

**A PHASE 1 ARCHAEOLOGICAL HERITAGE IMPACT ASSESSMENT OF ZONE 5  
IN THE COEGA INDUSTRIAL DEVELOPMENT ZONE FOR THE PROPOSED  
CONSTRUCTION OF A MANGANESE SMELTER, NEAR PORT ELIZABETH,  
NELSON MANDELA BAY MUNICIPALITY, EASTERN CAPE PROVINCE**

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## **SUMMARY**

**Note:** This report follows the minimum standard guidelines required by the South African Heritage Resources Agency for compiling Archaeological Heritage Phase 1 Impact Assessment (AHIA) reports.

### **Proposal**

The original proposal was to conduct a survey of possible archaeological heritage sites in Zone 5 of the Coega Industrial Development Zone for the proposed construction of a manganese smelter near Port Elizabeth, Nelson Mandela Bay Municipality, Eastern Cape Province; to establish the range and importance of the heritage sites, the potential impact of the development and to make recommendations to minimize possible damage to these sites.

### **The investigation**

Occasional Earlier and Middle Stone Age stone tools were found where river gravels were exposed. Most of the property is covered by dense grass and impenetrable thicket vegetation which made it difficult to find sites/materials.

### **Cultural sensitivity**

Most of the area investigated is within 5 km from the coast (maximum distance inland that coastal archaeological remains will be found) and although it appears to be of low cultural sensitivity, archaeological sites/materials may be exposed when the vegetation and top soil are removed (for example human remains).

### **Recommendations**

1. All construction work must be monitored. This includes a walk through of the foot print and clearing of the vegetation and trenching.
2. A person must be trained as a site monitor to report to the foreman when archaeological sites are found.
3. If any concentrations of archaeological material are uncovered during development it should be reported immediately to the nearest archaeologist, museum and/or the South African Heritage Resources Agency.

4. Construction managers/foremen should be informed, before construction starts, on the possible types of heritage sites which may be encountered during construction.

## **PROJECT INFORMATION**

### **Status**

There was no Background Information Document (BID) available at the time of the investigation and the Environmental Impact Assessment is still in progress.

### **The type of development**

The construction of a manganese smelter and infrastructure.

### **The Developer and Consultant**

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### **Terms of reference**

Conduct a survey of possible archaeological heritage sites in Zone 5 of the Coega Industrial Development Zone for the proposed construction of a manganese smelter near Port Elizabeth, Nelson Mandela Bay Municipality, Eastern Cape Province; to establish the range and importance of the heritage sites, the potential impact of the development and to make recommendations to minimize possible damage to these sites.

## **BRIEF ARCHAEOLOGICAL BACKGROUND**

### **Literature review**

Early Stone Age (approximately 250 000 - million years old) stone tools are found throughout the area. Large handaxes were reported from Coega Kop and were also collected from the banks and gravels of the Coega and between the N2 national road and the salt works (Albany Museum collections). One of South Africa's most important Earlier Stone Age finds and excavations (Deacon 1970) was conducted a few kilometres west of the surveyed area, at Amanzi Springs. In a series of spring deposits a large number of stone tools were found *in situ*

to a depth of 3-4 metres. Wood and seed material preserved in the spring deposits, possibly dating to between 250 000 to 800 000 years old.

Middle Stone Age (125 000 - 30 000 years ago) and Later Stone Age (30 000 years ago to historical times) stone tools are also found in the gravels and along the banks of the Coega River. These stone artefacts, like the Earlier Stone Age handaxes are in secondary context with no other associated archaeological material. Occurrences of fossil bone remains and Middle Stone Age stone tools were also reported south of Coega Kop (Gess 1969). During excavations the remains were found in the surface limestone, but the bulk of the bone remains were found some 1-1,5 metres below the surface. The excavations exposed a large number and variety of bones, teeth and horn cores. The bone remains included warthog, leopard, hyena, rhinoceros and ten different antelope species. A radiocarbon date of greater than 37 000 years was obtained for the site.

The majority of archaeological sites found in the wider region 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. 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. These sites are poorly preserved and difficult to find because they are in the open veld and often covered by vegetation and soil. Sometimes these sites are only represented by a few stone tools and fragments of bone.

