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West Coast Heavy Mineral Sand Project

Archaeological Report



WEST COAST HEAVY MINERAL SANDS PROJECT

ARCHAEOLOGICAL REPORT:

JOHN PARKINGTON AND CEDRIC POGGENPOEL

ARCHAEOLOGY CONTRACTS OFFICE

University of Cape Town

1. SUMMARY

A four day field search in the area of the West Coast Heavy Mineral Sand Project revealed the existence of at least 100 archaeological sites where none had previously been recorded. Without doubt there are more than twice that number either covered in sand or beyond the sample area looked at by us. These sites range in age from the very recent, probably only a few hundred years old, to the more ancient, probably more than 100,000 years old. Included among them are stone quarries, occupied rock shelters, temporary camps in deflated dunes and shell middens along the coastline. No comparable surveys have previously been carried out in the coastal region between the mouths of the Olifants and Orange rivers. The sites we have found represent the remains of the settlement history of an area that is so far totally unresearched. It is strongly recommended that surface and near surface archaeological sites endangered by Heavy Mineral Sand Processing be mapped and excavated prior to any earth movement and that a programme of co-operation between Anglo American/De Beers Mining interests and archaeologists be initiated to deal with more deeply buried sites of great potential significance.

2. INTRODUCTION

We know virtually nothing of the history of human settlement in Namaqualand. Partly because of the region's relative remoteness from archaeological research centres and partly because of its aridity and harshness of climate, Namaqualand remains an enigmatic blank on the archaeological map. To our knowledge only a handful of sites are known and perhaps 5 cubic metres of archaeological deposit have been systematically analysed along the whole coastline between Lamberts Bay and Luderitz. Thus, the potential of the area, hinted at in early colonial records such as the diaries of Gordon and Paterson remains unrealised. Among other issues, this was probably the region through which Khoi pastoralists, the 'Hottentots' of van Riebeeck, entered the south western Cape.

No regions of southern Africa should be subject to destructive earth moving processes before the archaeological and historical heritage has been mapped and, where possible, protected. The opportunity to examine the area projected for heavy mineral sand mining came as a welcome initiative. Our experience south of the mouth of the Olifants river suggested that we might expect to find hundreds of sites in the 50 - 100 square kilometres in the immediate vicinity of this particular project. Moreover, because the area differs in bedrock geology, stone tool raw materials, topographic relief and water distribution from the south western Cape, quite a distinct history of settlement would be expected. Every mining or road building operation abounds in subsidiary earthmoving operations such as access road construction, housing and other facility provision, dumping, quarrying and in some cases levelling. For this reason we have taken our brief as extending beyond the zone earmarked as the heavy mineral sand body due for processing and looked in particular at the adjacent shoreline.

3. METHOD

Our approach to the field search was to drive to as many parts of the target area as was possible in a small 4-wheel drive vehicle and from there to foot-search the landscape for archaeological remains. Figure One presents the drive/walk paths we completed. Experience has shown that pre-colonial people chose to live in fairly predictable parts of the landscape often corresponding to those preferred by current inhabitants. Thus, although we did trudge through fairly featureless parts of the landscape (and usually found nothing), we concentrated on looking in deflated basins in recent aeolian sand bodies and at any natural rock outcrop that might have provided shelter, water or raw materials for stone tool manufacture. We also looked along stream channels and near to rocky intertidal shores where shellfish colonies are superabundant. We made use of any natural or humanly induced erosional feature to view into the grey-white, orange and red sand bodies that might harbour well covered sites. What we defined as a site was any scatter of flaked stone, animal bone, ostrich eggshell or pottery, any scatter of marine shell or any rock shelter deposit that appeared to be primarily the result of human behaviour rather than of natural (geological) origin. We have been able to locate and distinguish natural shell banks that are the remains of ancient marine or estuarine beaches, themselves of some considerable interest. We mapped each site on xerox copies of 1:50,000 maps, located them on air photographs and made descriptive notes on the contents and significance of each site. We recorded our search paths so as to distinguish 'the evidence of absence from the absence of evidence'. Although our remarks relate strictly to the area searched, we believe our results have a general predictive relevance for a substantial part of the Namaqualand coastal belt.

4. RESULTS

We located 100 archaeological sites (Appendix A), although with the extensive sand cover these should perhaps be thought of as visible patches of archaeological material rather than necessarily discrete occupations. This constitutes a set of observations as dense as are known from areas such as the Cape Peninsula, belying any notion of archaeological insignificance. The patches, numbered simply 1 - 100, are plotted on Figure Two. Rather than describe all sites individually, a procedure that would involve much repetition, we have chosen to use some informal site categories that are also used in the legend of Figure Three.

