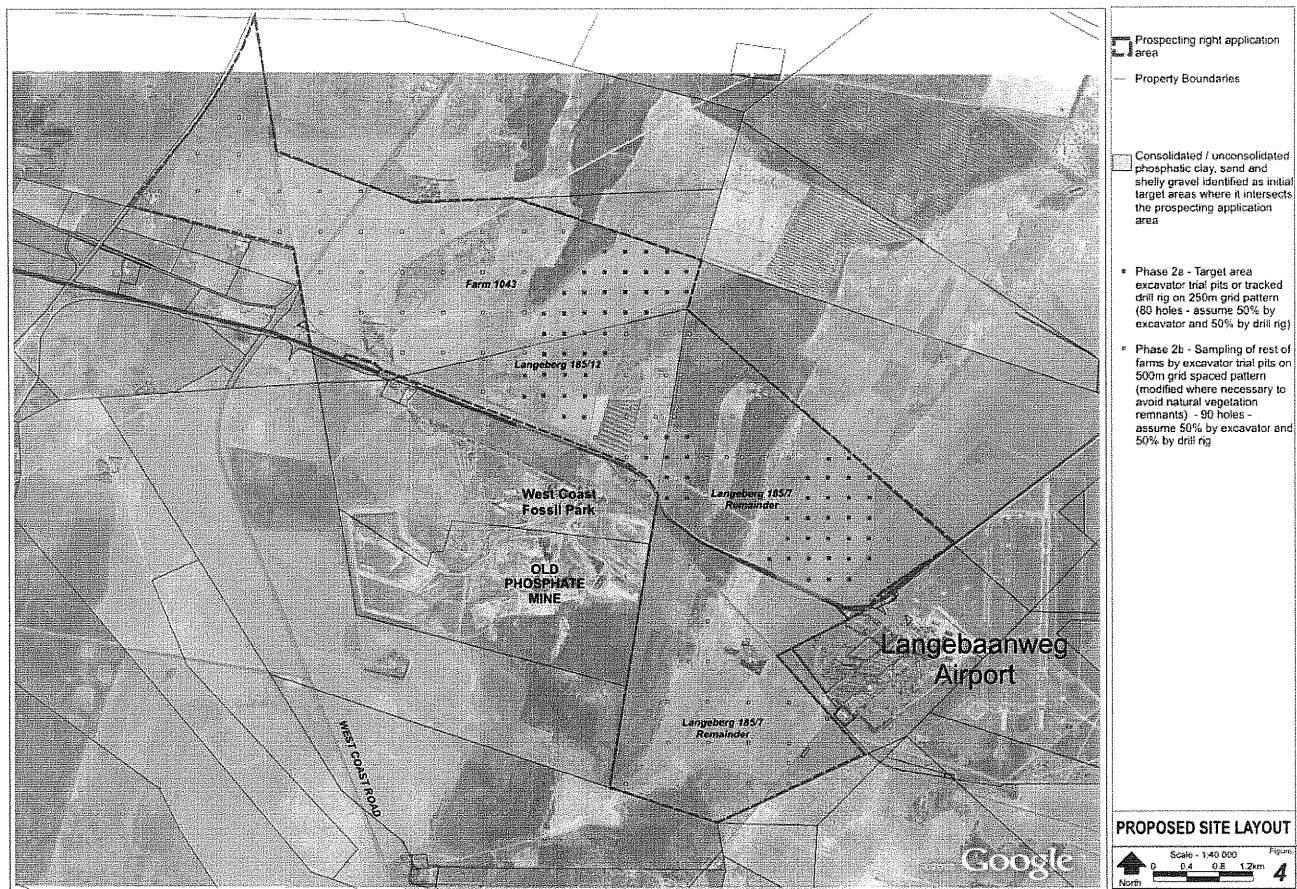


Figure 3. Proposed site layout

For ease of visual reference, the proposed site has been divided into 11 Blocks (A-K) (refer to Figure 2). While a full suite of (more than 100) digital photographs have been taken of the proposed site, only those of the proposed target areas are illustrated.

**Block A:** Comprises old agricultural lands that have not been utilized for many years. The site is mostly level, except for an elevated limestone ridge in the south western portion of the property, alongside the Transnet Iron Ore Railway Line. An, abandoned limestone quarry occurs in the extreme south western corner of the property (see Figure2). Some natural vegetation (mainly grasses and Restio) has recovered over some portions some of the site, while some wetland grasses and sporadic bush and scrub are also present. Surface calcrete occurs in the western portion of the site (opposite the Transnet Railway Line) and in the far northern corner, but overall there is very little surface stone on the site, which consists mainly of unconsolidated sands. The site is currently being grazed by ostrich and springbok. Existing infrastructure includes a concrete dam in the centre of the property, and a few concrete drinking troughs. Surrounding land use comprises mainly agriculture and smallholdings. Dune mole rat activity is extensive over parts of the property.

**Block B:** Comprises mainly level, agricultural lands alongside (i.e. west of) the R27. Some natural grasses occur in the south eastern corner of the proposed site, but overall there is virtually no natural vegetation occurring on the property, which is currently used for grazing (sheep). There is very little surface stone on the affected lands. Dune mole rat activity is extensive. There are no significant landscape features on the entire property. The surrounding land use comprises mainly agriculture, including some smallholdings in the south.

