



DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

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File Reference Number:

NEAS Reference Number:

Date Received:

Application for authorisation in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014

PROJECT TITLE

Proposed clearing of vegetation in three areas to establish citrus orchards on the farm Boschkraal near Kirkwood in the Sunday's River Valley Local Municipality of the Eastern Cape Province

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4.2 The specialist appointed in terms of the Regulations_

I, **J.N.F. Binneman**, declare that --

General declaration:

- I act as the independent specialist in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence and is punishable in terms of section 24F of the Act.

J.N.F. Binneman
Signature of the specialist:

Eastern Cape Heritage Consultants cc

Name of company (if applicable):

2016-03-11

Date:

2016-03-11 (H. N. M. M. M.)

Signature of the Commissioner of Oaths:

2016-03-11

Date:

WARRANT OFFICER:

Designation:

Official stamp (below)

Version 1 of 2015





PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENTS FOR THE PROPOSED CLEARING OF VEGETATION IN THREE AREAS TO ESTABLISH CITRUS ORCHARDS ON THE FARM BOSCHKRAAL NEAR KIRKWOOD, SUNDAY'S RIVER VALLEY LOCAL MUNICIPALITY EASTERN CAPE PROVINCE

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Date: February 2016

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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. The report is part of an Environmental Impact Assessment.

EXECUTIVE SUMMARY

Prime Resources (Pty) Ltd appointed Eastern Cape Heritage Consultants to conduct Phase 1 Archaeological Impact Assessments (AIA's) of three areas with a combined size of approximately 20 hectares for the proposed clearing of vegetation to establish citrus orchards on the farm Boschkraal near Kirkwood in the Sunday's River Valley Municipality of the Eastern Cape Province. The surveys were conducted 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.

Access to the three areas to be cleared was easy except for area 2 and parts of area 3 where the archaeological visibility was moderate to poor due to the dense vegetation. A bush fire destroyed the vegetation in area 3, but covered the surface with a thick layer of ash which made it difficult to locate archaeological sites/materials.

The graves in area 2 are protected by legislation and must be conserved and may not be disturbed or destroyed without the necessary permits and proceedings. Vegetation covering the graves and in the immediate vicinity must be carefully removed to expose and to establish the location of all possible graves in the area. The vegetation must be removed by hand and must be cut not pulled from the ground. The graves must be fenced-off with the fence not closer than two metres to the graves. No development may take place within five metres from the fence. In general, areas 1 and 3 appears to be of low heritage sensitivity, but must be carefully monitored for heritage sites/material during the development.

The proposed development will take place in close vicinity of the Sunday's River, in an area where one would expect to find freshwater mussel middens. If such features or any other concentrations of archaeological material are exposed, it must be reported to the archaeologist at the Albany Museum in Grahamstown or to the Eastern Cape Provincial Heritage Resources Authority so that a systematic and professional investigation can be undertaken.

PROJECT INFORMATION

Type of development

The proposed development on the farm Boschkraal near Kirkwood in the Sunday's River Valley Municipality of the Eastern Cape Province will include the clearing of vegetation in three areas to establish citrus orchards to expand the existing agricultural activities with an additional 20 hectares (Maps 1-2).

Applicant

CHF Woolley Trust

Consultant

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Purpose of the study

The purpose of the study was to conduct Phase 1 Archaeological Impact Assessments (AIA's) for the proposed clearing of vegetation in three areas with a combined size of approximately 20 hectares to establish citrus orchards on the farm Boschkraal near Kirkwood in the Sunday's River Valley Municipality of the Eastern Cape Province. The surveys were 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 sites on the farm Boschkraal for the proposed vegetation clearing near Kirkwood is located within the 1:50 000 topographic reference map 3325BC Coerney (Map 1). The proposed property for development is situated approximately 10 kilometres southeast of the Kirkwood CBD and north of the R336 main road connecting Kirkwood with Sunland. The development will take place along and close to the western embankment of the Sunday's River (GPS readings: area 1, 33.27.526S; 25.31.289E; area 2, 33.26.566S; 25.30.591E; area 3, 33.26.442S; 25.30.704E) (Maps 1-2).