Rock shelters:

We located only one rock shelter with archaeological deposit on the Groot Goeraprivier just west of Goerap. The significance of this observation is simply to show that any bedrock outcrop in the vicinity, particularly one offering some shelter, will contain archaeological sites. We saw two more likely outcrops from the road south west of Goerap. The Goerap site (# 24) is probably about a metre deep and contains impressive quantities of stone artefacts and faunal remains. It is an extremely valuable record of one aspect of local pre-colonial settlement going back in all probability several thousand years. There were no rock paintings on the walls, and we saw no potsherds on the surface of the shelter deposit.

Raw material outcrops:

In our search we found one silcrete outcrop (# 14) and one cobble scree (# 23) that had clearly both been used by stone using people as raw material sources. In each case there were flakes and cores which could not simply be ascribed to natural fracture. The chances are good that every silcrete outcrop in the area will have been similarly visited. Cobble exposures along the Goeraprivier valley will probably also have been used as sources of flakeable rock in locations other than our # 23.

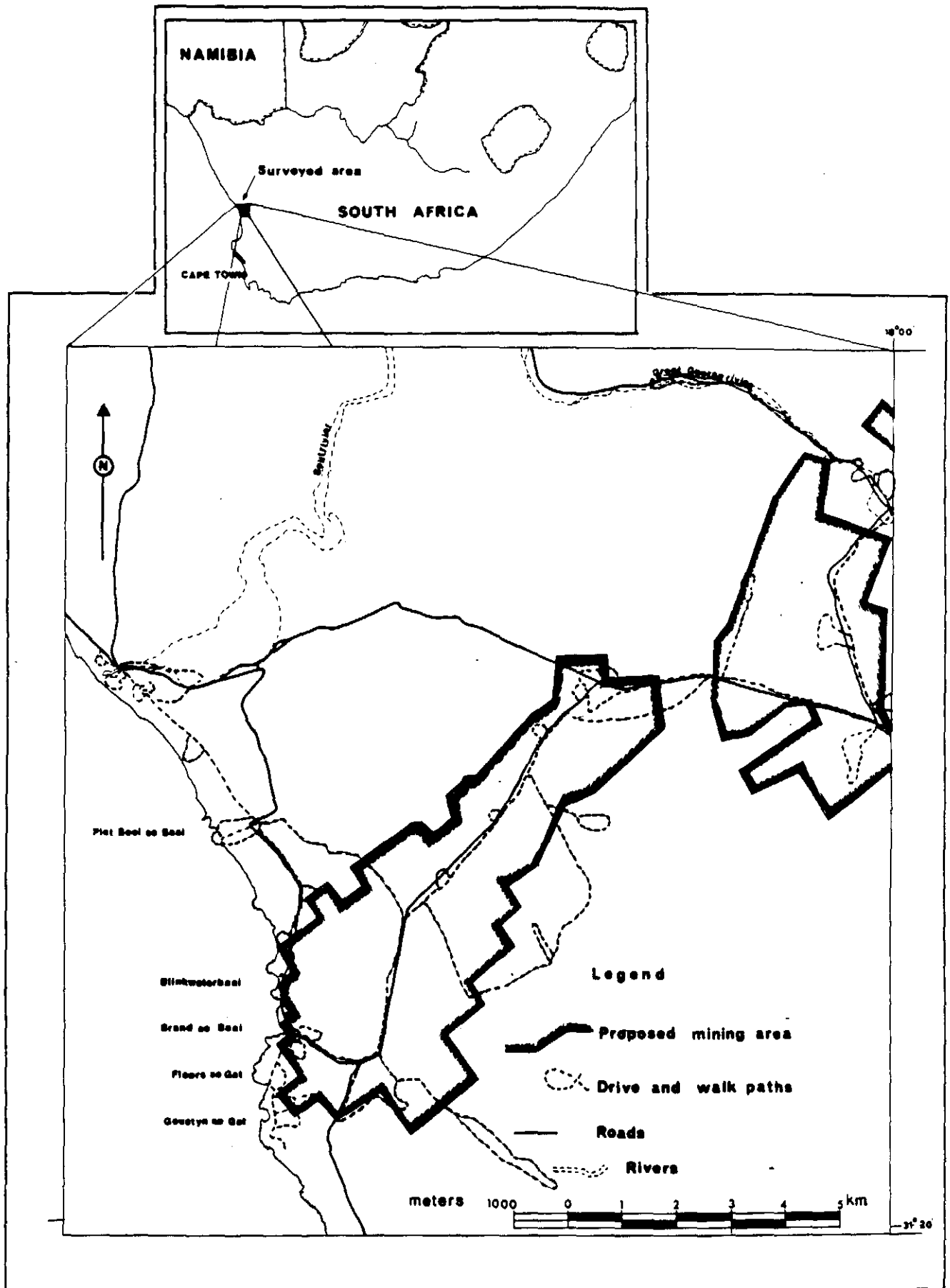


Figure One: Locaton of surveyed area and distribution of drive and walk paths.