**Block C:** Comprises level agricultural lands alongside (i.e. east of) of the R27. Access to the property is from the R45 at the entrance to Boontjeskloof Farm. Until recently much of the landholdings in the northern sector were under wheat cultivation, while some of the landholdings in the south are used for grazing and are heavily trampled. Some kweek grass is evident in the northwest. Most of the lands are characterised by loose, unconsolidated sands. There are also some undisturbed areas in the northwest comprising patches of natural veld (mainly Restio). There is very little surface stone on the large site. Dune mole rat activity is extensive over large portions of the property. There are no significant landscape features on the site. Surrounding land use comprises agriculture.

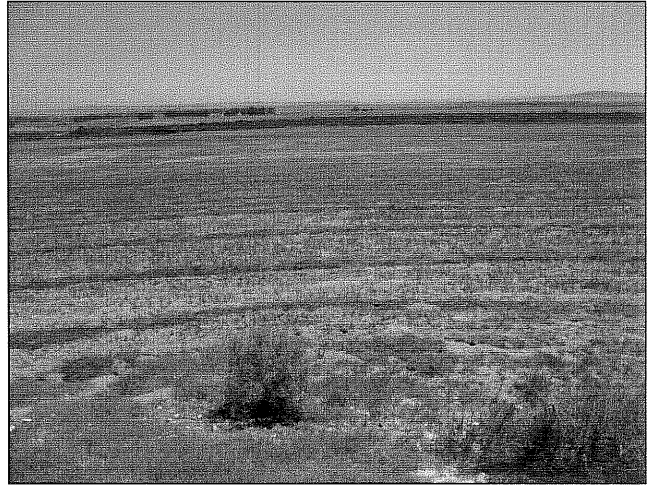
**Block D:** Comprises mostly level agricultural lands, of which a large portion is aligned alongside the R45. Access to the property is from the R45 at the entrance to Goeie Hoop Farm. Much of the landholdings aligned alongside the R45 comprise fallow agricultural land and this is currently used for grazing and is heavily trampled. Most of the landholdings in the north were until very recently under wheat cultivation. A small wetland system and seep is situated directly north and west of the Goeie Hoop Farm. A vegetated dune ridge is aligned alongside a fence line in the central portion of the property. Dune mole rat activity is extensive over much of the surrounding landscape. A patch of natural vegetation is situated in the northwest (which will not be mined). Surrounding land use comprises agriculture.

**Block E:** Comprises mainly agricultural lands (Figures 4 -11). Until recently the majority of these lands were covered in wheat, which has recently been harvested. The site is mostly level but slopes gently from north to south. Apart from some natural veld in the south west, there is virtually no natural vegetation occurring on the site. **Most of the prospecting activities will take place in Block E.** There are no significant landscape features on the proposed site. Surrounding land use comprises agricultural and the large corridor of natural dune veld to the east, that will not be mined.





**Figure 4. Block E. View facing south**



**Figure 7. Block E. View facing west**



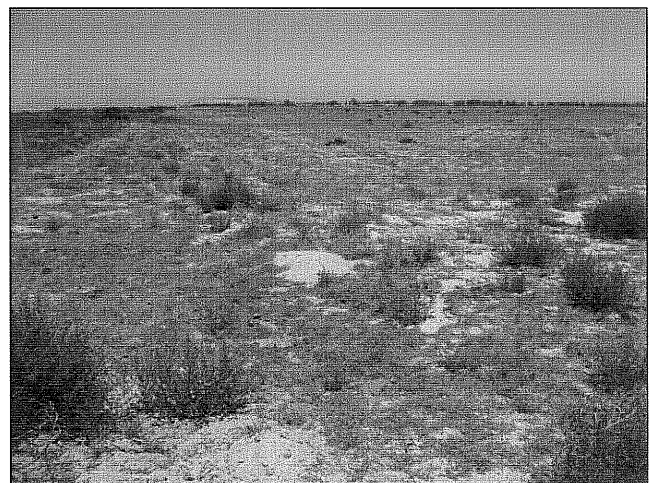
**Figure 5. Block E. View facing north**



