

**PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT
PROPOSED CONSTRUCTION OF A NEW RESIDUE DAM
NAMAKWA SANDS SMELTER
SALDANHA BAY**

Prepared for: **Resource Management Services**

Client: **Namakwa Sands**

By

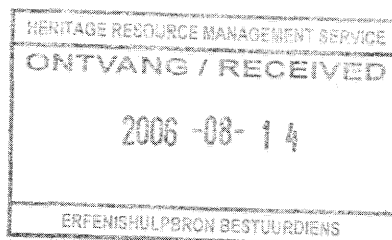
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**JULY
2006**

Executive summary

Resource Management Services, on behalf of Namakwa Sands, requested that the Agency for Cultural Resource Management conduct a Phase 1 Archaeological Impact Assessment for the proposed construction of a new residue dam at the Namakwa Sands Smelter in Saldanha Bay.

The extent of the proposed development (about 3 ha) falls within the requirements for an archaeological impact assessment as required by Section 38 of the South African Heritage Resources Act (No. 25 of 1999).

The aim of the study is to locate and map archaeological heritage sites and remains that may be negatively impacted by the planning, construction and implementation of the proposed project, to assess the significance of the potential impacts and to propose measures to mitigate against the impacts.

Consulting palaeontologist Dr John Pether has been appointed to undertake a palaeontological impact assessment of the proposed project.

*collection → Permit for
for already applied*

The proposed dam site is located directly alongside the existing residue dam at the Namakwa Sands Smelter. The vacant site is covered with a mix of natural veld, resulting in fairly low archaeological visibility.

No archaeological heritage remains were located during the baseline study.

However, significant vertebrate fossils (bones) embedded in the aeolianites of the Langebaan and Varswater Formation, were found in the cuttings and exposures and among the spoil dumps alongside the existing residue dam, when the dam was built about 10 years ago. These deposits occur less than 200 m from the proposed new residue dam. Of particular importance is a jumble of vertebrate fossils from a possible hyena lair.

With regard to the proposed development of a new residue dam at the Namakwa Sands Smelter in Saldanha Bay, the following recommendations are made.

- No archaeological mitigation is required.
- A specialist palaeontologist must be appointed by Namakwa Sands to inspect and examine excavations and exposures for vertebrate fossils (bones) during the Construction Phase of the project.
- Perhaps Namakwa Sands could make funds available for an excavation of the fossil bones embedded in the Langebaan and Varswater Formation aeolianites alongside the existing residue dam.
- Should any human remains be disturbed, exposed or uncovered during excavations and earthworks for the proposed project, these should immediately be reported to the South African Heritage Resources Agency (Mrs Mary Leslie @ 021 462 4502), or Heritage Western Cape (Dr A. Jerardino 021 483 9692). Burial remains should not be disturbed or removed until inspected by the archaeologist.

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1. INTRODUCTION

1.1 Background and brief

Resource Management Services¹, on behalf of Namakwa Sands, requested that the Agency for Cultural Resource Management conduct a Phase 1 Archaeological Impact Assessment for the proposed construction of a new residue dam, to replace the existing residue dam at the Namakwa Sands Smelter in Saldanha Bay.

The extent of the proposed development (about 3 ha) falls within the requirements for an archaeological impact assessment as required by Section 38 of the South African Heritage Resources Act (No. 25 of 1999).

The aim of the study is to locate and map archaeological heritage sites and remains that may be negatively impacted by the planning, construction and implementation of the proposed project, to assess the significance of the potential impacts and to propose measures to mitigate against the impacts.

Consulting palaeontologist Dr John Pether has been appointed to undertake a palaeontological impact assessment of the proposed project.

2. TERMS OF REFERENCE

The terms of reference for the archaeological study were:

1. to determine whether there are likely to be any archaeological sites within the proposed site;
2. to identify any sites of archaeological significance within the proposed site;
3. to assess the sensitivity and conservation significance of archaeological sites;
4. to assess the status and significance of any impacts resulting from the proposed development; and
5. to identify mitigatory measures to protect and maintain any valuable archaeological sites that may exist within the proposed site.

¹ Namakwa Sands is represented by Mr Larry Eichstadt of Resource Management Services.
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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 Namakwa Sands Smelter is located within the proclaimed Saldanha Bay Industrial Development Zone in Saldanha Bay/Vredenburg, about 120 kms north of Cape Town. Access to the site is via the R27 (West Coast Road).