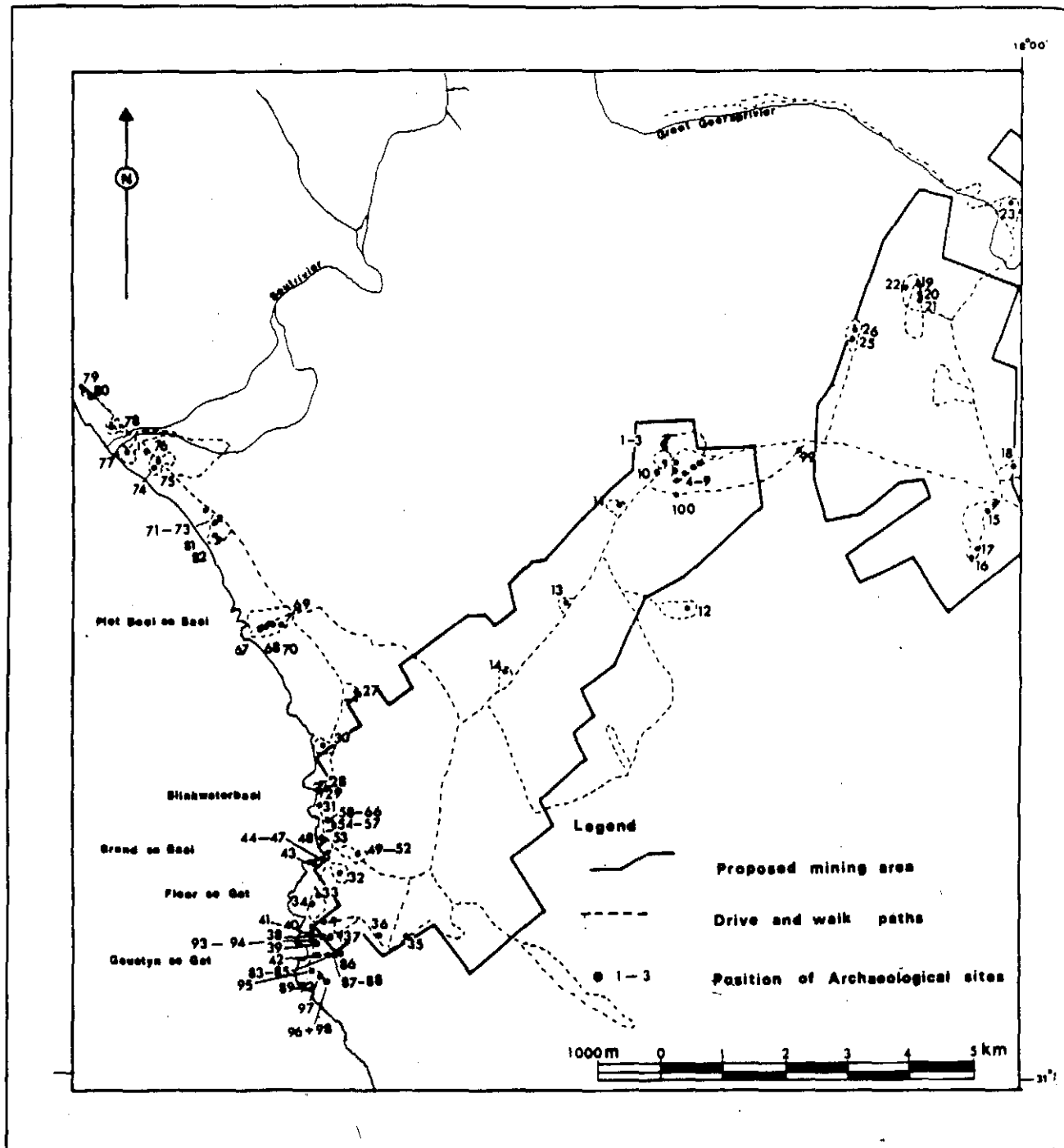


Figure Two: Distribution of archaeological sites in or near to proposed mining area.

