



A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED DEVELOPMENT OF A PARKING BAY AND ASSOCIATED INFRASTRUCTURES AT SARDINIA BAY, PORT ELIZABETH, NELSON MANDELA BAY MUNICIPALITY, EASTERN CAPE PROVINCE

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Note: This report follows the minimum standard guidelines required by the South African Heritage Resources Agency for compiling Archaeological Phase 1 Impact Assessment (AIA) reports and is part of an Environmental Impact Assessment.

EXECUTIVE SUMMARY

Eastern Cape Heritage Consultants cc was appointed by CEN Integrated Environmental Management Unit to conduct a Phase 1 Archaeological Impact Assessment (AIA) for the proposed development of a new car park, toilet block and associated infrastructures at Sardinia Bay near Port Elizabeth in the Nelson Mandela Bay Municipality of the Eastern Cape Province; to establish the range and importance of the archaeological sites/remains, the potential impact of the development and to make recommendations to minimize possible damage to these sites.

The development will take place between 300 and 600metres of the coast and therefore fall inside the sensitive coastal archaeological zone. The dense fynbos vegetation, however, made it difficult to observed heritage sites/materials. Apart from a few stone tools no other significant archaeological sites/materials were observed. In general the areas investigated appear to be of low archaeological sensitivity, but it is possible that sites/materials may be covered by sand and vegetation. Any of the two sites identified for development may be used. It is recommended that;

All construction work must be monitored. An archaeologist/heritage specialist must be present when the areas earmarked for development are cleaned from vegetation. Alternatively a person must be trained as a site monitor to report to the foreman when heritage sites/materials are found.

If any concentrations of archaeological material are exposed (human remains, shell middens, stone tools etc.), work must stop immediately and reported to the archaeologist at the Albany Museum (046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (043 6422811). Sufficient time should be allowed to investigate and to remove/collect such material.

Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. Alternatively it is suggested that a person be trained to be on site to report to the site manager if sites are found.

PROJECT INFORMATION

The proposed project comprises the development of a new car park, toilet block and associated infrastructures at Sardinia Bay. The existing jeep track is also proposed to be upgraded to a gravel road to a width of 6 metres to provide access to the proposed parking bay. Two alternative sites, 1 and 2 have been proposed for the development (see Map 2). The development footprint of the parking bay facility is expected to be approximately 2 500 square metres. Access to the preferred site would be via the upgraded jeep track.

The Developer

Nelson Mandela Bay Municipality

The Consultant

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Purpose of the study

The original proposal was to conduct a survey of possible archaeological sites for the proposed new car park and associated infrastructures at Sardinia Bay near Port Elizabeth in the Nelson Mandela Bay Municipality of the Eastern Cape Province. The survey was conducted to establish;

- the range and importance of possible exposed and *in situ* archaeological sites, features and materials,
- the potential impact of the development on these resources and,
- to make recommendations to minimize possible damage to these resources.

Site and location

The site for the proposed development is located within the 1:50 000 topographic reference map 3325 DC & DD 3425BA Port Elizabeth (Map 1). It will take place in the Sardinia Bay Local Authority Nature Reserve approximately 12 kilometres southwest of the CBD of Port Elizabeth in the Nelson Mandela Bay Municipality of the Eastern Cape Province. The two alternative sites are situated east of the access road to Sardinia Bay. (Maps 1-2)

These sites are located between 300 and 600 metres from the coast and therefore fall inside the coastal archaeological sensitive zone (Figures 1-2). The area is relatively flat without any pronounced dunes. Dense coastal fynbos vegetation covers the thin layer of surface dune sand. Exposed calcrete floors are visible throughout the area. A general GPS reading was taken at 34.01.949S; 25.29.994E.

Relevant impact assessments, databases and collections for the wider Sardinia Bay area