The study site ($S^{\circ} 32 57 536 E^{\circ} 18 03 202$ on map datum WGS 84) is situated about 2 kms north east of Saldanha Steel. The proposed dam site is located directly alongside the existing residue dam. The vacant, flat site is covered with a mix of natural veld such as bush, scrub and Restio grasses. Some calcrete is exposed on the surface of the site in open spaces.

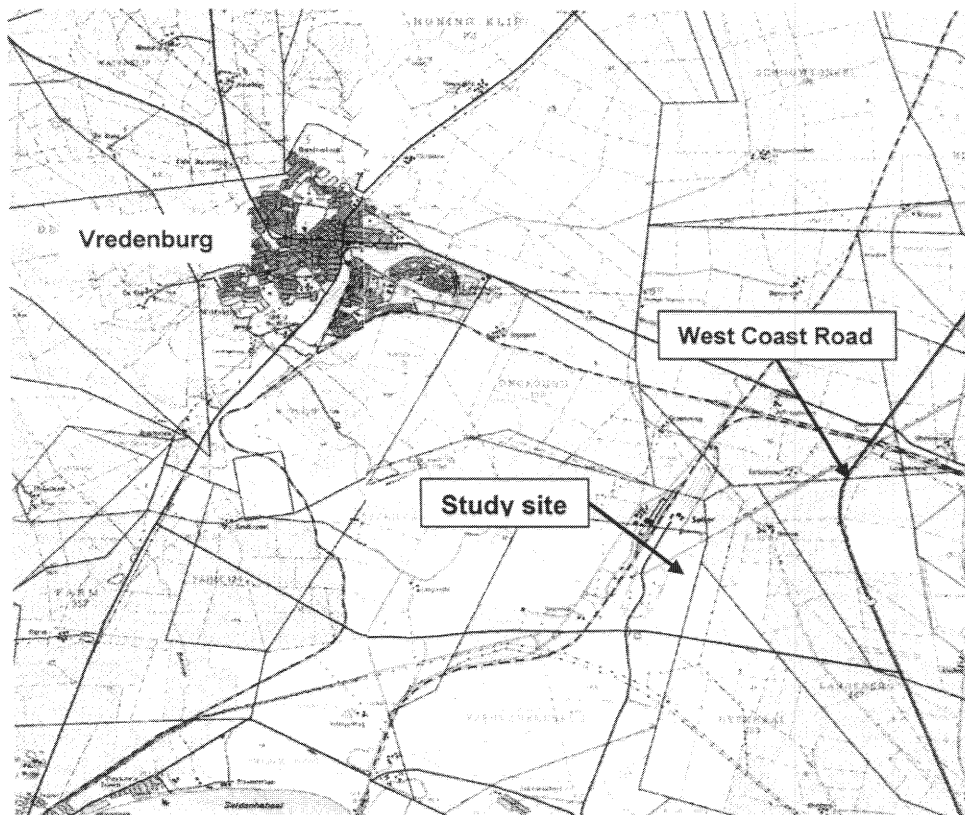


Figure 1. Site locality (3217 DB & DD Vredenburg & 3218 CC Veldriff)

