

PRELIMINARY REPORT ON ARCHAEOLOGICAL EXCAVATIONS AT ERF 149, DWARSKERSBOS, PIKETBERG MAGISTERIAL DISTRICT, WESTERN CAPE

(Excavations conducted under the National Heritage Resources Act
(No. 25 of 1999) and Permit No. 2008-05-001.)

Prepared for

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EXECUTIVE SUMMARY

The Archaeology Contracts Office (ACO) was requested by Enviro Dinamik to conduct archaeological excavations at erf 149, Dwarskersbos, in the Piketberg Magisterial District, in mitigation of a residential development on the site. Earlier test excavations had revealed the presence of prehistoric occupation sites spread along the Holocene dune cordon that traverses the development area.

Five sites were scheduled for mitigation and a sixth site was discovered through the disturbance of a sand dune by earth moving machinery. Four of the sites were mitigated successfully in August 2008 but two required further work which was completed in January 2009.

The sites are important as they constitute the first large-scale excavations behind a sandy shore along the west coast of South Africa. They demonstrate that there must have been a rocky area exposed during the past which enabled mussel shells to be exploited by prehistoric people living in the area. The lack of pottery supports ages greater than 2000 years and this was borne out by the radiocarbon dating program which showed the sites to be between about 1600 BC and 500 BC. The majority of finds are shellfish and flaked quartz artefacts but some sites yielded faunal remains and occasional other cultural items as well. Two sites in particular had very large flaked stone assemblages which are of great value. An interesting aspect was the presence of stone hearth features at three of the sites. Decorative items were relatively rare but included ostrich eggshell beads, a shell pendent and a pendent made on the scapula of a small animal. A single human tooth, a deciduous premolar, was found on the surface and thus does not relate to a burial.

Mitigation at erf 149 can now be considered complete. As such, development may continue on all erven. However, the following should still be noted:

- At any stage during development of the residential erven prehistoric burials may be encountered, particularly along the dune cordon. Should human bones be encountered, all work in the immediate vicinity should stop immediately. The find should be reported to Heritage Western Cape (021 483 9685) or the South African Heritage Resources Agency (021 462 4502). An archaeologist would need to be contracted to remove the remains at the cost of the landowner. It is imperative that the remains be left undisturbed until such time as an archaeologist can get to the site.

Contents

1. INTRODUCTION	5
2. HERITAGE LEGISLATION	5
3. DESCRIPTION OF THE AFFECTED ENVIRONMENT	6
4. HERITAGE CONTEXT	7
5. METHODS	7
5.1. Limitations	8
6. FINDINGS	8
6.1. DKB149-1	11
6.1.1. Location	11
6.1.2. Description	11
6.1.3. Excavation	11
6.1.4. Dating	11
6.1.5. Comments	11
6.1.6. Findings	11
6.2. DKB149-2	14
6.2.1. Location	14
6.2.2. Description	14
6.2.3. Dating	14
6.2.4. Comments	14
6.2.5. Findings	15
6.3. DKB149-4	20
6.3.1. Location	20
6.3.2. Description	20
6.3.3. Excavation	20
6.3.4. Dating	20
6.3.5. Comments	20
6.3.6. Findings	21
6.4. DKB149-6	25
6.4.1. Location	25
6.4.2. Description	25
6.4.3. Excavation	25
6.4.4. Dating	26
6.4.5. Comments	26
6.4.6. Findings	26
6.5. DKB149-7	33
6.5.1. Location	33
6.5.2. Description	33
6.5.3. Excavation	33
6.5.4. Dating	33
6.5.5. Comments	33
6.5.6. Findings	34
6.6. DKB149-8	36
6.6.1. Location	36
6.6.2. Description	36
6.6.3. Excavation	36
6.6.4. Dating	37
6.6.5. Comments	38
6.6.6. Findings	38
6.7. DKB149-2 Palaeobeach	43

7. CONCLUSIONS	48
8. RECOMMENDATIONS	50
9. REFERENCES	50
10. INVESTIGATION TEAM.....	53
11. ACKNOWLEDGEMENT	54
APPENDIX 1	55

1. INTRODUCTION

The Archaeology Contracts Office (ACO) was requested by Enviro Dinamik, on behalf of Eight Mile Investments 215 (Pty) Ltd, to conduct archaeological excavations at erf 149, Dwarskersbos in the Piketberg Magisterial District in mitigation of a residential development on the site (Figure 1). An earlier survey (Kaplan 2006) had recommended test excavations which subsequently revealed the presence of several archaeological sites on the property (Orton 2008b). The test excavations showed the sites to have variable content and that one in particular contained far more valuable archaeological deposits than the others.

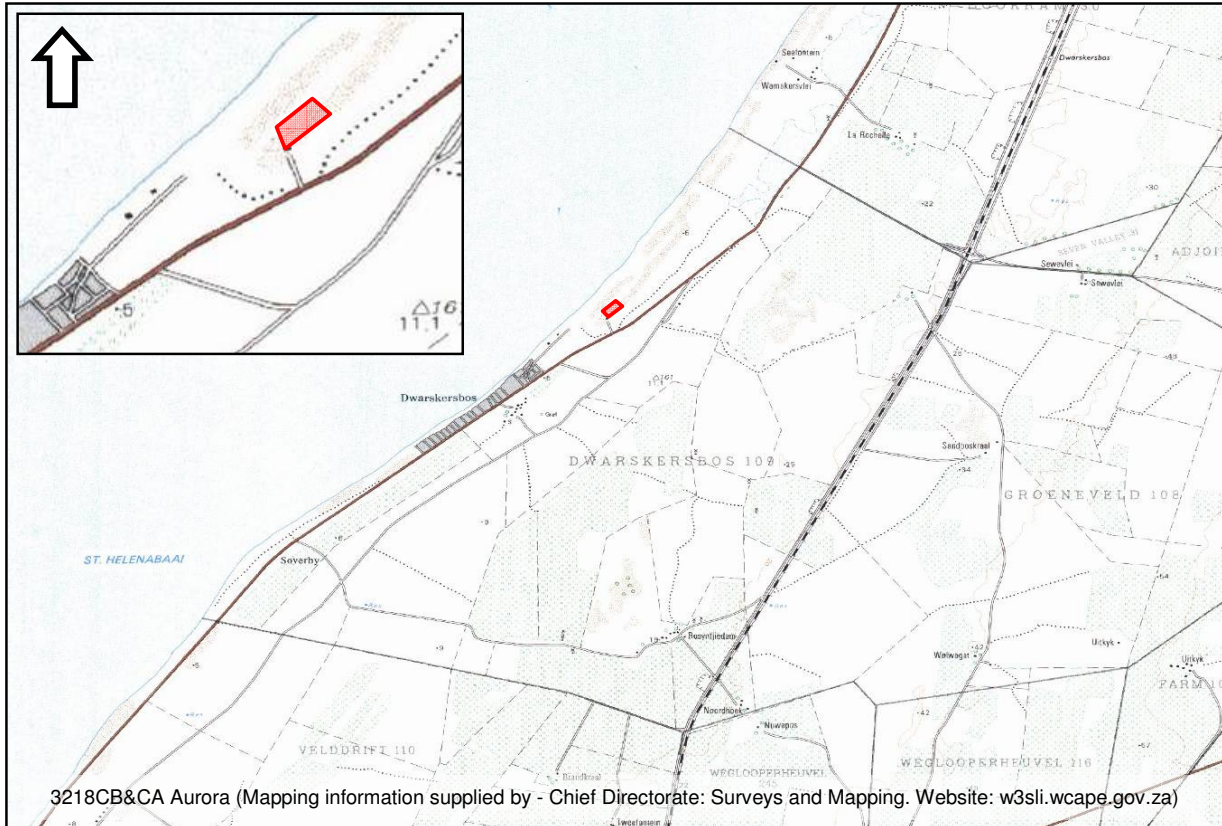


Figure 1: Location of the study area some five hundred meters inland of the eastern shore of St Helena Bay.

Although subdivision into 133 residential erven plus roads and public open space had already taken place, the property is still referred to as erf 149, which was the parent property, for the sake of convenience. The new subdivisions are, however, provided in Appendix 1. During mitigation another site, which had been revealed by a bulldozer, was noted. This site has also been excavated and in fact turned out to be the most significant site of all. This report presents the findings from these six sites.

2. HERITAGE LEGISLATION

The National Heritage Resources Act (NHRA) No. 25 of 1999 protects a variety of heritage resources including palaeontological, prehistoric and historical material (including ruins) more

than 100 years old (Section 35), human remains (Section 36) and non-ruined structures older than 60 years (Section 34). Landscapes with cultural significance are also protected under the definition of the National Estate (Section 3.1d). The archaeological sites excavated during this project were thus protected under Section 35.

Since the project was subject to an Environmental Impact Assessment, Heritage Western Cape (HWC) was required to provide comment on the proposed project in order to facilitate final decision making by the Department of Environmental Affairs and Development Planning (DEA&DP). Their comment is enforced by DEA&DP and this report is thus meant to prove compliance as part of the Environmental Management Plan (EMP).

3. DESCRIPTION OF THE AFFECTED ENVIRONMENT

In terms of development, the site was in much the same condition as was noted during the test excavations, although further services had been added, including street lights (Figure 3), and the pavements were in the process of being surfaced. The photographs in Figures 2 to 5 were taken during the August mitigation season and show the area during the excavations. During the period between the shovel testing and the first mitigation season a quantity of sand was removed from the edge of the dune cordon in one area. It was this that revealed site DKB149-8 (Figure 5).



Figure 2: The vicinity of DKB149-1.



Figure 3: The vicinity of DKB149-6 with our earlier test excavation in the foreground.



Figure 4: Site DKB149-2 being cleared for excavation.



Figure 5: The disturbed area at DKB149-8.

4. HERITAGE CONTEXT

In general archaeologists have always expected to find far more dense archaeological accumulations behind rocky shores, since that is where most shellfish occur. Shellfish have for thousands of years been a staple food of people living along the South African coast and indeed many very large and significant sites have been found in such areas. An example is Elands Bay Cave where shell middens have been forming for more than 10 000 years (Parkington 1987). Jerardino (2003) conducted some very limited sampling of sites between erf 149 and Elands Bay to the north. Her study revealed ephemeral occupations dating throughout the last 3000 years and included sites with pottery.

In general sites along rocky shores around and to the north of Baboon Point have been very well studied (e.g. Buchanan 1988; Horwitz 1979; Jerardino 1996, 1998, 2007; Jerardino & Yates 1996, 1997; Noli 1988; Orton 2006; Orton & Compton 2006; Parkington *et al.* 1988, 1992), as have those around the Vredenburg Peninsula (e.g. Buchanan *et al.* 1978; Hine 2004; Orton 2008a; Robertshaw 1977, 1979; Smith *et al.* 1991). As a result, our knowledge of sandy shore archaeology is disproportionately small compared to that of rocky shores.

5. METHODS

Excavations at erf 149 were carried out from the 18th to the 29th of August 2008 and the 22nd to 27th January 2009. Although the test excavations had resulted in a recommendation that a total of 31 m² be excavated across five sites, it soon became evident that highly significant archaeological deposits were present and that a far greater area would be required in order to satisfactorily mitigate the development. As a result, we worked as rapidly as possible during the first season so as to try and fully mitigate as many sites as possible. During excavation the content of a site can naturally be better assessed. Given the significance of some sites, it was decided to conduct less work at some and more at others in order to maximise the archaeological data that could be rescued and hence the quality and value of the overall mitigation project. Despite this it still became necessary to conduct a second season of work at two of the sites.

Excavations were conducted using standard techniques but no surveying was employed. Each site was gridded into 1 m by 1 m squares labelled alphanumerically. The squares were excavated in 10 cm spits, although the initial spit in every site was taken down 15 cm due to the depth of organic material included within it and the amount of sand that caved in along the sections. This first spit invariably ended just at the base of the grass roots. The vast majority of archaeological material was relatively sparsely distributed through the deposits, but when denser and probably *in situ* material was encountered it was removed stratigraphically.

All the excavated deposit was sieved through a 3 mm mesh sieve. Although it is desirable to use the finer 1.5 mm sieve, this was not possible due to the large quantities of fine organic debris within the upper 40 cm of the dune cordon.

During excavation various aspects and features of the sites were photographed and notes were taken to aid later interpretation. The stone hearth features were plotted by means of single co-ordinates per rock. Brief descriptions of each rock were also recorded. This approach had to be taken due to the very large number of rocks and the need to move quickly.

All the excavated material has been returned to the ACO laboratory at the University of Cape Town for sorting and analysis. All shellfish was taken from the site, but, after weighing and some analyses, only limited samples were retained in perpetuity from each site due to the large volumes present. After final reporting the material will be housed in the Iziko SA Museum in Cape Town, as required by law.

Radiocarbon dating samples were sent to the University of Georgia's Centre for Applied Isotope Studies (CAIS) where the dates were produced.

5.1. Limitations

Dense indigenous bush cover did limit the areas that could be excavated, although care was taken during the initial test excavations to leave any large open spaces intact for possible excavation. At times it became necessary to remove trees and bushes in order to expand the excavations into archaeologically denser areas.

