Archaeological Heritage Resources Assessment

Plot 10 and allied areas of Portion 1 of Farm No. 1050

Report prepared for

Rapidough Properties cc

By

Royden Yates

December 2003

EXECUTIVE SUMMARY

Plot 10 and other areas of Portion 1 of Farm 1050, Malmesbury contains significant archaeological heritage in the form of shell middens dating to between 3000 and 2000 years ago. Most of the remains comprise shellfish but significant quantities of bone and some cultural materials also occur in these deposits.

Recommendation

Implementation of measures in mitigation of the impacts of the proposed developments is recommended.

Two strategies are possible:

- *the preferred is effective legal protection of the resources to the satisfaction of Heritage Western Cape;*
- *a less satisfactory but nonetheless, still successful form of mitigation would be the implementation of systematic excavation of the resources in order to salvage important historical information before destruction of the shell middens.*

ARCHAEOLOGICAL HERITAGE RESOURCES ASSESSMENT

PLOT 10 AND ALLIED AREAS OF PORTION 1 OF FARM NO. 1050

CONTENTS

1 INTRODUCTION

1.1 Background

Investigations by personnel of Heritage Western Cape (HWC) revealed the presence of shell midden material on the property of Plot 10 of Portion 1 of Farm No. 1050, Malmesbury. Correspondence from HWC to John Ford representing the developers Rapidough Properties cc advised that they commission a Phase 1 Heritage Impact Assessment (HIA) of the property. Rapidough Properties cc appointed Royden Yates to undertake the required study

1.2 Description of the study area

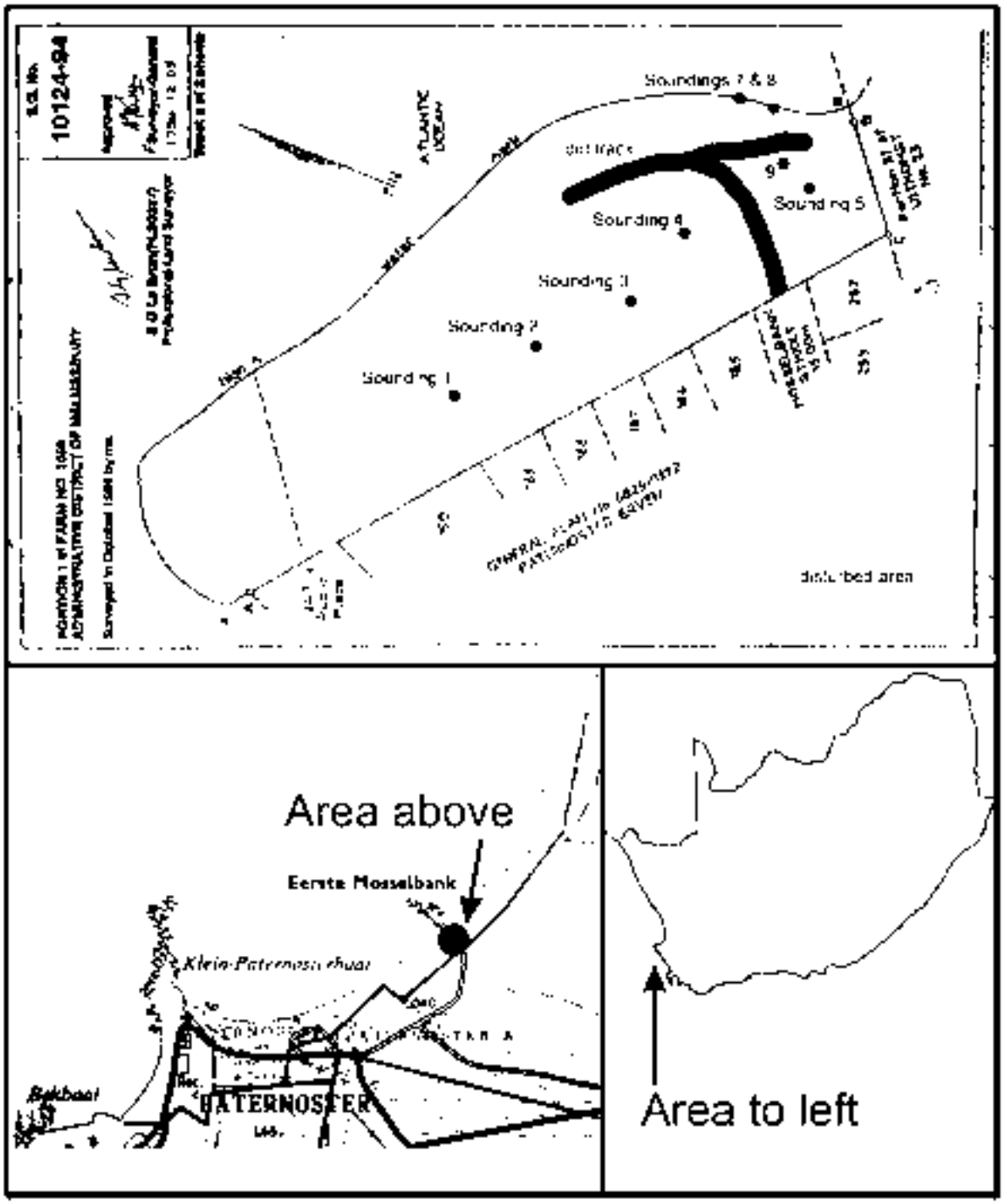
Portion 1 of Farm No. 1050, Malmesbury (refer to following Figure), consists of well-vegetated dune littoral sands set back from a rocky inter-tidal point. A steep bank formed by the erosion of a seasonal stream marks the northern and eastern boundary of the property as well as the high water mark. Small existing residential erven form the southern and south-western boundaries. There have been disturbances of parts of this property by grading or the mining of surface sands. The majority of the property however, is in a relatively undisturbed condition.