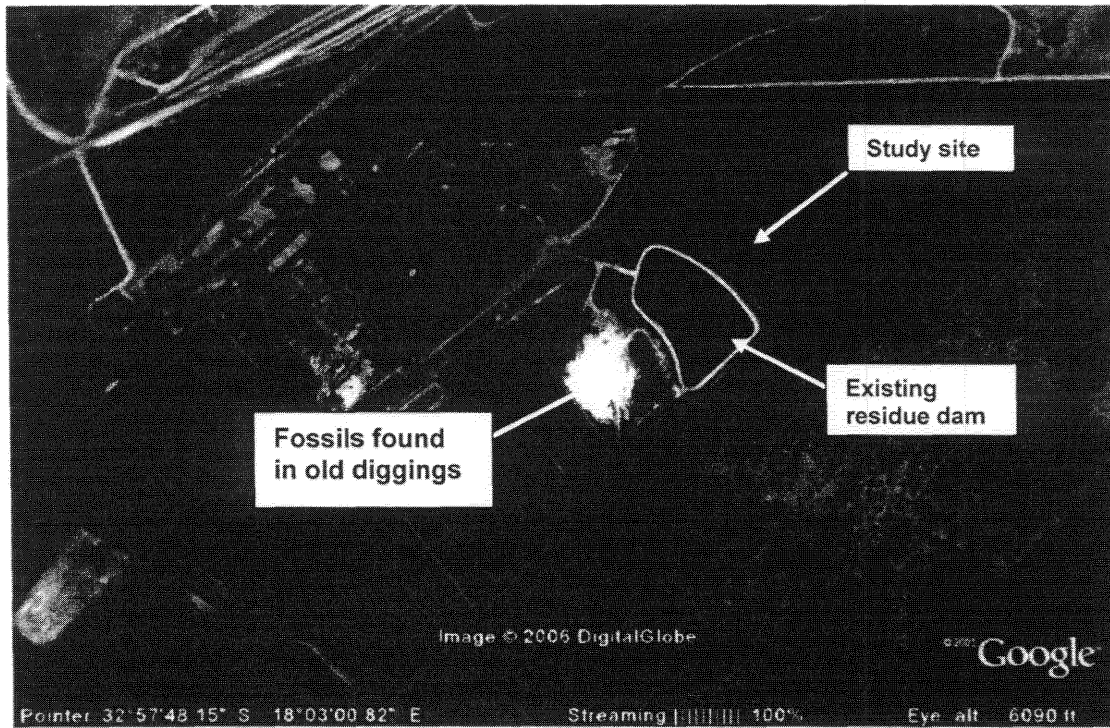


Figure 2. Aerial photograph of Namakwa Sands indicating the proposed new residue dam

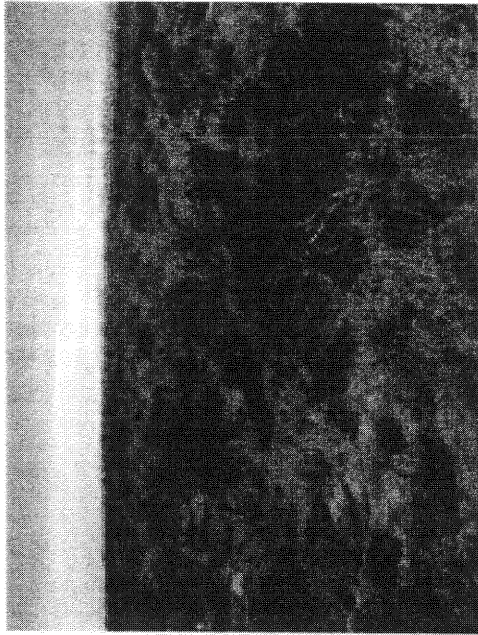


Figure 5. View of the site facing south east

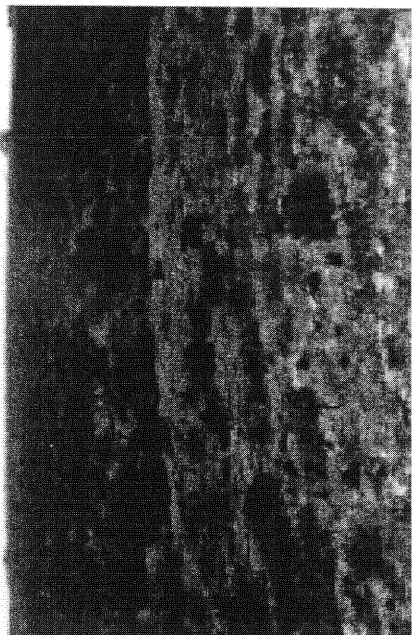


Figure 6. View of the site facing east

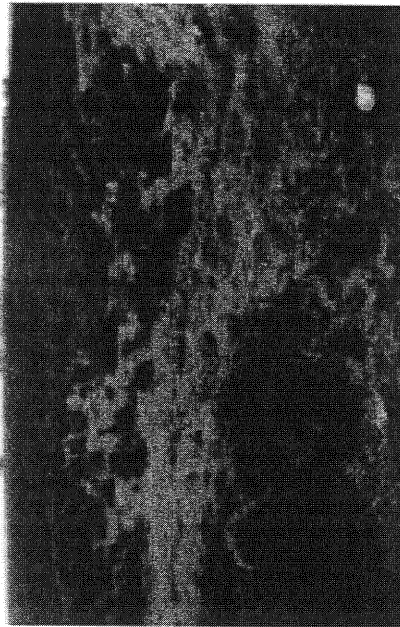


Figure 3. View of the site facing north east



Figure 4. View of the site facing south west

4. STUDY APPROACH

4.1 Method

The approach followed in the archaeological study entailed a detailed foot survey of the proposed dam site.

