

**PHASE 2 ARCHAEOLOGICAL EXCAVATIONS AT TWO
LATE STONE AGE SITES IN THE PHASE II (WOB) MINING
AREA, NAMAKWA SANDS, VREDENDAL DISTRICT,
NAMAQUALAND**

Prepared for

Namakwa Sands Ltd

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Prepared by

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1. EXECUTIVE SUMMARY

The Archaeology Contracts Office of the University of Cape Town was commissioned by Namakwa Sands Ltd to excavate 2 Late Stone Age sites in or close to the phase 2 mineral sands mining area, Vredendal district, Western Cape Province. Site MS 2 consisted of a small midden and scatter of material in a deflated area on top of a low mound. The presence of microliths indicates that this site probably dates to the mid-late Holocene. Site MS 2, located in a deflated area in low dunes, contains no formal artefacts and probably post-dates 2000 years ago. Further mitigation is not necessary as virtually all archaeological material has been moved from these sites.

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2. INTRODUCTION

The Archaeology Contracts Office of the University of Cape was commissioned by Namakwa Sands Ltd to conduct archaeological excavations on a Late Stone Age Site (MS 2). This was identified and first investigated in 1993 (Hart and Halkett 1994) when the Archaeology Contracts Office conducted an excavation program to mitigate the impact of mining on 4 archaeological sites in the mineral sands mining area. Site MS 2 was not considered to be threatened by direct impacts at that time and was not fully sampled. The mining program has since been altered with the result that this site lies in an area which is to be affected in the near future. A second small surface site (MS 5) was located in an area that is soon to undergo rehabilitation. A decision was taken to sample this while the opportunity was available. The location of the study area is indicated on Figure 1.

2.1 The brief

The Archaeology Contracts Office undertook to:

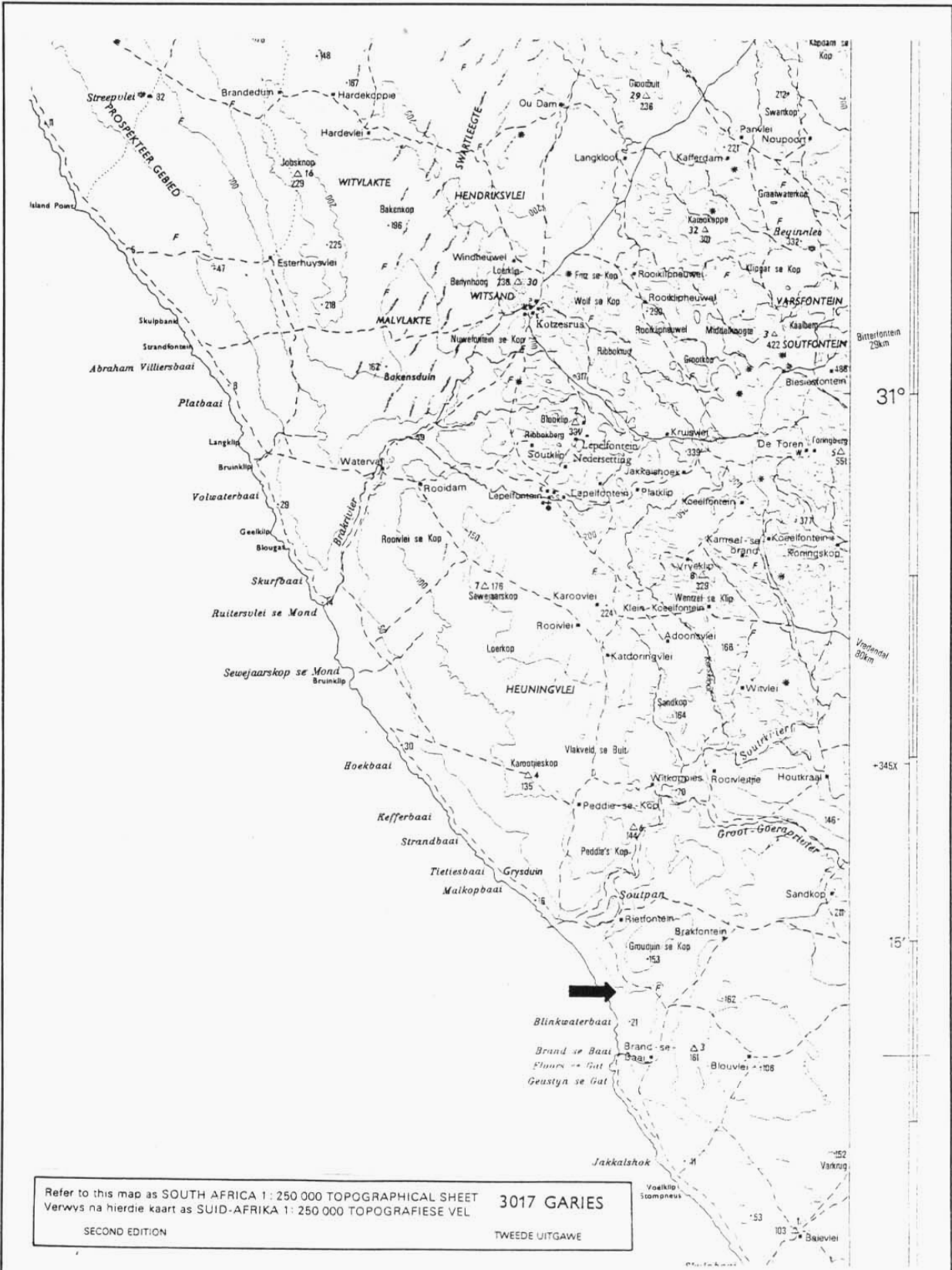
- a) Obtain a permit from the National Monuments Council
- b) Conduct archaeological excavations to recover as much material as possible before mining commences
- c) Curate such material at the University of Cape Town
- d) Submit a report to Namakwa Sands and the National Monuments Council.