**Figure 8. Block E. View facing south**



**Figure 6. Block E. View facing west**



**Figure 9. Block E. View facing south**

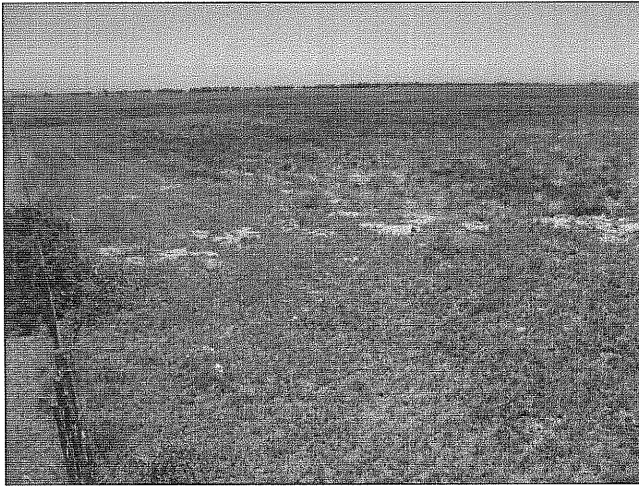


Figure 10. Block E. View facing south west

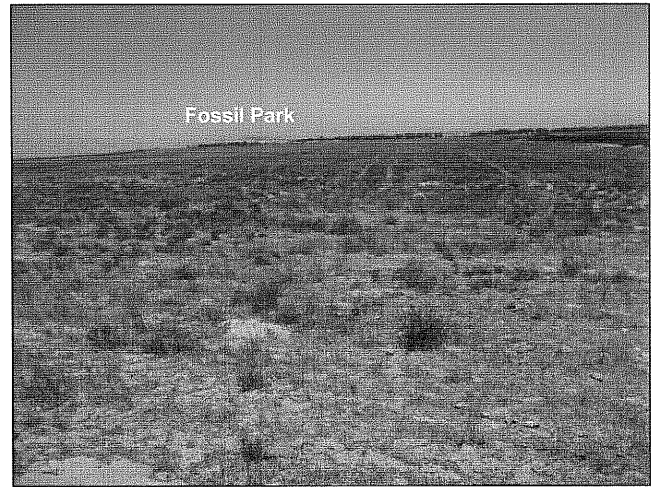


Figure 11. Block E. View facing south

**Block F:** Comprises level agricultural land, now mostly used for grazing purposes (Figures 12-23). There is virtually no vegetation occurring on the site. **Prospecting activities will also take place in Block F.** The southern boundary of the site borders an abandoned railway line. The north eastern portion of the site borders the Langebaanweg Airport road. An abandoned workers cottage occurs at the end of a gravel track that cuts across the central portion of the property. There is some surface stone (Koffieklip and some limestone) occurring to the north of the workers cottage, while some surface calcrete is present in the north eastern portion. Other than that there is very little surface stone occurring on the property. Several large piles of Koffieklip occur northwest of the workers cottage. Existing infrastructure includes some concrete drinking troughs and a concrete reservoir. There are no significant landscape features occurring on the property. Surrounding land use comprises agriculture, natural veld to the west and the Langebaan Airport to the east.

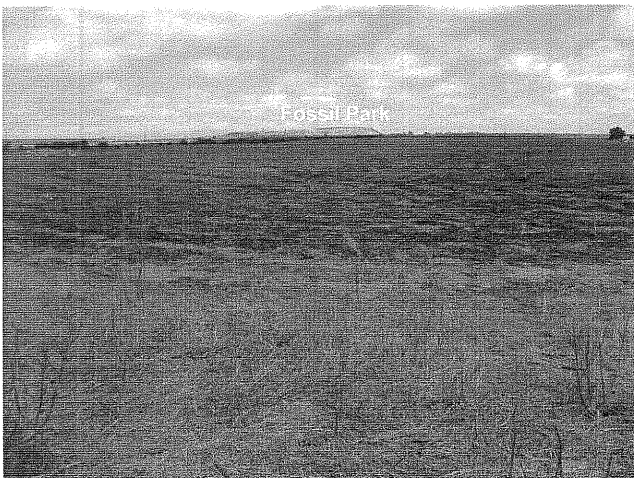


Figure 12. Block F. View facing south

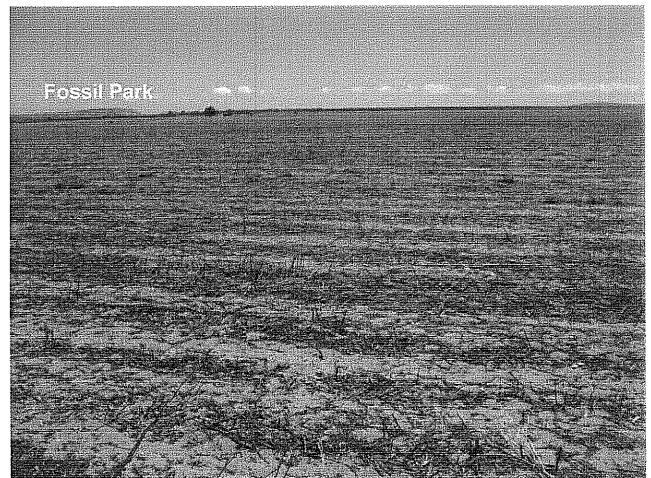
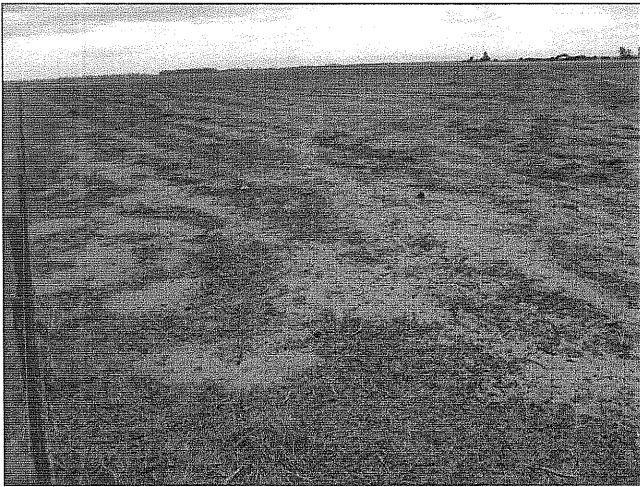
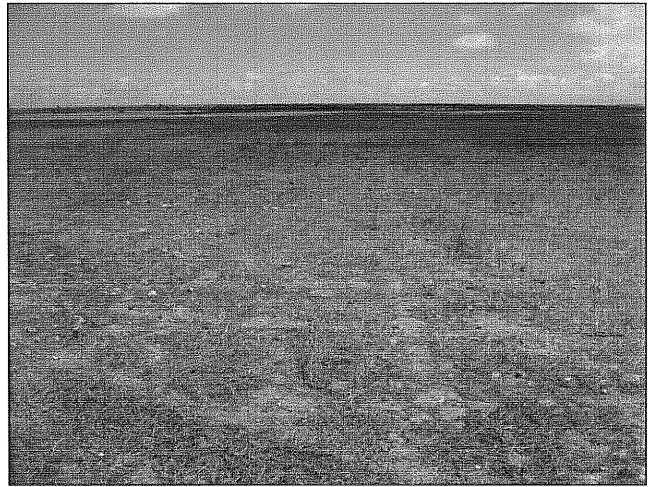