The 20 hectares earmarked for clearing were disturbed in the past by farming activities (Map 2, figures 1-3). Area 1 is situated next to Sunday's River and most of the vegetation was destroyed by a bush fire. Area 2 is approximately 500 metres west of the Sunday's River and covered by dense bush and *Acacia karroo* trees. Area 3 is also situated next to the river and a

large part comprised of degraded old fields, ruins of various structures, features and rubble from previous farming activities and human occupation. The remainder of the area is covered by dense *Acacia karoo* trees.

Relevant impact assessments from the adjacent region, databases and collections

- Binneman, J. and Reichert, K. 2015. A letter of recommendation (with conditions) for the exemption of a full phase 1 archaeological impact assessment for the proposed clearing of 20 ha of natural vegetation to establish citrus orchards on the farm Hitgeheim, Sunland, Sundays River Valley Municipality, Eastern Cape Province. Prepared for: Engineering Advice & Services (Pty) Ltd. Humewood. Eastern Cape Heritage Consultants. Jeffreys Bay.
- Binneman, J. 2014a. A phase 1 archaeological impact assessment for the proposed expansion of agricultural activities on Portion 7 of the Farm Scheepers Vlakke No. 98, Sunland near Kirkwood, Sundays River Valley Municipality, Eastern Cape Province. Prepared for I.W. Terblanche & Associates. Stellenbosch. Eastern Cape Heritage Consultants. Jeffreys Bay.
- Binneman, J. 2014b. A phase 1 archaeological impact assessment for the proposed expansion of agricultural activities on Farm 632, Sunland near Kirkwood, Sundays River Valley Municipality, Eastern Cape Province. Prepared for I.W. Terblanche & Associates. Stellenbosch. Eastern Cape Heritage Consultants. Jeffreys Bay.
- Binneman, J. 2014c. a phase 1 archaeological impact assessment for the proposed expansion of agricultural activities on the remaining extent of Farm 714, Sunland Near Kirkwood, Sundays River Valley Local Municipality, Eastern Cape Province. Prepared for I.W. Terblanche & Associates. Stellenbosch. Eastern Cape Heritage Consultants. Jeffreys Bay.
- Binneman, J. 2013a. A phase 1 archaeological impact assessment for the proposed clearing of land for agricultural purposes on Panzi citrus farm near Kirkwood, Division of Uitenhage, Sundays River Valley Municipality, Eastern Cape Province. Prepared for CEN Integrated Environmental Management Unit. Port Elizabeth. Jeffreys Bay.
- Binneman, J. 2013b. A phase 1 archaeological impact assessment for the proposed expansion of agricultural activities on portion 5 of the Farm Nooitgedacht No. 118, Sunland, Sundays River Valley Municipality, Eastern Cape Province. Prepared for Public Process Consultants Greenacres. Eastern Cape Heritage Consultants.
- Binneman, J. 2012a. A phase 1 archaeological impact assessment for the proposed expansion of agricultural activities on Falcon Ridge, Portion 274 Strathsomers Estate No. 42, Sundays River Valley Municipality, Eastern Cape Province. Prepared for Public Process Consultants Greenacres. Eastern Cape Heritage Consultants.

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

BRIEF ARCHAEOLOGICAL BACKGROUND

Literature review

Little systematic archaeological research and regional surveys/recordings have been conducted in the study area. The oldest evidence of the early inhabitants are large stone tools, called hand axes and cleavers and can be found amongst river gravels along the Sunday's River and in old spring deposits in the region. 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. In a series of spring deposits at Amanzi Spring near Uitenhage (approximately 20 km south of the study area), a large number of stone tools were found *in situ* to a depth of 3-4 metres. Remarkably,

wood and seed material preserved in the spring deposits, possibly dating to between 250 000 to 800 000 years old (Inskeep 1965; Deacon 1970).