Most of the proposed area for development is situated within 5 km from the coast and falls within the maximum distance shell middens are expected to be found from the beach (Binneman 2001, 2005). Many middens, ceramic pot sherds (from Later Stone Age Khoi pastoralist origin - last 2 000 years) and other archaeological material, mainly of the Holocene Later Stone Age (last 8 000 years) are located in the shifting sand dunes along the coast (Rudner (1968). Human remains have also been found in the dunes along the coast.

## **REFERENCES**

- 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.
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- Gess, W.H.R. 1969. Excavations of a Pleistocene bone deposit at Aloes near Port Elizabeth. *South African Archaeological Bulletin* 24:31-32.
- Rudner, J. 1968. Strandloper pottery from South and South West Africa. *Annals of the South African Museum* 49(2). Cape Town.

## **Museum/University databases and collections**

The Albany Museum in Grahamstown houses collections and information from the region.

## **Some relevant impact assessments**

- Binneman, J. 2006. Phase 1 Archaeological Heritage Impact Assessment on portion 221/1 of the farm Limehurst in Zone 13 of the Coega Industrial Development Zone (IDZ) for the construction of a peaking power plant. Report prepared for PBA International (SA).
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- Kaplan, J. 2007. Phase 1 archaeological impact assessment the proposed Coega integrated liquified natural gas (ing) to power project (cip) Coega industrial development zone, Port Elizabeth, Eastern Cape Province. Prepared for CSIR.
- Webley, L. 2007. Phase 1 Heritage Impact Assessment for Straits Chemicals proposed chlor-alkali and salt plant Coega Eastern Cape Province. Report prepared for SRK Consulting.

## **DESCRIPTION OF THE PROPERTY**

### **Area surveyed**

#### Location data

The proposed area for the construction of the manganese smelter is located in Zone 5 of the Coega Industrial Development Zone (CIDZ) some 15 kilometres north-east of Port Elizabeth, Nelson Mandela Bay Municipality, Eastern Cape Province. This large property for development is situated north of the N2 national road and between the Markman Industrial Area (south-west) and the Coega River (west) (Maps 1-4).

#### Map

1:50 000 3325 DC & DD 3425 BA Port Elizabeth

## **ARCHAEOLOGICAL INVESTIGATION**

### **Methodology**

The survey was conducted by two people on foot and spots checks from a vehicle. GPS readings were taken with a Garmin Plus II and all important features were digitally recorded (Map 3). This large property has been disturbed in the past by farming activities and more recently along the peripheries by recent development of the infrastructure for the Alcan aluminium smelter (the project has since been terminated). The area is relatively level with a gentle easterly slope towards the Coega River valley. Most of the property is covered by impenetrable thicket vegetation and short dense grass (Figs 1-6).

The dense vegetation made it almost impossible to find archaeological sites/material. Ironically the only areas that could be investigated were the 40 metre wide cleared strips adjacent to roads and drainage channels and other features. Unfortunately these strips were further disturbed by the construction of water pipe lines and drainage channels. If there were any archaeological sites these were totally destroyed (Figs 7-12).

In spite of the large scale clearing and levelling activities, occasional quartzite Middle Stone Age stone tools with typical faceted striking platforms were found, especially where pebble/cobble gravels were exposed. The stone tools are situated in the thin layer of top soil which covers the underlying hard calcrete deposits, or on the surface where the calcrete is exposed. The tools were mainly small 'informal' flakes and chunks with few cores, points and blades. Although many flakes displayed utilization damage, few were 'formally' retouched. No spatial patterning or activity areas such as 'manufacturing' sites were located, although such sites may exist but were not be visible. All stone tools were in secondary context and not associated with any other remains (Figs 13-18).

Well-preserved bone remains are sometimes found in these calcrete deposits. Such an accumulation of bone was found in the nearby Markman Industrial Area at a depth of 1-1,5 metres deep. River gravels are exposed especially near the slopes overlooking the Coega River valley and towards the North-western end (Coega Kop end) of the property (Figs 19-20). Occasional Early Stone Age flaked cobbles and pebbles were found in these gravels and formal handaxes were reported from the Coega Kop area. Similar stone tools were also observed by the author in the river gravels destroyed where the new N2 and bridge is being constructed over the Coega estuary.