Figure 13. Block F. View facing south west





**Figure 14. Block F. View facing west**



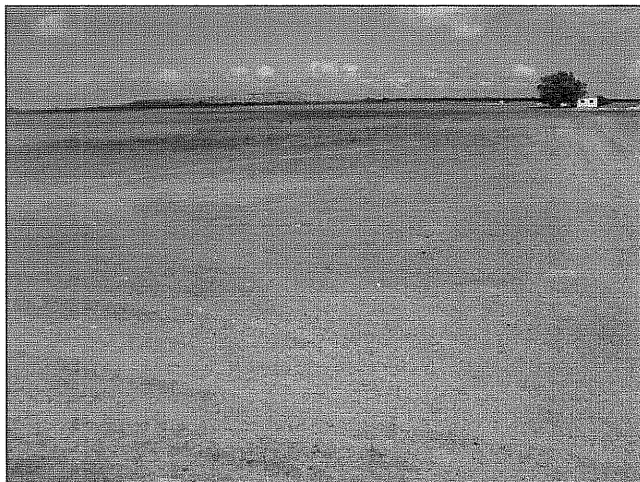
**Figure 17. Block F. View facing north**



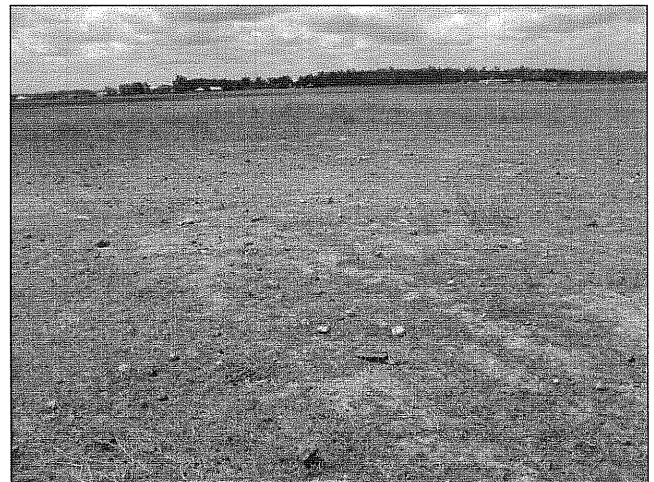
**Figure 15. Block F. View facing south east**