Archaeological heritage remains were recorded and given a co-ordinate using a Garmin Gecko 201 GPS unit set on map datum WGS 84.

The site visit and assessment took place on the 6th June 2006

A desktop study was also undertaken.

4.2 Constraints and limitations

The subject property is covered in a mix of natural veld, resulting in fairly poor archaeological visibility.

4.3 Identification of potential risks

No pre-colonial archaeological risks are associated with the proposed project, although it is very likely that vertebrate fossils (bones) will be exposed and uncovered during the Construction Phase of the proposed project

4.4 Results of the desk top study

It is well established that vertebrate fossils and archaeological occurrences in the Langebaan and Varswater Formations in the Saldanha Bay/Vredenburg area are extremely valuable sources of information on the sedimentary, chronological, palaeoenvironmental and palaeoecological context of the development of modern human behaviour during the Middle Stone Age² (MSA) and perhaps even the Early Stone Age³ (ESA) (Avery 1997).

Middle Pleistocene occurrences and the recovery of human remains in the Langebaan Limestone deposits at Sea Harvest, in Saldanha Bay, has 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).

The younger Mid Pleistocene (~ 250 000 years) Elandsfontein site near Langebaan, a hominid butchery site where ESA and MSA artefacts are found, is also associated with a large and diverse fossil fauna. The partial skull of 'Saldanha Man', probably an archaic form of Homo sapiens, was also discovered at this locality (Singer & Wymer 1968).

² A term referring to the period between 200 000 and 20 000 years ago.

³ A term referring to the period between 2 million and 200 000 years ago.

With regard to even more ancient fossil sites, the Varswater quarry near Langebaanweg has yielded Mio-Pliocene (~ 5 million years) fossils of great diversity and quantity (Hendey 1982).

Earthworks at Saldanha Steel also exposed rare and previously unknown crocodylian and other fossil remains from the Miocene Period, from deposits underlying calcareous formations during excavations for descaling pits (Roberts 1997a).

Several fossil hyena lairs have also provided glimpses of past Pleistocene (1.6 million – 200 000 years) faunas, including herbivores and carnivores, at Hoedjiespunt and Sea Harvest in Saldanha Bay and Besans Klip in Vredenburg (Roberts 1997a).

An EIA for the proposed Alpha Saldanha Cement Project in Saldanha Bay also revealed the presence of an unusual Mid-Miocene (~ 11-12 million years) fauna, including the shell of a giant extinct ostrich like bird (Roberts 1997b).

The reasons for the abundance of fossil archaeological and palaeontological remains in the Saldanha – Vredenburg - Langebaan area is in part related to the highly calcareous character of the aeolianites (fossil dunes) and shallow marine sediments. Bones and implements are readily preserved by the rapid carbonate cementation of the strata in which they become entombed.

5. LEGISLATIVE REQUIREMENTS

5.1 The National Heritage Resources Act (Act No. 25 of 1999)

... any development or other activity which will change the character of a site exceeding 5 000m², or the rezoning or change of land use of a site exceeding 10 000 m², requires an archaeological impact assessment in terms of the National Heritage Resources Act (No. 25 of 1999).

5.1.1 Structures (Section 34 (1))

No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by Heritage Western Cape (HWC), the responsible provincial resources authority.

5.1.2 Archaeology (Section 35 (4))

No person may, without a permit issued by HWC, destroy, damage, excavate, alter or remove from its original position, or collect, any archaeological material or object.

5.1.3 Burial grounds and graves (Section 36 (3))

No person may, without a permit issued by the South African Heritage Resources Agency (SAHRA), 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.

6. FINDINGS

Despite a detailed study of the proposed dam site, no archaeological heritage remains were located during the baseline study.

A few fragments of white mussel shell were counted on the site, but these are most likely related to (modern) seagull predation.

