CHAPTER ELEVEN: ARCHAEOLOGICAL IMPACT ASSESSMENT

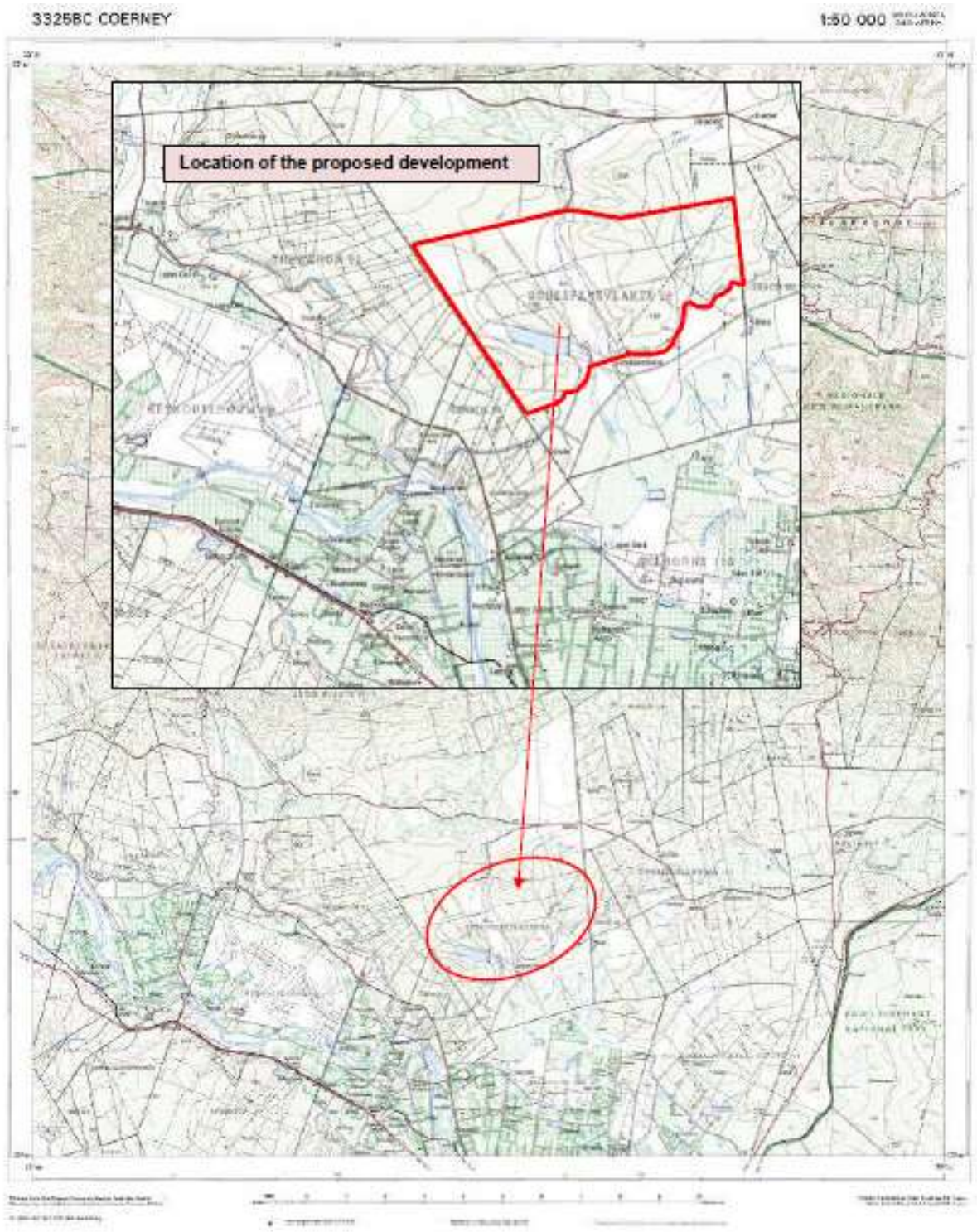
11.1 INTRODUCTION

Certain cultural and heritage resources are protected under the National Heritage Resources Act (Act 25 of 1999). These may include structures older than 60 years; archaeological and paleontological sites and materials, and meteorites; certain burial grounds and graves; declared heritage objects; and declared heritage sites. This Chapter of the report presents the findings of the specialist Archaeological Impact Assessment, conducted by Dr Johan Binneman and Mr Kobus Reichert of Eastern Cape Heritage Consultants. 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.