3. BACKGROUND HISTORY OF THE NORTHERN AND WESTERN CAPE

The history of the Western and Northern Cape is long and complex spanning many thousands of years. Our current understanding of the history is based on archaeological observations as well as the surviving written texts from the colonial period. Broadly, four distinct periods of this history may be defined. These are summarised [below](#) to contextualise the findings from this and previous studies.

3.1 The Early Stone Age (ESA)

In 1902, an amateur archaeologist, Louis Peringuey, discovered numerous stone artefacts on the banks of the Eerste River in Stellenbosch. Among these was an artefact type which he recognised as the handaxe and he suggested that they were of extreme age (Peringuey 1902, 911). This observation has since been confirmed by modern research that has shown that such artefacts were made by our human ancestors who lived between 200 000 and 1 000 000 years ago. Sites containing these characteristic Early Stone Age artefacts have been found throughout Africa, parts of Europe and the Far East (Sampson 1974) and locally, sites of this period are known throughout South Africa. The makers of Early Stone Age artefacts are believed to have been the hominid type known as *Homo erectus/ergaster*. Although the population of these hominids would have been relatively small, the sheer depth of time over which they roamed the landscape has resulted in large numbers of sites being preserved in widely differing ecological zones from the coast to the mountainous regions and



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Location of the study area, west coast of South Africa.



the interior plains beyond. The raw material favoured for the production of Early Stone Age tools was quartzite. It is no coincidence therefore that ESA sites are often found next to river beds where large quantities of water worn quartzite cobbles can be found. Since few stratified instances of this material are found in association with organic remains, study of the period is difficult.

3.2 The Middle Stone Age (MSA)

Large cave sites discovered in the Kalk Bay mountains on the Cape Peninsula in the 1920s, contained deep deposits with large numbers of more refined stone artefacts in the lower parts of the sequences (Sampson 1974). These were recognisably different from ESA artefacts and had many similarities to artefacts found in the Palaeolithic sites of Europe. Similar kinds of artefacts have since been found on many open sites and on rare occasions, in the deposits of caves throughout South Africa. A larger selection of fine grained raw material was used for the manufacture of artefacts as new techniques of production, and secondary working into intricate tools, required more predictable flaking properties. Research has shown that these artefacts belong to a period known in South Africa as the Middle Stone Age and date to the period between 40 000 and 200 000 years. In some very rare instances where circumstances permit, fossil animal bone and marine shells have been found in association with the artefacts giving some indication of the diet and lifestyle of the makers. MSA people are thought to have been an early form of modern humans (*Homo sapiens*) who were capable of hunting large animals. Current theory is that early *Homo sapiens* evolved into fully modern form in Africa and migrated to Europe via the Middle East some 40 000 years ago (Klein 1989). It is believed that these new migrants may have been responsible for the demise of the Neanderthal populations in Europe. There has been a resurgence of interest in this period and a number of sites in the Cape are being investigated by local and international archaeological teams. Development of new dating techniques extending beyond the range of radiocarbon age determinations is greatly enhancing this research.

3.3 The Late Stone Age (LSA)

This period has been subjected to detailed study by archaeologists. Late Stone Age people ancestral to the San (Bushmen) and the KhoiKhoi (Hottentots) of early colonial times lived in southern Africa some 40 000 years ago.

During most of the Holocene (last 10 000 years) southern Africa was inhabited by small groups of San hunter-foragers who were highly mobile. They hunted with bows and arrows, snared small animals and, where groups lived close to the shore, gathered shellfish and other marine resources, a habit which resulted in the use of the term "Strandlopers"¹. They used digging sticks, often weighted with bored stones, to find a variety of subterranean vegetable foods, particularly iridaceous bulbs. Having a prodigious knowledge of the environment and the resources around them, their cultural repertoire included a complex belief system, aspects of which are represented in many rock painting and engraving sites in the northern and western Cape. Many paintings and engravings are understood as being closely linked with shamanistic ritual or belief (Lewis-Williams [1981](#))-

¹ It has not been proven that there were indigenous groups who lived exclusively at the coast and entirely on marine foods, although hunter-foragers may have become more dependant on them when access to traditional food sources was limited by the influx of first Khoi pastoralists and later European settlers.