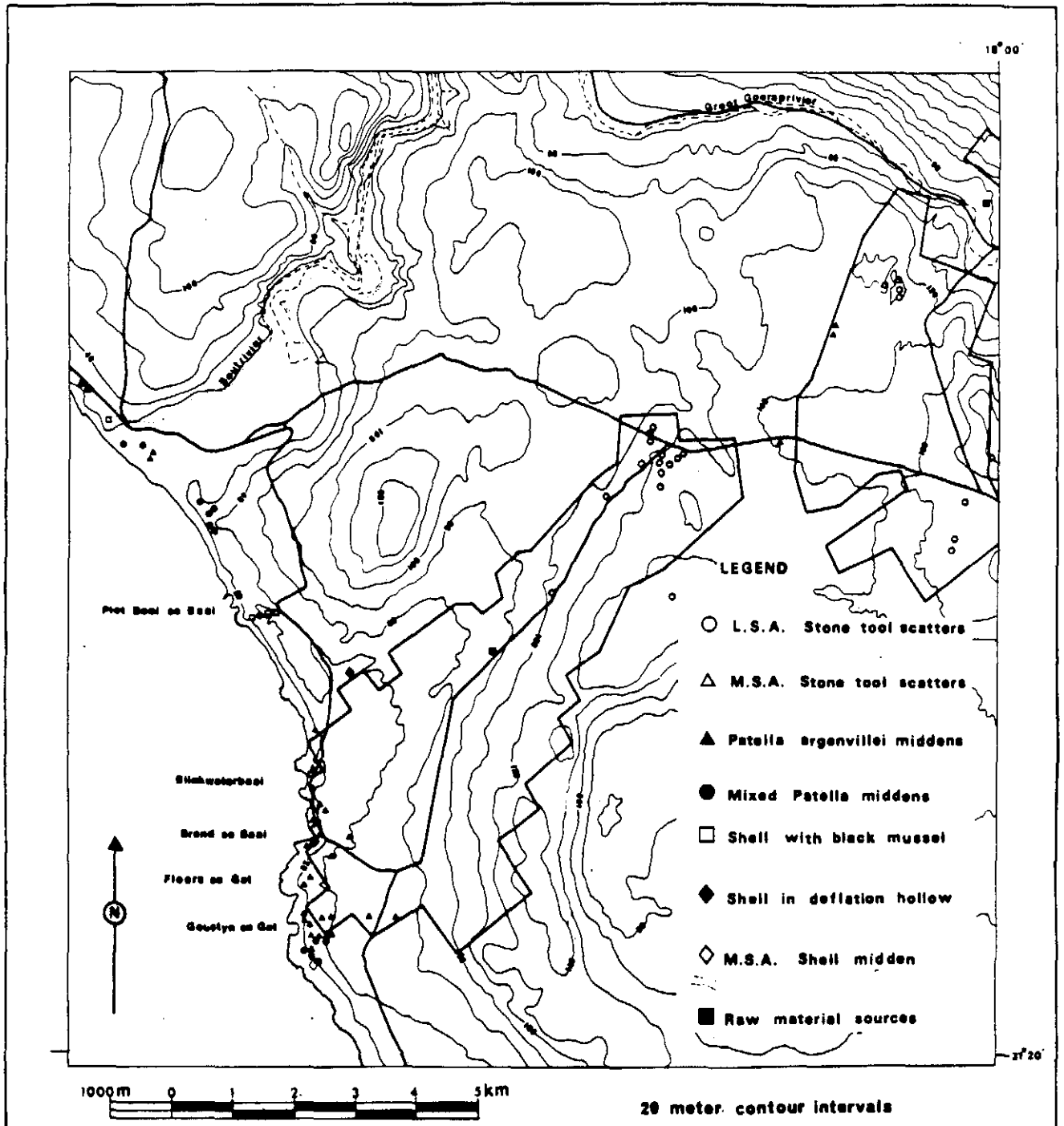


Figure Three: Classification of archaeological sites found.

Stone tool scatters:

In those parts of the landscape more than a kilometre or so from the shore the most prevalent type of archaeological occurrence was undoubtedly a stone tool scatter in one of two contexts. Most (#s 1-13, 15-22, 100) were scatters of quartz with substantially smaller numbers of silcrete or other rock flakes in the deflated tops of low aeolian red dunes. Apart from this remarkably uniform locational context, what is remarkable about this suite of sites is the homogeneity of their assemblage composition. We saw only one retouched artefact, only one bipolar core, no potsherds and very few flakes of non-quartz origin throughout. There was no bone that we could see and only a few marine shells at four of the sites. The marine shells were, though, rather interesting in consisting overwhelmingly of the lower shore limpet *Patella argenvillei*. Some of the sites have modest quantities of ostrich eggshell in association.

A point of some archaeological interest is that the uniformity in context and content implies a very narrow time range for sites, perhaps a single settlement pattern with some evidence, in the marine shells, of a coastal connection. The stone artefacts are very similar to those on the surface of the Goerap shelter, again implying that they are pieces of a single settlement system variably disposed about the landscape - presumably dating from the recent past. We would guess at an age of no more than 1000 years, but the artefact assemblages are unlike those from that time period in Bushmanland or the south western Cape. A significant and hitherto unresearched settlement system awaits our attention. A smaller suite of stone tool scatters (#s 25, 26, 35, 36, 85, 88, 99) occur in small gravel surfaces which may occasionally contain standing water. These sites, with no bone, ostrich eggshell, marine shell or potsherds, may be much older than the dune top sites. They have a similarly informal assemblage character but include some undoubted faceted platforms and core types reminiscent of the Middle Stone Age, and are probably 50,000 to 150,000 years old.