11.2 PROJECT INFORMATION

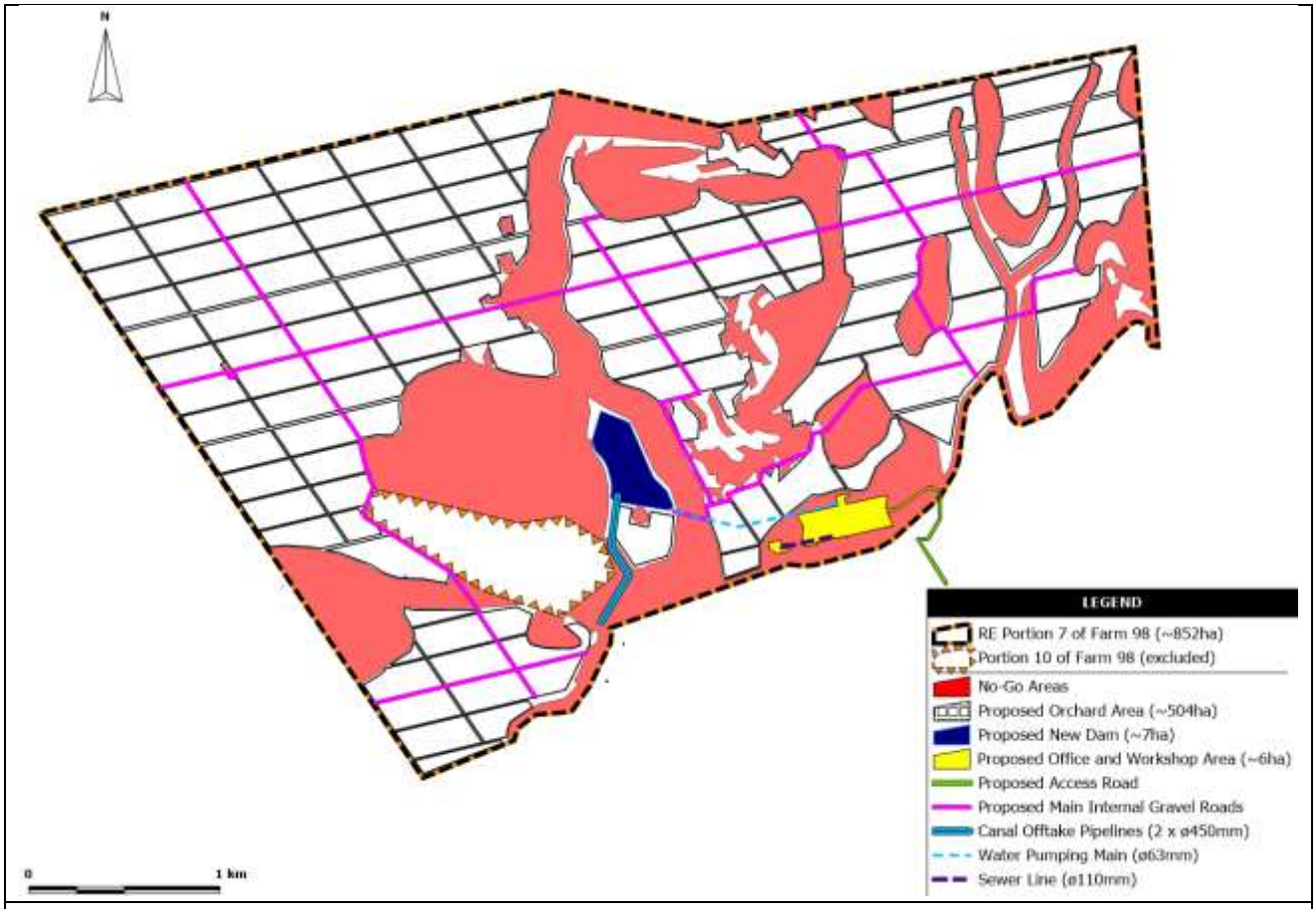
11.2.1 Type of Development

The applicant, Scheepersvlakte Farm (Pty Ltd), proposes to develop ~516ha on the Remainder of Portion 7 of the Farm Scheepers Vlakte 98 (~852.12ha), Sundays River Valley Municipality (SRVM), for the cultivation of annual crops (e.g. maize) and the establishment of a variety of citrus. (Maps 11.1 – 11.3).



Map 11.1: 1:50 000 Topographic maps indicating the location of the proposed development. The red lines mark the location and approximate size of the property.

Map 11.2: Aerial images indicating the location of the proposed development. The red lines outline the approximate size of the property.



Map 11.3: Preferred layout of the proposed development indicated with black squares (map courtesy of Public Process Consultants).

11.2.2 Purpose of the Study

The purpose of the study was to conduct a Phase 1 Archaeological Impact Assessment (AIA) of the proposed agricultural development on the Remainder of Portion 7 of the Farm Scheepers Vlakte No. 98, Sunland, Sundays River Valley Municipality in 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.

11.2.3 Site and Location

Remainder of Portion 7 of the Farm Scheepers Vlakte No. 98, near Sunland, is located within the 1:50 000 topographic reference map 3325BC Coerney (Map 11.1). The proposed property for development is situated ~15km east of the Kirkwood CBD and ~3km north of the R336 main road, between Addo and Kirkwood. (general GPS reading: 33.26.856S; 25.37.658E) (Maps 11.1 – 11.3).

The total size of the farm is ~852.1255ha, but only ~516ha are proposed to be cleared for the proposed agricultural development. The southern part of the farm has been disturbed in the past by the construction of the Scheepersvlakte Dam (on a separate property and owned by the Department of Water and Sanitation; not part of this