- Binneman, J. 2013. A phase 1 archaeological impact assessment for the proposed upgrade and expansion of the Cape Recife Waste Water Treatment Works in Port Elizabeth, Nelson Mandela Bay Municipality, Eastern Cape Province. Prepared for CEN Integrated Environmental Management Unit. Port Elizabeth. Eastern Cape Heritage Consultants. Jeffreys Bay.
- Binneman, J. and Booth, C. 2010. A phase 1 archaeological impact assessment (AIA) for the proposed 20MW wind farm on three alternative sites: Erf 121, Driftsands (site alternative 1), Bushy Park Farm, remainder of Erf 26, as well as portions 5, 6 and 7 thereof (site alternative 2) and Rietfontein Farm, Erf 594, Van Stadens East (Site Alternative 3), Nelson Mandela Metropolitan Municipality, Port Elizabeth, Eastern Cape Province. Prepared for SRK Consulting. Port Elizabeth.
- Binneman, J & Webley, L. 1996. Proposed Eastern Cape Zinc and Phosphoric Acid Project: Baseline Report: Sensitivity of Cultural Sites. Prepared for African Environmental Solutions. Claremont.
- Webley, L. 2005a. Cultural and historical assessment of Madiba Bay Leisure Park. Prepared for Coastal and Environmental Services. Grahamstown.
- Webley, L. 2005b. Phase 1 Heritage Impact Assessment of a proposed water reservoir site near Schoenmakerskop, Port Elizabeth. Unpublished Report for SRK Consulting.

The Albany Museum in Grahamstown and the Bayworld Museum in Port Elizabeth house collections and information from the study area and wider region.

BRIEF ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

Literature review

Pre-colonial archaeology

The archaeology of the immediate Sardinia Bay area is largely unknown, mainly because little systematic research has been conducted there. The oldest evidence of the early inhabitants in the Port Elizabeth area are large stone tools, called hand axes and cleavers, which can be found amongst river gravels and in old spring deposits in the region (Deacon 1970). These large stone tools are from a time period called the Earlier Stone Age (ESA) and may date between 1,5 million and 250 000 years old. The large hand axes and cleavers were replaced by smaller stone tools called the Middle Stone Age (MSA) flake and blade industries. Evidence of MSA sites occur throughout the Port Elizabeth region and date between 200 000 and 30 000 years old. Fossil bone may in rare cases be associated with MSA occurrences (Deacon & Deacon 1999).

The majority of archaeological sites found in the Port Elizabeth area date from the past 10 000 years (called the Later Stone Age) and are associated with the campsites of San hunter-gatherers and Khoi pastoralists. These sites are difficult to find because they are in the open veld and often covered by vegetation and sand. Sometimes these sites are only represented by a few stone tools and fragments of bone. The preservation of these sites is poor and it is not always possible to date them (Deacon & Deacon 1999). There are many San hunter-gatherers sites in the nearby Elandsberg and Groot Winterhoekberg Mountains. Here caves and rock shelters were occupied by the San during the Later Stone Age and contain paintings along the walls. The last San/KhoiSan group was killed by Commando's in the Groendal area in the 1880s. Some 2 000 years ago Khoi pastoralists occupied the region and lived mainly in small settlements. They were the first food producers in South Africa and introduced domesticated animals (sheep, goat and cattle) and ceramic vessels to southern Africa.

The most common archaeological sites along the nearby coast are shell middens (relatively large piles of marine shell) found usually concentrated opposite rocky coasts, but also along sandy beaches (Rudner 1968). These were campsites of San hunter-gatherers, Khoi herders and KhoiSan peoples who lived along the immediate coast (up to 5 km) and collected marine foods. Mixed with the shell are other food remains, cultural material and often human remains are found in the middens. In general shell middens in the open date from the past 6 000 years. Also associated with middens are large stone floors which were probably used as cooking platforms (Binneman 2001, 2005).

Historical heritage

Driftsands Historical Dump

A large historical dump dating from 1893-1909 is located close the study area. It is older than 60 years and protected by the National Heritage Resources Act of 1999. A large part of the Driftsands area which stretches from west of Schoenmakerskop to the borders of Walmer and Summerstrand, was covered by a thin distribution of historical rubbish dump material (dating to the Victorian period) between 1893 and 1909.

According to historical records the sand killed all vegetation and posed a threat to the harbour. In 1893 Joseph Storr Lister of the Cape Forestry Department was appointed to solve the drifting sand problem. Lister proposed stabilising the dunes by dumping household rubbish on the dunes. He constructed a railway line nine miles into the dunes and a train (called the 'Driftsands Special') to dumped some 80 tons of town rubbish a day on the shifting sand dunes. The rubbish was spread in a relatively thin layer on the dunes, and the seeds of Australian *acacias* (Rooikranz, Port Jackson and Long-leaf wattles) planted into the garbage. In total some 91 000 metric tons of refuse was dumped on the dunes between 1893 and 1909.