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 region and date between 250 000 and 30 000 years old. These stone artefacts, like the Earlier Stone Age tools are also found in the gravels along the banks of the Sunday's River and are mainly in secondary context. Fossil bone may in rare cases be associated with MSA occurrences.

The majority of archaeological sites found in the 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 (Deacon & Deacon 1999). The preservation of these sites is poor and it is not always possible to date them. There are many San hunter-gatherers sites in the nearby Suurberg and adjacent mountains. Here caves and rock shelters were occupied by the San during the Later Stone Age with well-preserved living deposits and paintings along the walls (Deacon 1976).

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. Often archaeological sites are found close to the banks of large streams and rivers. Large piles of freshwater mussel shell (called middens) usually mark these sites. Pre-colonial indigenous groups collected the freshwater mussel from the muddy banks of the rivers as a source of food. Mixed with the shell and other riverine and terrestrial food waste are also cultural materials. Human remains are often found buried in the middens.

References

- 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., 1976. Where hunters gathered: a study of Holocene Stone Age people in the Eastern Cape. *South African Archaeological Society Monograph Series No. 1*.
- Deacon, H.J. & Deacon, J. *Human beginnings in South Africa*. Cape Town: David Phillips Publishers.
- Inskeep, R.R. 1965. Earlier Stone Age occupation at Amanzi: preliminary investigations. *South African Journal of Science*. 61:229-242.

ARCHAEOLOGICAL INVESTIGATION

Methodology

The landowner was contacted prior to the investigation to inform him about the visit and to gain access to the property. He and his daughter accompanied us and pointed out the proposed areas for development. We also consulted them on possible locations of archaeological remains, graves and historical buildings and features. All previous relevant survey information for the immediate and adjacent areas was consulted before the investigation started. A Google Earth aerial image study was also conducted of the area prior to the investigation (Map 2). The survey was conducted on foot by two archaeologists. GPS readings were taken and all important features were digitally recorded.

Limitations and assumptions

Access to the three areas to be cleared was easy except for area 2 and parts of area 3 where the archaeological visibility was moderate to poor due to the dense thicket vegetation, grass and low bushes. On the other hand a bush fire destroyed all the vegetation in area 3, but covered the surface with a thick layer of ash which made it difficult to locate archaeological sites/materials (Figures 1-3).

Regardless of the restrictions imposed by the natural conditions, the experiences and knowledge gained from other investigations in the immediate area and wider surrounding region, provided background information to make assumptions and predictions on the incidences and the significance of possible pre-colonial archaeological sites/material which may be located in the area, or which may be covered by the soil and vegetation.

Results and findings

No heritage sites or materials were observed in area 1 due to the thick layer of ash covering the surface. The landowner pointed out a few graves covered by thicket vegetation in area 2 and on further investigation more graves were located. At least 14 graves were observed (general GPS reading: 33.26.566S; 25.30.591E), but it is possible that there may be several more covered by the dense vegetation. There are no headstones or any other information on the origin or age of the graves. Most of the graves composed of earth mounds, but a few are marked by river cobbles (Figure 2). No other heritage sites/materials were observed.

No heritage sites or materials were observed in area 3 due to the dense ground cover and the disturbed nature of the area. There are ruins, foundations and building rubble of several features in the area, but these are not of any heritage significance and are younger than 60 years old. No further action is required.

No graves or buildings older than 60 years were found in areas 1 and 3 and in general it would appear that these areas are of low cultural sensitivity and that it is unlikely that any sensitive archaeological remains will be exposed during the development.



Figure 1. General views of area 1 earmarked for clearing after a bush fire.



Figure 2. General views area 1 and the graves covered by dense vegetation.



Figure 3. General views of the degrade fields, remains of structures and features of previous farming activities and human occupation in area 3.