assessment) and the Lower Sundays River Water Users Association's irrigation canals (Maps 11.2 – 11.3). The area earmarked for developed is situated on land with moderate slopes from west to east and east to west, towards a drainage line which runs roughly from north to south and divides the area into two almost equal parts (Maps 11.2 – 11.3). The

footprint comprises of thick yellowish alluvial soils with cobble/ pebble river gravel exposed in places. Most of the area is covered by dense Thicket vegetation and dense grass where areas have been cleared in the past (Figures 11.1 – 11.3).

11.2.4 Relevant Impact Assessments from the Adjacent Region, Databases and Collections

Binneman, J. 2014. A phase 1 archaeological impact assessment for the proposed expansion of agricultural activities on Luthando Farm, Portion 320 of Strathsomers Estate No. 42, Kirkwood, Sundays River Valley Municipality, Eastern Cape Province. Prepared for Public Process Consultants Greenacres. Eastern Cape Heritage Consultants.

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.

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.

Binneman, J. 2012b. A phase 1 archaeological impact assessment for the proposed expansion of the existing agricultural activities on River Bend citrus farm, remainder of Farm 82 Wolve Kop, Portion 1 of Farm 77 Wellshaven and Portion 3 of Farm 77 Honeyvale, near Addo, Sundays River Valley Municipality, Eastern Cape Province. Prepared for Public Process Consultants Greenacres. Eastern Cape Heritage Consultants.

Binneman, J. 2012c. A phase 1 archaeological impact assessment for the proposed expansion of agricultural activities on Portion 23 of farm 104 Swanepoels Kraal and the remainder of farm 650, Kirkwood, Sundays River Valley Municipality, Eastern Cape Province. Prepared for Public Process Consultants Greenacres. Eastern Cape Heritage Consultants.