**Figure 18. Block F. View facing east**



**Figure 16. Block F. View facing west**



**Figure 19. Block F. View facing east**



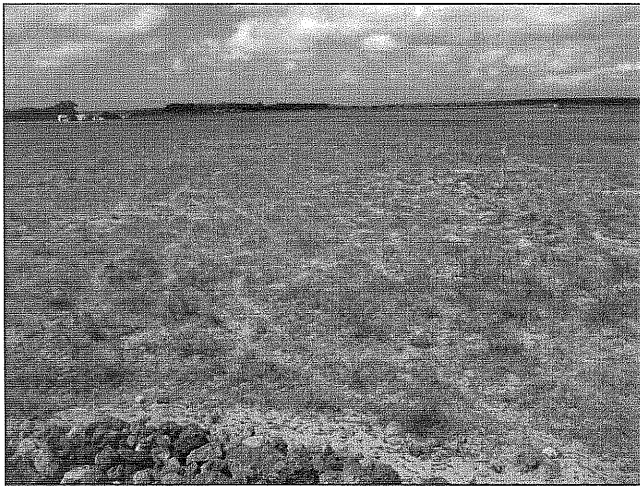


Figure 20. Block F. View facing south

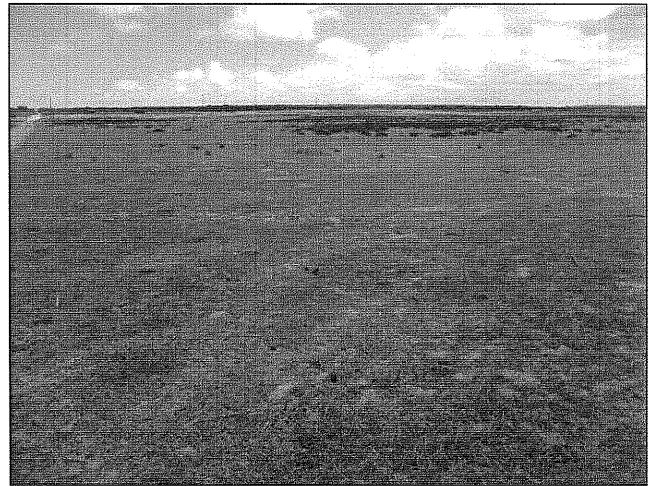


Figure 22. Block F. View facing west

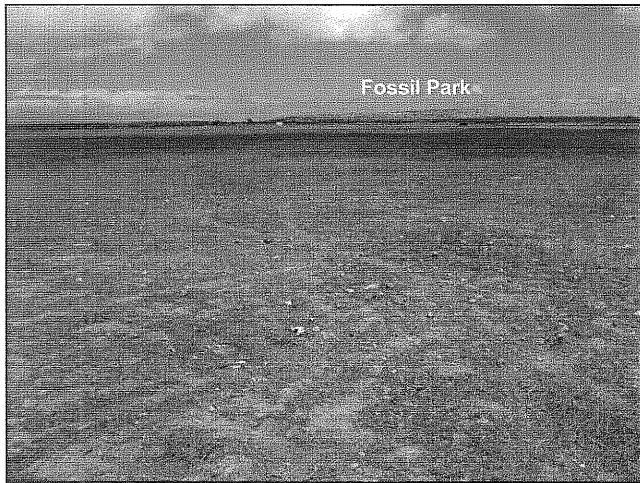


Figure 21. Block F. View facing south

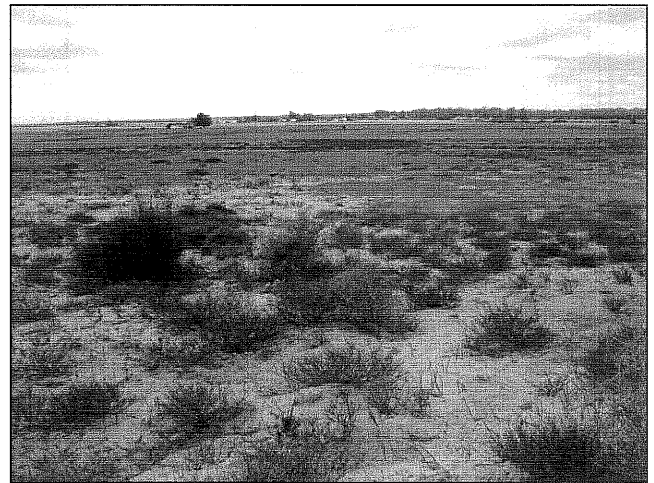


Figure 23. Block F. View facing north east

**Block G:** Comprises old agricultural lands situated alongside (i.e. north of) the R45 and directly west of the Langebaanweg Airport road. Until recently the lands were covered in wheat, but have since been harvested. The site is fairly level, but slopes slightly from west to east and is characterised by loose unconsolidated sands. There is some natural vegetation in the western portion of the proposed site, where it borders a large corridor of dunes and natural veld (alongside Block E). There is some surface stone on the property, mainly small nodules of calcrete and some surface calcrete alongside the Langebaanweg Airport Road. There are no significant landscape features on the site. The surrounding land use comprises agriculture and the Langebaan Air force base.

**Block H:** Comprises old agricultural lands situated alongside (i.e. south of) the R45 that have not been utilized for some years. The site is level and is characterised by loose unconsolidated sands. Dune mole rate activity is extensive over the site. There is virtually no natural vegetation on the land. There are no significant landscape features on the site. The surrounding land use comprises agriculture. The land is currently being grazed by sheep and ostrich and is heavily trampled in parts.

**Block I:** Comprises a large block of agricultural lands that until recently were covered in wheat fields. The site is mostly flat, but slopes gently from south to north. There is virtually no natural vegetation on the land, but a few sporadic trees occur in places. The soils are very loose and sandy. Natural veld occurs alongside the western and southern boundary. Some remnant sand dunes occur in the north western corner but these have been quite severely damaged by 4 x 4 activity. There is some dispersed surface calcrete (mainly small nodules and chunks), but this occurs mainly near the eastern boundary adjacent to Block J).

**Block J:** Comprises mostly old agricultural lands that have lain fallow for some years, but a long wide strip in the east and south was recently harvested for wheat. The site lies adjacent (i.e. west of) the road to Langebaan and alongside (i.e. south of) the R45. Some natural veld occurs alongside the southern boundary. There are also some remnant sand dunes in the south eastern corner of the site. The site is fairly level, but does slope gently from south to north. It is also contoured in the south. Old plough lines are evident. There is some calcrete (nodules and chunks) alongside the Langebaan road and alongside the R45, while some thin and dispersed scatters of calcrete occur sporadically over the remainder. Some surface calcrete is exposed in the central portion. There is virtually no natural vegetation on the land, apart the natural sporadic vegetation mentioned in the south east. A few (wild olive) trees occur sporadically in the east. There are no significant landscape features on the site. Surrounding land use comprises agriculture. Much of the land is currently being grazed by sheep.