DISCUSSION AND MITIGATION

The proposed areas for development are situated next to or near the Sunday's River and it is possible that freshwater mussel middens/material may be found on the sites. Little research has been conducted on these middens along the Sunday's River and therefore the archaeological contexts of these features are largely unknown. Freshwater middens were observed along the embankments of the Sunday's River near Barkly Bridge, but it is unknown to what distance they would be situated from the river. Although these sites may date from the past 8 000 years or older, the stone tools observed at these middens included large quartzite backed segments which has been ascribed to the Kabeljous Industry (Binneman 2007) and may date to 4 500 years old.

The main impact on archaeological sites/remains will be the physical disturbance of the material and its context. The clearing of the vegetation to expand the existing agricultural activities (20 ha) may expose, disturb and destroy archaeological sites/material. However, from the investigations and observations in adjacent areas, it would appear that the proposed areas 1 and 3 earmarked for development are of low archaeological sensitivity. Notwithstanding, important materials may be covered by soil and vegetation. Although it is unlikely that any sensitive archaeological remains will be exposed during the development, there is always a possibility that human remains and/or other archaeological and historical material may be uncovered. It is recommended/suggested that;

Following SAHRA's standard requirements it is recommended that;

1. All graves and graveyards older than 60 years are protected by the National Heritage Resources Act (Act No. 25 Of 1999) (Section 36). Those younger than 60 years are not protected by the National Heritage Resources Act, but protected by the Human Tissue Act and by regional and municipal regulations and may not be disturbed or destroyed without the necessary permits and proceedings. The cemeteries and all graves, including the unmarked ones must therefore be protected and conserved during any developments, for example by fencing them off and that a long term maintenance plan is implemented.
 - Although the origin and age of the graves in area 2 are unknown (appeared to be younger than 60 years old), they are protected by legislation and must not be destroyed or disturbed.
 - When area 2 is cleared from vegetation care should be taken that the graves are not damaged. Vegetation covering the graves and in the immediate vicinity must be carefully removed to expose and to establish the location of all possible graves in the area. The vegetation must be removed by hand and must be cut not pulled from the ground.
 - The graves must be fenced-off with the fence not closer than two metres to the graves. No development may take place within five metres from the fence.
2. The proposed development will take place in close vicinity of the Sunday's River, in an area where one would expect to find freshwater mussel middens. If such features or any other concentrations of archaeological material are exposed, then work must cease in the immediate area of the finds and it must be reported to the archaeologist at the Albany Museum (Tel.: 046 6222312) in Grahamstown or to the Eastern Cape Provincial Heritage Resources Authority (Tel.: 043 6422811), 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).

Reference

Binneman, J.N.F. 2007. Archaeological research along the south-eastern Cape coast part2, caves and shelters: Kabeljous River Shelter 1 and associated stone tool industries Southern African Field Archaeology 15 & 16:57-74.

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, power line, 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 A: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM INLAND AREAS: guidelines and procedures for developers

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 human remains are buried in a flexed position on their side, but are also found buried in a sitting position with a flat stone capping. Developers are requested to be on alert for the possibility of uncovering such remains.

Freshwater mussel middens

Freshwater mussels are found in the muddy banks of rivers and streams and were collected by people in the past as a food resource. Freshwater mussel shell middens are accumulations of mussel shell and are usually found close to rivers and streams. These shell middens frequently contain stone tools, pottery, bone, and occasionally 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.

Large stone cairns

They come in different forms and sizes, but are easy to identify. The most common are roughly circular stone walls (mostly collapsed) and may represent stock enclosures, remains of wind breaks or cooking shelters. Others consist of large piles of stones of different sizes and heights and are known as *isisivane*. They are usually near river and mountain crossings. Their purpose and meaning is not fully understood, however, some are thought to represent burial cairns while others may have symbolic value.