The loss of material that might otherwise have been trapped by a 1.5 mm sieve is not considered significant at all given the nature of the finds that were observed. However, it is possible that a few small beads may have been lost and certainly many very tiny quartz chips would also have passed through the 3 mm mesh. These latter do not significantly affect the overall interpretation of the lithics (Orton 2004).

6. FINDINGS

The six excavated sites are described in turn. Their locations on the property are shown in Figures 6 & 7. An excavation grid layout and a series of photographs accompany each description.

With regards to the shellfish counts the following should be noted:

- Black mussels (*Choromytilus meridionalis*) and ribbed mussels (*Aulacomya ater*) have both left and right valves counted. Note that due to a high degree of fragmentation it is likely that some under-representation has occurred.
- White mussels (including *Donax serra*, *Schissodesma spenglerii* and others) have a single count given for the total number of hinges of all species together. This is due to the high degree of fragmentation and the difficulty of identifying species from very small fragments which are also sometimes water worn.
- Whelks are counted via their apices. However, these shells are usually highly fragmented, presumably to facilitate extraction of the animals from the shells, and are certainly under-represented in the counts.
- Some *Bullia* species are counted within the whelks but those listed under *Bullia* in the tables refer specifically to the type commonly found on the sandy shore (*Bullia digitalis*).
- When no countable individuals of a species were present but other fragments were seen this is noted with an 'x'.

In the lithic analyses

- CCS denotes cryptocrystalline silica and 'other' refers to rare or unidentifiable raw materials.
- Manuports includes all natural pebbles as well since it is not always possible to differentiate between items carried to a site and those naturally occurring as a result of beach deposits.

The fauna are only given a preliminary identification here and will be studied in detail by the relevant specialists when possible.

The deep sounding into the palaeobeach deposits at DKB149-2 is described separately after the archaeology.



Figure 6: Aerial photograph taken from Google Earth showing the eight recorded locations relative to major features of the area. The sites lie along the innermost dune ridge some 320m from the sea.

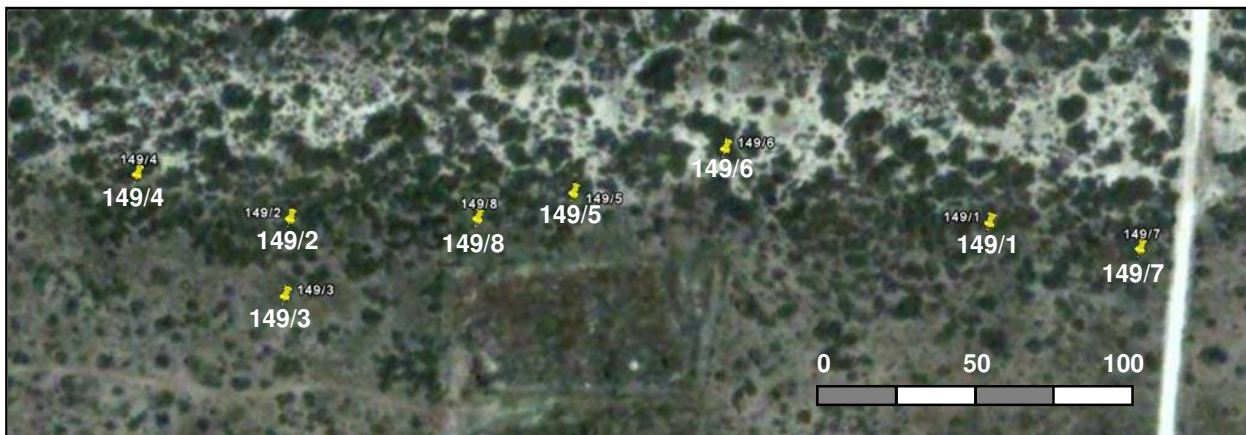


Figure 7: Enlargement of Figure 6 showing the excavation numbers. 149/3 and 149/5 were not sampled during the Phase 2 excavations and 149/8 is the newly discovered site. The old dumping site is visible in the lower centre of the picture. Scale in metres.

6.1. DKB149-1

6.1.1. Location

- 32° 40' 55.3" S 18° 14' 53.6" E

6.1.2. Description

- Low density shell and stone artefact scatter throughout but an ephemeral shell lens noted in Spit 6 of square X9.
- Upper four spits are pale grey/brown and deposit becomes more pink/ brown below.
- Burrowing was common, particularly lower down.

6.1.3. Excavation

- 3 m² excavated to Spit 6 (~65 cm depth) and
- 1 m² to Spit 3 (~35 cm depth).
- All sieving was with a 3 mm mesh.

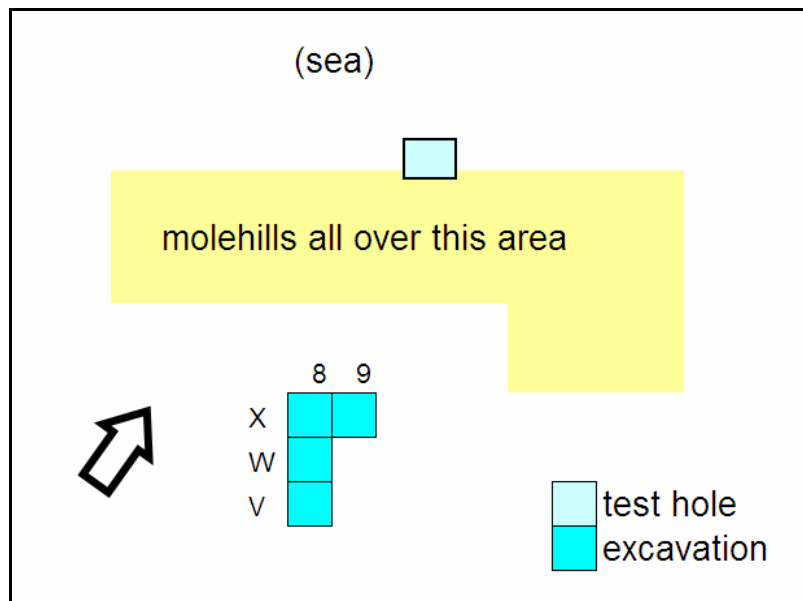


Figure 8: Grid layout at DKB149-1.

6.1.4. Dating

- The site has not been radiocarbon dated since it was felt that the mole activity in the vicinity may compromise the age. There is no reason to believe that the site falls outside of the general range of ages obtained from the other sites.

6.1.5. Comments

- Excavation sited south of test pit due to extensive recent mole activity in the area.
- V8 stopped at Spit 3 due to a red ant nest.
- Little value over and above the shellfish sample.

6.1.6. Findings

- Shellfish: Strongly dominated by black mussels (*C. meridionalis*) but with whelks and white mussels also present (Table 1). By density most shell occurred in the lower parts

of the deposit (Figure 9). The increase in relative white mussel frequency at the base is related to the beach deposits.

- Shellfish sampling: All shell was retained from square W8 and square X8. This constitutes 7.13 kg.

Table 1: Shellfish data for DKB149-1, square W8.

Spit	<i>Choromytilus meridionalis</i>		White mussels L+R	<i>Aulacomya ater</i>		Whelks
	L	R		L	R	
1	37	34	2			6
2	19	28	3			5
3	30	40	3		1	5
4	30	33	1			5
5	23	34				4
6	25	14	7			8

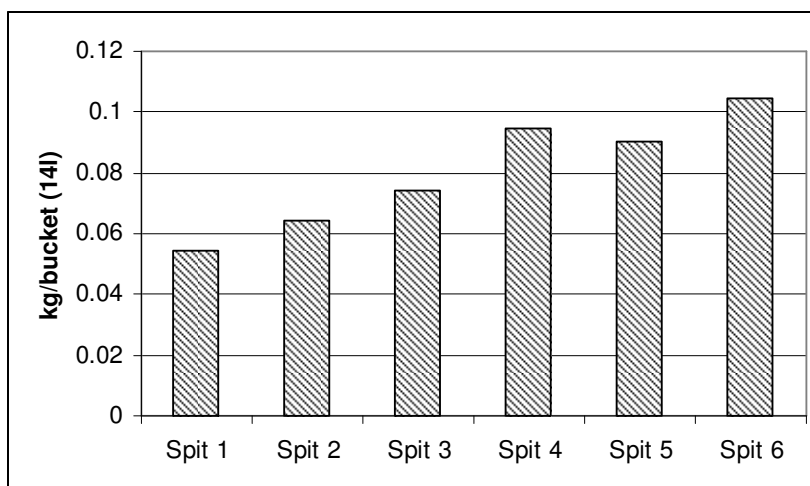


Figure 9: Shellfish density per spit in squares W8, X8 and X9.

- Lithics: A small collection of 107 flaked artefacts and one manuport was obtained. Only debitage is present among the flaked artefacts (Table 2).

Table 2: Stone artefacts from DKB149-1.

Spit	1	2	3	4	5	6
Quartz						
Bipolar core			1			1
Irregular core					1	
Flake	8	9	7	5	6	4
Chunk	4	6	3	2	4	5
Chip	13	6	11	2	5	4
Other						
Manuport				1		

- Fauna: Identified fauna include micromammals, tortoise, snake, bird and other fragments.



Figure 10: View into the excavation at DKB149-1 showing mole tunnels at the base.



Figure 11: DKB149-1 at the end of excavation.

6.2. DKB149-2

6.2.1. Location

- 32° 41' 00.7" S 18° 14' 48.4" E

6.2.2. Description

- Scattered shell, stone artefacts and some bone throughout.
- No shell lenses were found.
- Mole burrows were seen in Spit 4 in the southern part of the site.
- Deposit is pale grey/brown in colour.
- A stone hearth was found in the northern part of the excavation.

Excavation

- 24 m² excavated to Spit 4 (~45 cm depth); 9 m² to Spit 5 (~55 cm depth); and 1 m² to Spit 20 (2.05 m depth).
- All sieving was with a 3 mm mesh.

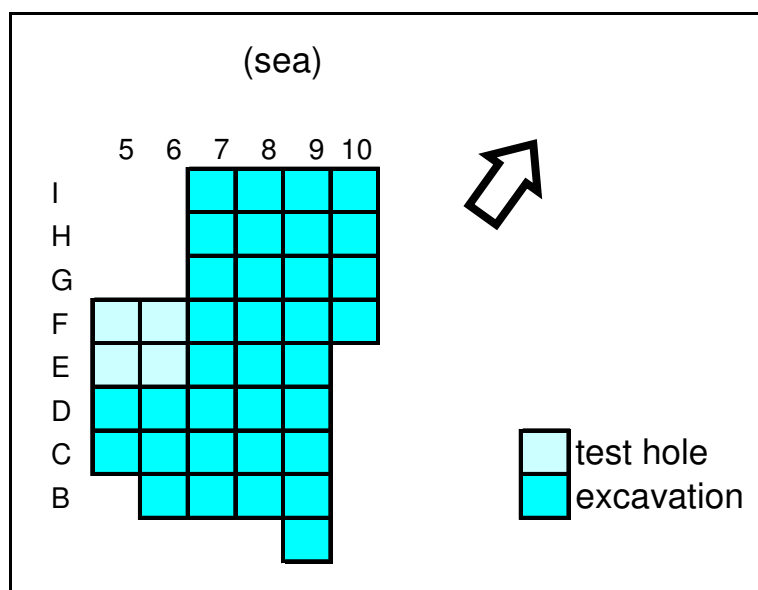


Figure 12: Grid layout at DKB149-2.

6.2.3. Dating

- One radiocarbon date places this site at approximately 1200 BC. In addition a date has been produced for the palaeobeach deposits sampled in square D5. It proves their Holocene age.

Lab. No.	Provenance	Material	Radiocarbon age	Calibrated age
UGAMS-4072	H9, Spit 5	Marine shell	3460 ± 30 BP	1238 (1194) 1149 BC
UGAMS-3474	D5, 170 cm below surface	Mixed marine shell	5050 ± 30 BP	3318 (3294) 3261 BC

6.2.4. Comments

- This site yielded more varied cultural material than most.
- The site lies very close to the top of the palaeobeach deposits which became evident from Spit 6 downwards. In the southern part, archaeological material seemed very

sparse below Spit 4, while in the north-western area, where the hearth lay, the material extended into Spit 5. This is probably more a function of the depth of the overlying sand such that the basal archaeological material across the whole site, whether Spit 4 or 5, all belongs together.

6.2.5. Findings

- **Shellfish:** Table 3 provides details of the upper five spits of square D5. These are the levels containing other archaeological material. The shellfish density drops off markedly below Spit 4 in the southern part of the site (Figure 13) but increases in Spit 5 in the northern part (Figure 14). Black mussels dominate strongly with white mussels, ribbed mussels and whelks also being present. Rare shellfish found were as follows: two chiton scales in F8 Spit 4 and one in F7 Spit 3, a *Scutellastra granularis* in C5, Spit 4, a fragment of a *C. miniata* in G7, Spit 1 (A. Jerardino, pers. comm. 2009) and a *Turbo* sp. operculum in square C7, Spit 1. While the two limpets were more than likely isolated individuals found during shellfish collecting, the operculum may well have been collected further afield as a curio, perhaps in Saldanha bay where they have been recorded archaeologically (Orton 2008a). On cleaning it appeared to be a little bit worn (suggesting either long term curation or collection from the beach) and it may also have some fatty residue adhering to it (N. Child, pers. comm. 2009). The residue may well be due to handling by people with dirty hands prior to its getting lost in the sand.
- **Shellfish sampling:** All shell from the deep sounding (square D5) was retained as well as from squares B8 and G9. The total weight of shell retained is 23.72 kg.