The brief given to the PI requested a Heritage Impact Assessment (HIA) of Plot 10, located in the south-eastern corner of the property. However, maps accompanying the brief depicted the boundary of Portion 1 and not the limits of Plot 10. The implications of this only became apparent to the PI during fieldwork and the assessment thus extended over half of the property to make certain of a thorough coverage.

1.3 Purpose of this report

This report presents an Archaeological Heritage Impact Assessment (HIA) of Plot 10 and adjacent parts of Portion 1 of Farm No. 1050, Malmesbury. The purpose of this report is to provide:

- a description of the study area in terms of the disposition, character and importance of the archaeological remains;
- an assessment of the sources and nature of potential risks to the heritage posed by the proposed agricultural development; and
- the measures to mitigate these potential risks to archaeological heritage resources.



Location of the study area

2 STUDY APPROACH

2.1 Assumptions

This assessment assumes that:

- damage to heritage resources potentially will occur throughout the future use of the property; and
- that effective mitigation must occur before the property is taken into future use.

2.2 Method

a) Fieldwork

Two archaeologically qualified investigators dug nine test soundings with spades at selected points in the study area. The Principal Investigator (PI) chose the location of the soundings to best characterise the archaeological potential of the study area based on surface traces and developing insight of the disposition of archaeological traces. Investigators sieved archaeologically rich sediments retrieved from the test soundings through a 3 mm mesh and identified the cultural and biological contents.

b) Assessment of significance

The potential for buried sediment to yield information about past human activities served as the guiding principle of the assessment. The PI assigned significance to sediments based on the diversity and quantity of biological and cultural remains. Greater significance was attributed to sediments with cultural traces such as stone artefacts and beads and biological remains such as mammal, bird and reptile bones than was the case where the remains consisted of marine shell alone.

c) Assessment of risk

Assessments presented in this report assume that any sort of physical and chemical interference with an archaeological trace will damage it to some extent. This assumption is well justified. Natural sources of such interference have damaged archaeological resources in the past and continue to do so.