**Block K:** Comprises old agricultural lands. The northern portion of the farm was recently harvested for wheat, while the southern portion has not been utilized for some years. The triangular-shaped site is flat and lies adjacent to the Langebaan road and alongside (i.e. south of) the R45. The site is covered with large numbers of loose, calcrete, of which large piles are stacked alongside the Langebaan road next to a concrete reservoir and windmill. Some surface calcrete occurs in places. The site is quite heavily overgrazed and trampled in the south. There are no significant landscape features on the site. There is no natural vegetation occurring on the proposed site. Surrounding land use comprises agriculture and the Langebaan Air Force Base directly to the north.

## **4. APPROACH TO THE STUDY**

### **4.1 Method**

The focus of the archaeological study was on the proposed 399 ha target area (Phase 2a) which was searched in detail (see Figure 3), while the non-target area (Phase 2b) was scanned for archaeological remains, as requested by the client. A full series of digital photographs of each of the Blocks (scanned) was taken during the course of the study.

The proposed target area (Phase 2a) corresponds to Block E and Block F.

The site visit and assessment took place over six days, on the 22<sup>nd</sup> and 23<sup>rd</sup>, 27<sup>th</sup> and 28<sup>th</sup> January and 23<sup>rd</sup> and 26<sup>th</sup> February, 2009.

A desktop study was also undertaken.

### **4.2 Constraints and limitations**

There were no constraints or limitations associated with the archaeological study.

### **4.3 Identification of potential risks**

- Vertebrate fossils (bones) may possibly be uncovered or exposed should test excavations penetrate into limestone deposits and associated fossil-bearing sediments.

### **4.4 Results of the desk top study**

Several archaeological impact assessments have been undertaken on properties close to the proposed phosphate mine. A few Early Stone Age (ESA) tools were documented on a large portion of land alongside the R27 (Kaplan 2007a). A Later Stone Age (LSA) site with a few stone flakes and some ostrich eggshell was recorded in a wind deflated sand basin overlooking the south western boundary of Langeberg Farm (refer to archaeological site in Figure 2). A few ESA and Middle Stone Age (MSA) tools were also documented during the study of the proposed Parklands Industrial Development alongside the Orex Rail Terminal in Vredenburg, (Kaplan 2008a) while some dispersed LSA flakes were counted during an assessment of a proposed sand mine alongside the R45 in Vredenburg (Kaplan 2008b). All these occurrences were characterised by very low density scatters in highly disturbed (agricultural) and compromised environments.

Closer to the coast, however, the density and visibility of archaeological remains is much higher. Scatters of shellfish and LSA flakes were documented on the Farm Pienaars Poort in Saldanha Bay (Kaplan 2006a, 2007b). LSA flakes, ostrich eggshell and pottery were found among the Spreeuwal Dunes about 2.5 km south east of Blue Water Bay in Saldanha Bay (Kaplan 1994). LSA artefacts, glass, ceramics and other domestic items were documented at Salamander Cove in Saldanha Bay (Kaplan 1997a). MSA and LSA flakes were documented on the Duferco Steel Mill site (Kaplan 1997b) in the Saldanha Industrial Development Zone (IDZ). ESA MSA, and LSA tools and pottery were documented during monitoring of construction activities at Saldanha Steel (Kaplan 1996a). A surface collection of glass, ceramics, bone, buttons and other artefacts from a

late 19<sup>th</sup> century shepherds hut (veewagterhuis) was also carried out at Saldanha Steel (Kaplan 1996b).

Middle Pleistocene occurrences and the recovery of human remains in the limestone deposits at Sea Harvest, in Saldanha Bay, has also provided some of the earliest evidence we have in the world for the human exploitation of coastal resources, more than 100 000 years ago (Grine & Klein 1993; Volman 1978).

Beside evidence of well preserved bone, ostrich eggshell, ochre and MSA stone implements, the Hoedjiespunt (limestone) sediments in Saldanha Bay also contains evidence of early modern human about 125 000 years ago (Berger & Parkington 1995).

## **5. FINDINGS**

**Block A:** One Early Stone Age quartzite flake was found alongside the railway line in the far north western portion of the site.

Some fragmented fossil bone was found in the old limestone quarry opposite the Transnet Iron Ore Railway Line west of the R27 (see Figure 2).

**Block B:** No archaeological remains were documented in Block B.

**Block C:** No archaeological remains were documented in Block C.

**Block D:** No archaeological remains were documented in Block D.

**Block E:** No archaeological remains were documented in Block E.

**Block F:** One Middle Stone Age (MSA) quartzite flake was found in the small gravel road leading to the abandoned farm workers cottage. One broken quartzite MSA flake was found among a surface scatter of calcrete and Koffieklip to the north of the workers cottage, while one ESA flake was found among several large piles of Koffieklip about 150 m north west of the farm workers cottage.

**Block G:** No archaeological remains were documented in Block G.

**Block H:** No archaeological remains were documented in Block H

**Block I:** No archaeological remains were documented in Block I

**Block J:** One broken quartzite cobble and one partially ground rounded quartzite cobble was found in a small sand track on the northern boundary of Block J. Block J borders natural veld and stable dunes and it is possible that some sites may occur among the dunes in this area.