Table 3: Shellfish data for DKB149-2, Square D5.

Spit	<i>Choromytilus meridionalis</i>		White mussels L+R	<i>Aulacomya ater</i>		Whelks
	L	R		L	R	
1	69	49	2	1	2	x
2	36	28	4		1	
3	75	93	5	1		2
4	40	44	1	1		4
5	15	14	1		1	1

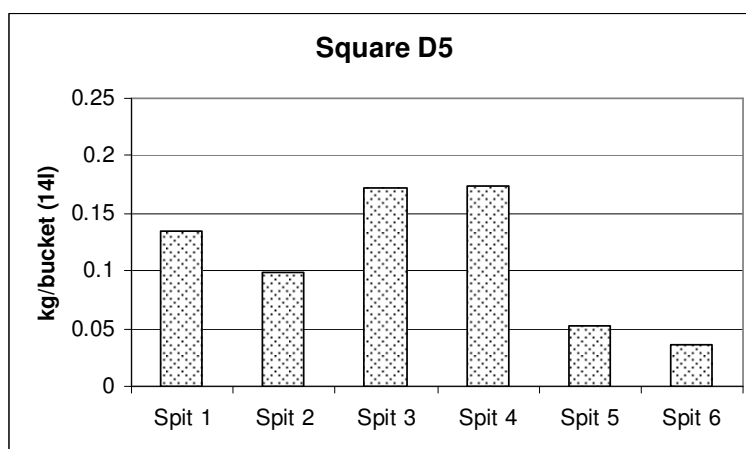


Figure 13: Shellfish density per spit in square D5. Although the archaeology ends in Spit 4, Spits 5 and 6 are shown to illustrate the dramatic drop in shell density.

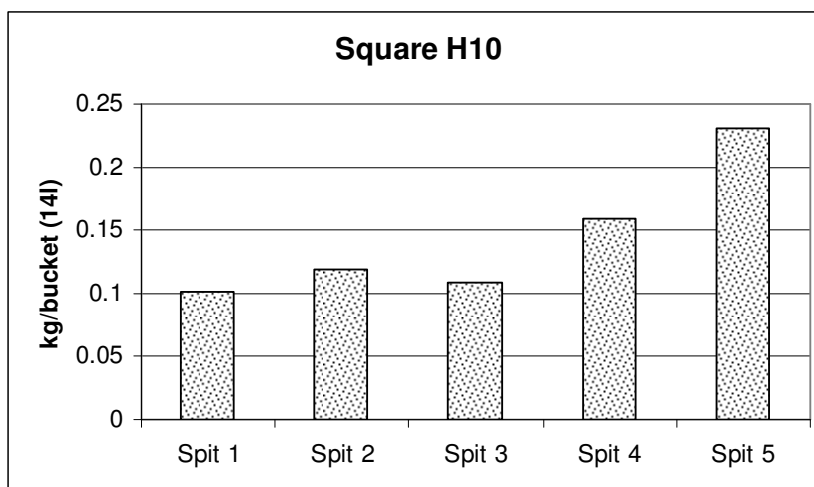


Figure 14: Shellfish density per spit in square H10. The increase in shell associated with the stone feature in Spits 4 and 5 is evident.

- Kreef: A single broken left crayfish mandible was found in I9 Spit 2. Although it cannot be measured, it was clearly from a fairly large crayfish.
- Lithics: A good collection of 1857 flaked stone artefacts was obtained from this excavation. The data are presented in Table 4. Quartz dominates and the seven retouched pieces comprise 0.38% of all flaked quartz. Too few retouched pieces are present to make any comments on the types. Interestingly one piece of cryptocrystalline silica (CCS) is present. This material is highly valued for retouch and it is significant that the only piece here is retouched. Bipolar flaking is generally the easiest way of reducing quartz and this is evident in that half of all cores are bipolar. There are surprisingly few hammer stones and grindstones with the former all in quartz which obviously provided the right sized pebbles. The density of stone artefacts is low (Figure 15) but it is quite clear that it increases in association with the stone feature.

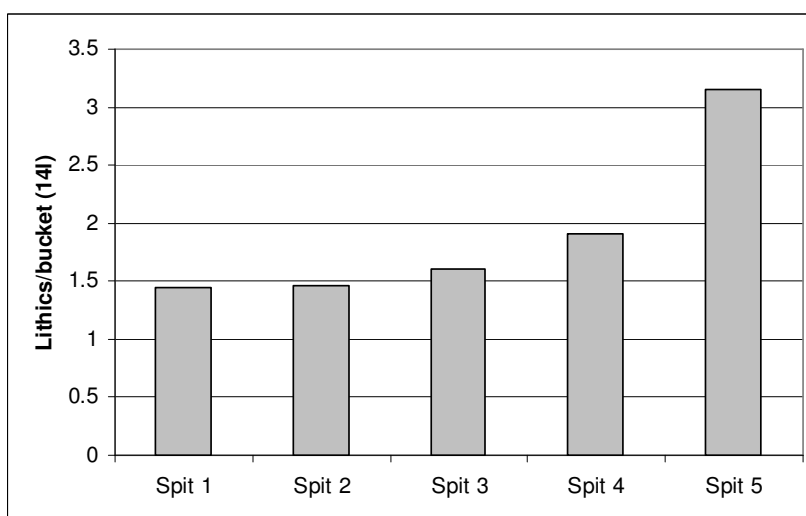


Figure 15: Lithic densities across the whole DKB149-6 site. Elevated densities in Spit 5 are related to the stone feature. Overall densities are still very low.

- The stone feature is composed of numerous small rocks, predominantly igneous in origin, which are spread over a restricted area of some 6 m² but with many outliers (Figures 16 & 17). Although no clear hearths were evident, it is likely that the feature represents one or more hearths which have become slightly dispersed through exposure. Figure 18 shows one of the rocks noted to have cracked *in situ* as a result of exposure to fire. That it spent some time exposed is evident through the lack of charcoal present among the stones or elsewhere on the site.

Table 4: Stone artefacts from DKB149-6. Note that the manuport counts reflect only those retained in the excavated samples and not those discarded on site from the stone hearths. (1-platform = single platform, E-d = edge-damaged, MRP = miscellaneous retouched piece)

Spit	1	2	3	4	5
Quartz					
Bipolar core	10	2	4	7	4
Irregular core	4	6	5	4	2
1-platform core	2	1	2		
Radial core	1				
Blade	1	1	2		1
Bladelet	11	18	9	11	2
E-d flake	1	1		1	2
E-d chunk	6				1
Flake	175	125	143	166	69
Chunk	51	27	42	49	24
Chip	203	171	179	200	99
Backed scraper		1			
Side-endscraper				1	
Backed flake				1	
Notched piece	2	1			
MRP				1	
Hammer stone			1	1	1
Manuport	8	2	6	4	
Cryptocrystalline Silica					
MRP				1	
Quartzite					
Flake	1				
Other					
1-platform core				1	
Flake		2			
Upper grindstone fragment				1	
Upper grindstone				1	
Manuport	13	8	27	28	25

- Fauna: a small collection of animal bones was present including whale, fish, bird, micromammal, tortoise and bovids.
- Human remains: A single broken deciduous premolar was recovered from square E5 during the initial test excavations (Orton 2008b). The depth of the find corresponds to Spit 1 of the formal excavations.

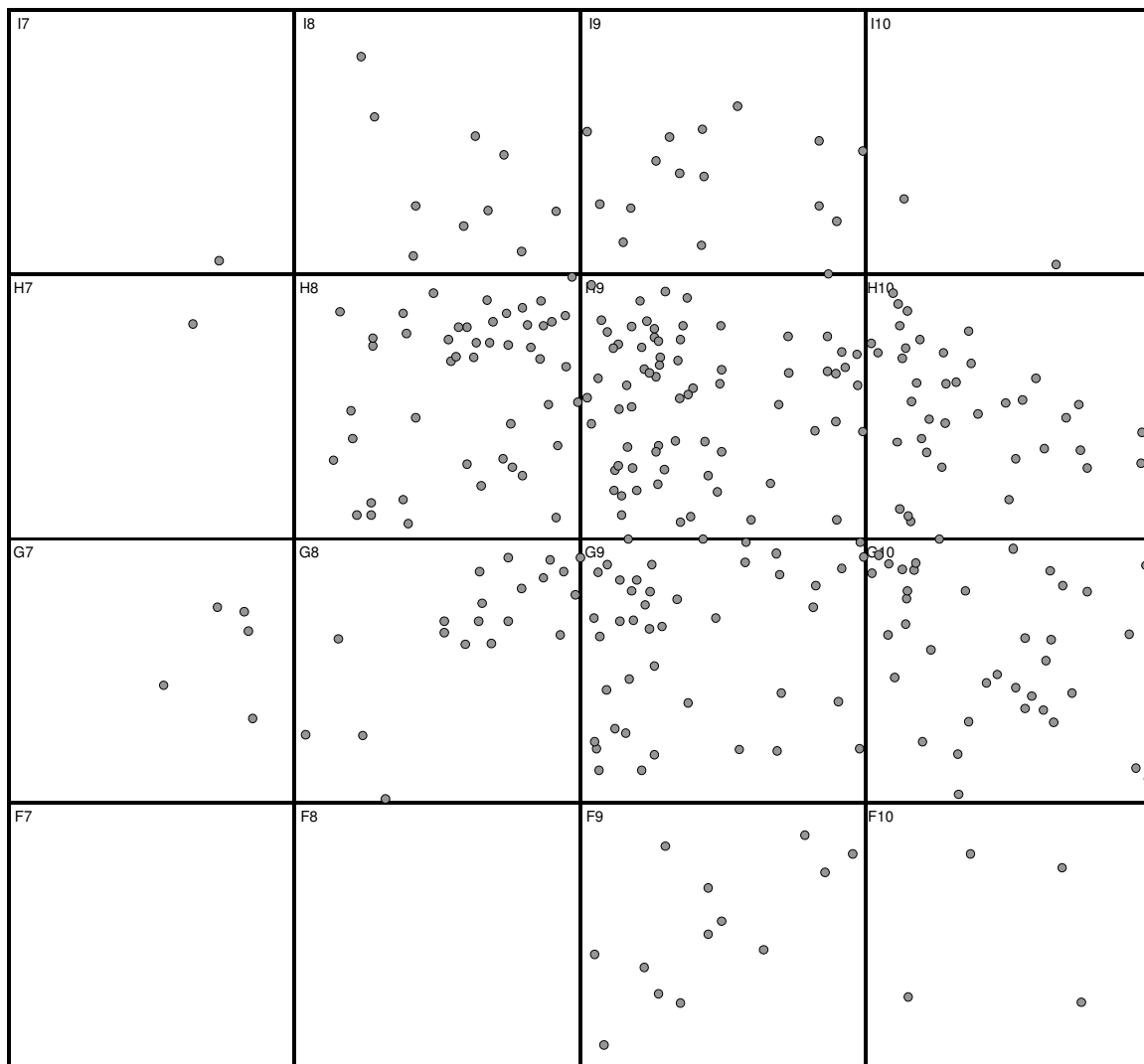


Figure 16: Schematic plan of the stones in the stone feature at DKB149-2. All were in Spits 4 & 5.



Figure 17: View of the stone feature looking towards the northeast.



Figure 18: Close-up of rocks from the stone feature. The rock on the right has cracked *in situ* as a result of exposure to heat.

- Other: This site yielded three complete ostrich eggshell beads. Their dimensions are provided in Table 5. A further decorative item to be found here was a shell pendent made on a sand whelk (*Bullia digitalis*; Figure 19). Although one of the holes on this shell may have been natural, the second and larger one is clearly artificially ground into the shell. This artefact also seems to have some fatty residue adhering to it (N. Child, pers. comm. 2009). Such artefacts are not common occurrences on the Cape west coast, although they have been reported from pottery period contexts at Tortoise Cave and Diepkloof (Parkington & Poggenpoel 1987; Robey 1987). The *Turbo* operculum described above can probably also be regarded as a cultural item.

Table 5: Ostrich eggshell bead dimensions from DKB149-2.

	external diameter	internal diameter	thickness
H9 Spit 1	4.97	1.82	1.63
C7 Spit 4	4.64	1.93	1.46
B8 Spit 2	4.00	1.50	1.57



Figure 19: Shell pendent from DKB149-2, C6 Spit 3. Scale in cm.



Figure 20: DKB149-2 after the first season of excavation. Square H8 lies in the foreground and it was this square that revealed the stone hearth.

6.3. DKB149-4

6.3.1. Location

- 32° 41' 01.6" S 18° 14' 46.1" E

6.3.2. Description

- Scattered shell with minimal other finds.
- A denser shell scatter was found in Spit 5 of M8 and a midden in ~Spit 8/9.
- Deposit is pale grey/brown in colour but in M8 it gets darker in the zones of higher density shell.
- Q8 contained nothing of value.

6.3.3. Excavation

- 3 m² excavated to variable depths: M8 to Spit 9 (~1.0 m depth), F8 to Spit 8 (~87 cm depth) and Q8 to Spit 4 (~47 cm depth).
- *In situ* midden was removed stratigraphically from M8.
- All sieving was with a 3 mm mesh.