This report evaluates the activities related to implementing the development for their potential to enhance destructive forces on heritage resources. An increase in destructive action can occur either by the introduction of a damaging mechanism or by an increase in the magnitude and effective duration of existing mechanisms. Due to the nature of the heritage record and type of the proposed development in this instance, it is inevitable that implementation will alter, damage or destroy the resources present on Plot 10 and the wider area of

Portion 1. These destructive and damaging actions will occur to a far greater extent than what is happening naturally.

d) Determination of measures of mitigation

The objective of the measures of mitigation proposed by the PI is to realise the information potential of the archaeological heritage on the affected property. In principle, mitigation solutions will two primary forms: long term conservation management so that the materials are available in-situ to future research; or excavations and sampling fieldwork.

2.3 Limitations

This study employed sampling as the means of gaining knowledge about heritage occurrences on the affected property. This is an effective approach for most forms of archaeological heritage with the exception of human burials. Human graves from the pre-colonial period are typically dispersed and often unmarked and thus unpredictable in terms of their presence or location. Developers must accommodate the possibility of intercepting human remains during preparation of the property for building as discussed below.

3 THE AFFECTED HERITAGE RESOURCE ENVIRONMENT

3.1 Plot 10

Acknowledging that the boundaries of Plot 10 are unclear to the PI, it seems nonetheless that most of the area of this plot would include either intact shell midden deposits or the disturbed remnants of the same.

The most prominent surface feature in the vicinity is a depth of compacted shell exposed by a large excavation into the midden. **Sounding 5** (refer to Figure that follows) was dug here to test deposits in front of the truncated deposits and revealed a moderately deep sequence of natural and archaeological sediments. A dense shell midden characterises the uppermost layer and a much sparser shell layer with abundant bone lies below that. Aeolian sands follow these anthropogenic sediments. Cultural material recovered from this sounding included one ostrich eggshell bead. Faunal remains consist mostly of tortoise, but also include bovid and bird.

Another test **Sounding 9** was dug a few metres to the north from **Sounding 5** into what appeared to be the base of the excavation responsible for truncating the shell midden described in the latter sounding. This sounding recovered no trace of shell midden. However, elsewhere in the vicinity of **Sounding 9**, there appear to be areas where the light yellow sand with shell lenses and bone described at 0.5 m to 0.7m depth in **Sounding 5** is still intact and lies just below the surface.

The steep bank on the eastern edge of Plot 10 offers a considerable exposure of shell midden. Two soundings were dug along this edge, namely **Soundings 7 & 8**. With a base at 1.5 m, **Sounding 7** (refer to Figure that follows) revealed the deepest depth

Profile of Sounding 5 – note thick layer of dense shell midden at top

Profile of Sounding 7 – note two layers of dense shell

of archaeological deposit seen in this investigation. There are two major shell midden layers in this profile, one probably at or near the surface and the other buried at 1.0 m depth. It is possible that there is some disturbance in the vicinity of this sounding but the stratigraphy revealed in the profile of **Sounding 7** does not provide conclusive evidence of this. It is probable that *in-situ* deposits lie back from the bank exposure sampled here.

Something has disturbed the archaeological sediments throughout the 0.8 m depth of **Sounding 8**. It is conceivable that in-situ archaeological materials lie further back from the section. This possibility was not explored further as **Sounding 7** revealed *in-situ* archaeological materials in the vicinity.

The extent of the excavation responsible for damaging the midden in the vicinity of **Soundings 5** & **9** appears to extend across the dirt vehicle track that leads off Mosselbank Street to run across the width of Portion 1. Investigators dug **Sounding 4** in this area. It is unclear if the boundaries of Plot 10 encompass this locality.