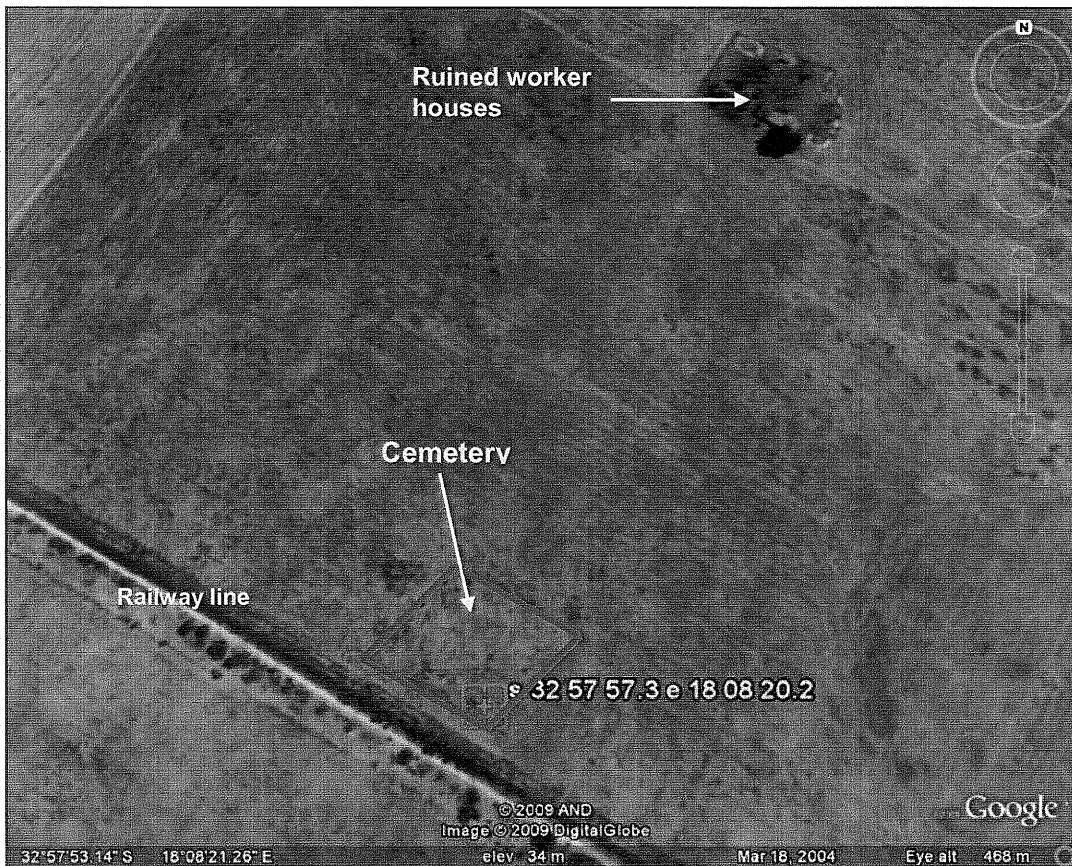
**Block K:** No archaeological remains were documented in Block K.

**The archaeological remains have been rated as having low local significance**

## 5.1 Other finds

The remains of an abandoned and neglected farm workers cemetery was located in Block F, in a slight depression about 25m north of the railway line, and about 350m south of the ruined workers cottage (see Figure 2 and Figure 24). The cemetery falls within the target area in Block J. Sadly this 'site' has been severely damaged by ploughing activities, but the integrity of the site (as a place of memory) remains intact (Figures 25-27). At least 35 graves (or their remains) were counted in three defined rows in a north-south axis, all of them comprising mounds or loose piles of Koffieklip<sup>1</sup>. Some glass jars, broken pieces of glass and small pieces of bleached marine shellfish are scattered about, as well as one small wooden cross. Some rusted fencing was also noted. A few of the graves have Koffieklip head and footstones (indicating they are Christian burials), while much Koffieklip is dispersed over a fairly wide area (most likely the result of ploughing activities). One concrete cross, bearing the name of Daniel Rapitsh – died 31-9-1962, was also identified (Figure 28). The surrounding area has been heavily trampled and overgrazed. A few sporadic trees and bush are scattered about, while a large pile of calcrete and Koffieklip is located alongside the graves, on the western side.

Graves are protected under the NHR Act and may not be damaged or disturbed without a permit issued by the South African Heritage Resources Agency (SAHRA).



**Figure 24. Aerial photograph showing the location of the grave site**

<sup>1</sup> GPS co-ordinates for the four corners of the cemetery have been taken by the archaeologist