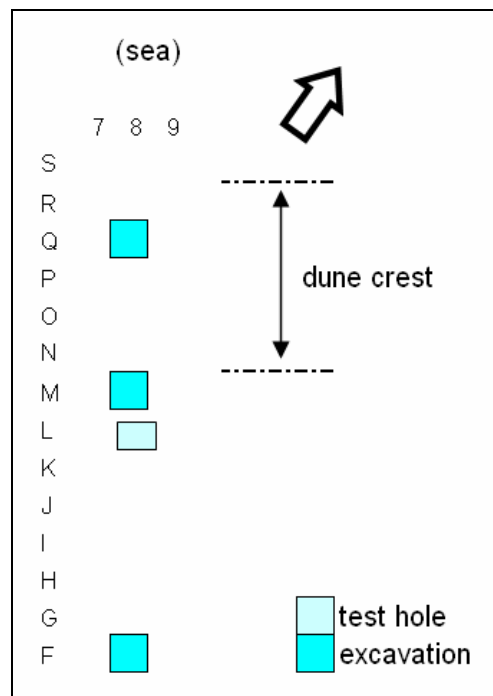


Figure 21: Grid layout at DKB149-4.

6.3.4. Dating

- This site has not been dated. There is no reason to believe that it will not fall within the range represented by all the other sites.

6.3.5. Comments

- Little value over and above the shellfish sample.
- The excavation straddles the dune ridge and suggests that occupation was focussed most strongly just on the inland side of the crest.

6.3.6. Findings

- Shellfish: This site is dominated by black mussels but whelks are surprisingly common in squares M8 and F8. The shell is of very low density in square Q8 and this area was thus not part of the main occupation area. In square M8 there are two zones of higher density perhaps indicating two main periods of intensified occupation. The lower one, denoted primarily by layer SL, is clearly far denser though. Square F8 is less clear but overall the shell density is fairly low.
- Shellfish sampling: All shell was retained from the three excavated squares. The total weight of shell is 20.26 kg.

Table 6: Shellfish data for DKB149-4, square Q8.

Spit	<i>Choromytilus meridionalis</i>		White mussels L+R	<i>Aulacomya ater</i>		Whelks	Barnacle
	L	R		L	R		
1	21	19	x	x		1	
2	16	14	x	x		3	
3	1	4		x			
4	1	4		x		2	x

Table 7: Shellfish data for DKB149-4, square M8.

Spit	<i>Choromytilus meridionalis</i>		White mussels L+R	<i>Aulacomya ater</i>		Whelks	<i>Bullia</i>	Barnacle
	L	R		L	R			
1	29	26		1	1	15		
2	20	13	1	x		4		
3	26	23	1	1	1	20		
4	94	108	x	x		47		
5	92	73		1		45		
6	35	50	x	x		3		x
7	35	42	1	x		3	2	x
8L	21	18	7			10	3	
8D	52	53	4	x		9	2	x
SL	97	140	3	x		7	1	x
9	9	7						

Table 8: Shellfish data for DKB149-4, square F8.

Spit	<i>Choromytilus meridionalis</i>		White mussels L+R	<i>Aulacomya ater</i>		Whelks	<i>Bullia</i>	Turret shell	Barnacle
	L	R		L	R				
1	54	49	1	x		13			x
2	29	24				1			x
3	38	38				3			
4	36	36	1			2	1		
5	31	43	x			4			x
6	58	53	1	x		3			x
7	33	24	12	x		1		1	
8	9	3	8	x		2	1		

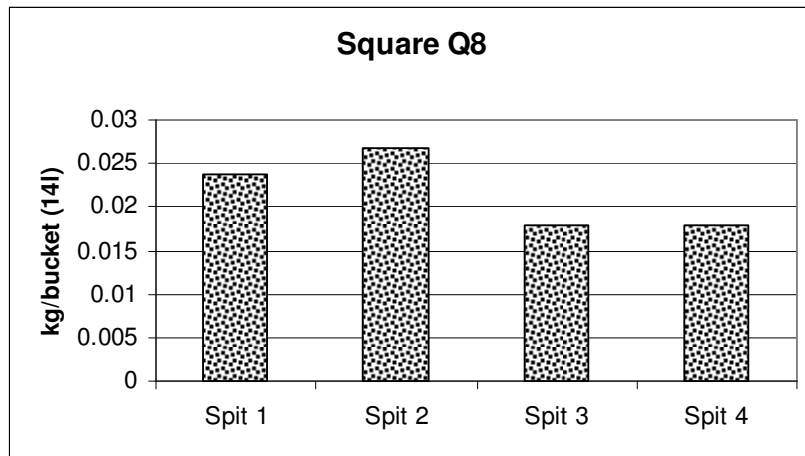


Figure 22: Shellfish density per spit in square Q8.

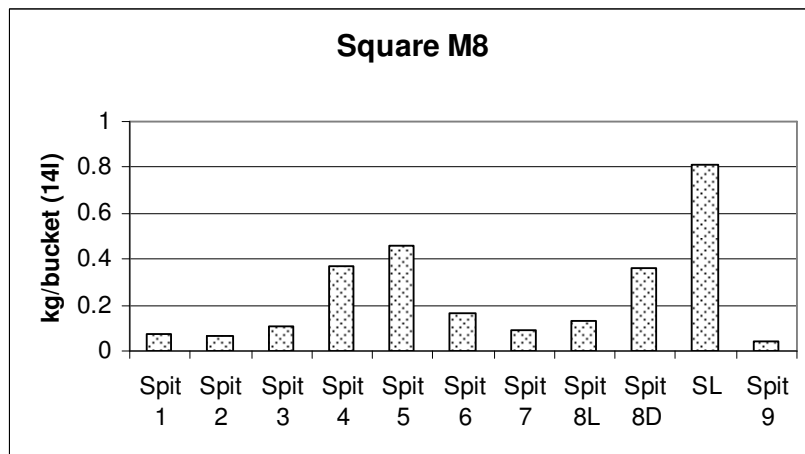


Figure 23: Shellfish density per spit in square M8.

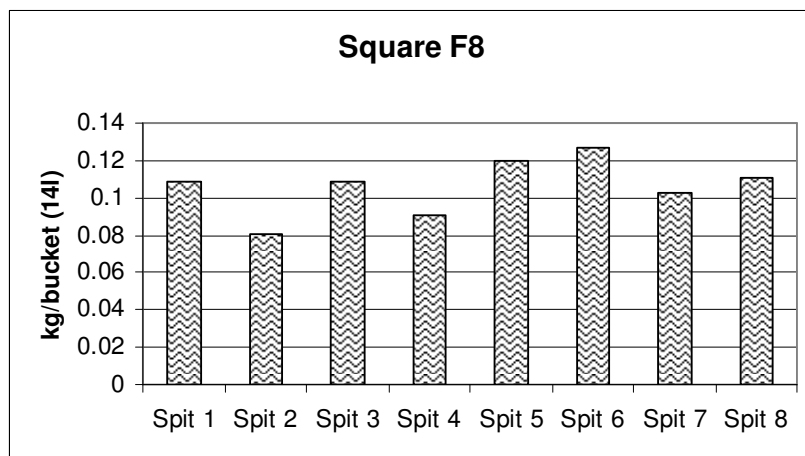


Figure 24: Shellfish density per spit in square F8.

- **Lithics:** Lithics were very limited in Q8 with two flakes in Spit 1 and one each in Spits 3 and 4. A manuport (raw material: other) was also present in spit 4. Tables 9 and 10 provide lithic data for squares M8 and F8. In F8 the high incidence of manuports in Spit 8 relates to the proximity to the palaeobeach deposits that occur beneath the archaeological sites.

Table 9: Stone artefacts from DKB149-4, square M8.

Spit	1	2	3	4	5	6	7	8L	8D	SL	9
Quartz											
Flake	1		4	3	2					2	
Chunk	1	1	2		2		1	1			
Chip	3	1	2	3	2		1	6			1
Other											
Manuport	1										1

Table 10: Stone artefacts from DKB149-4, square F8.

Spit	1	2	3	4	5	6	7	8
Quartz								
Bipolar core	2				1			
Blade							1	
Bladelet					2		1	
Flake	2	3	5	2	3	6	2	
Chunk	1	2	1		1	1		
Chip	6	3	8	1	7	3	3	1
Manuport	1			1				
Other								
Manuport								5

- **Fauna:** Micromammal and tortoise bones were found in all three squares but with the former rare in F8 and the latter rare in Q8. Fish were rare but also encountered in all squares. Other fragments of bone were also present throughout.



Figure 25: DKB149-4 during excavation. Square M8 is visible in the centre and the original test hole is in the foreground.



Figure 26: Section in square M8. Note the dark band halfway down and the dark stain at the base. These represent areas of higher shell density.



Figure 27: Section in square F8.

6.4. DKB149-6

6.4.1. Location

- 32° 40' 56.8" S 18° 14' 50.9" E

6.4.2. Description

- Mostly scattered shell throughout but some areas of concentration / midden were encountered.
- Stone artefacts were super-abundant in the main excavation.
- Typical grey/brown deposit becoming darker in areas of higher shell density.

6.4.3. Excavation

- Three areas were sampled to variable depths: T15 & T16 were excavated through five spits and a shell midden at the base (~73 cm depth); P12 was excavated through six spits (~62 cm depth); and the 17 m² of the main excavation proceeded through six spits but with 4 m² including a lens located in a basin at the very base.
- All sieving was with a 3 mm mesh.
- While the P12 excavation does not contain any significant archaeology, it seems that the other two areas are separate and unrelated sites. The T15 and T16 excavation is referred to as DKB149-6A and the main excavation as DKB149-6B.

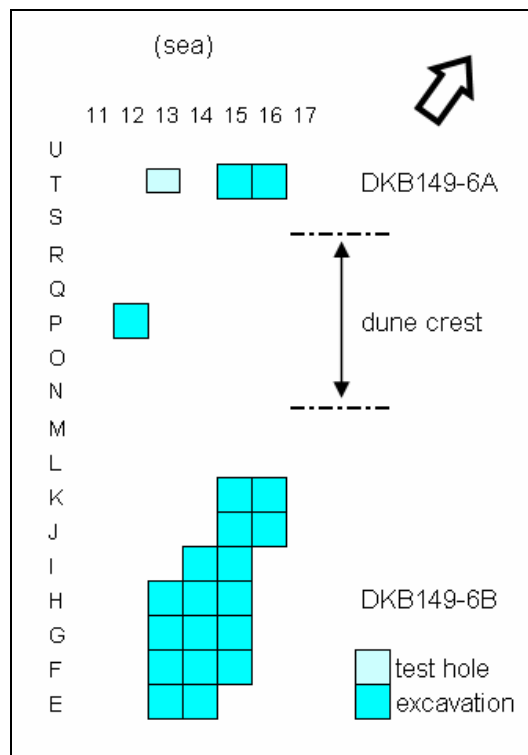


Figure 28: Grid layout at DKB149-6.

6.4.4. Dating

- One radiocarbon date taken from charcoal collected from one of the hearth features places the main occupation of the 6B site at approximately 1610 BC, while a second date from nearer the surface shows that use of the site continued at least until about 1100 BC. The main shell midden at the 6A site dates to about 520 BC. The dates prove that the 6A and 6B sites are separate archaeological entities.

Lab. No.	Provenance	Material	Radiocarbon age	Calibrated age
UGAMS-4073	F13, Spit 2	Shell	3420 ± 30 BP	1179 (1135) 1093 BC
UGAMS-3475	F14, Spit 6	Charcoal	3370 ± 55 BP	1674 (1613) 1522 BC
UGAMS-4074	T16, SL	Shell	2930 ± 30 BP	579 (525) 483 BC

6.4.5. Comments

- A valuable stone artefact assemblage was recovered from DKB149-6B and the stone hearth features there were very well preserved.
- Although a midden is likely to be associated with the hearth features at 6B, we were unable to locate one. That at 6A seemed too far away to be directly related, a conclusion supported by the radiocarbon dating.
- The 500 year gap in the dates proves continuous use of the sites for some time and that the material above the main middens is not just bioturbated material.

6.4.6. Findings

- Shellfish: In the westernmost excavation (T15 & T16) we see very strong black mussel domination with few other shells present (Table 11). The shell midden (Layer SL) has particularly high numbers of mussels and the shell in this layer is very dense (Figures 29 & 30). In the central excavation (P12) only very low densities of shell were encountered. The shell from this square was not analysed, although the presence of a single chiton plate in Spit 4 was noted. In the main excavation square H13 was analysed (Table 12). This again showed black mussel domination but with a good scattering of whelks, primarily in Spits 2, 3 and 4. Shell density is still low. In square K16 higher shell densities are present in two layers (Figure 32). One was in SL, a tiny shell lens (only 0.4 of a bucket), while the second was in QL, a lens also including a very high density of lithics. While no limpets are reflected in the shell bulks tabled here, a single juvenile limpet that could not be identified to species was found in G13, Spit 6.

Table 11: Shellfish data for DKB149-6, Square T15.