The occurrence of sheep and pottery remains in archaeological sites dating to the last 2000 years ~~ago~~ and younger points to the appearance at that period of a new economy and way of life based on pastoralism. It seems most likely that groups of people, ~~prob~~ably the ancestors of the Khoikhoi of colonial times adopted pastoralism, in this case with herds of fat-tailed sheep and later cattle (Smith 1987, Sealy and Yates 1994). With the advent of pastoralism, or soon afterwards, clay pot making technology was introduced. While some San groups appear to have co-existed with pastoralists, it has been suggested that hunter-foragers were marginalised moving to areas where grazing opportunities were less attractive to pastoralists (Parkington et al 1986). The precise origin of early stock keeping and ceramic technology in southern Africa is still unclear but it is suggested that ~~stock-keeping~~it was introduced from the north.

3.4 The Colonial Period

When the Dutch colonists arrived to set up a replenishment station at the Cape in 1652, they encountered several Khoikhoi groups. Some of these lived on the Cape Peninsula while the larger groups grazed herds of sheep and cattle in the Tygerberg Hills and Cape Flats and further afield.

First contact between Europeans and indigenous southern African pastoralist groups had however occurred much earlier when Portuguese mariners sailing down the coast in the 15th and 16th centuries had bartered supplies of meat from the Khoikhoi that they encountered at places such as Saldanha Bay (Smith 1985).

With the increase of shipping rounding the Cape, it was inevitable that some would be wrecked. Encampments were set up by the survivors of such wrecks, and they often recount meeting and trading with the indigenous groups (Raven-Hart 1967, Smith 1985) so that by the time that Van Riebeeck arrived, a history of contact had already been established.

~~Although it is not entirely clear from the writings of early settlers, it appears that some San groups still existed in the Cape. They still seemed to be pursuing a largely hunting and foraging lifestyle and were often encountered in the more mountainous regions where there was less possibility of conflict with either the Khoi or Dutch settlers (Parkington et al 1986). In the Roggeveld and further inland in the Karoo, San suffered from repeated commando raids from the 1770s, but remnants maintained degrees of independence for another century (Deacon and Dowson 1996).~~

At first the relationship between the Dutch and the Khoikhoi was one of co-operation, with a great deal of bartering taking place primarily to secure regular supplies of fresh meat. However, as the colony grew and free burghers were granted lands further away from Cape Town, grazing lands previously available to the Khoikhoi were encroached upon. The conflict for land began a process of attrition which, when accompanied by genocidal government policies as well as several deadly smallpox epidemics, broke down the indigenous population and its political structures. Those who survived were pressed into service as farm labour or settled around several large mission stations that had been established in the Cape.

According to the writings of early colonists, it appears that some San groups still existed in the Cape well into the colonial period. They pursued a largely hunting and foraging lifestyle and were often encountered in the more mountainous regions where there was less possibility of conflict with either the Khoikhoi or Dutch settlers (Parkington et al 1986). In the

Roggeveld and further inland in the Karoo, the San suffered from repeated commando raids from the 1770s, but remnant groups maintained degrees of independence for another century (Deacon and Dowson 1996). Namaqualand and the upper Karoo were amongst the least desirable parts of the subcontinent in terms of early colonial penetration, so some Khoikhoi and San could continue aspects of their traditional way of life and cultural repertoire until they were displaced in the 19th century.

~~Namaqualand was one of the least desirable parts of South Africa for the colonists and meant that San and Khoi Khoi people were able to continue many aspects of their traditional ways of life in this area until they were displaced during the last century. The accounts of several early travelers who passed through Namaqualand, most notably that of Robert Jacob Gordon in 1779, clearly attest to the presence of indigenous hunter-forager and pastoralist groups in the area.~~
The accounts of early travelers through Namaqualand, most notably that of Robert Jacob Gordon in 1779, clearly attest to the presence of indigenous hunter-forager and pastoralist groups in these areas (Raper & Boucher 1988). Similarly, the invaluable Bleek and Loyd records from people living in the Karoo in the 1870s provide insights into Xam San life and folklore on the eve of their extinction (Deacon and Dowson 1996). The Nama, originally one of the Khoikhoi groups met by Gordon, still practice a form transhumant pastoralism in reservations in Namaqualand today.

The mountainous terrains of the Cape Fold Belt provided refuge in the early colonial era for Drosters (run-away slaves), many of whom forged links with the independent Khoisan in the area (Penn 1994). Colonial settlement was extended inland into the Roggeveld and the Hantam (Calvinia) in the 18th century.