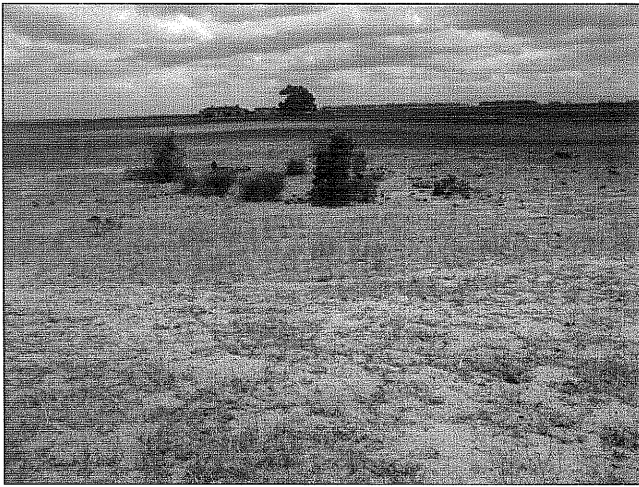


Figure 25. Grave site facing north west

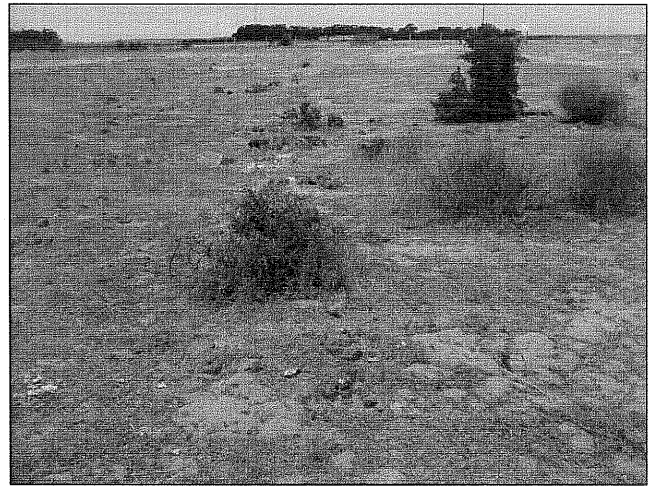


Figure 27. Grave site facing south

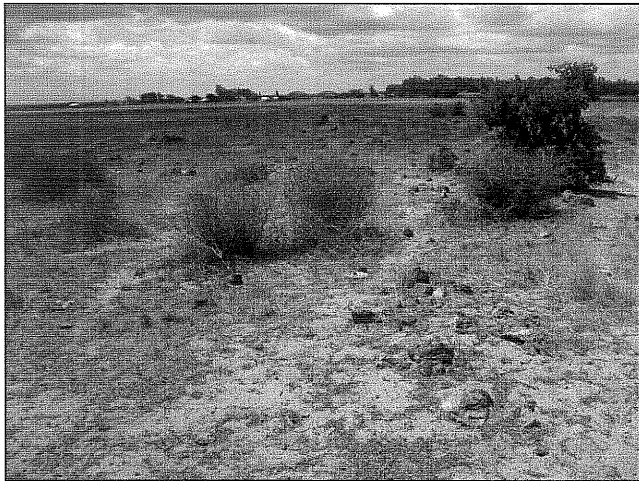


Figure 26. Grave site facing east

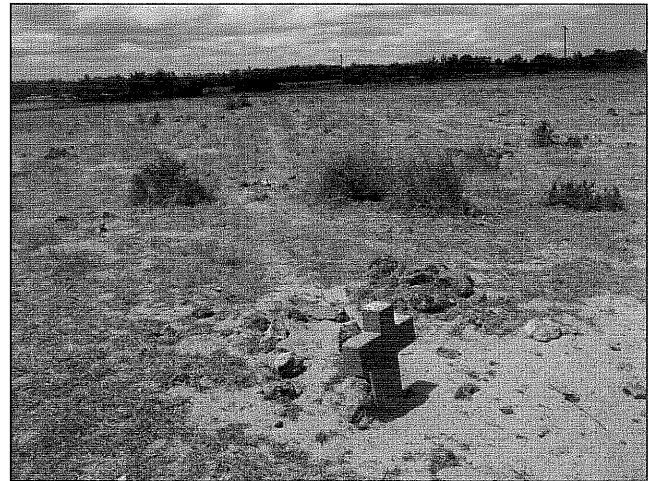


Figure 28. Concrete cross in the foreground

## 6. IMPACT STATEMENT

The Phase 1 Archaeological Impact Assessment has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated prior to the proposed prospecting for grade exploitable phosphate.

It is estimated that more than 95% of the proposed site has already been heavily transformed and modified as a result of farming activities.

The probability of locating important pre-colonial archaeological heritage remains during implementation of the project is likely to be **low**.

Unmarked pre-colonial human burials may possibly be uncovered or exposed during prospecting operations.

Potentially important vertebrate fossils (bones) may be uncovered or exposed should test excavations penetrate or intersect any limestone or associated fossil bearing sediments.

Prospecting in the `target area' (Block F) alongside the railway line (refer to Figure 2 and 3) will definitely impact on the abandoned farm labourers cemetery.

## **7. RECOMMENDATIONS**

With regard to the proposed prospecting for phosphate on Portions 7 and 12 of the Farm Langeberg 185 and Farm 1043 Langeberg (Malmesbury District), the following recommendations are made.

- A specialist palaeontologist must be appointed to inspect and examine all prospecting test pits, for possible vertebrate fossils (bones).
- The farm workers cemetery (in Block F) must be fenced off prior to any planned prospecting on the property and must remain fenced off and protected in perpetuity.
- Should any human remains be disturbed, exposed or uncovered during excavations and earthworks, these must immediately be reported to the archaeologist or the South African Heritage Resources Agency (Dr A. Jerardino 021 462 4502) or Heritage Western Cape (Mr Nick Wiltshire 021483 9685)

**These measures must be included in the Environmental Management Plan (EMP) for the proposed project.**

## 8. REFERENCES

- Berger, L.R., & Parkington, J.E. 1995. A new Pleistocene hominid-bearing locality at Hoedjiespunt, South Africa. *American Journal of Physical Anthropology* 98:601-609.
- 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* 88:145-152.
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