Spit	<i>Choromytilus meridionalis</i>		White mussels L+R	<i>Aulacomya ater</i>		Whelks	<i>Crepidula</i>
	L	R		L	R		
1	not analysed		1	1		2	1
2	33	39					
3	not analysed						
4	95	133					
5	not analysed		2	2	3	5	
SL	181	158					
Below SL	not analysed						

- Shellfish sampling: All shell was retained from P12, H13, J16 and F13 and all shell was retained from T15 except for unit SL where only the northern quadrant was taken. The total weight of retained shell is 28.67 kg.

Table 12: Shellfish data for DKB149-6, Square H13.

Spit	<i>Choromytilus meridionalis</i>		White mussels L+R	<i>Aulacomya ater</i>		Whelks	<i>Bullia</i>	<i>Crepidula</i>	Chiton	Barnacle
	L	R		L	R					
1	46	44	x	x		3				
2	28	36		x		6			x	
3	46	51	1	2	1	6				x
4	39	31	x		1	8				
5	41	52		1	2	2	1			
6	29	35		1	1	2		1		
7	20	22	2	1	1	1				
8	14	12				1				



Figure 29: Photograph of the lower part of the T15/T16 section showing the dense shell midden with low density archaeology above and pale, sterile sand below.

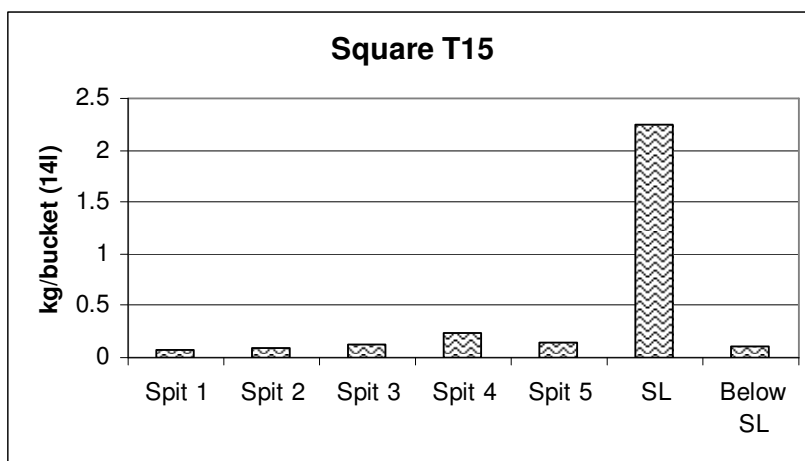


Figure 30: Shellfish density per spit in square T15 (DKB149-6A).

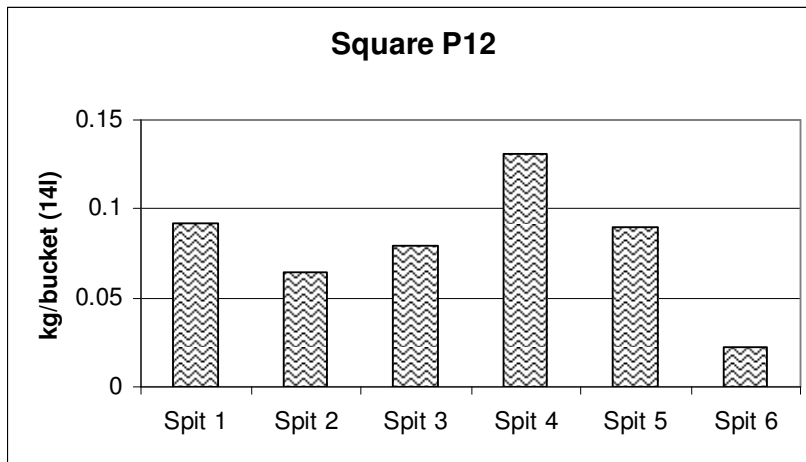


Figure 31: Shellfish density per spit in square P12.

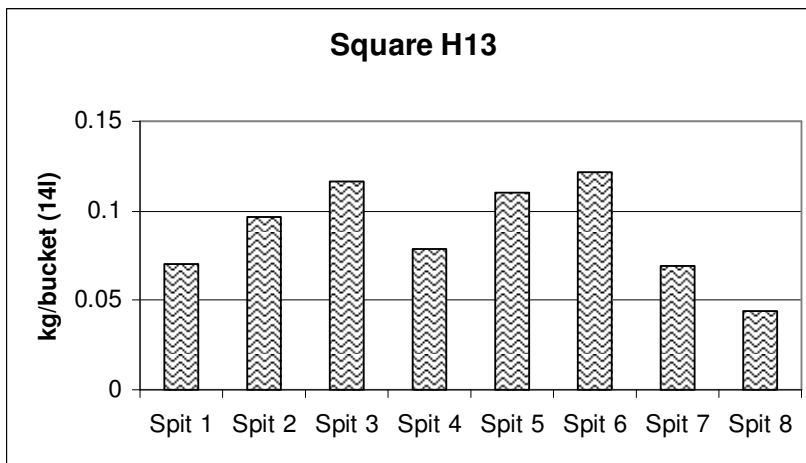


Figure 32: Shellfish density per spit in square H13 (DKB149-6B).

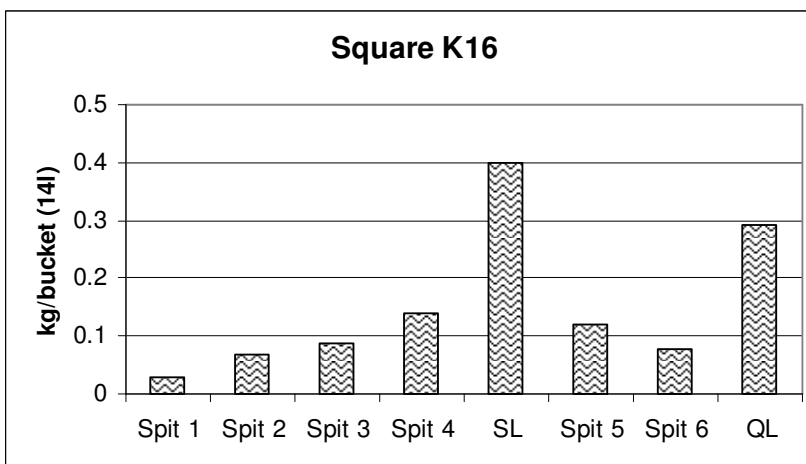


Figure 33: Shellfish density per spit in square K16 (DKB149-6B).

- **Lithics:** Stone artefacts were quite sparsely distributed throughout the deposits in the westernmost excavation (Table 13). The single silcrete scraper fragment is one of just two pieces of silcrete seen on any of the sites here. It must indicate a curated artefact that was carried in from further afield and possibly broken during use at the site. It was subsequently modified further through the application of a tiny bit of retouch to the break. Very few artefacts came from P12. Two flakes and two chips were present in Spit 1, one flake in Spit 2 and one flake and one chip in Spit 4.

Table 13: Stone artefacts from DKB149-6, squares T15 and T16.

Spit/Layer	1	2	3	4	5	SL	Below SL
Quartz							
Flake	3	2	1	5	2	6	1
Chunk	1	2	1	1			
Chip	4	4	3	3	1	3	
Silcrete							
Scraper fragment						1	
Other							
Upper grindstone				1			
Manuport					1		

The main excavation has vast quantities of lithics (10 375 flaked pieces) including a selection of retouched formal tools (Table 14). Although the overall numbers (23 retouched pieces) and frequencies (0.22% of all quartz flaked artefacts) are very low, scrapers are strongly outnumbered by backed tools which is what is expected for sites between 4000 and 3000 years old. The single silcrete artefact is an adze, again reflecting the value of this material for retouched items. It too was probably brought onto the site from elsewhere. A second adze, possibly made in quartz porphyry, was also found. Both are relatively informal (Figures 34 & 35). Given the massive number of artefacts, hammer stones were surprisingly rare. Grindstones, too, were uncommon with all four that were found coming from Spit 6. A peculiar feature of this site was the basin at the base of squares J15-16 and K15-16. This basin, named Quartz Lens (QL) was immensely rich in quartz artefacts, having produced 17.2% of all the lithics from just 0.96% of the excavated deposit (Figures 36 - 38). The high density of artefacts in this basin may well suggest a cache of artefacts intended for later use.

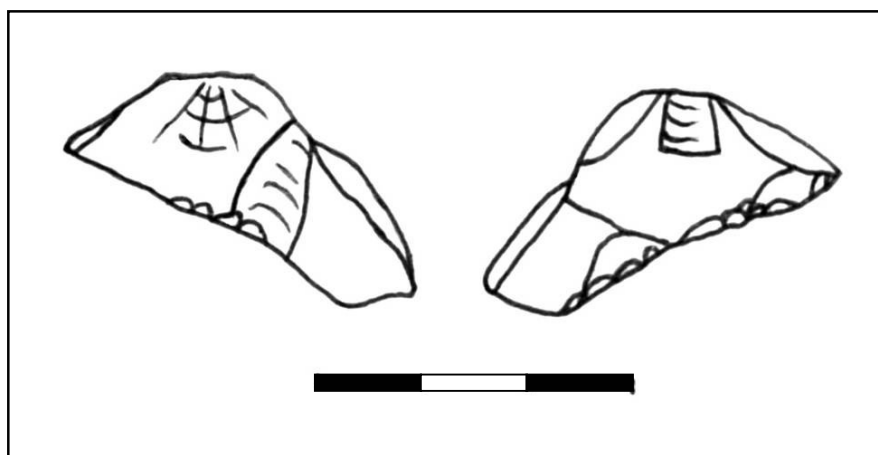


Figure 34: Silcrete adze from DKB149-6, E13 Spit 4. Scale in cm, opposite sides shown.

Table 14: Stone artefacts from DKB149-6. Note that the manuport counts reflect only those retained in the excavated samples and not those discarded on site from the stone hearths. (HS = hammer stone, 1-platform = single platform, E-d = edge-damaged, Misc. = miscellaneous, MRP = miscellaneous retouched piece)

Spit / Layer	1	2	3	4	SL	5	6	QL	7	8
Quartz										
Bipolar core	15	3	9	7		6	36	15	2	
Bipolar core / HS						1				
Irregular core	9	15	10	13	1	30	69	32	1	
Irregular core / HS			2	2		1	2			
1-platform core	7	3	8	5		9	30	5	1	
1-platform core / HS	1	1					1	1		
1-platform bladelet core								2		
Radial core							1	3		
Blade	5	2	3	3		7	11	9		
Bladelet	34	30	32	22		40	85	47	4	1
E-d flake	3	1	3	1		3	6	5		
E-d chunk			1					1		
Flake	408	406	331	325	2	448	1003	717	30	14
Chunk	131	89	111	113		132	316	218	6	3
Chunk / HS							1	1		
Chip	532	529	533	489	1	607	1300	723	36	19
Misc. scraper						1				
Thumbnail scraper							1			
Sidescraper		1								
Backed scraper						1				
Scraper fragment								1		
Segment								1		
Backed flake							1			
Backed point		1	1				2			
Backed bladelet	1		1				1			
Backed bladelet fragment	1					1				
Notched piece							1			
Adze							1			
MRP		1				1	3			
Hammer stone		1	2			1	1	1		
Upper grindstone							1			
Manuport	5	2		1		1	6			
Quartzite										
Flake	2	2		1		2	2			
Chip				1						
Silcrete										
adze				1						
Other										
1-platform core							1			
Blade							1			
Flake	3	5	5	3		9	10	2		
Chunk			1				1			
Adze		1								
Upper grindstone fragment							1			
Lower grindstone fragment							2			
Manuport	2	5	6	8		12	48	21		



Figure 35: Adze made in an unknown raw material (other) from F14 Spit 2. It might be made from fine-grained quartz porphyry. Stippling denotes cortex.

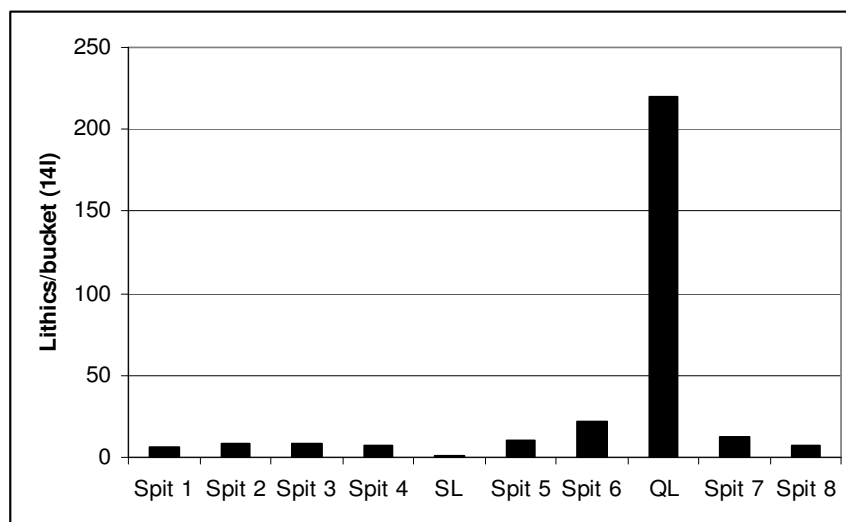


Figure 36: Lithic densities across the whole DKB149-6 site. The extreme density of QL is obvious. Uncollected manuports have been excluded from the counts.



Figure 37: View towards the north of the hollow from which layer QL was excavated.



Figure 38: Material from a single bucket of QL in the sieve. Note the extremely high density of quartz.