Sounding 4 revealed a relatively shallow layer of shell midden lying at 0.35 m depth below the present surface. Bone is present although not common, and specimens include tortoise and bird. Sounding 4 revealed more bird bone than any other sounding investigated in this study.

3.2 Areas of Portion 1 probably outside of Plot 10.

Investigators dug three other soundings down the length of the property, namely Soundings **1, 2** & **3**. The first and last of these penetrated fossil beach material of Mid- to Late-Holocene age. The second encountered shell midden material immediately below the surface and fossil beach deposits below those.

Sounding 2 clearly marks either a remnant of a shell midden now isolated by earth moving or a distinct midden somewhat isolated from that seen in **Soundings 4, 5 & 7**.

3.3 Summary

Despite extensive disturbance, intact shell midden deposits lie within the area of the proposed development of Plot 10. In particular, a deep shell deposit lies in the area of **Sounding 5** and probably **Sounding 7** and an intact stratum of sell midden lies below the surface around **Sounding 4**. The **Sounding 9** and related observations reveal that the disturbance of this midden is variable - although the uppermost dense shell midden is destroyed within the areas of obvious disturbance, portions of the lower strata remain in many places.

It is also clear that intact shell midden deposits lie in the area of **Sounding 2**. This location probably lies outside of the boundaries of Plot 10, although this point is unclear to the PI of this report.

The middens on Portion 1 of Farm 1050 represent a type colloquially known to archaeologists as “megamiddens”. These large shell heaps represent a time period

between 3000 and 2000 years ago when hunter gatherers living along the shores of the Western Cape massively enhanced the exploitation of marine and other foods. Many, perhaps most, megamiddens have been destroyed and the unique activities represented by them are in danger of being unrecoverable to archaeological enquiry. This situation contributes to the context of the assessment presented in this report.

3.4 Tables

Sounding 5 sedimentary description:	
Surface to 0.5 m	Light yellow to grey brown with successive layers of clast supported shell midden with some bone.
0.5 to 0.7 m	Light yellow sand with shell lenses and much bone.
0.7 to 0.95 m	Light yellow sand with dispersed shell (shell lenses?) and some bone.
0.95 to 1.2 m	Light yellow sand with occasional shell grading to sterile at depth.
Sounding 5 description of culturally derived components:	
Dense shell midden to 0.5 m	Consists almost entirely of shell but bone and charcoal is present. Bones seen include those of tortoises, snakes and very rarely, bovid. This sounding did not reveal any stone or other artefacts but they are probably present as they occur on the surface, albeit in low numbers. *Choromytelus meridionalis* (black mussel) dominates the shellfish composition and *Patella granatina* (granite limpet) and *P. granularis* (granular limpet) are the next most visually common species.
Light yellow sand with shell lenses (0.5 to 0.7 m)	Bone is strikingly more common in this layer than above and sieving recovered one ostrich eggshell bead. Charcoal is also present. Tortoises are the most common bone remains found but snake vertebrae are also frequent. Shellfish species are very similar to those found in the layer above, but in addition there are some *Burnupena* spp. (whelks) and at least one *P. oculus* (pear-shaped limpet).

Sounding 9 sedimentary description:	
Surface to 0.7 m	Light yellow sand with no inclusions throughout.

Sounding 7 sedimentary description:	
Surface to 0.35 m	Masked by vegetation growing over edge of bank. Indications are that there is dense shell midden within this depth.
0.35 to 0.7 m	Light grey sand with successive layers of clast supported shell midden.
0.7 to 1.0 m	Light yellow grey sand with shell lenses.
1.0 to 1.25 m	Light to dark grey sand with successive layers of clast supported shell midden.
1.25 to 1.4 m	Light yellow grey sand with scattered shell / shell lenses.
1.4 to 1.5 m	Light yellow sand, sterile at depth.
Sounding 7 description of culturally derived components:	
Dense shell midden at 0.35 to 0.7 m	Consists almost entirely of shell but bone and charcoal is present but sparse. This sounding did not reveal any stone or other artefacts but they are probably present as they occur on the slumped materials below and to the side of the sounding. *Choromytelus meridionalis* dominates the shellfish composition and *Patella granatina* and *P. granularis* are the next most visually common species. The presence of *P. argenvillei* (Argenvillei's limpet) and *P. barbara* (bearded limpet) is conspicuous compared to observations in Sounding 5
Dense shell midden at 1.0 to 1.25 m	Shellfish species are very similar to those found in the layer above, but the amount of *P. argenvillei* and *P. barbara* appears to be less. Bone again rare but present.