4. ARCHAEOLOGICAL EXCAVATIONS IN THE MINING AREA

4.1 MS 2 LATE STONE AGE SITE

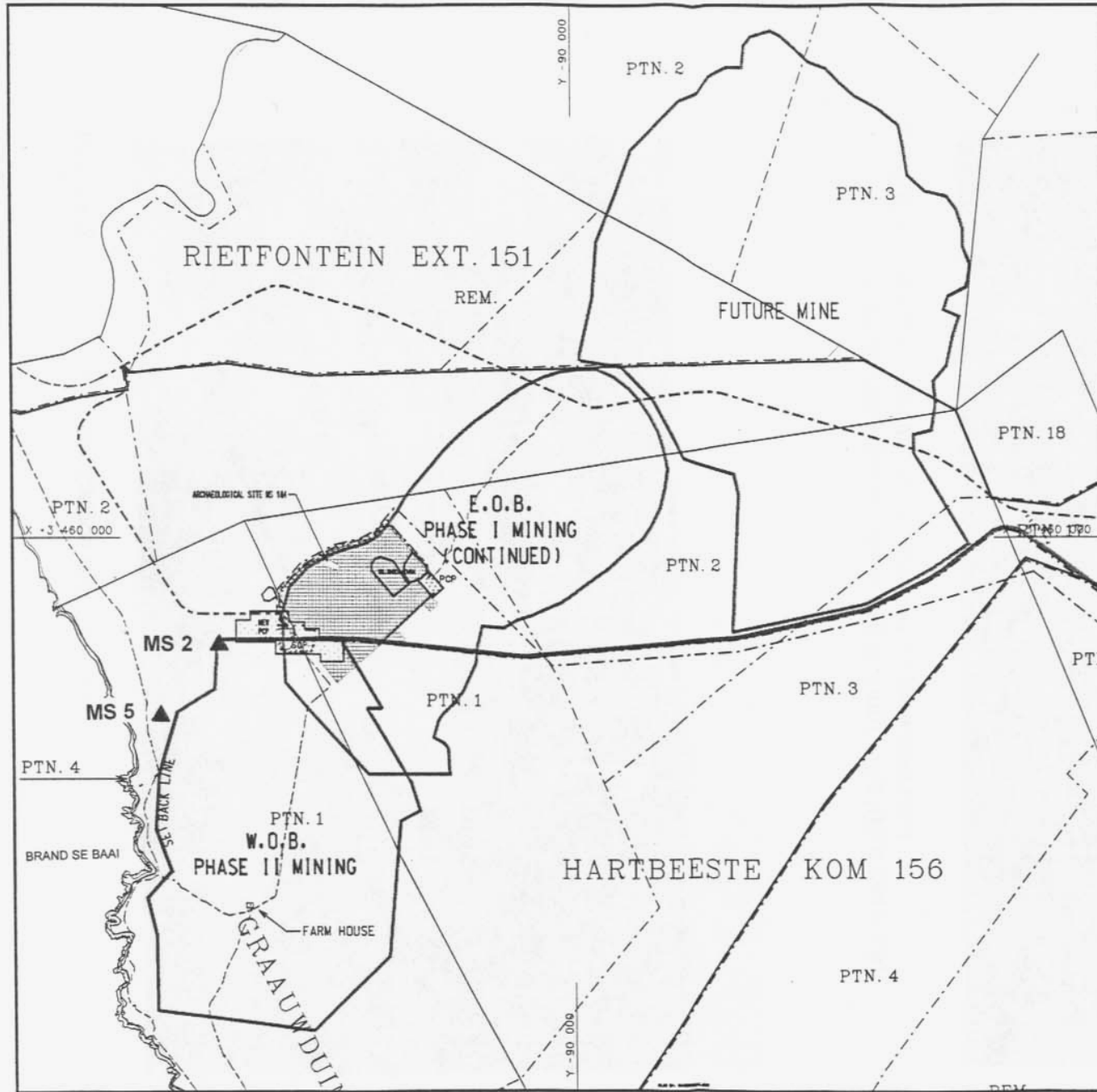
This site lies very close to the Secondary Processing Plant (Figure 2). The greatest concentration of material was located on a deflated area on the summit of a low mound which overlooks the inland coastal plain. Surface indications were a scatter of fragments of *Patella sp* (limpet shell) and a number of quartz artefacts distributed on two small blow-outs between several bushes (Plates 1 and 2). In 1994 we conducted a surface scrape over 44m² of this site during which time we collected quantities of shell and stone artefacts (Halkett and Hart 1994). Since among the artefacts were small backed microliths we concluded that the material belonged to the Late Stone Age and was probably older than 3000 years. We also sunk some deeper test excavations and found that there was dispersed material through much of the first 40 cm of the dune body but a concentration of shell and artefacts at a depth of about 30cm below the surface.

Upon revisiting the site this year, it became apparent that further deflation of the area has taken place and there were quantities of stone and shell exposed on the surface in places where we had worked before. The implication of this was that material contained within the dune body was continuously being concentrated on the surface by the action of the wind. This meant that the archaeological excavations needed to penetrate deeper into the surface whereby a larger volume of soil could be excavated and sieved.

4.1.1 Method

It was not possible to locate the original grid system that we had established in 1993. This meant we had to treat the site as unexcavated and establish a new baseline. A meter grid system was placed over the site to control the horizontal provenance of artefactual material. For the main part the surface of the dune body was removed as a single spit 10cm thick, however, this was varied depending on the strike of the surface and wind-blown sand mounds that had accumulated around the bases of bushes. Excavated depths in each square meter were measured and recorded by means of a Leica Electronic Distance Measuring Machine. Discernible stratigraphy was followed during the excavation. Where possible, deposit was passed through a 1.5mm screen. Damp deposit was passed through a 3mm screen.

After the entire surface of the site had been removed, we sunk two deep soundings to check for any further buried lenses. The underlying dune body was found to be sterile to a depth of 1.5m. We are confident that 90% of all the existing archaeological material on site MS 2 has



NAMAKWA SANDS LTD.