Binneman, J. 2010. A phase 1 archaeological impact assessment for the proposed expansion of agricultural activities on Portion 20 of the Farm 84, Landdrost Veeplaats, Kirkwood, 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.

11.3 BRIEF ARCHAEOLOGICAL BACKGROUND

11.3.1 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 Sundays 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 (~20km south of the study area), a large number of stone tools were found *in situ* to a depth of 3-4m. Remarkably, wood and seed material were 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 Sundays 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-gatherer 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.

11.3.2 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.

11.4 ARCHAEOLOGICAL INVESTIGATION

11.4.1 Methodology

The landowner representative was contacted prior to the investigation to inform him about the visit and to gain access to the property. The proposed area for development was indicated to the author by the landowner representative who was further consulted on possible locations of archaeological remains, graves and historical buildings and features. A complete survey of the entire proposed development footprint was not possible, due to the dense/ impenetrable Thicket vegetation. Areas that have been cleared in the past are also covered by dense short grass and shrubs (Figures 11.1 – 11.3). Existing vehicle access tracks on the farm were utilised in order to cover as much of the terrain as possible, and surveys, as well as spot checks were conducted on foot by two people. GPS readings were taken with a Garmin and all significant features were digitally recorded.

Figure 11.1: General views of the proposed area for development, as seen from the Scheepersvlakte Dam (main image and top left insert), reverse view towards the Scheepersvlakte Dam (top right insert) and images of the dense grass and Thicket vegetation (bottom inserts).

Figure 11.2: Wide angle view of the proposed area to be developed (main image) and images of the different types of dense vegetation cover.

Figure 11.3: Examples of the Early and Middle Stone Age stone tools eroding in places from the yellow alluvial soil among open spaces in the dense Thicket vegetation.

11.4.2 Assumptions and Limitations

Due to the impenetrable Thicket vegetation, the archaeological visibility was poor and made it difficult to locate archaeological sites/ materials. The property is near the Sundays River and due to the gentle gradients, little surface erosion was present, limiting the exposure of archaeological material. Regardless of the restrictions imposed by the dense vegetation, 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.

11.4.3 Results and Findings

It proved difficult to locate archaeological sites/ materials since most of the area is covered by dense/ impenetrable Thicket vegetation, low bushes and grass (Figures 11.1 – 11.3). Stone stools were the only archaeological material located and were mainly observed in areas where the river gravel is exposed and top soil has been disturbed by existing tracks, dams or other small-scale farming activities. Regardless of the large areas investigated on foot, no other remains such as bone, ostrich eggshell or pottery were observed. However, it is possible that sites/ materials are covered by vegetation and soil.

The most common stone tools observed throughout the area were of Middle Stone Age (MSA) origin, but occasional Earlier Stone Age (ESA) tools were also observed (dating between 1,5 million and 30 000 years old) (Figure 11.3, bottom insert). These stone tools are located in the reddish top soil and in the river gravels which cover the slopes overlooking the Sundays River, located ~2km to the south of the area under assessment. Most of the Middle Stone Age stone tools were thick, small 'informal' flakes (with typical facetted striking platforms), cores and chunks with few of other typical MSA tool types such as 'true' points and blades. The tools are manufactured on quartzite and observed randomly without any recognized distribution patterns. The Earlier Stone Age (dating between 1,5 million and 250 000 years old) stone tools comprised mainly of heavy flaked cobbles and occasional small hand axes. Large numbers of these stone tools were located in a series of spring deposits at Amanzi Spring near Uitenhage (~20km south of the study area). Hand axes have also been observed along the banks of the Sundays River. Although the property is near the Sundays River, no freshwater shell middens/ materials were observed (see discussion below).