Unfortunately, due to time constraints, it was not possible to piece-plot the hearth stones (Figures 39 & 40). As an alternative I photographed the hearths with 20 cm grid lines drawn over the four relevant squares so as to enable plotting in the office. Figure 41 shows the results of this exercise. While the stones are somewhat dispersed, the two main concentrations are still well visible. Much charcoal was present amongst the stones suggesting fairly rapid burial after their last use (Figure 17).



Figure 39: The two stone hearth features uncovered at DKB149-6.



Figure 40: Close up of the hearth in F14 showing much *in situ* charcoal, some of which was used for one of the radiocarbon dates.

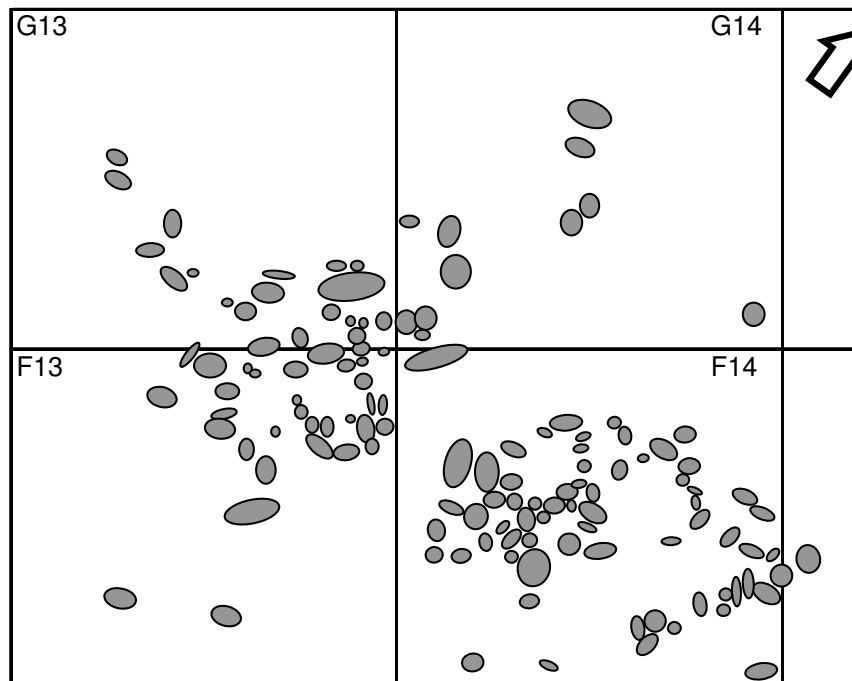


Figure 41: Desktop plot of the hearth stones at DKB149-6.

- **Fauna:** In T15 and T16 micromammals, tortoise, snake, fish and small bovid are all present. The small bovid is most likely steenbok. In P12 only micromammal and tortoise could be identified. In the main excavation tortoise and micromammal are ubiquitous and snake and fish quite common. Small bovid and bird bones are rare. A tooth of what may be a seal was also found.

6.5. DKB149-7

6.5.1. Location

- 32° 40' 54.2" S 18° 14' 55.2" E

6.5.2. Description

- The site consisted of shell with minimal other finds.
- The upper part had slightly lower density but a denser midden occurred in Spit 6. This was followed by scattered shell which became progressively more beach-like with depth and included natural cobbles.
- The deposits were the typical grey/brown but becoming paler near the base beneath the midden.

6.5.3. Excavation

- 1 m² excavated to Spit 9 (~90 cm depth).

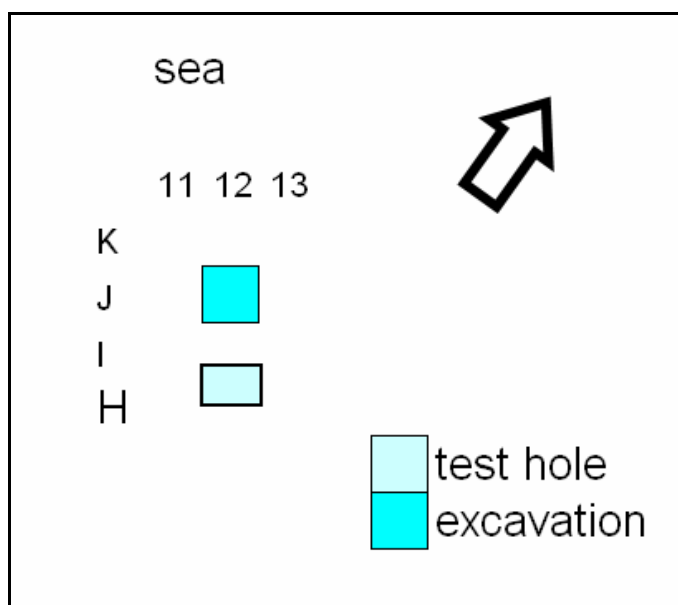


Figure 42: Grid layout at DKB149-7.

6.5.4. Dating

- One radiocarbon date places this site at approximately 720 BC.

Lab. No.	Provenance	Material	Radiocarbon age	Calibrated age
UGAMS-3476	J12, Spit 6	Marine shell	3010 ± 30 BP	746 (724) 671 BC

6.5.5. Comments

- This site contained a dense shell midden which has been sampled but other content was obviously very minimal.

6.5.6. Findings

- Shellfish: Strongly dominated by black mussels but with a scattering of white mussels and whelks (Table 15). Densities are generally low with the exception of Spit 6 which intercepted the midden layer (Figure 43). The strong showing of white mussels relative to black mussels in the lowest spit indicates penetration into the uppermost beach deposits during excavation. Due to time constraints only five of the nine spits were fully analysed.
- Shellfish sampling: All shell was retained from the single excavated square, J12. The total weight of shell is 17.45 kg.

Table 15: Shellfish data for DKB149-7, Square J12.

Spit	<i>Choromytilus meridionalis</i>		White mussels L+R	<i>Aulacomya ater</i>		Whelks	<i>Crepidula</i>
	L	R		L	R		
1	48	61	2			4	
2	45	44	6			5	
3	not analysed						
4	not analysed						
5	58	73	5			1	
6	not analysed						
7	79	86	12	1		3	
8	not analysed						
9	23	23	43			1	2

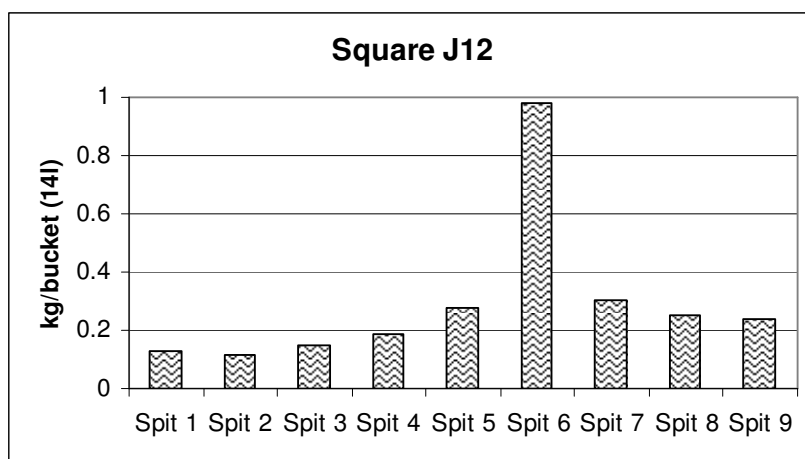


Figure 43: Shellfish density per spit in square J12.

- Lithics: Only a small collection of lithics was obtained (Table 16). The higher number of pebbles in Spit 8 is due to the beach deposits.
- Fauna: A few micromammal and tortoise bones were scattered through the deposits and some fish bones were found in some of the lower spits.

Table 16: Stone artefacts from DKB149-7, square J12.

Spit	1	2	3	4	5	6	7	8	9
Quartz									
Bipolar core	1								1
Irregular core								1	
Blade									
Bladelet						1			
Flake	2	2							2
Chunk				1		1		1	
Chip		1	1	2				1	
Manuport								1	
Other									
Manuport				1	2			8	



Figure 44: View of the excavation site at DKB149-7.



Figure 45: The section at DKB149-7.

6.6. DKB149-8

6.6.1. Location

- 32 40' 59.1" S 18 14' 48.9" E

6.6.2. Description

- This site was revealed by an excavation into the dune ridge alongside the road and was not recorded during the Phase 1 survey.
- On the surface there was little shell but quartz artefacts were abundant.
- Generally the grey/brown deposit contained shell and quartz scatter throughout but at the base in the northern part a dense shell midden with faunal remains was revealed.

6.6.3. Excavation

- During the August 2008 excavation we included the uppermost deposit within the upper spit such that it had a total depth of 15 cm. During the January 2009 excavation we cleared the upper material away to save time and excavated Spit 1 to a depth of 10 cm only. The discarded upper 5 cm contained primarily leaf litter and very little archaeological material. If this upper 5 cm is ignored throughout the site the following excavation depths were attained:
 - 6 m² to 40 cm (Spit 4)
 - 13 m² to 50 cm (Spit 5 or Spit 5 S.L.)
 - 9 m² to 60 cm (Spit 6)
 - 1 m² to 70 cm (Spit 7)
 - 5 m² to between 60 and 70 cm (QAS)
 - 1 m² to 1250 cm (Spit 9)
- All Spits were approximately 10 cm deep except the following:
 - Spit 5 and Spit 5 S.L. varied depending on the thickness of the midden;
 - QAS varied between 10 and 23 cm and got thicker towards the west;
 - Spit 9 (excavated in square V33 only) was 25 cm thick.
- R27 had no Spit 1 due to the disturbance.
- A hand dug pit below Spit 7 in square Q28 revealed sterile sand until probable beach shell was revealed some 45 cm below the base of Spit 7. Similarly, the deep sounding in square V33 showed extremely sparse material until a few pink-coloured black mussel shells and some white mussel shells were noted at about 1.25 m depth.
- Aside from the spits, the following unit names were allocated:
 - SP: Shell Patch (small shell lens in square V32)
 - SP2: Shell Patch 2 (small shell lens in square V32)
 - SP3: Shell Patch 3 (small shell lens in square V32)
 - Spit 5 S.L.: Spit 5 Shell Lens (main shell midden in squares Q31-33, R31-34, S32-34, T32-34)
 - QAS: Quartz and Shell (thick but diffuse layer of shell and quartz artefacts, the latter being far more dense than in higher levels)

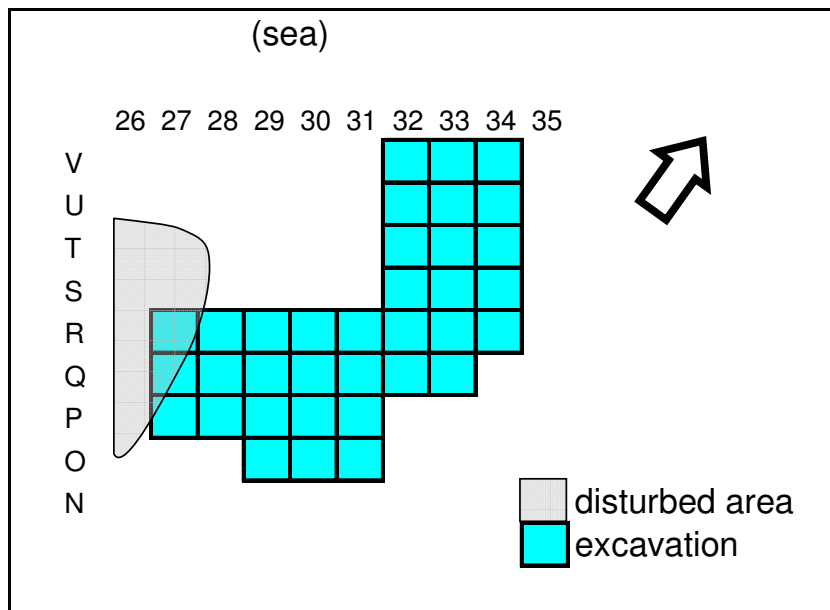


Figure 46: Grid layout at DKB149-8.

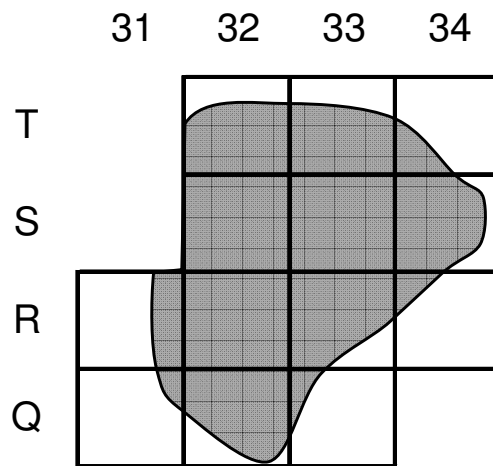


Figure 47: Location of the midden, Spit 5 S.L. in the northern part of the excavation.

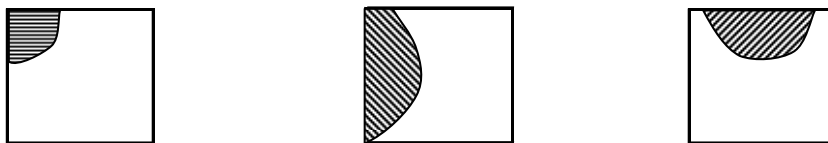


Figure 48: Locations of SP (left), SP2 (middle) and SP3 (right), all in square V32.