PLAN SHOWING
MINE BOUNDARIES
INFRASTRUCTURE AND
OTHER
RELEVANT INFORMATION

LEGEND -

- SURFACE RIGHT BOUNDARY
- FARM BOUNDARY
- POWER LINE
- WATER PIPELINE
- OREBODY BOUNDARY
- MAIN ROAD
- MINDR ROAD
- MINED OUT AREA



2

FILE NO. 5183 1991



PLATE 1: Area A on site MS 2 being prepared for excavation. The pumphouse Rd is visible to the south west (right distance).



PLATE 2: Site MS 2 on completion of excavation.

been removed. Consequently, mining of this area is not expected to impact on any archaeology.

All the excavated material was transported to the University of Cape Town for sorting, analysis and storage. Shellfish were sorted to species, stone artefacts were sorted by raw material and tool type, bone was sorted to species (where possible). Detailed results are presented in table form in Appendix A.

4.1.2 Findings

Site MS 2 consisted of two deflated areas (A and B) in which archaeological material was exposed. These two areas were separated by a low sand hummock that was sterile on the surface. Upon commencing the excavation it was our expectation that virtually all the archaeological material that was visible on the surface was in a secondary context, although it was possible that remains of spatial patterning may have been present. Our aim was to collect enough stone artefactual material to confirm our initial characterisation of the site and increase the shellfish sample to the extent that it could be meaningfully compared with that of other sites that we have sampled in the area. In area A the main concentration of material was found in the first 10cm of sands decreasing rapidly at a depth of 15 cm below surface. Sampling commenced at the southern edge of area A and continued northwards towards the sandy hummock that separated the two areas. Excavation showed that the deflated material that was visible on the surface penetrated into the sandy hummock forming an ephemeral lens. This eventually transformed into a small but dense *in situ* layer of shell, bone and ash that took the form of several linked patches of variable density within the central sand body. Although the layer did not cover more than 2m² in total extent, it has provided some important information because the shell and bone it contained is well preserved although friable. We believe that the shell and artefacts collected from the deflated areas on the surface had probably eroded out from this lens of *in situ* material, the remnants of which were preserved under the central sand body.

4.1.2.1 Artefacts

No artefacts made from organic material have survived. A number of formal stone artefacts and quantities of quartz waste were found (Appendix A). Although high quality surface quartzite is readily available in this area, it was not favoured as a raw material for making stone artefacts on site MS 2. Quartz, particularly that which is clear or translucent was favoured for making formal tools. The formal artefacts which we have found consist of small scrapers, a backed scraper and a segment as well as bladelets and miscellaneous backed pieces. Many of these tiny artefacts (microliths) were originally parts of composite tools, the organic components of which have decomposed. Small scrapers were attached by means of vegetable mastic onto a small stick which served a handle or haft. On very rare occasions semi-complete artefacts of this type have been found in the Western Cape. A large body of research now exists which indicate that these types of stone artefacts do not belong to the recent Late Stone Age (pastoral KhoiKhoi groups) but are mostly found on sites 2000 years or more old.

4.1.2.2 Animal Bone

Animal bone that was found in the deflated areas was extremely fragmentary and mostly adiagnostic. The buried layer (Shell Patch 1) produced a number of well preserved and complete animal bones. Small bovids such as Steenbok appear to have been regularly caught. The bone sample also contained the remains of numerous tortoises, small carnivores such as mongoose as well as Cape Fur Seal. Birds were also hunted or scavenged. These finds are commensurate with the animal species found on other sites in the Brandsebaai area.

4.1.2.3 Shellfish

The sample of shellfish from this site has increased considerably as a result of this latest excavation. Hart and Halkett (1994) reported that the black mussel (*C. Meridionalis*) was the most common followed by *Patella granatina* and *Patella granularis*. This trend is confirmed, especially with regard to the Shell Patch 1 lens which is dominated by black mussels. Although this site is located some 2 kms the sea, the *in situ* lens has shown that marine foods were an important feature of the diet. People were making frequent trips to the coast where they collected whole mussel shells and transported them inland to supplement their terrestrial diets.

4.1.2.4 Dating

The findings of the 1997 excavations have not produced any information that would divert us from our initial assertion that the site is over 2000 years old. Recent research in the vicinity of Lamberts Bay (Jerardino in prep) on both open middens and cave sites has produced dates between 5000 and 6000 years for similar assemblages. The *in situ* lens has provided an excellent dating opportunity in that material from a secure context can be submitted for radio carbon dating.

4.2 MS 5 LATE STONE AGE SITE

Site MS 5 was located during the course of this program of field work which included a Phase 1 assessment of the next phase of the mining operation (See Hart and Lanham 1997). A new road has been constructed between Brandsebaai (where a pump house is being built) and the Secondary Concentration Plant. This bisects a low partially vegetated dune system inland of the primary dunes of the shoreline (Figure 2). Site MS 5 is situated on these dunes to the east of the pump house road (Plates 3). The site, which consists of several surface scatters of stone artefacts and a little shell will not be impacted by mining but may suffer further disturbance by rehabilitation, or future alteration of the mine plan. At present the site has been impacted by continuous wind erosion and a previous attempt to construct a fence through the area. As the site was limited in its extent, and time was available, a decision was made to remove the bulk of the visible material.



PLATE 3: South westerly view of dune on which site MS 5 is situated. Pumphouse Rd is visible (right distance).