*All the stone tools were in secondary context and not associated with any other archaeological material and of **low cultural significance**. No further action is required. There are no known graves or buildings older than 60 years on the property. In general, it would appear that the area is of **low cultural sensitivity** and that it is unlikely that any sensitive archaeological remains will be exposed during the development.*

11.5 ASSESSMENT OF THE IMPACTS

11.5.1 Pre-colonial Archaeology

Nature of the Impacts

The main impact on archaeological sites/ remains (if any) will be the physical disturbance of the material and its context. The clearing of vegetation for the proposed agricultural development (~516ha) will expose, disturb and displace archaeological sites/ material. However, from the investigation it would appear that the proposed area earmarked for development is of *low archaeological sensitivity*. The Middle Stone Age stone tools observed in the proposed area to be developed are considered to be of *low cultural significance*, because they are in secondary context and not associated with any other archaeological remains. Notwithstanding, important materials may be covered by soil and vegetation.

Extent of the Impacts

The clearing of vegetation for the proposed agricultural development may impact on remains which are buried (such as human remains), but these impacts will be limited and restricted to the local area. Although the development may disturb a large area, the negative impact on possible archaeological sites/ materials may be relatively small, but nevertheless permanent. In general, further disturbances of sites/ materials can be limited by mitigation if reported immediately to the nearest archaeologist and/ or Eastern Cape Heritage Provincial Resources Authority.

Table 11.1: Impacts on the pre-colonial archaeology.

Nature: The potential impact of the clearing of vegetation for the proposed agricultural development on above- and below-ground archaeology.		
	Without Mitigation	**With Mitigation**
Extent	Local	Local
Duration	Permanent	Permanent
Magnitude	Minor	Minor
Probability	Unlikely	Unlikely
Degree of confidence	Medium-high	Medium-high
Significance	Low	Low
Status	Negative	Neutral
Reversibility	No	No
Irreplaceable loss of resources?	No, but in some cases, yes	No
Can impacts be mitigated?	Yes	
Mitigation: No mitigation is proposed for the property before construction starts, since the archaeological remains (if any) are of low significance (excluding human remains). However, the ECO (must be trained) should monitor the clearing of vegetation and if concentrations of archaeological materials and/ or human remains are exposed, then all work must stop for an archaeologist to investigate (see below). An archaeologist should conduct a walkthrough of the area after the vegetation has been cleared, to check if any significant sites/ materials have been exposed. Further recommendations will follow after the investigation. If any human remains (or any other concentrations of archaeological heritage material) are exposed during construction, all work must cease in the immediate area of the finds and it must be reported immediately to the archaeologist at the Albany Museum (Tel. 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel. 043 6422811). Sufficient time should be allowed to investigate and to remove/ collect such material. Recommendations will follow from the investigation.		
Cumulative impacts: The cumulative impacts on above- and below-ground archaeology will only increase if further expansions of the current proposed agricultural development are planned for adjoining areas.		
Residual impacts: Long term to permanent		

11.6 ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE PRE-COLONIAL ARCHAEOLOGY

Objective: To conserve the pre-colonial archaeological sites/ remains on the Remainder of Portion 7 of the Farm Scheepers Vlakte No. 98 Sunland, as outlined in the National Heritage Resources Act of 1999.		
Project Component/ s	Clearing of ~516ha of indigenous vegetation, to plant annual crops and establish citrus orchards including the installation of associated infrastructure.	
Potential Impact	The physical disturbance and/ or destruction of pre-colonial archaeology sites/ remains.	
Activity/ Risk Source	Clearing of vegetation and installation of associated infrastructure.	
Mitigation: Target/ Objective	The ECO must be trained to monitor the clearing of vegetation, which constrained the visibility of heritage resources during the initial archaeological investigation. If concentrations of archaeological materials/ sites and/ or human remains are exposed, then all work must stop for an archaeologist to investigate.	
Mitigation: Action/ Control	**Responsibility**	**Timeframe**
The ECO must monitor the clearing of vegetation.	Consultant, Applicant, ECO	During the clearing of the vegetation.
An archaeologist should conduct a walk-through of the area after vegetation has been cleared and before construction starts, to check if any significant sites and/ or materials were exposed and to establish what adjustments are required to mitigate possible impacts on pre-colonial archaeological sites and remains, as required by legislation. Further	Consultant, Applicant, and the archaeologist/ heritage practitioner.	From the start and duration of all phases of the development, i.e., during the clearing of vegetation for the above ground heritage. During the levelling and construction phase for the buried heritage.