Sounding 8 sedimentary description:	
Surface to 0.8 m	Disturbed shell midden material

Sounding 4 sedimentary description:	
Surface to 0.35 m	Light yellow brown sand with scattered shell.
0.35 to 0.75 m	Light yellow brown sand with successive layers of clast supported shell midden with some bone.
0.75 to 0.95 m	Light yellow sand with scattered shell, the density of which increases with depth. Shells at depth represent fossil beach deposits of Mid- to Late-Holocene age.
Sounding 4 description of culturally derived components:	
Dense shell midden at 0.35 to 0.75 m	Consists almost entirely of shell but bone and charcoal is present but sparse. Species represented by bone include tortoise and bird. At top of shell midden *Choromytelus meridionalis* dominates the shellfish composition and *P. granatina* and *P. granularis* are the next most visually common species. *Burnupena* spp are quite common in this sample, seemingly more so than elsewhere. Limpets appear to increase in proportion in the lower third of the midden, although Choromytilus remains the dominant species.

Sounding 1 sedimentary description:	
Surface to 0.31 m	Light yellow brown sand with scattered shell.
0.31 to 0.6 m	Light yellow sand with moderately dense inclusions of whole marine shells – fossil beach deposit of Mid-to Late-Holocene age.
Sounding 1 description of biological components:	
Moderately dense marine shell deposit at 0.31 to 0.6 m	*Choromytelus meridionalis* dominates the shellfish composition. *Donax serra* (white sand mussel), *Bullia* spp (2 species – sand plough), *Burnupena* spp and *Nucella* spp. (whelk) are also present. A large bivalve is a conspicuous presence and is tentatively identified as *Lutraria lutraria capensis.* This last species is a good marker of marine as opposed to humanly deposited shell, at least locally.

Sounding 2 sedimentary description:	
Surface to 0.4 m	Light yellow brown sand with successive layers of clast supported shell midden.
0.4 to 0.55 m	Light yellow sand with scattered shells.
0.55 to 0.75 m	Light yellow sand with occasional shells.
0.75 to 0.8 m	Light yellow sand with scattered shells - fossil beach deposit of Mid-to Late-Holocene age.
Sounding 2 description of culturally derived components:	
Dense shell midden from surface to 0.4 m	Consists almost entirely of shell. *Choromytelus meridionalis* dominates the shellfish composition and *P. granatina* and *P. granularis* are the next most visually common species. *Burnupena* spp are also present as is *P. argenvillei*.

Sounding 3 sedimentary description:	
Surface to 0.5 m	Light yellow brown sand with scattered shell - fossil beach deposit of Mid-to Late-Holocene age.
0.5 to 0.7 m	Light yellow sand with no noticeable macro-inclusions.
Sounding 3 description of biological components:	
Moderately dense marine shell deposit at 0.31 to 0.6 m	*Choromytelus meridionalis* dominates the shellfish composition. Donax serra (white sand mussel), *Bullia* spp (2 species – sand plough), *Burnupena* spp and *Nucella* spp. (whelk) are also present. A large bivalve is a conspicuous presence and tentatively is identified as *Lutraria lutraria capensis.*

4 IDENTIFICATION OF RISK SOURCES

4.1 Construction phase

Building activity such as construction of access roads, site levelling as well as installing pipelines all pose a source of risk to archaeological heritage located within the study area.