4.2.1 Method

Seven foci containing scatters of archaeological material were discernible in deflated areas on the dune body (Plate 2). One of these contained a scatter of large *Patella granatina* shells. Each scatter was gridded into 1m² portions, scraped to a depth of not more than 2cm, then passed through a 1.5mm screen. Some 65m² altogether were removed. All the foci of material were plotted relative to each other by means of a Leica EDM.

4.2.2 Findings

At present it is not known if each of the scatters was part of a single archaeological site now separated by dune movement, or whether they represent a number of separate events. Test excavations have shown that the dune is highly deflated with all the material concentrated on the surface. Details of findings are presented in Appendix B.

4.2.2.1 Artefacts

No artefacts made from organic materials were recovered. All of the scatters contained stone artefacts in the form of waste. No formal artefacts (apart from an upper grinding surface and hammer stone) or microliths were identified at the time of excavation. Quartz was the favoured raw material with surface quartzites and white cherts being present in smaller quantities. No ceramics were found. The informal character of the artefactual assemblage suggests a date after 2000 years ago.

4.2.2.2 Animal Bone

No animal bone was preserved.

4.2.2.3 Shellfish

Limpets (*Patella sp.*) dominated the assemblage followed by black mussel (*C. Meridionalis*). Of these *Patella granatina* are the most common. Observations of limpet dominated sites in the Brandsebaai area have led archaeologists to associate collection of these types of shells with the ceramic period post-dating 2000 years ago. Shellfish frequencies on the site are very low and not presented as a table in this report. Raw data is available on request.

4.2.2.4 Dating

The presence of an informal quartz assemblage and a dominance of limpets points to a date of after 2000 years ago. However, this is not verifiable as pottery is not present on the site. Most of the shellfish are in a deflated context and are therefore not suitable for radio carbon dating.

5. CONCLUSION

Site MS 2 was most likely occupied because of its elevated position on the surrounding Landscape. People who lived on the site probably constructed small shelters much like the Kalahari San still do today. According to the information we had in 1994 we suggested that several periods of occupation took place. The recent excavations have shown that there was one short burst of occupation of the site resulting in a small midden. Parts of this were preserved for thousands of years under 30 cm of sand, while those portions that were not inundated with sand, became deflated and dispersed with time.

Like site MS 2, MS 5 is situated above the surrounding landscape which was attractive to prehistoric people. Unfortunately the site has been partially disturbed by both natural and human made factors which means that it is not possible to be sure whether all the scatters of material are contemporary or not. The homogeneity of the artefactual material suggests that a similar time period is involved. It is likely that the assemblage dates to after 2000 years ago, whereas site MS 2 is, in all likelihood, earlier.

Parkington and Poggenpoel (1991) after several preliminary assessments on the Namaqualand coast mentioned that very little is known about this area which has been archaeologically un-explored. They suggested that occupation of the coast during the Late Stone Age had taken place a part of a single burst of prehistoric occupation, probably within the last 2000 years. Although the picture is still far from clear, it is now known that prehistoric occupation of the area in the Late Stone Age is far more complex than this. There is certainly occupation during the last two thousand years as indicated by a number of sites that contain Cape Coastal Ceramics. As a result of mitigatory studies commissioned by both Namakwa Sands, De Beers and others, a significant body of observations is now available. Radio carbon dates from previous excavations at Brandsebaai have produced dates that span the entire period from almost 5000 years ago until the most recent part of the Late Stone Age after 3000 years ago. Although there is still much to be learned about the archaeology of the region, some interesting patterns in the distribution of archaeological sites are beginning to emerge. There are numerous archaeological sites on the immediate coast. Many of these contain ceramics and appear to be less than 2000 years old judging by the types of artefacts that are found on them. The few sites that we have located further inland are much older dating to over three thousand years ago. This hints at changes in the way that people used the landscape which may reflect a combination of environmental and social factors.

6. RECOMMENDATIONS

1. We have removed most visible surface archaeological material from sites MS 2 and MS 5. We have also located and excavated the only *in situ* layer of material that was found on site MS 2. Furthermore we have sunk deep soundings into the dune body to test for further material, of which none was identified. It is our recommendation the Namakwa Sands be issued with a permit to destroy what remains of both sites so that they may continue with the next phase of their mining operation.

2. Namakwa Sands must contact the National Monuments Council to obtain a permit application to destroy archaeological material on sites MS 2 and MS 5. A copy of this interim will be lodged with the NMC so that they are informed about the status of archaeological work in the area. The Cape Town office of the NMC can be contacted at phone no (021)

4624502 or fax (021) 4624509. Inquires should be addressed to Dr J. Deacon (Head Office) or Ms L. Robinson (Regional Office).