Between 1960 and 1970 amateur bottle collectors illegally mined the old dump extensively Lastovica (1982). Bayworld Museum houses a large collection of material which includes glass bottles, sherds of china from various Port Elizabeth hotels, china dolls, mother of pearl buttons, horse shoes and numerous other artefacts made by Dr Mike Raath. He did most of his collecting in the Summerstrand area and beyond the Nelson Mandela Metropolitan University. There are no buildings older than 60 years in the study area and the closest are the Fortress Observation Posts build during World War 2 at Schoenmakerskop and Cape Recife and are believed to be unique to the Algoa Bay area (Webley 2005),

References

- Bennie, J. 1993. The Driftsands. Otolith.
- Binneman, J.N.F. 2001. An introduction to a Later Stone Age coastal research project along the south-eastern Cape coast. *Southern African Field Archaeology* 10:75-87.
- Binneman, J.N.F. 2005. Archaeological research along the south-eastern Cape coast part1: open-air shell middens *Southern African Field Archaeology* 13 & 14:49-77.
- Deacon, H.J. 1970. The Acheulian occupation at Amanzi Springs, Uitenhage District, Cape Province. *Annals of the Cape Provincial Museums*. 8:89-189.
- Deacon, H.J. & Deacon, J. *Human beginnings in South Africa*. Cape Town: David Phillips Publishers.
- Dimbleby, E.P. 1961. When desert menaced Port Elizabeth. *Looking Back* (1): 2-8.
- Rudner, J. 1968. Strandloper pottery from South and South West Africa. *Annals of the South African Museum* 49:441-663.
- Scott, H. 1966. Driftsands. *Looking Back* 6:18-21.

Webley, L. 2005. Cultural and historical assessment of Madiba Bay Leisure Park. Prepared for Coastal and Environmental Services. Grahamstown.

ARCHAEOLOGICAL INVESTIGATION

Methodology

The investigation was conducted on foot by two archaeologists and GPS readings were taken with a Garmin and all important features were digitally recorded. A Google aerial image investigation and literature search were conducted of the area prior to the investigation.

Limitations and assumptions

The archaeological visibility was poor for both sites due to the dense coastal fynbos vegetation and it was difficult to locate archaeological and other heritage sites/materials (Figures 1-2). Nonetheless, the experience and knowledge gained from previous investigations in surrounding areas, as well as the documented history of the area provided an information base. This assisted us to make assumption and predictions on the incidences and the significance of possible pre-colonial archaeological and historical sites/material which may be located in the area, or which may be covered by the sand and vegetation.

Results

The sites investigated are situated between 300 and 600 metres of the coast and therefore fall inside the sensitive coastal archaeological zone. Webley (2005) recorded several shell middens some 400 metres southwest of the proposed area for development (Map 2). However, apart from a few flaked cobbles of Holocene Later Stone Age origin (past 10 000 years) (Figure 2), no other archaeological or historical sites/materials were observed in the study area. The surface dune sand layer is relatively thin and many large calcrete floors are visible in between the dense fynbos vegetation (Figure 1, main image). These calcrete floors along the coast usually act as catchments for archaeological material which were previously living sites located on/in overlying sand dunes. No significant archaeological remains were observed on these floors, but it is possible that sites/materials may be covered by sand and vegetation. In general the areas investigated appear to be of low archaeological sensitivity and it seems unlikely that any archaeological remains of significance will be found *in situ* or exposed during the development. There are no known graves or buildings older than 60 years on the sites. The development may proceed as planned and any of the two sites identified may be used.



Figure 1. General views of the Alternative 2 site. Note the exposed calccrete floors (main image), dense fynbos vegetation and flaked cobbles (bottom right insert).



Figure 2. General views of the jeep tracks and the Alternative 1 site. Note the jeep tracks are located on calciete floors, dense fynbos vegetation and the red arrow marks the closest shell middens south east of the study area behind the present facilities at Sardinia Bay (see Map 2).

DISCUSSION AND MITIGATION

The dense fynbos vegetation made it difficult to observe heritage sites/materials. However, we know that the coastal zone near the study area is dotted with shell middens and there exists a strong possibility that shell middens or other archaeological sites/material may be covered by dune sand and vegetation and may be exposed during the construction of the parking bay and associated infrastructures. Although it seems unlikely that significant archaeological remains will be exposed, there is always a possibility that human remains and/or other archaeological and historical material may be uncovered during the development. Such material must be reported to the archaeologist at the Albany Museum (046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (043 6422811) if exposed, so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to remove/collect such material (See Appendix B for a list of possible archaeological sites that maybe found in the area).