However, it must be noted that significant vertebrate fossils (bones) embedded in the aeolianites of the Langebaan and Varswater Formation, were found in the cuttings and exposures and among the spoil dumps alongside the existing residue dam, when the dam was built about 10 years ago (Figures 7 & 8 and refer to Figure 2). These deposits occur less than 200 m from the proposed new residue dam.

PALAEO.

Of particular significance, are the remains of a large tooth of a possible grazer/browser embedded in the roof of the softer aeolianites (Figure 9), the fossil root/stem and leaf of a fern-like plant (indicating a warmer climate regime), and what appears to be the remains of a hyena lair – a jumble of bone embedded in the overhang of an exposure, including the fossil remains of a small carnivore jaw and teeth, and several other bones, as well as a fossil horn core (Figure 10).

Several fossil bones were also found lying loose among the spoil dumps in this highly degraded area (Figures 11 & 12).

From a palaeontological perspective, the fossil remains, particularly those that occur in situ, are of high local significance.

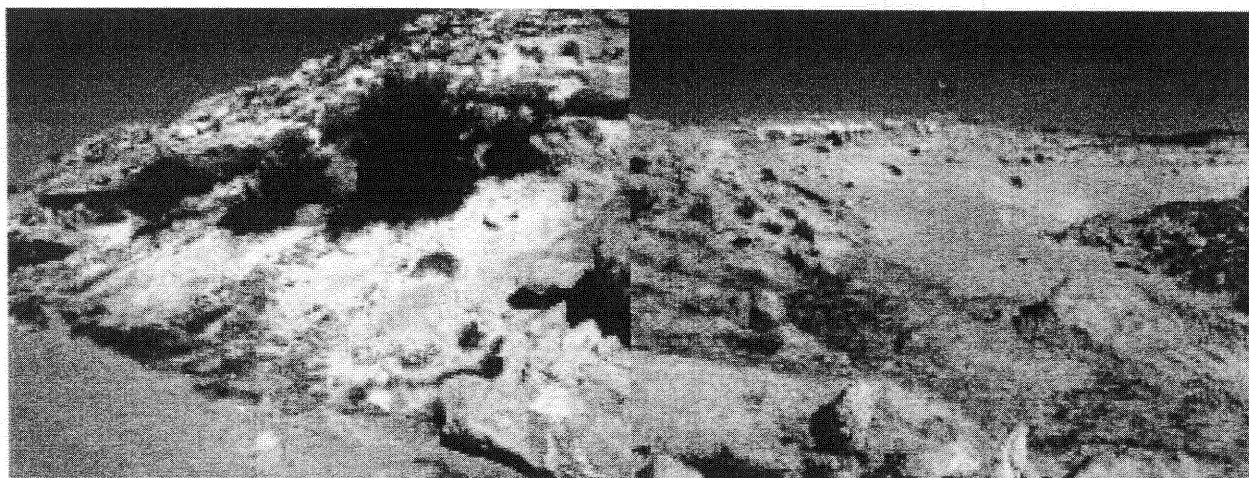


Figure 7. Old diggings alongside the existing residue dam

Figure 8. Old diggings alongside the existing residue dam

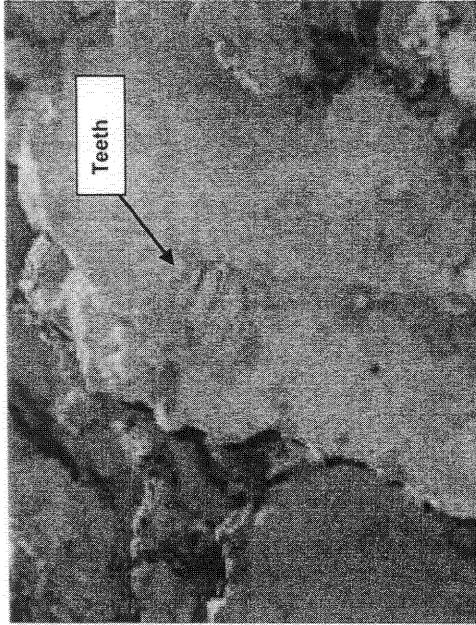


Figure 9. Fossil teeth in old diggings

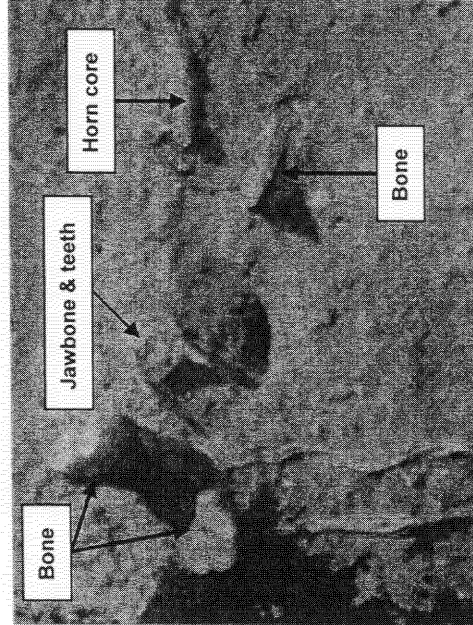


Figure 10. Fossil bone (possible hyena lair) in old diggings

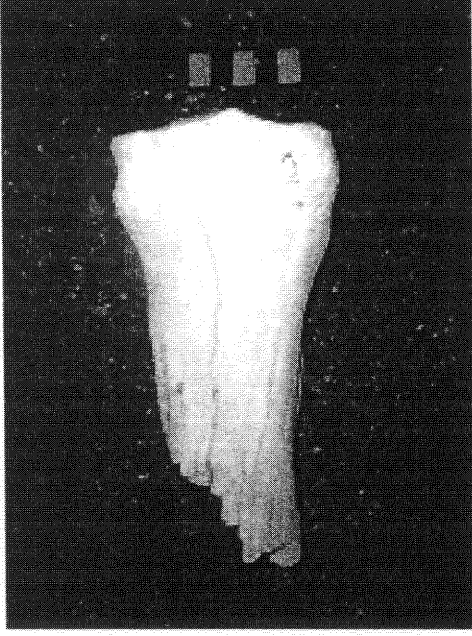


Figure 11. Fossil bone. Scale is in cm

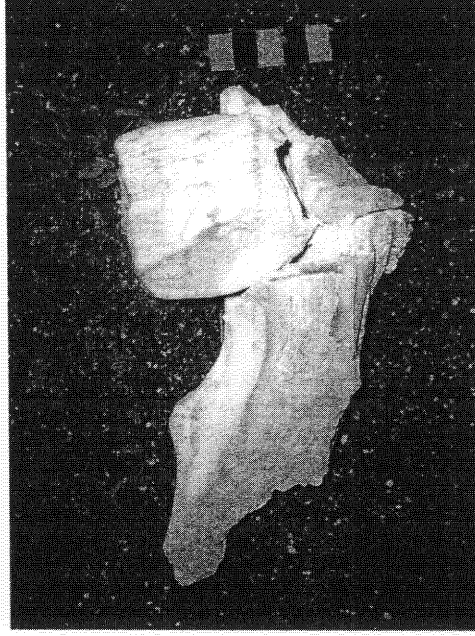