7. REFERENCES

- Deacon, J. 1988. The power of place in understanding southern San rock engravings. *World Archaeology* 20:129-40.
- Deacon, J. & Dowson, T.A. 1996. *Voices from the past: /Xam Bushmen and the Bleek and Lloyd collection*. Johannesburg: University of the Witwatersrand Press.
- Elphick, R.H. 1977. *Kraal and castle. Khoikhoi and the founding of white South Africa*. New Haven: Yale University Press.
- Halkett, D.J., Hart, T.J.G & Parkington, J.E. 1994. Phase 2 archaeological excavations at the Namakwa Sands Project (first phase), Vredendal district, Namaqualand. Unpublished report prepared for Namakwa Sands. University of Cape Town: Archaeology Contracts Office.
- Klein, R.G. 1989. *The human career*. University of Chicago Press: Chicago & London.
- Lewis-Williams, J.D. 1981. *Believing and seeing: symbols and meanings in southern San rock paintings*. London: Academic Press.
- Parkington, J.E. 1980. Time and Place: some observations on spatial and temporal patterning in the later stone age sequence in southern Africa. *South African Archaeological Bulletin* 35: 73-83.
- Parkington, J.E. and Poggenpoel, C.E. 1991. West Coast heavy mineral sands project, archaeological report. Unpublished report prepared for the EEU. University of Cape Town: Archaeology Contracts Office.
- Parkington, J.E., Yates, R., Manhire, A. & Halkett, D. 1986. The social impact of pastoralism in the south western Cape. *Journal of Anthropological Archaeology* 5: 313-329.
- Penn, N. 1994. Drosters of the Bokkeveld and Roggeveld, 1770-1800. In Eldredge, E.A. & Morton, F. (Eds) *Slavery in South Africa: Captive Labour on the Dutch Frontier*. Pietermaritzburg: University of Natal Press.
- Péringuey, L. 1902. Stone implements from Paarl and Stellenbosch. *Transactions of the South African Philosophical Society* 11(4).
- Péringuey, L. 1911. The Stone Ages of South Africa as represented in the collection of the South African Museum. *Annals of the South African Museum* 8:180-201.
- Raper, P.E. & Boucher, M. eds. 1988. *Robert Jacob Gordon - Cape Travels, 1777 to 1786*. Vol 2. Brenthurst Press: Houghton.
- Raven-Hart, R. 1967. *Before Van Riebeeck*. Cape Town: Struik.

Sampson, C.G. 1974. Stone age archaeology of southern Africa. New York Academic Press.

Sealy, J. & Yates, R. 1994. The chronology of the introduction of pastoralism to the Cape, South Africa. *Antiquity* 68: 58-67

Smith, A.B. 1985. Excavations at Plettenberg Bay, South Africa of the campsite of the survivors of the wreck of the Sao Gancalo 1630. *International Journal of Nautical Archaeology and Underwater Exploration* 15.1: 53-63

Smith, A.B. 1987. Seasonal exploitation of resources on the Vredenburg Peninsula after 2000BP. in Parkington, J.E. and Hall, M.J. (eds) *Papers in the Prehistory of the of the western Cape, South Africa. British Archaeological Reports International Series 332(ii): 326-349 Oxford*

8. PROFESSIONAL TEAM

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Excavation	Tim Hart John Lanham Mzwandile Sasa Mzunzima Mjikelizo
Analysis	Belinda Mutti Dave Halkett Tim Hart Chopi Jerardino (Fauna)
Report	Tim Hart John Lanham

APPENDIX A

SITE MS 2

All SQUARES SPECIES PRESENT

Tortoise (mostly *Chersina angulata*)
Steenbok/Grysbok (*Raphicerus spp*)
Bovid (unidentified)
Cape fur seal (*Arctocephalus pusillus*)
small carnivore (viverrid?)
small mammal (unident.)
mammal (unident.)
microfauna
snake/lizard
bird (unident.)
unidentified bone

SITE MS 2

UNIT: SHELL PATCH 1

SHELLFISH SPECIES FREQUENCY

Shell species	F22		G22		H21		I21	
	n	%	n	%	n	%	n	%
PATELLA SP								
granatina	8	38.1	54	43.5	46	29.1	3	37.5
compressa	0	0.0	0	0.0	0	0.0	0	0.0
granularis	1	4.8	0	0.0	8	5.1	2	25.0
argenvillei	0	0.0	1	0.8	2	1.3	0	0.0
barbara	0	0.0	0	0.0	1	0.6	0	0.0
tabularis	0	0.0	0	0.0	0	0.0	0	0.0
miniata	0	0.0	0	0.0	0	0.0	0	0.0
cochlear	0	0.0	0	0.0	0	0.0	0	0.0
longicosta	0	0.0	0	0.0	0	0.0	0	0.0
oculus	0	0.0	0	0.0	0	0.0	0	0.0
sub-total	9	42.9	55	44.4	57	36.1	5	62.5
TURBO SP								
cidaris	0	0.0	0	0.0	0	0.0	0	0.0
sarmaticus	0	0.0	0	0.0	0	0.0	0	0.0
sub-total	0	0.0	0	0.0	0	0.0	0	0.0
OXYSTELE SP								
Burnupena sp	0	0.0	0	0.0	0	0.0	0	0.0
Haliotis midae	0	0.0	0	0.0	0	0.0	0	0.0
C. meridionalis	12	57.1	68	54.8	101	63.9	3	37.5
D. serra	0	0.0	0	0.0	0	0.0	0	0.0
F. aperta	0	0.0	0	0.0	0	0.0	0	0.0
C. Porcellana	0	0.0	1	0.8	0	0.0	0	0.0
A. scutellum	0	0.0	0	0.0	0	0.0	0	0.0
	21	100.0	124	100.0	158	100.0	8	100.0