Apart from the stone tools no other visible archaeological sites/material were found during the investigation. Although sites/material may be covered by soil and vegetation, it is unlikely that any other archaeological sites/material would be located during development (apart from the stone tools already mentioned).



**Figs 1-4. Different views of the large scale damage caused recently to the landscape by the development of the infrastructure in Zone 5.**





**Figs 7-12. Different views of the large scale damage caused by clearing of the landscape and the dense natural vegetation in Zone 5.**



**Figs 13-14). Exposed calcrete (left) and a test pit showing the thin layer of soil on top of the calcrete (right).**





**Figs 15-19. Flaked cobbles found on exposed calcrete (top left), exposed gravel in a track (top right) and Middle Stone Age stone tools found in these gravels (bottom.).**



**Figs 19-20. Gravel exposed by earth moving activities (left). Note the dense vegetation in the background. A few examples of the stone tools retrieved from the exposed gravel (right).**

## **DISCUSSION**

Large areas have been cleared of the dense vegetation which covers most of Zone 5. Although this provided a window to the investigation, it is unknown if any/how many archaeological sites/materials were destroyed (without an Archaeological Heritage Impact assessment as required by the National Heritage Resources Act of 1999). Nevertheless, it would appear that in general the proposed area for development is of low cultural sensitivity. It is unlikely that any archaeological sites/material would be located during development (apart from the stone tools already mentioned). However, possible archaeological sites such as shell middens, human

remains and other archaeological material may be exposed after the top soil is removed, or when trenches are dug in the calcrete (See appendix for a list of possible archaeological sites that maybe found in the area).

## **RECOMMENDATIONS**

Zone 5 is a large area and at the time of the investigation no information/layout regarding the footprint was available and therefore the survey was 'stretched' rather than 'condensed' in an specific area. The dense vegetation also made it difficult to locate sites. Against this background it is recommended that;

1. All construction work must be monitored. It is suggested that once the footprint and related infrastructures are known, a walk through by an archaeologist could be conducted before construction starts in areas where the vegetation allows for such an investigation.
2. An archaeologist must inspect the construction site when the topsoil and surface vegetation is removed to establish if there are any archaeological sites/materials. Alternatively a person must be trained as a site monitor to report to the foreman when archaeological sites are found. This person must monitor all levelling and trenching activities during the construction phase.
3. If any concentrations of archaeological material are exposed during construction, such as large accumulations of marine shell, fossil bone (1 m<sup>2</sup> and larger) and human remains, all work in that area should stop and it should be reported immediately to the nearest museum/archaeologist or to the South African Heritage Resources Agency so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to remove/collect such material (See Appendix A for a list of possible archaeological sites that maybe found in the area).
4. 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.

## GENERAL REMARKS AND CONDITIONS

**Note:** This report is for a Phase 1 archaeological heritage impact assessment **only** and do **not** include or exempt other required heritage impact assessments (see below).

**The National Heritage Resources Act (Act No. 25 of 1999, section 35) requires a full Heritage Impact Assessment (HIA) in order that all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual linguistic or technological value or significance are protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects**

It must be emphasised that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/material and may not therefore, reflect the true state of affairs. Many sites 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 any phase of construction work), archaeologists must be informed immediately so that they can investigate the importance of the sites and excavate or collect material before it is destroyed. The onus is on the developer to ensure that this agreement is honoured in accordance with the National Heritage Resources Act No. 25 of 1999 (NHRA).

It must also be clear that Phase1 Specialist Reports (AIAs) will be assessed by the relevant heritage resources authority. The final decision rests with the heritage resources authority, which should give a permit or a formal letter of permission for the destruction of any cultural sites.

## 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 5000m<sup>2</sup> 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 000m<sup>2</sup> 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 A: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM COASTAL AREAS: guidelines and procedures for developers**

### 1. 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 m<sup>2</sup> in extent, should be reported to an archaeologist.

### 2. 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.

### 3. Fossil bone

Fossil bones may be found embedded in calcrete deposits at the site. Any concentrations of bones, whether fossilized or not, should be reported.