Shell middens:

Almost all sites located within a kilometre or so of the shoreline can be called shell middens in the sense that they are food refuse heaps visibly dominated by marine shellfish but variably containing ash features, bone, potsherds, ostrich eggshell including beads, stone artefacts and probably many other artefacts and features not easily seen in brief examination. We describe these shell middens under five subheadings, although not all of them may have significance in terms of settlement behaviour. Overall, though the patterning is quite clear and seems to integrate well with the inland sites noted above.

i. Near shore middens heavily dominated by *Patella argenvillei*.

Patella argenvillei lives down near the infratidal fringe, grows to a substantial size and would thus have been an attractive target for shellfish gatherers at or around spring low tides. Most of the shell midden patches we found (#s 28, 30, 32-34, 37-66, 74, 75, 86, 89-94) are small to medium sized exposures, not more than 20 metres across, dominated by this limpet species. This pattern is extremely rare in the southwestern Cape but is found in reddish aeolian sands near Doringbaai not far south of the Olifants river mouth. Some of the *P. argenvillei* pockets we found are very small, almost all of them had nothing other than shell and some informal quartz flaking on them, and as a whole gave the impression of being very temporary visits to the shore. Interestingly these sites were often located within 10 or 20 metres of the intertidal beach and may thus be low tide 'snacking stations' used only once. They are almost exact mirror images of the few dune top stone-scatters - with - shell being, in effect, shell-scatters-with-stone. Once again the uniformity of context and content urges us to posit a brief time period, a single settlement system and an inland -coastal connection. The stone artefacts are very

informal and indistinguishable from those of the interior. Again we guess at a recent date, probably no more than 1000 years ago.

ii Near shore middens with a variety of *Patella* species.

What is missing from the *P. argenvillei* dominated sites is any sign of ash features, hearths or other domestic activities. A second series of shell middens (#s 31, 68, 71-73, 76, 77, 79, 80-84, 87, 95-97) has these associations and is further distinguished from the *P. argenvillei* sites in context and size. This series we will call mixed *Patella* middens because they are dominated by *P. granatina* and *P. granularis* but have much smaller numbers of *P. barbara* and *P. argenvillei* in them. They are very substantial scatters, in some cases as much as 250 metres across and are usually situated somewhat further from the beach either on the red aeolian dune bluff overlooking Brand se baai or between the grey-white dune cordon and the marshy surrounds of the Goerap saltpan/estuary. Some of these mixed *Patella* middens are as near the beach as the *P. argenvillei* sites (e.g. #s 31, 68, 95).

Although variable in precise contents these mixed *Patella* middens are as a group richer in potsherds, beads, ashy fireplaces, grindstones and animal bone than the smaller *P. argenvillei* sites. We have formed the impression that there really are two mutually exclusive and distinguishable site types and that the larger sites were more permanent, domestic campsites. Indeed, particularly at the best preserved examples (#s 71, 76, 82, 83 and 84) there may well be preserved site structure with spatially coherent patterning of fireplaces, cooking, working and sleeping areas. Of particular interest is the relationship between what we have described as snacking sites and domestic campsites and beyond that between inland and coastal sites. We would predict that almost all will fit into a single episode of land use.

iii Shell middens with the remains of black mussels (*Choromytilus meridionalis*).

The predominance of limpets at the sites we found is overwhelming. We did, however, find a few sites with some, or even many, black mussel shells (#s 29, 67, 69, 70, 78), mostly north of Brand se baai. The significance of this is unclear but may have more to do with the natural distributions of limpets and mussels along the shore than with any feature of human settlement or choice. Some of these mussel middens may be better regarded as variants of the mixed *Patella* middens, although #s 67 and 70 were both exclusively mussel patches.

iv. Shell midden patches in deflated dune.

Two hundred metres or so inland of the eastern edge of the grey-white Holocene dune cordon, about 1 kilometre from the shore and a similar distance north of Blinkwaterbaai is site # 27. This is in fact a series of small patches of shell (mostly *P. granatina*, some *P. granularis*, some whelk *Burnupena*) which appear to reflect individual meals and which together probably reflect a briefly occupied campsite. There is some ostrich eggshell, some flaked stone but there are no potsherds here. It may in fact be a wholly exposed and weathered mixed *Patella* midden that lies in a somewhat unusual location. It serves to underline the enormous resolution of events that is possible from the exposure of a single episode site in that perhaps one single day in the life of a pre-colonial group of shellfish gatherers is captured at the site.

v. A shell midden dating from much earlier times.