The following is recommended/suggested;

1. All construction work must be monitored. An archaeologist/heritage specialist must be present when the areas earmarked for development are cleaned from vegetation. Alternatively a person must be trained as a site monitor to report to the foreman when heritage sites/materials are found. This person must monitor all clearing, levelling and trenching activities during the construction phase.
2. If any concentrations of archaeological material are exposed (shell middens, stone tools etc.), work must stop immediately and reported to the archaeologist at the Albany Museum (046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (043 6422811). Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation (See appendix B for a list of possible archaeological sites that maybe found in the area).
3. Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. Alternatively it is suggested that a person be trained to be on site to report to the site manager if sites are found, as in 1 above.

GENERAL REMARKS AND CONDITIONS

Note: This is an Archaeological Impact Assessment (AIA) report compiled for the Eastern Cape Provincial Heritage Resources Authority (ECPHRA) to enable them to make informed decisions regarding the heritage resources assessed in this report and only they have the authority to revise the report. This Report must be reviewed by the ECPHRA where after they will issue their Review Comments to the EAP/developer. The final decision rests with the ECPHRA who must grant permits if there will be any impact on cultural sites/materials as a result of the development

This report is a Phase 1 Archaeological Impact Assessment and does not exempt the developer from any other relevant heritage impact assessments as specified below:

In terms of the National Heritage Resources Act, No. 25 of 1999 (section 38) ECPHRA may require a full Heritage Impact Assessment (HIA) to assess all heritage resources, that includes *inter alia*, all places or objects of aesthetical, architectural, historic, scientific, social, spiritual, linguistic, or technological significance that may be present on a site earmarked for development. A full Heritage Impact Assessment (HIA) should assess all these heritage components, and the assessment may include archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.

It must be emphasized that this Phase 1 AIA is based on the visibility of archaeological sites/material and may not therefore reflect the true state of affairs. Sites and material may be covered by soil and vegetation and will only be located once this has been removed. In the event of such finds being uncovered during construction activities, ECPHRA or an archaeologist must be informed immediately so that they can investigate the importance of the sites and excavate or collect material before it is destroyed (see attached list of possible archaeological sites and material). The developer must finance the costs should additional studies be required as outlined above. The *onus* is on the developer to ensure that the provisions of the National Heritage Act No. 25 of 1999 and any instructions from ECPHRA are followed. The EAP/developer must forward this report to ECPHRA in order to obtain their Review Comments, unless alternative arrangements have been made with the heritage specialist to submit the report.

APPENDIX A: brief legislative requirements

Parts of sections 35(4), 36(3) and 38(1) (8) of the National Heritage Resources Act 25 of 1999 apply:

Archaeology, palaeontology and meteorites

35 (4) *No person may, without a permit issued by the responsible heritage resources authority—*

- (a) *destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;*
- (b) *destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;*
- (d) *bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological*

and palaeontological material or objects, or use such equipment for the recovery of meteorites.

Burial grounds and graves

36. (3) (a) *No person may, without a permit issued by SAHRA or a provincial heritage resources authority—*
- (a) *destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;*
 - (b) *destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or*
 - (c) *bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.*

Heritage resources management

38. (1) *Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as –*
- (a) *the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;*
 - (b) *the construction of a bridge or similar structure exceeding 50m in length;*
 - (c) *any development or other activity which will change the character of the site –*
 - (i) *exceeding 5000m² in extent, or*
 - (ii) *involving three or more erven or subdivisions thereof; or*
 - (iii) *involving three or more erven or divisions thereof which have been consolidated within the past five years; or*
 - (iv) *the costs of which will exceed a sum set in terms of regulations by SAHRA, or a provincial resources authority;*
 - (d) *the re-zoning of a site exceeding 10 000m² in extent; or*
 - (e) *any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must as the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.*

APPENDIX B: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM COASTAL AREAS: guidelines and procedures for developers

Shell middens

Shell middens can be defined as an accumulation of marine shell deposited by human agents rather than the result of marine activity. The shells are concentrated in a specific locality above the high-water mark and frequently contain stone tools, pottery, bone and occasionally also human remains. Shell middens may be of various sizes and depths, but an accumulation which exceeds 1 m² in extent, should be reported to an archaeologist.

Human Skeletal material

Human remains, whether the complete remains of an individual buried during the past, or scattered human remains resulting from disturbance of the grave, should be reported. In general the remains are buried in a flexed position on their sides, but are also found buried in a sitting position with a flat stone capping and developers are requested to be on the alert for this.