### 4. 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.

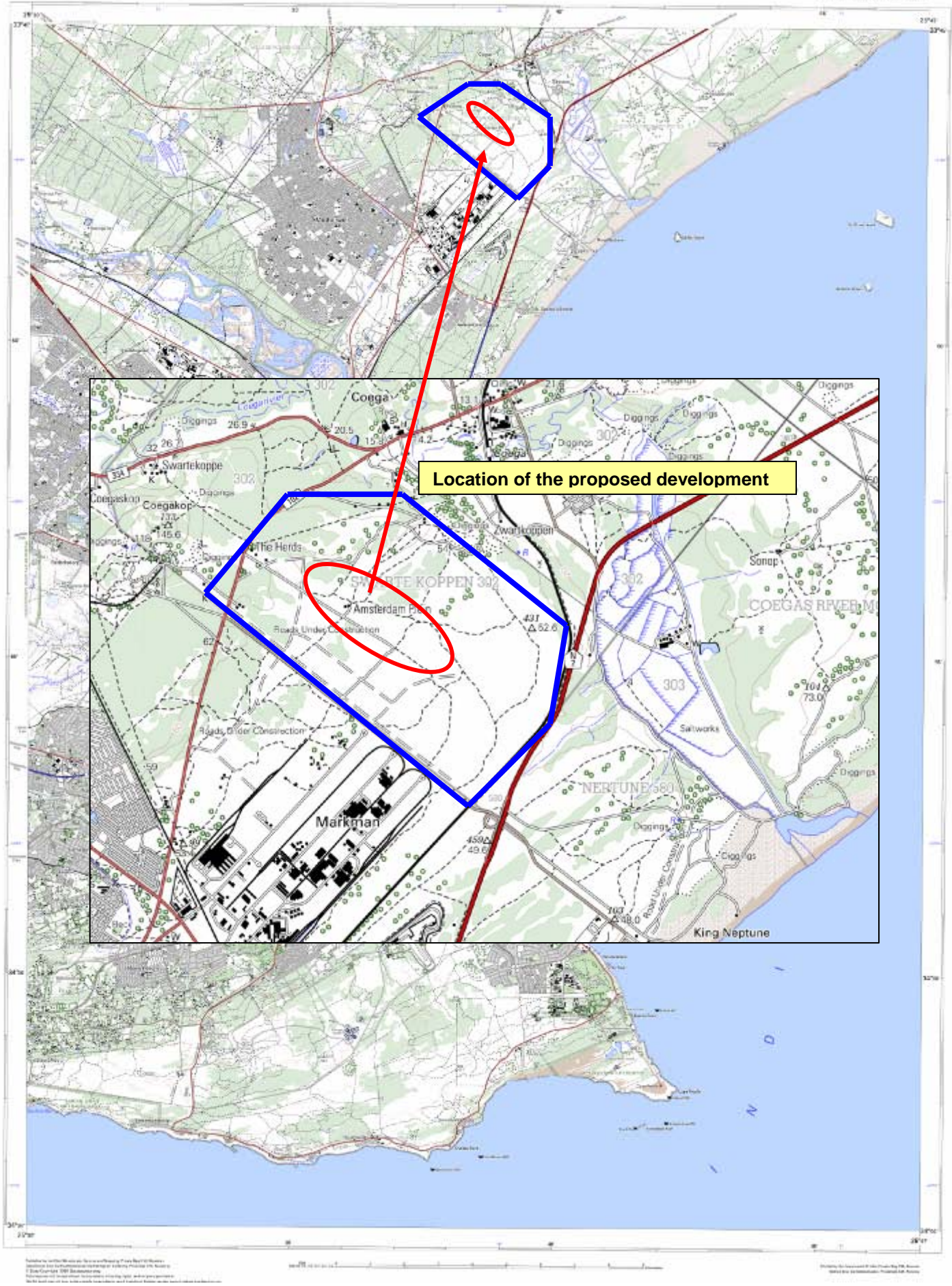
### 5. Stone features and platforms

They come in different forms and sizes, but are easy to identify. 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 platform for shell fish. Others may resemble circular single row cobble stone markers. These are different sizes and may be the remains of wind breaks or cooking shelters.