Last, but by no means least, is site # 98. It is an extensive scatter of stone, marine shell, bone and ostrich eggshell which, unfortunately for us, is exposed only in the dumps and dredgings from one of the mining trenches that run up from and at right angles to the

modern beach. Searching this particular trench thoroughly we did find in the section small numbers of stone, shell and bone remains but not in the volume suggested by the disturbed material. We were, however, able to discover that the material has come from the orange felspathic sand that lies under the red aeolian surface cover. Most of the other sites we have found, and specifically, the *P. argenvillei* dominated and mixed *Patella* middens are not from this orange sand body.

What is interesting about this assemblage is the contrast with the other categories of shell midden, although in one respect at least it is similar to some. The shells from # 98 are dominated by *P. argenvillei*. However, there the resemblance ends, for we found many times more ostrich eggshell fragments at this site than in all the other 99 sites put together. We also found more bone here than at all the other sites combined, and noticed that it is heavily mineralised. Undoubtedly the orange felspathic sand is chemically helpful to fossilisation and thus the preservation of faunal remains. The stone artefacts from site # 98 are not very informative, but, as has probably become clear from our report, all of the stone tool assemblages we found are in quartz and display very informal characteristics. There were certainly very large numbers of quartz flakes at the site and as far as we could ascertain the stone, bone, marine shell and ostrich eggshell are intimately associated.

Our impression here is that this particular trench intercepted a body of fossiliferous sand which contained one or more very ancient stone age campsites. Because we know that prior to 10,000 years ago the last time the shoreline stood in its present position was more than 50,000 years ago, we have to conclude from the shells that the site is at least that old - that is more than 50,000 years old. There are very few such shell middens in the world of that age. We know of a handful of Mediterranean sites (perhaps 5, most of them very badly damaged or poorly excavated), 3 or 4 other locations in southern Africa (Klasies River Mouth near Humansdorp and three sites in the Vredenburg-Saldanha region) and there are a few dubious claims from elsewhere. Interestingly the Vredenburg-Saldanha sites also have heavily mineralised bone, large quantities of ostrich eggshell and relatively few shells compared to the amounts of bone and ostrich eggshell. This Brand se baai site has thus a significance far beyond the local reconstruction of events and could contribute to our global understanding of the evolution of human behaviour.

5. SIGNIFICANCE

The significance of archaeological sites can be measured in one of two ways. Unique sites or sites of which there are very few examples left to us have an obvious importance because of their irreplaceable information content. Archaeological resources, unlike natural resources such as endangered plants or animals, cannot be 'bred back' to viable populations. We will argue that site # 98 is such a rare and thus significant site. Its loss would significantly affect our understanding of the prehistory of southern Africa.

A second measure of significance is derived from the state of our knowledge of particular regions or time periods. Our strategy in the Archaeology Contracts Office on this is as follows. When sites are endangered in an unresearched area some excavation is recommended to build up details of site ages, contents and stratigraphic sequences. Once these details are known in an area further sites need only be excavated either to confirm that they repeat patterns already known or because they appear to contribute new observations. Eventually areas become so well known that only small sampling excavations need be recommended to confirm what can be inferred from previous knowledge. This is an evolving process in which mitigation develops along with increasing familiarity. We will argue that the surface sites in the red aeolian dune sand reflect an early stage in this process and thus require at least some excavation.

Using these criteria the significance of what we have reported here is as follows:

- a) Despite its seeming remoteness and inhospitability the western Cape coast north of the Olifants river mouth was used by pre-colonial people, apparently periodically, for

many tens of thousands of years. Our results imply that there is a history of pre-colonial settlement reflected in the many archaeological sites scattered along the coastal foreland.

b) We have gained the preliminary impression that the settlement is episodic, perhaps restricted to periods of reasonable climate or abundant resources. There seems to us to be coherence in the contents and contexts of the sites, a strong suggestion of connectedness between locations. The challenge remains to detail those connections, to isolate those episodes of use and neglect and to integrate the history of the local environment with that of human settlement. We know almost nothing about these aspects as yet.

c) One of the sand bodies rich in heavy minerals, the orange felspathic, is potentially richly fossiliferous. Our preliminary estimations of the age of the contained archaeological sites elevates this potential to one of global significance. Campsites relating to previous periods of high sea level are preserved in these sands, sites that are almost unique in the world. Nowhere else to our knowledge are there open sites with good preservation of bone, ostrich eggshell and marine shell with the potential to reveal the spatial arrangements of human behaviour. The period 150,000 to 50,000 years ago saw the emergence of anatomically modern humans and the possibility of investigating the contemporary emergence of behaviourally modern humans is enormously exciting.

d) Undisturbed, single episode campsites of pre-colonial times are valuable cultural resources because they are like mini-Pompeii's, snapshots of historically interesting settlement preserved under a covering of sand. The Brand se baai area, partly because of its remoteness from centres of development, has retained many pristine examples of stone age camps and quarries. Mapping of these sites on the landscape and mapping of the spatial arrangements on specific sites will reveal details of technology, domestic behaviour and diet that are more difficult to derive from heavily disturbed or densely populated areas elsewhere.