Fossil bone

Fossil bones or any other concentrations of bones, whether fossilized or not, should be reported.

Stone artefacts

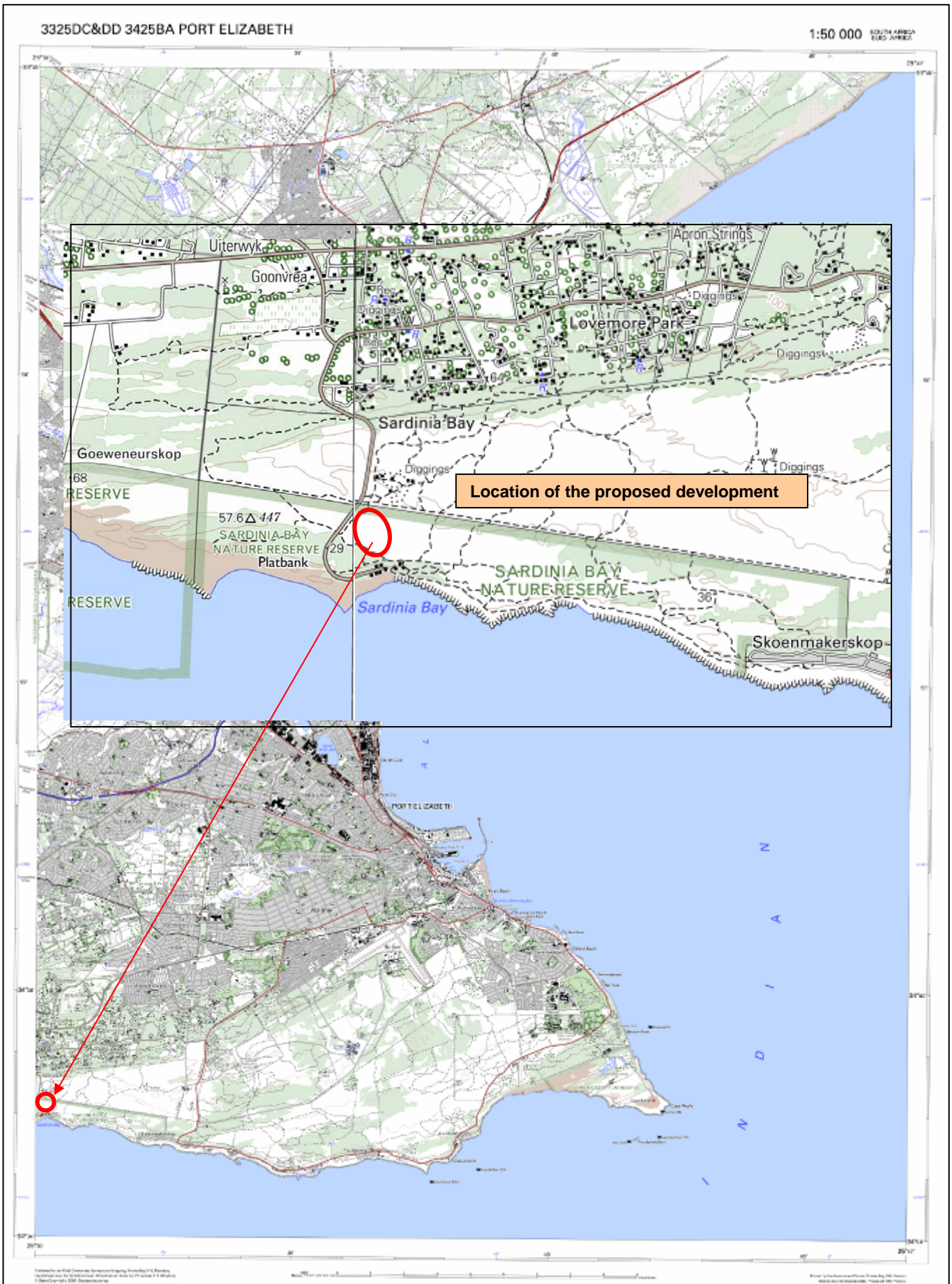
These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists notified.