### 6. Historical artefacts or features

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





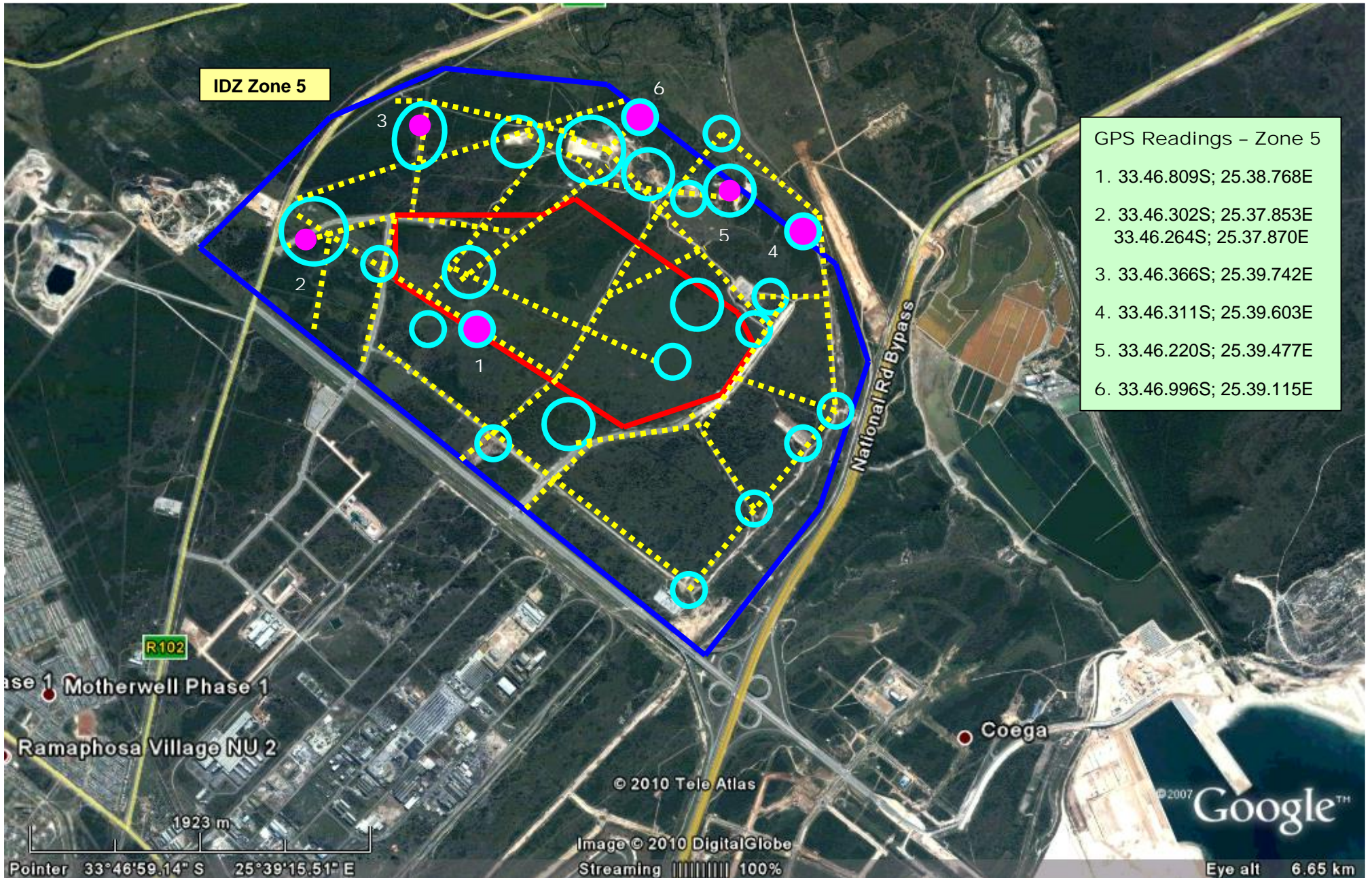
Map 1. 1:50 000 Maps indicating the location of the proposed development. The blue lines outline Zone 5 and the red square marks the approximate size of the footprint.