6.6.4. Dating

- One radiocarbon date places this site at approximately 1410 BC.

Lab. No.	Provenance	Material	Radiocarbon age	Calibrated age
UGAMS-4075	R31, Spit 5 S.L.	Shell	3650 ± 30 BP	1442 (1414) 1392 BC

6.6.5. Comments

- This site is certainly the richest of the six excavated during this project.
- It is the only one to contain a decent faunal assemblage and thus offers more dietary information than the other sites.

6.6.6. Findings

Please note that due to the immense size of the collection from this site it has not been possible to process and analyse all of it. The analysis will be conducted as time allows.

- Shellfish: No formal analyses have been conducted yet but the following species are present: *Choromytilus meridionalis*, *Aulacomya ater*, *Donax serra*, *Schisodesma spengleri*, other white mussels, *Burnupena* sp., *Nucella* sp., *Bullia*, sp. and barnacle. As with all the other sites, *C. meridionalis* dominates strongly with *Burnupena* sp. next in importance. Figures 49 to 51 show the shellfish density in three squares. Away from the main midden area the shell is of a low density (square Q28), while in the middle of the midden the shell density reaches 2.15 kg per bucket in the actual midden layer, Spit 5 S.L. (square R32). Interestingly, this figures is almost the same as that attained in the only other dense midden excavated in this project – that at DKB149-6A which was 2.25 kg per bucket. Square V32 intersected a number of small shell lenses which have higher densities than the surrounding deposits but still do not reach values comparable with the main midden.
- Shellfish sampling: All shell was retained from squares Q28, S33 (only 0.25 m² taken of Spit 5 S.L.), T34, V32 and V33 (Spits 7 – 9 only) . The total weight of shell is 43.48 kg but square T34 (9.07 kg) will be discarded after analysis is completed.

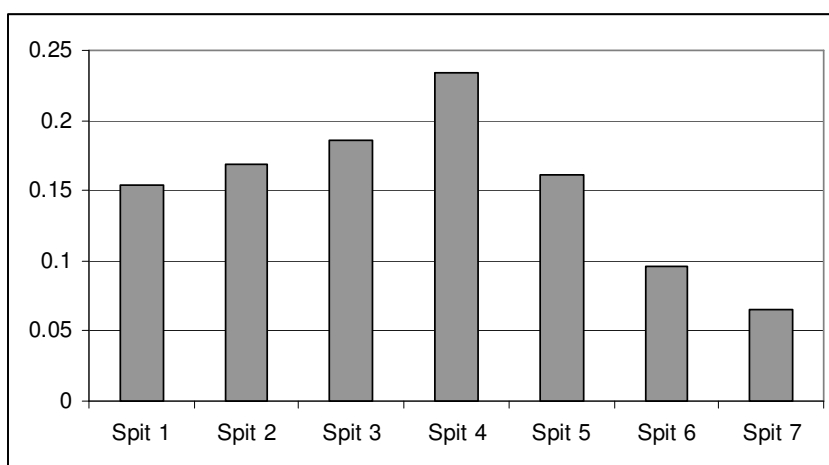


Figure 49: Shellfish density per spit in square Q28.

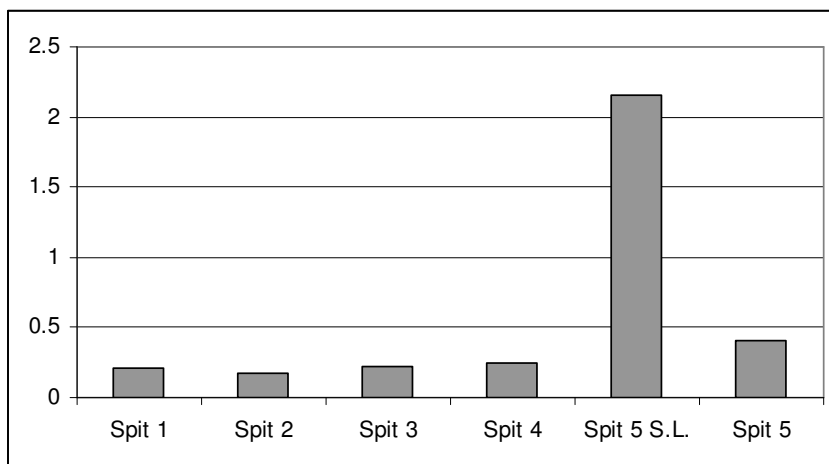


Figure 50: Shellfish density per spit in square R32.

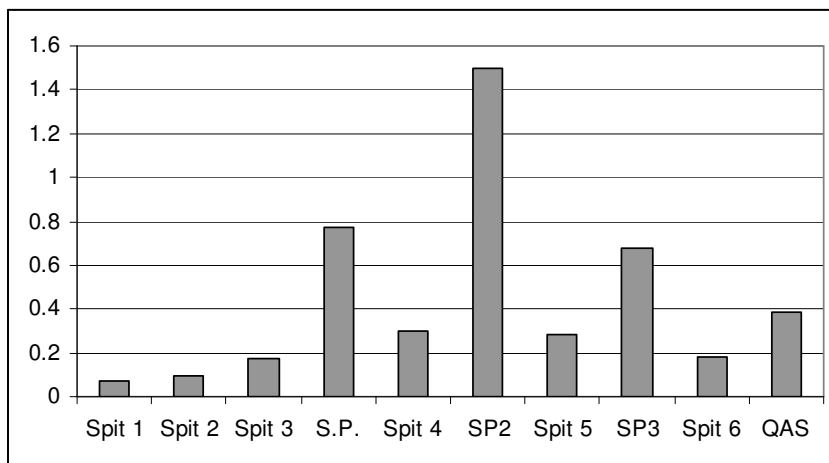


Figure 51: Shellfish density per spit in square V32.

- **Lithics:** Quartz artefacts were particularly abundant in this site and it is estimated that more than 50 000 will be present in total. It has been clear from the sorting that the stone density is generally greater the closer to the main midden one moves and also that the stone density increases with that of the shell such that the midden layer has enormous quantities of stone, perhaps reaching a few thousand pieces per square. Layer QAS (Quartz and Stone) has an extremely high density of stone artefacts but, due to the limited area of this layer excavated, it is unclear what this layer represents. It did not display any features during excavation to suggest a cache of the sort seen in DKB149-6B. A stone feature, presumably the remains of a hearth, was uncovered in squares Q/R 29-30 (Figures 55 & 56).
- **Fauna:** A scattering of bones were present throughout, but in the main midden (Spit 5 S.L.) they were far more common. Species present include tortoise, bird, snake, fish, small bovid, seal and a rib fragment of a very large, but as yet unidentifiable animal.
- **Kreef:** Two rock lobster mandibles were found in this midden. Both were broken and one was very large. They were in S34 Spit 4 and V34 QAS.

- Other: Ten ostrich eggshell beads were found. All were small as is expected from a site of this age (Smith *et al.* 1991). Table 17 gives their dimensions. Ostrich eggshell is usually in the range of 1.8 to 2.0 mm in thickness and the low thickness values obtained here show that the beads were old and well worn. We also recovered a pendant made on the scapula of a small animal from square U34, Spit 4 (Figure 52). Its edges are ground into shape and two holes have been drilled through the proximal end. A similar pendant was found at Elands Bay Cave but with just one hole (Parkington 2006:80). The Elands Bay example comes from an undated layer (Kung Foods) but dates on neighbouring layers suggest it should be in the region of 4000 years old (Parkington, pers. comm. 2009). These two are the only known examples.

Table 17: Dimension of the ten ostrich eggshell beads recovered from DKB149-8.

Provenience	Outside diameter (mm)	Aperture diameter (mm)	Thickness (mm)
Q31 Spit 1	4.92	1.85	1.4
Q33 Spit 3	4.65	1.86	1.66
Q33 Spit 5	3.73	1.37	1.33
R29 Spit 1	3.94	1.68	1.53
R31 Spit 4	5.11	1.31	1.44
T33 Spit 1	4.4	1.34	1.42
T33 Spit 5 S.L.	4.51	1.38	1.41
V32 QAS	4.23	1.53	1.44
V32 QAS	4.45	1.39	1.23
V32 QAS	4.47	1.29	1.29
Mean	4.44	1.50	1.42

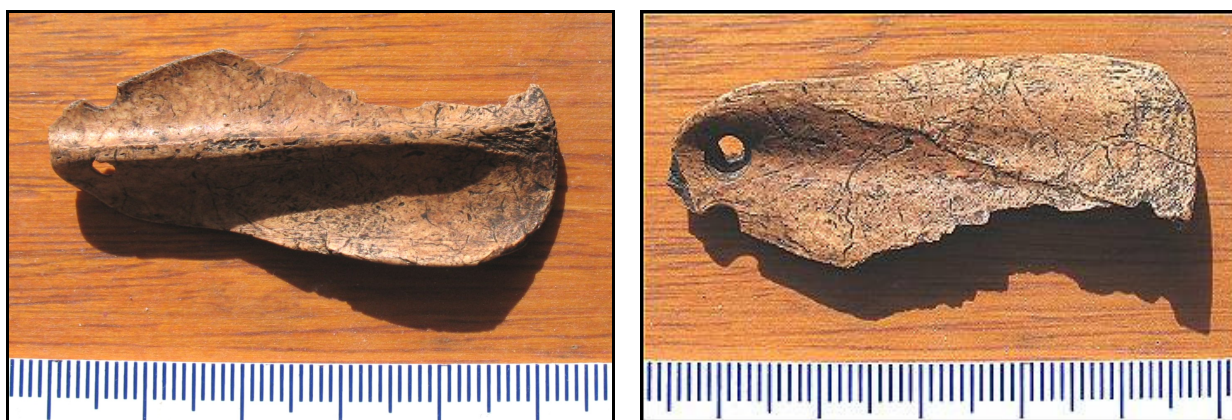


Figure 52: The two sides of the scapula pendant found at DKB149-8. Scale in mm.



Figure 53: Early days in the excavation at DKB149-8. Note the open area in the background where the dump site used to be.



Figure 54: Tyre tracks impressed into the surface of the deposits at DKB149-8.



Figure 55: The first stones of the stone feature as revealed at the base of Spit 4.



Figure 56: Close up of the stone feature in square R30.



Figure 57: View of the northern corner of the DKB149-8 excavation showing the shell midden appearing in section after the 2008 season.



Figure 58: Close-up of the NW section of R31 & R32. The shell midden layer is arrowed.



Figure 59: View of the R/S 31-34 section looking west. The shell midden layer is visible running between the yellow arrows.



Figure 60: Detail of the R33/S33 section showing Spit 5 S.L. (the main shell midden) looking west.



Figure 61: Detail of the U-V 33/34 section showing QAS (the quartz-rich layer) looking west.

6.7. DKB149-2 Palaeobeach

Although palaeobeach deposits are palaeontological rather than archaeological, they can greatly assist in the interpretation of archaeological occupation deposits and are also covered by Section 35 of the National Heritage Resources Act. It was for these reasons that the beach-related deposits below the property were also sampled. Square D5 of DKB149-2 was excavated through 20 spits to a full depth of 2.05 m, although the shelly deposits would undoubtedly have continued below this level.

Twelve sediment samples were taken as well as two shell samples from the shell layers for radiocarbon dating. See DKB149-2 above for details of the single date from these deposits. The hard pink material encountered in two zones is likely to represent insipient calcrete formation (J. Pether, pers. comm. 2009). The deposits can be described from top to bottom as follows:

205 - 175	Grey sand with rootlets and archaeological content. (1194 BC at base)
175 - 160	Grey sand getting paler with depth. Archaeological content.
160 - 150	Gets paler.
150 - 135	Pale grey sand.
135 - 105	Pale grey sand with obvious fine shingles.
105 - 90	Gets paler with fewer fine shingles and includes patches of hard pink material at ~ 100 cm.
90 - 70	Gets paler and shingles drop out by 70 cm, includes first proper shell layer of beach shell between ~ 80 – 70 cm.
70 - 30	Pale sand, includes second shell layer at ~ 35 cm (3294 BC).
30 - 20	Second zone of hard pink material (more extensive).
20 - 0	Pale sand.

This sequence does not intersect actual *in situ* beach layers but indicates reworked material that may have arrived either from wind action or through tsunamis that are known to have occurred at various times in the past (J. Pether, pers. comm. 2009). The latter is particularly likely in the lower levels with more shell and pebbles. True beach deposits may well have been intersected had it been possible to extend the excavation deeper. Pether (2004) has described a true beach deposit from a site to the south of Erf 149 and only about 180 m from the current sea shore. There he noted no obvious evidence for fluctuating sea levels and concluded that the progradation of the beach was relatively uninterrupted. With no active beach deposits having been intersected on Erf 149, this suggests that the coast was in fact already some distance to the west of DKB149-2 about 5300 years ago as it prograded steadily after the Holocene sea level maximum.

Table 18 shows the shellfish found in the D5 deep sounding. The high frequencies of white mussels indicate beach-related deposits below Spit 5 and the contrast between these spits and the upper five is clear. Figure 63 shows the shellfish density per spit. The archaeological material at the top is obvious while the shellier levels lower down represent possible tsunami

episodes. These densities are reflected in the similarly-shaped graph of pebble densities (Figure 64).