SITE M2
SQUARES: ALL

ARTEFACTS

UNIT:	B19/1	B20/1	B21/1	C19/1	C20/1	C21/1	D19/1	D20/1	D21/1	D22/1	E19/1	E20/1	E21/1	E22/1	E23/1	F20/1	F21/1	F22/1	F22/SP1	F23/1	G20/1	G21/1	G21/1	G22/1	G22/SP1	H20/1	H21/1	H21/SP1	H22/1	H22/1	H23/1	I21/1	I21/SP1	J21/1	K21/1	L21/1	M21/1	N21/1	O20/1	O21/1	P17/1	P18/1	P19/1	P20/1	P21/1	Q17/1	Q18/1	Q19/1	Q20/1	Q21/1	TOTAL
chip	8	9		8	14	14	6	45		36	3	15	4	21	8	3	15	12	3	3	27	16	13	12	1	25	6	1	1	2	2	7		2		3	5	3		6	1	10	7	31	9	11	25	30	13	496	
chunk	2			2	5	1	1	1		20	1	1	3	2	2	3	4	1			6	1		1	1	3		2									2			2		4	3	2	3	2		84			
flake	1	3	2	13	9	3	11	31		1	11	7	20	16	7	17	11	12	1	3	21	20	6	9	3	28	18	11					3	5		5	6	5		6	9	4	6	26	4	10	19	12	5	433	
bladelet				2		1		2			1					1					3						6													1			2	2	1		22				
irr core									1				1			2			1						1	1	1										1	1				2					12				
bp core																			1																													1			
s plat core																					1																											0			
mrp																					1																												1		
mbp																																																	0		
scraper																			1															1														4			
bkd scraper													1																																				1		
adze																																																		0	
bkd blade																																																		0	
bkd point																																																		0	
segment																																													1					1	
h/stone																																																		0	
manuport																																																		0	
ochre																																																		0	
total	11	12	2	25	28	19	18	79	0	58	16	23	28	40	17	26	30	27	5	7	57	37	19	22	6	57	31	14	3	10	6	9	0	3	8	0	8	14	10	0	12	10	17	13	62	19	25	49	45	18	1055

SITE MS2

SUARES: ALL

RAW MATERIAL USE

ALL UNITS	QUARTZ	QUARTZITE	SILCRETE	CHERT	CALCRETE
	n	n	n	n	n
chip	478	16		2	
chunk	78	5		1	
flake	383	45		4	1
bladelet	19	3			
irr core	11		1		
bp core	1				
s plat core					
mrp	1				
mbp					
scraper	4				
bkd scraper	1				
adze					
bkd blade					
bkd point					
segment	1				
h/stone					
manuport					
ochre					
total	977	69	1	7	1

APPENDIX B

SITE MS5

SQUARES: ALL

ARTEFACTS

UNIT:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	SUB-TOTAL
chip	4	1	5	7		3	2	6	8	1		9	1		1	4		11	7	1		6		2	4	2	1	2	1	5	6	5		105
chunk	4	1	3				1	2				1							5	1				6	1	2		1	4	4	4	1		41
flake			1	3	3	1	3		2		3		9		2	1	1	7	7		4	5	2		2	1			5	2	5	1		71
bladelet	2															1		1		1	2			1	1		1					1	11	
irr core																													1				1	
bp core																																		0
s plat core																																		0
mrp																																		0
mbp																																		0
scraper																																		0
bkd scraper																																		0
adze																																		0
bkd blade																																		0
bkd point																																		0
segment																																		0
h/stone																																		0
manuport																																1		1
ochre																																		0
total	10	3	11	10	1	6	3	10	8	4	0	13	1	0	3	6	1	19	19	3	6	11	2	9	8	5	6	3	5	14	16	13	1	230

SITE MS5
SUARES: ALL

ARTEFACTS (continued)

UNIT:	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	TOTAL
chip	2	4	1		2	4	1			2	4	2	5	1	2	3	1	1	8			5	3		2	1	3	7				169	
chunk				1					1	3		2		1		1	1	2	1	1				1	1	1	1					59	
flake	1	1			2		2	2	1	4			4	1	3	1		4	4			1	4	2	1	1	1	2	1			112	
bladelet										1									1					1								15	
irr core				1			1								1						1					1						7	
bp core																																0	
s plat core																																0	
mrp																																0	
mbp																																0	
scraper																																0	
bkd scraper																																0	
adze																																0	
bkd blade																																0	
bkd point																																0	
segment																																0	
h/stone																																0	
manuport																1																2	
ochre																																0	
total	3	5	1	2	2	4	4	2	2	10	4	4	9	3	6	6	2	7	14	1	1	7	8	3	3	3	6	1	10	1	0	0	364

SITE MS5
SUARES: ALL

RAW MATERIAL USE

ALL UNITS	QUARTZ	QUARTZITE	CCS	WHITE CHERT	CALCRETE
chip	129	20	1	19	
chunk	43	6	1	9	
flake	76	27		9	
bladelet	13	1		1	
irr core	3	1		3	
bp core					
s plat core					
mrp					
mbp					
scraper					
bkd scraper					
adze					
bkd blade					
bkd point					
segment					
h/stone					
manuport		2			
ochre					
total	264	57	2	41	0