Figure 11. Fossil bone including jaw bone and teeth. Scale is in cm.

7. IMPACT STATEMENT

The impact of the proposed project on pre-colonial archaeological heritage remains is rated low.

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

The impact of the proposed project on vertebrate fossils (bones), however, is likely to be very high.

8. RECOMMENDATIONS

With regard to the proposed development of a new residue dam at the Namakwa Sands Smelter in Saldanha Bay, the following recommendations are made.

- No archaeological mitigation is required.
- A specialist palaeontologist must be appointed by Namakwa Sands to inspect and examine excavations and exposures for vertebrate fossils (bones) during the Construction Phase of the project.
- Perhaps Namakwa Sands could make funds available for an excavation of the fossil bones embedded in the Langebaan and Varswater Formation aeolianites alongside the existing residue dam.
- Should any human remains be disturbed, exposed or uncovered during excavations and earthworks for the proposed project, these should immediately be reported to the South African Heritage Resources Agency (Mrs Mary Leslie @ 021 462 4502), or Heritage Western Cape (Dr A. Jerardino 021 483 9692). Burial remains should not be disturbed or removed until inspected by the archaeologist.

- No objections from archaeol. perspective.
- As per J. Pether permit motivation for same location (page 4), Namakwa Sands has requested to collect existing vertebrate remains + other fossils ^{at nearby borrow pit} prior to the commencement of earth-moving activities.

9. REFERENCES

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