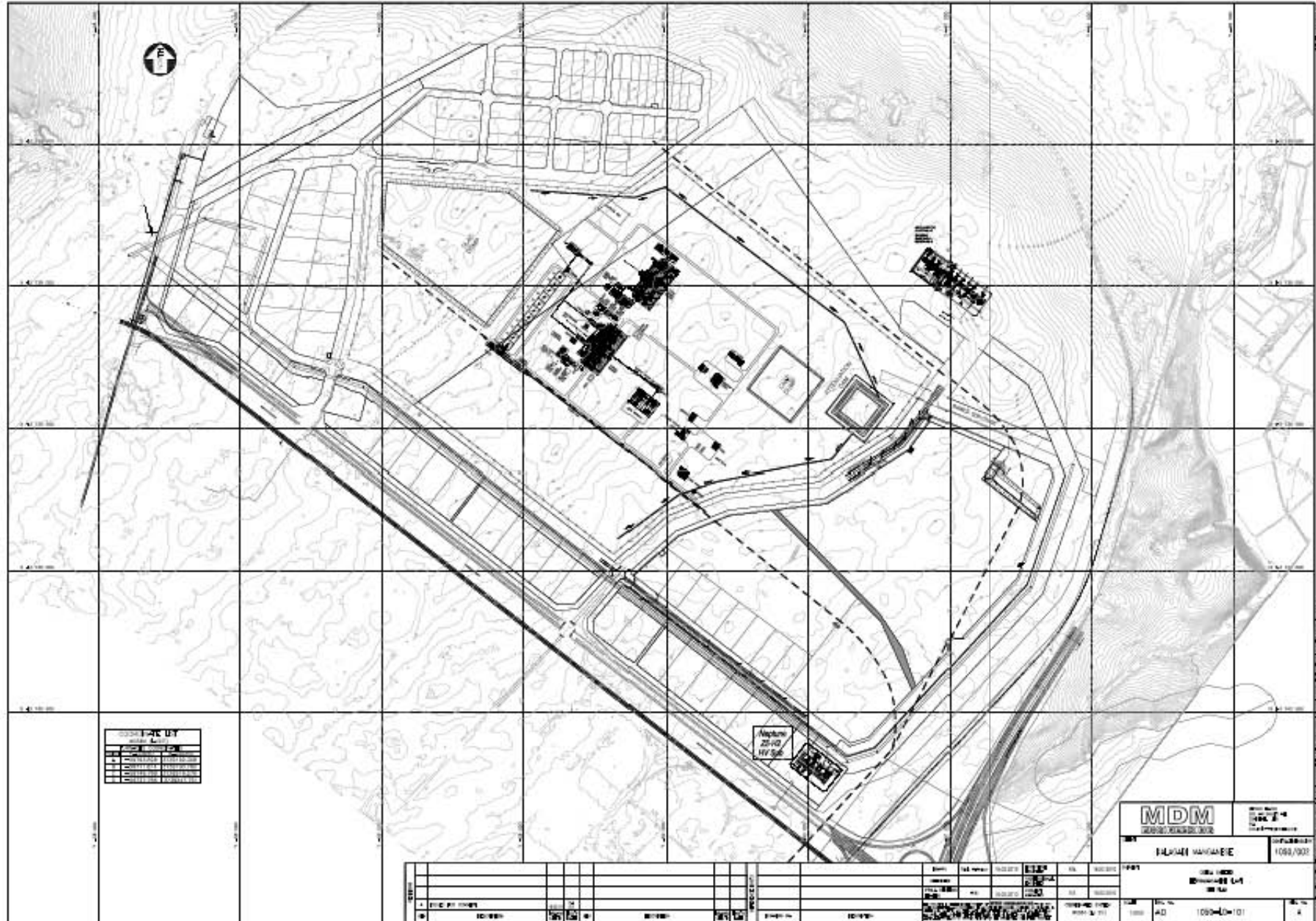
Map 2. Aerial photographs of the location of the proposed development. The blue lines mark Zone 5 and the red outlines the approximate size of the footprint.





**Map 3. Aerial photograph of the location of the proposed development. The red lines outline the approximate size of the footprint and the yellow broken lines mark the survey routes. The light blue circles indicate survey areas and the pink dots mark occasional Earlier and/or Middle Stone Age stone tools.**





Map 4. Layout plan of the proposed development (map courtesy of Coega Industrial Development Corporation).