6. MITIGATION

We make here two recommendations as to how to protect the archaeological record and develop the relationship between the mining process and archaeological research. We note first that all shell middens are specifically protected by law [National Monuments Act of 1969 as amended para 12(2A)] and that mining is not exempted from this. It is also certainly not the case that archaeologists wish to prevent or hinder the development and exploitation of economically valuable resources. Rather we are looking for a programme of action that recognises the need for joint efforts and provides a means of promoting mutual interests. Archaeological work can usually be carried out cheaply and rapidly well in advance of earthmoving operations. It is the recommendation of the National Monuments Council that the costs of such work be born by the developers as part of the process of environmental damage mitigation.

A: FIRST RECOMMENDATION: SURFACE AND NEAR SURFACE SITES

Prior to any instigation of Heavy Mineral Sand Mining there should be an investigation into the directly endangered archaeological sites on or near the surface of the red aeolian sand. More specifically we propose to:

1. Collect the stone artefacts from 15-20 dune top deflation sites. Radiocarbon dates from associated shells will confirm or refute our assumption of contemporaneity and analyses of assemblage composition will support or reject our impression of uniformity. Comparisons with contemporary stone tools from other regions will then be possible. Sourcing of rocks and relationships between campsites and quarries may be posited.

2. Map and collect 3 small *P. argenvillei* dominated shell scatters. Again the shells can be used to date these occurrences and thus establish whether they are all contemporary and of the same age as the inland scatters. The notion of these as snacking stations would demand very little diversity of food debris or technology in and between sites. Measurements of shell sizes may inform us on the extent of exploitation, and quartz artefact patterns can be compared with inland sites.
3. Map and excavate at least one of the large mixed *Patella* middens. Only excavations with good stratigraphic and spatial control can confirm our impression that these retain details of camp layout. Comparison of dates, shellfish assemblage composition, stone artefact characteristics and locational contexts between the various site categories will either bolster or weaken our expressed belief that only a single settlement system is manifested in this suite of sites. If we can find a good single episode campsite, studies of food sharing, the seasonality of settlement and camp organisation will be possible.

This programme entails 3 months fieldwork, followed by 3 months laboratory analysis, and could be completed between July and December 1990. The Archaeology Department at UCT will provide all the necessary equipment, manpower and laboratory facilities. Supervision of the project will be strictly in accordance with professional standards. A budget is appended (Appendix B).

B: SECOND RECOMMENDATION; DEEPLY BURIED SITES

Deeply buried sites are not amenable to conventional archaeological excavation. A co-operative programme needs to be developed between the Anglo American Corporation and archaeologists to mitigate damage to buried sites and exploit both the mining and the archaeological potential of the fossiliferous and mineral rich sands. The orange felspathic sand is of significance to both parties and it ought to be possible to achieve two sets of aims with the same controlled earthmoving programme. More specifically the existence of archaeological sites of national and international significance in targetted ore bodies requires us to devise ways of minimising the archaeological information loss. We suggest that a joint proposal be developed by ourselves and Anglo-American and submitted to the Chairman's Fund.

The extent to which mining can destroy archaeological sites is well reflected in the numbers of middens we saw heavily gouged and disturbed by earlier trenching. We are grateful for the chance to try to reverse this trend. Our conclusion is that the Heavy Mineral Sand Mining need not be destructive so long as the archaeological sites are salvaged ahead of earthmoving.