Table 18: Shellfish data for DKB149-2, Square D5. Note that all white mussel species and their left and right valves are combined.

Spit	<i>Choromytilus meridionalis</i>		White mussels L+R	<i>Aulacomya ater</i>		Whelks	<i>Bullia</i>	<i>Crepidula</i>
	L	R		L	R			
1	69	49	2	1	2	x		
2	36	28	4		1			
3	75	93	5	1		2		
4	40	44	1	1		4		
5	15	14	1		1	1		
6	10	11	7	x		2		
7	5	4	7					
8	11	8	3		1			
9	18	16	13	x				
10	18	20	5	x		4		
11	29	32	32			1	2	1
12	47	55	78	1	1	1		1
13	83	81	104		2	2		1
14	48	33	60			5		
15	34	28	29	1	2	15		2
16	93	87	132	x		18	1	3
17	48	19	33	1		12	1	8
18	16	16	2			7		
19	8	10				4		
20	7	7	x			4		



Figure 62: View of the southeast section of square D5 at DKB149-2.

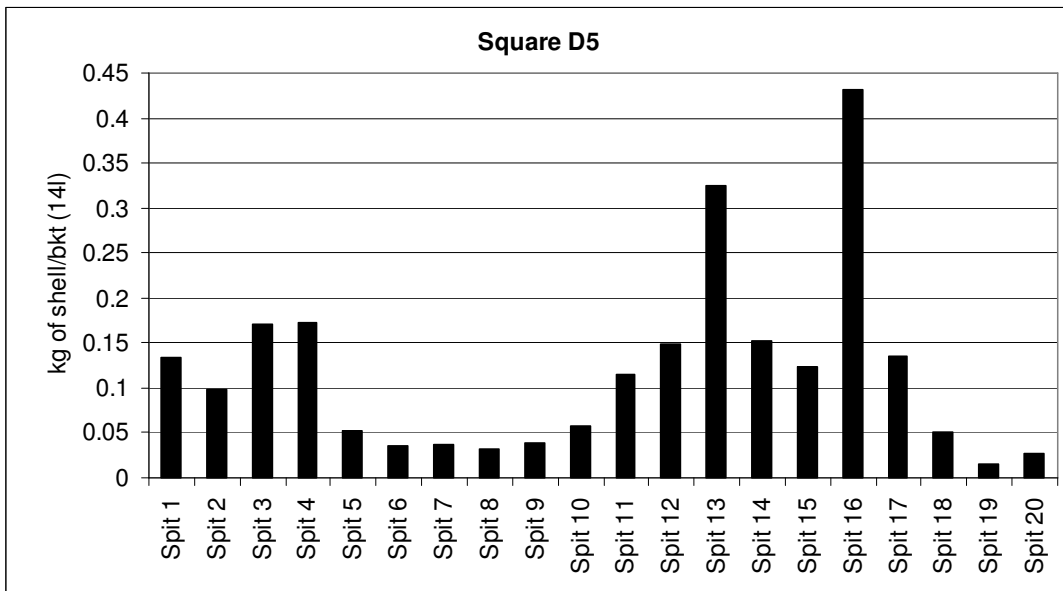


Figure 63: Shellfish density per spit in square D5. Spits 1 to 5 have archaeological content, while the remainder have only natural content.

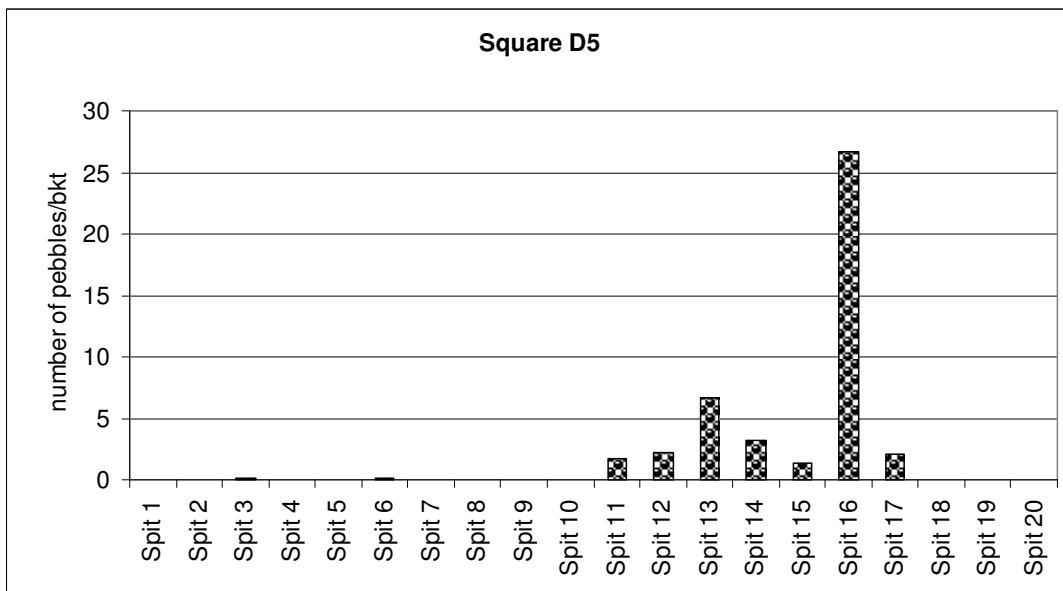


Figure 64: Pebble density per spit in square D5. The high densities related to the beach deposits are obvious.

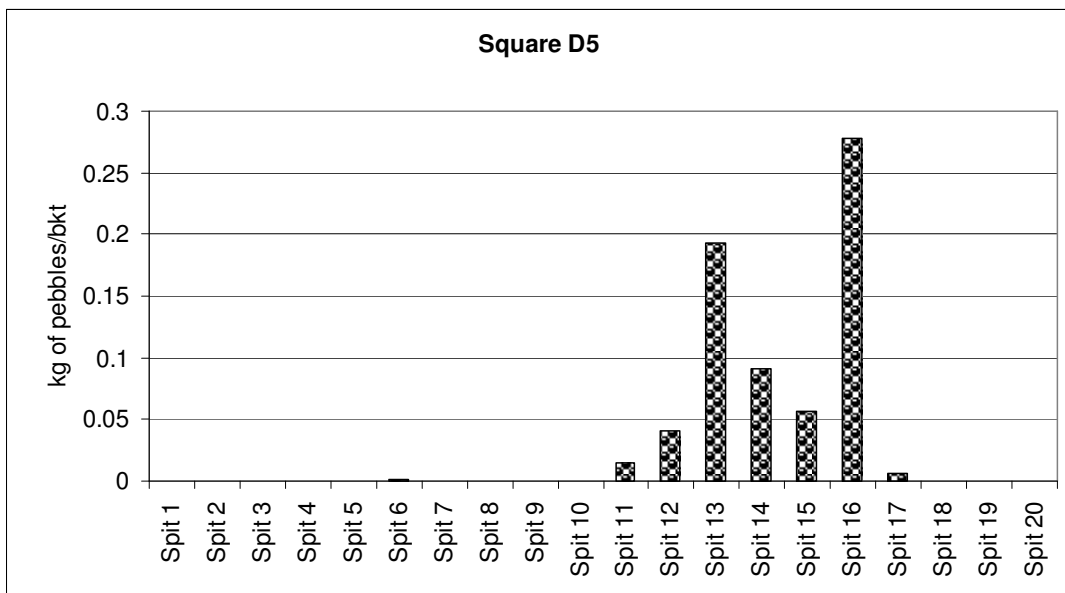


Figure 65: Shellfish weight per spit in square D5.

7. CONCLUSIONS

The set of observations made at erf 149, Dwarskersbos, is of immense value in understanding the evolution and prehistoric use of South Africa's west coast. Until now there has been almost no archaeological research focussed on sandy shorelines due to the commonly held view that little occupation occurred in such areas (see for example Jerardino 2003: 53). What these sites are demonstrating, however, is that there had to have been an exposure of rock within close proximity of the site at some point in the past. We do know that local sea levels have fluctuated over the last few thousand years (Compton 2001) and it seems likely that an elevated sea level exposed rocks that are now buried under the dunes, houses and prograding beach of Kersbosstrand, offering shellfish for human exploitation. Since there must be rocky reefs off shore today (see Figure 66), an alternative, but probably less likely scenario is that during a period of lower sea level these may have been exposed enough to allow humans to get to them. What does seem certain is that any exposure of rock was likely quite small, since black mussels dominate the modern and prehistoric shellfish assemblages very heavily, indicating that no space existed on the rocks for limpets. In fact just three limpets were observed during this project. The modern beach did include a few rare individuals of *C. granatina* and *S. barbara*, while *C. miniata* were a little more frequent. It is not known where these limpets originate from but they could live on subsurface rocky reefs. White mussels of various species occurred periodically on the beach, while *Burnupena* sp. (whelks) and *A. ater* (ribbed mussels) were far more common.



Figure 66: Mussel shells on the modern beach quite close to erf 149.

Due to the massive quantity and limited variety of shell in the middens, we had to sub-sample in order to ensure that the samples retained for permanent curation were not too large. Table 19 provides data on the total and sampled shellfish weights from each site.

Table 19: Shell weight data for the six excavated sites.

Site number	Total shell weight excavated (kg)	Total shell weight retained (kg)	Proportion of sample retained (%)
DKB149-1	12.63	7.13	56.5
DKB149-2 (archaeological levels)	146.31	12.65	8.6
DKB 149-2 (D5 Spits 6 – 20)	11.07	11.07	100
DKB 149-4	19.44	19.44	100
DKB 149-6A	28.48	9.05	31.8
DKB 149-6 (P12)	3.53	3.53	100
DKB 149-6B	82.04	16.09	19.6
DKB 149-7	17.45	17.45	100
DKB 149-8*	480.46	43.50	8.9
Total	801.0	139.91	17.44

* 9.07 kg from square T34 will be discarded after analysis which will leave a sample of 7.2%.

Although many hundreds of *Donax serra* shells were present throughout the six excavated sites, not one single *Donax* scraper was noted. This is quite surprising given the frequency with which the shells were collected for food. To make a scraper people would flake away some shell from the wide edge of a *Donax* valve in order to create a sharpened edge which we assume was used for scraping things, probably hides. These artefacts are common on the Cape south coast but are also present from time to time on the west coast (e.g. Orton 2007; Parkington 1992; Robey 1987) and their use continues throughout the LSA (Mitchell *et al.* 1998).

The presence of several stone hearths is interesting and may point towards the processing of mussel shells, although it is likely that other food was also cooked there. The hearths are packed with rocks, which, once heated, would have had items to be cooked draped over them. At DKB149-6 we did not notice any ash preserved. However, on removal of the rocks and after the soil had dried out sufficiently, distinct pale grey patches were visible indicating that some fine ash was mixed in with the sand. Similar hearths have been found along other parts of the South African coastline with examples reported from the southern Cape area (Binneman 2001; Cairns 1975), Noetzie (Orton & Halkett 2007), Pearly Beach (Avery 1974), the north-eastern shore of Table Bay (Sealy *et al.* 2004) and the Vredenburg Peninsula area where they appear to be most common (Hart & Halkett 1994; Hine 2004; Kandel & Conard 2003; Robertshaw 1979a, 1979b).

Given the significance of the finds on erf 149 we attempted to work as quickly as possible so as to rescue the maximum amount of data. Table 20 summarises the areas excavated from each site. The large excavations at sites 2, 6 and 8 have provided excellent sets of observations, while the other three sites add limited data to the general observations for the area. The small sites had little of archaeological value so their samples were small. The other three sites had larger excavations and I am satisfied that, after the second season of work, all

have now produced sufficient data to be considered fully mitigated. As such, development of these properties may now proceed.

Table 20: Excavation record from the six excavated sites.

Site number	Area excavated (m ²)	Buckets excavated (14l / bucket)	Volume of Deposit excavated (m ³)	Mitigation status
DKB149-1	4	160.1	2.2414	Complete
DKB 149-2	34	1330.2	18.6228	Complete
DKB 149-4	3	147.8	2.0692	Complete
DKB 149-6	20	994.8	13.9272	Complete
DKB 149-7	1	62.4	0.8736	Complete
DKB 149-8	35	1529.9	21.4186	Complete
Total	97	4225.2	59.1528	

However, a critical aspect to remember during implementation of this development is that there is a strongly likelihood that unmarked prehistoric burials will be intersected during excavations for services or house construction. The sandy dune substrate is ideal for burial and the high concentration of archaeological sites suggests that people were frequently living in the area. An archaeologist should remove any remains found as it is important that the context of the burial is not lost.

8. RECOMMENDATIONS

It is recommended that the project be allowed to continue as planned but subject to the following:

- The Environmental Control Officer needs to be very aware of the possibility of encountering burials, particularly along the dune cordon, and must instruct workers in that vicinity to stop work immediately if human bones are encountered. The find should be reported to Heritage Western Cape (021 483 9685) or the South African Heritage Resources Agency (021 462 4502). An archaeologist would need to be contracted to remove the remains. It is imperative that the remains be left undisturbed until such time as an archaeologist can get to the site.

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APPENDIX 1 : Subdivisional Plan