Stone features and platforms

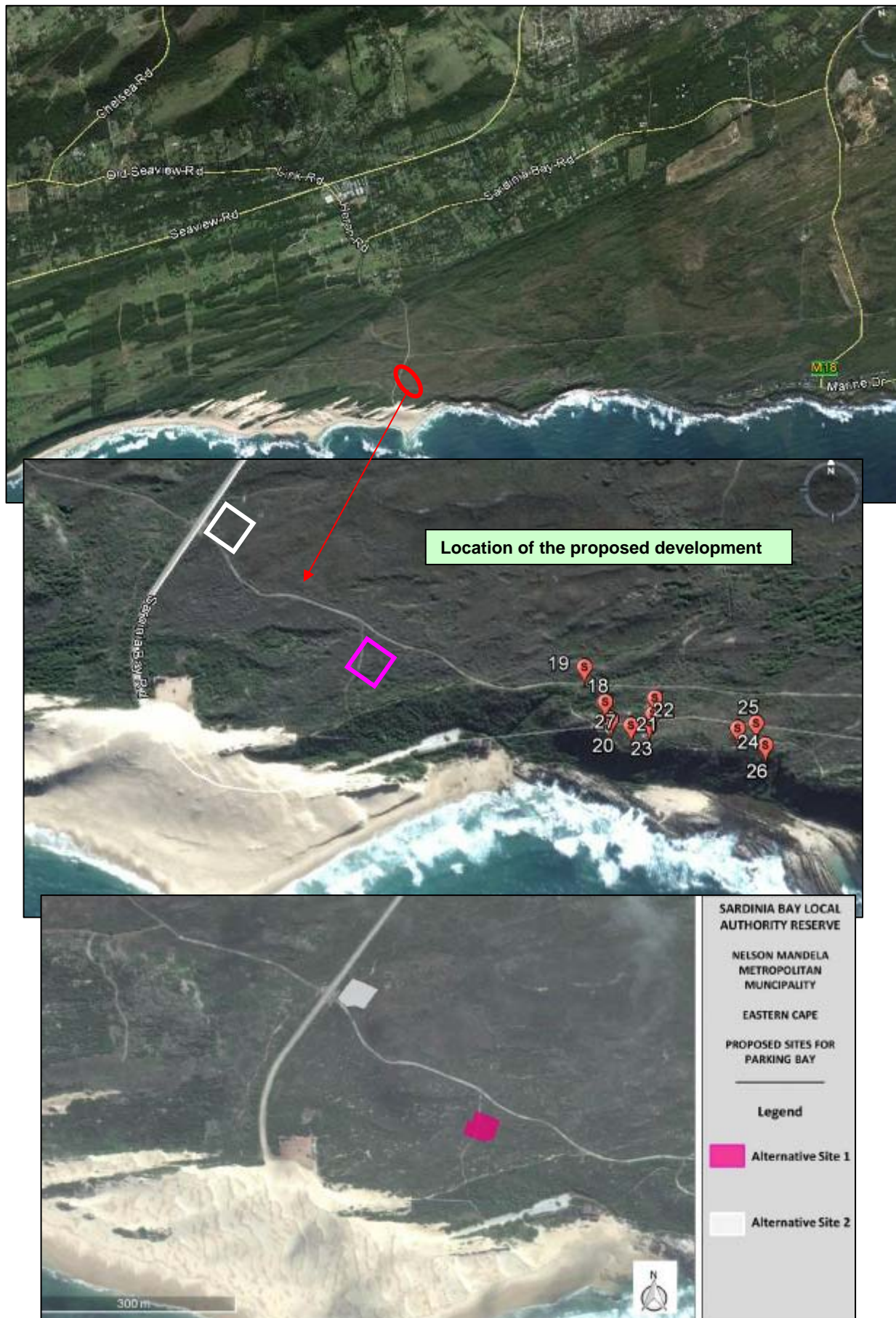
These occur in different forms and sizes, but easily identifiable. The most common are an accumulation of roughly circular fire cracked stones tightly spaced and filled in with charcoal and marine shell. They are usually 1-2 metres in diameter and may represent cooking platforms for shell fish. Others may resemble circular single row cobble stone markers. These occur in different sizes and may be the remains of wind breaks or cooking shelters.

Historical artefacts or features

These are easy to identify and include foundations of buildings or other construction features and items from domestic and military activities. Anticipation



Map 1. 1:50 000 Maps indicating the location of the development. The red circles mark the approximate location of the development.



Map 2. Aerial images indicating the location of the proposed development. The locations of the two alternative sites are marked on the middle and bottom maps. The red-brown pegs mark the locations of shell middens as recorded by Webley (2005).