4.2 Operational phase

In the long term, activities by property owners such as building additions to buildings, landscaping, construction of swimming pools and the like also pose a source of ongoing risk to archaeological heritage located such as might have survived the construction phase.

5 IMPACT DESCRIPTION AND ASSESSMENT

5.1 Impact description

Construction of the property for residential purposes will increase the risk of impact on the archaeological materials sites identified in this assessment relative to the situation at present. Disturbance of surface and sub-surface sediments by trench digging, grading and other forms of earth moving will damage or destroy presently undocumented or poorly documented heritage

5.2 Impact assessment without mitigation

The potential impacts of the proposed development without mitigation are assessed and summarised in the following Table. Plot 10 and other areas of Portion 1 of Farm 1050, Malmesbury contain significant archaeological heritage resources that will be severely impacted should the development proceed without mitigation of the impacts.

Summary assessment: Impact of the proposed development on heritage resources without management/ mitigation actions

Sounding areas	Extent	Duration	Intensity	Probability	Significance without mitigation	Status	Confidence
Construction							
Soundings 2, 4, 5 & 7	Sub-regional	Permanent	High	Definite	High	Negative	High
Sounding 9 area	Sub-regional	Permanent	High	Definite	Moderate	Negative	High
Soundings 1 & 3	Local	Permanent	High	Definite	Low	Negative	High
Operational							
Soundings 2, 4, 5 & 7	Sub-regional	Permanent	Medium	Possible	High	Negative	High
Sounding 9 area	Sub-regional	Permanent	Medium	Possible	Moderate	Negative	High
Soundings 1 & 3	Local	Permanent	Medium	Possible	Low	Negative	High

6 RECOMMENDED ACTIONS FOR MITIGATING IMPACTS

6.1 Areas of archaeological heritage around Soundings 5 and 7

Protection is the preferred measure to mitigate the impacts of the proposed development of Plot 10 of Portion 1 of Farm 1050 on areas of archaeological heritage around **Soundings 5** and **7**. However, this protection must be legally binding and enforceable over the long term, otherwise it will ultimately fail. Ensuring that adequate measures are taken in this regard is the responsibility of Heritage Western Cape. Decision makers should note that a successful implementation of protection will require measures to stabilise the deposits as they are currently vulnerable to a variety of erosional forces, both natural and human.

Alternatively, systematic excavations must be undertaken of the areas around **Soundings 5** & **7**, according to the standards of excavation currently expected of professional archaeologists. These excavations will require a permit from Heritage Western Cape.

Archaeologists undertaking excavations must:

- establish and document the location of a permanent 0.5 m interval grid system at each excavation site;
- excavate deposits utilising this grid as the basic mapping control;
- endeavour wherever possible to follow the natural stratification during the excavation, to remove the full depth of the anthropogenic sediments over the excavation area and to isolate the contents of intrusive animal burrows;
- sieve the deposits through a minimum mesh size of 3 mm (and note the implemented size);
- implement professional excavation procedures in the recovery and treatment of finds, including all charcoal;
- sample shellfish both through time and across space;
- make a record of the stratification and nature of sediments;
- maintain thorough written, mapping and photographic records throughout the process; and
- budget for and acquire a sufficient number of radiocarbon dates to determine the age of the depositional sequence.

Extent of excavation required for:

Area around **Sounding 5**	6 by 5 metres
Area around **Sounding 7**	5 by 5 metres

If there is disturbance of deposits on the exposed face near **Sounding 7**, these should be cleared by shovel until intact sediments are reached from where excavation must proceed.

Shovel tests should be dug to endeavour to link stratigraphically the **Sounding 5** area with **Sounding 7**.

Note on shellfish sampling:

Sampling of shellfish requires removing from the excavation profile at least 3 spatially separated samples per major stratigraphic layer where this is feasible, taking care to avoid animal burrows if present, and fulfilling the requirement of adequate individual sample sizes. Layers showing much spatial variation in shellfish content should be more intensively sampled.