This report has been compiled by

John Parkington and Cedric Poggenpoel

ARCHAEOLOGY CONTRACTS OFFICE UCT

APPENDIX AA listing of sites found

<u>Number</u>	<u>General Location</u>	<u>Nature of Remains</u>
1	Surface of red aeolian sands	LSA stone artefacts
2	" " " " "	" " "
3	" " " " "	" " "
4	" " " " "	" " "
5	" " " " "	LSA stone artefacts and shells
6	" " " " "	" " " " "
7	" " " " "	LSA stone artefacts
8	" " " " "	LSA stone artefacts and shells
9	" " " " "	LSA stone artefacts
10	" " " " "	" " "
11	" " " " "	" " "
12	" " " " "	LSA stone artefacts and shells
13	" " " " "	LSA stone artefacts
14	Surface surrounding outcrop	Silcrete flakes at source
15	Surface of red aeolian sands	LSA stone artefacts
16	" " " " "	" " "
17	" " " " "	" " "
18	Surface sands on ridge top	Extensive LSA stone tool scatter
19	Surface of red aeolian sands	LSA stone artefacts
20	" " " " "	" " "
21	" " " " "	" " "
22	" " " " "	" " "
23	Stone scree on river bank	Flaked stone at source
24	Rock shelter next to Goerap river	Deposit with bone
25	Small gravel pan in red aeolian sand	MSA stone artefacts
26	" " " " "	" " "
27	Small shell patches in deflation hollows	Shell food residues
28	Eroding from mining trench	Mixed limpet shell midden
29	" " " " "	" " " "
30	Eroding from red aeolian sand	" " " "
31	" " " " "	" " " "
32	Bluff-top site in red aeolian sand	P.argenvillei midden

33	Eroding from mining trench in	"	"	"	"
	red aeolian sand				
34	" " " "	"	"	"	"
35	Small gravel pan in red	MSA	stone	artefacts	
	aeolian sand				
36	" " " "	"	"	"	"
37	Eroding from aeolian sand in	P.argenvillei	midden		
	mining trench				
38	" " " "	"	"	"	"
39	" " " "	"	"	"	"
40	" " " "	"	"	"	"
41	Eroding from red aeolian sand	"	"	"	"
42	" " " "	"	"	"	"
43	" " " "	"	"	"	"
44	" " " "	"	"	"	"
45	" " " "	"	"	"	"
46	" " " "	"	"	"	"
47	" " " "	"	"	"	"
48	" " " "	"	"	"	"
49	" " " "	"	"	"	"
50	" " " "	"	"	"	"
51	" " " "	"	"	"	"
52	" " " "	"	"	"	"
53	" " " "	"	"	"	"
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56	" " " "	"	"	"	"
57	" " " "	"	"	"	"
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60	" " " "	"	"	"	"
61	" " " "	"	"	"	"
62	" " " "	"	"	"	"
63	" " " "	"	"	"	"
64	" " " "	"	"	"	"
65	" " " "	"	"	"	"
66	" " " "	"	"	"	"
67	Eroding from mining trench	Potsherds	and mussel	midden	
68	" " " "	Extensive	mixed limpet	midden	
69	" " " "	"	"	"	"
70	" " " "	Small	mussel	midden	
71	Between dune cordon and	Large	mixed limpet	midden	

	vlei vegetation	
72	" " " " "	" " " "
73	" " " " "	" " " "
74	" " " " "	" " " "
75	" " " " "	" " " "
76	" " " " "	" " " "
77	South of river mouth, badly gouged	" " " "
78	North of river mouth, badly gouged	" " " "
79	Eroding from red aeolian sand	Small mixed limpet midden
80	" " " " "	" " " "
81	Eroding from mining trench	Mixed limpet midden
82	" " " " "	" " " "
83	Bluff top site in red aeolian sand	Mixed limpet midden with potsherds
84	" " " " "	" " " "
85	" " " " "	" " " "
86	Heavily disturbed by moles	P.argenvillei midden
87	Deflation hollow in red aeolian sand	Mixed limpet midden
88	Small pan in red aeolian sand	Stone tools and ostrich eggshell
89	Surface of red aeolian sand	P.argenvillei midden
90	" " " " "	" " " "
91	" " " " "	" " " "
92	In road gouged through sand	" " " "
93	" " " " "	" " " "
94	" " " " "	" " " "
95	In mining trench through yellow sand	Mixed limpet midden
96	In mining trench through red aeolian sand	" " " "
97	" " " " "	" " " "
98	Gouged out of orange felspathic	MSA shell midden with bone
99	In small gravel pan	MSA stone artefacts
100	In surface of red aeolian dune	LSA stone tools with shell

APPENDIX B

Budget for salvaging of near-surface archaeological remains.

1. PERSONNEL	R
Consultants - 20 days @ R400	8 000
Site supervisor - 90 days field	
- 90 days lab @ R100	12 000
Labour - trained assistant	6 000
4 @ R25/day, 90 days fieldwork	9 000
3 @ R15/day, 40 days lab	18 000
2. VEHICLE	
90 days @ R40/day	3 600
4000 Km @ R.40	1 600
petrol	720
3. SUBSISTENCE	
6 people x R10 x 90 days	5 400
4. DATING	
10 dates @ R300	3 000
5. EXCAVATION EXPENDABLES	
packaging, stationery, film	600
6. ADMINISTRATION	
Overheads, equipment replacement	7 600
	<u>R59 320</u>