Stone artefacts

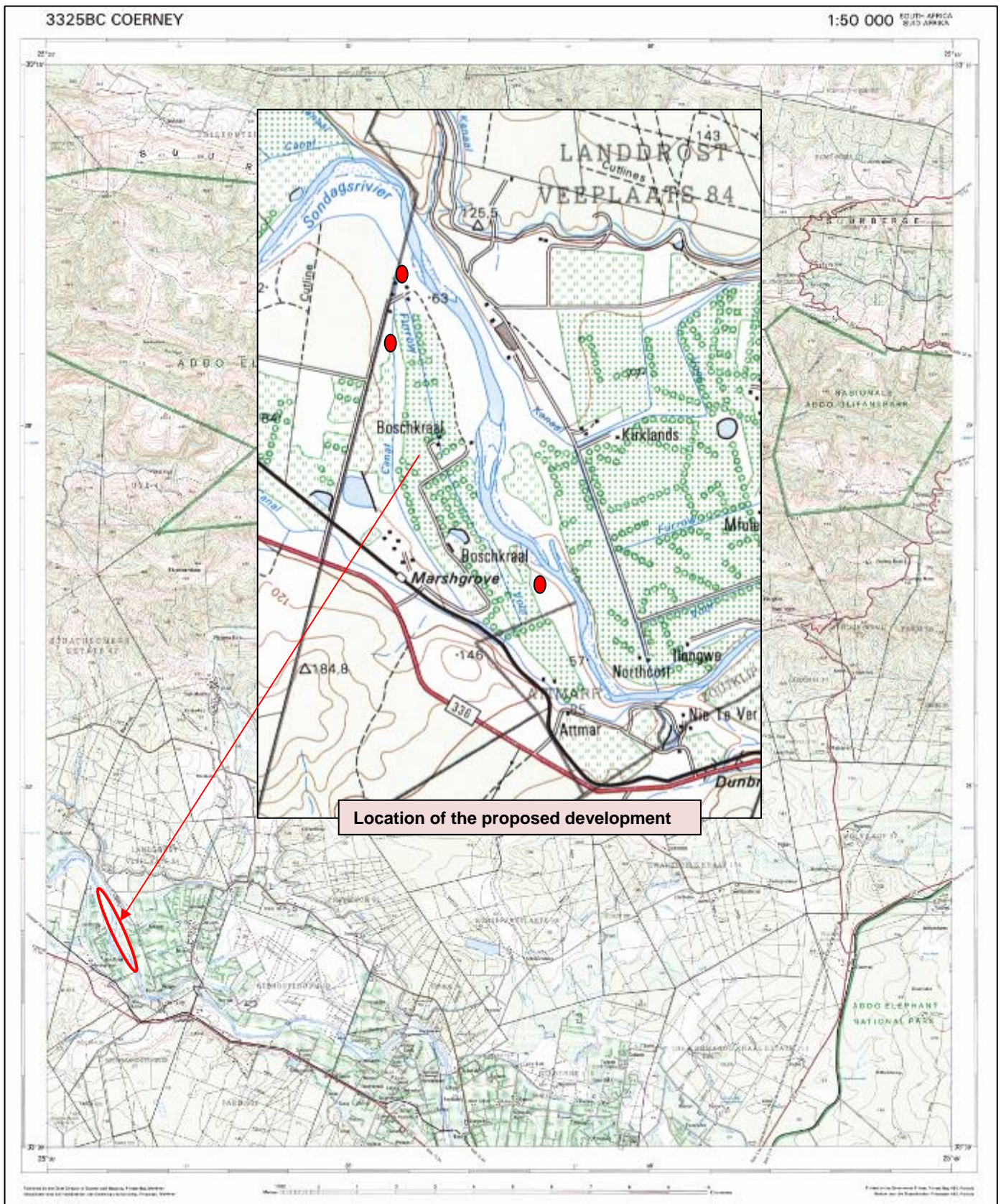
These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists notified.

Fossil bone

Fossil bones may be found embedded in geological deposits. Any concentrations of bones, whether fossilized or not, should be reported.

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.



Map 1. 1:50 000 Topographic maps indicating the approximate locations of the development marked by the red oval and dots.



Map 2. Aerial images indicating the locations of the proposed areas earmarked for vegetation clearing (insert image courtesy of Prime Resources Environmental Consultants).