6.2 Areas of archaeological heritage around Soundings 2 and 4

Systematic excavations must be undertaken of the areas around **Soundings 2** & **4**, according to the standards of excavation currently expected of professional archaeologists and detailed in Section 6.1 above.

Extent of excavation required for:

Area around **Sounding 2**	4 by 4 metres
Area around **Sounding 4**	5 by 4 metres

6.3 Human burials

An area such as that encompassed by Portion 1 of Farm 1050 is very likely to contain human burials dating from the pre-colonial period. These are undetectable to normal archaeological sampling, bar a fortuitous encounter. The developer of this property must remain prepared to immediately notify the SA Heritage Resources Agency in the event that earth moving uncovers human remains (Contact Mary Lelsie 0214624502).

6.4 Impact assessment with mitigation

The potential impacts of the proposed development with mitigation are assessed and summarised in the following Tables.

Protection measures are preferable to excavation as mitigation, provided that the protection is effective. Excavation will reduce the significance of the impact of the development but to a far lesser extent than would protection. The difference in effect of the two forms of mitigation arises from the fact that excavation followed by destruction removes a significant heritage resource from the possibility of study in the future. Protection clearly retains this possibility, but only if it is effective in the long term.

Summary assessment: Impact of the proposed development on heritage resources with protection as the management/ mitigation actions

Sounding areas	Extent	Duration	Intensity	Probability	Significance with mitigation	Status	Confidence
Construction							
Soundings 2, 4, 5 & 7	Local	Permanent	High	Definite	Low	Negative	High
Sounding 9 area	Local	Permanent	High	Definite	Low	Negative	High
Soundings 1 & 3	Local	Permanent	High	Definite	Low	Negative	High
Operational							
Soundings 2, 4, 5 & 7	Local	Permanent	High	Definite	Low	Negative	High
Sounding 9 area	Local	Permanent	High	Definite	Low	Negative	High
Soundings 1 & 3	Local	Permanent	High	Definite	Low	Negative	High

Summary assessment: Impact of the proposed development on heritage resources with excavations as the management/ mitigation actions

Sounding areas	Extent	Duration	Intensity	Probability	Significance with mitigation	Status	Confidence
Construction							
Soundings 2, 4, 5 & 7	Sub-regional	Permanent	High	Definite	Moderate	Negative	High
Sounding 9 area	Sub-regional	Permanent	High	Definite	Low	Negative	High
Soundings 1 & 3	Local	Permanent	High	Definite	Low	Negative	High
Operational							
Soundings 2, 4, 5 & 7	Sub-regional	Permanent	Medium	Definite	Moderate	Negative	High
Sounding 9 area	Sub-regional	Permanent	Medium	Definite	Low	Negative	High
Soundings 1 & 3	Local	Permanent	Medium	Definite	Low	Negative	High

7 CONCLUSIONS AND RECOMMENDATIONS

Plot 10 and other areas of Portion 1 of Farm 1050, Malmesbury contains significant archaeological heritage in the form of shell middens dating to between 3000 and 2000 years ago. Most of the remains comprise shellfish but significant quantities of bone and some cultural materials also occur in these deposits.

Implementation of measures in mitigation of the impacts of the proposed developments is recommended.

Two strategies are possible:

- the preferred is effective legal protection of the resources to the satisfaction of Heritage Western Cape;
- a less satisfactory but nonetheless, still successful form of mitigation would be the implementation of systematic excavation of the resources in order to salvage important historical information before destruction of the shell middens.

The developer must report human remains uncovered during the course of development to the SA Heritage Resources Agency and instruct personnel working on the site of this requirement.

8 ACKNOWLEDGEMENTS

Field work team:

Royden Yates – Principal Investigator

Deano Stynder – Assistant Investigator