recommendations will follow after the investigation.		
Compile a list of recommendations of adjustments to prevent impacts on pre-colonial archaeological sites/ remains.	Archaeologist/ heritage practitioner	After the walk-through, following the construction phase, before the operational phase starts.
Compile a list and description of pre-colonial archaeological sites/ remains that may potentially be impacted by the proposed development.	Archaeologist/ heritage practitioner	After the walk-through, following the construction phase, before the operational phase starts.
Manager/ foreman or ECO should be informed before construction starts on the possible types of sites and material they may encounter and the procedures to follow when they find said sites.	Consultant, Applicant manager/ ECO and the archaeologist/ heritage practitioner	Before the construction phase (vegetation clearing) starts.
If any human remains (or any other concentrations of heritage material) are exposed during construction, all work must cease in the immediate area and it must be reported immediately to the archaeologist at the Albany Museum (Tel.: 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel.: 043 6422811), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to investigate and to collect such material.	Consultant, Applicant and the archaeologist/ heritage practitioner.	Duration of the project.
Apply for permits from the Eastern Cape Province Heritage Resources Authority to collect and/or excavate sites/ materials from archaeological sites identified to be impacted by the development.	Archaeologist/heritage practitioner.	Before the development continues and for the duration of the project
Performance indicator	All heritage sites/materials must be managed within the legislative guidelines. The success of the monitoring will be determined by the degree of damage/disturbance that can be avoided to heritage sites.	
Monitoring	All development activities must be monitored by the archaeologist/heritage specialist or alternatively a person must be trained/inducted, for example the ECO. A report and if required a list of recommendations, should be compiled and submitted to the Eastern Cape Provincial Heritage Resources Authority after the monitoring phase(s) for comment. A record must be kept of all accidental disturbances of heritage sites/material. All heritage sites/materials observed during any construction activity must be reported and recorded.	

11.7 DISCUSSION AND MITIGATION

The proposed property for development is situated near the Sundays River and it is possible that freshwater mussel middens/ material may be found on the site. Little research has been conducted on these middens along the Sundays River and, therefore, the archaeological contexts of these features are largely unknown. Freshwater middens were observed along the embankments of the Sundays River near Barkly Bridge but it is unknown to what distance they would be situated from the river. Although these sites may date back 8 000 years or more, the stone tools observed at these middens included large quartzite backed segments which has been ascribed to the Kabeljous Industry (Binneman 1996, 2005, 2007) and may date back 4 500 years.

The main impact on archaeological sites/ remains will be the physical disturbance of the material and its context. The clearing of vegetation to accommodate the proposed agricultural development and associated infrastructure (~516ha) may expose, disturb and destroy archaeological sites/ material. However, from the investigation and observations in adjacent areas, it would appear that the proposed area earmarked for development is of *low archaeological sensitivity* and the *visual impact on the surrounding cultural landscape will also be low*. The Earlier and Middle Stone Age stone tools were observed throughout the proposed property for development are considered to be of *low cultural significance*, because they are in secondary context and not associated with any other archaeological remains. 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;

1. The ECO must be trained to monitor the clearing of vegetation. If concentrations of archaeological materials and/ or human remains are exposed, then all work must stop for an archaeologist to investigate.
2. An archaeologist should conduct a walk-through of the area after the vegetation is cleared to check if any significant sites/ materials were exposed. Further recommendations will follow after the investigation.
3. If any human remains or any other concentrations of archaeological heritage material are exposed during construction, all work must cease, and it must be reported immediately 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.
4. The manager/ foreman 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. It is suggested that a person be trained (ECO) to be on site to report to the site manager if sites are found.

11.7.1 References

Binneman, J.N.F. 1996. The symbolic construction of communities during the Holocene Later Stone Age in the south-eastern Cape. Unpublished D.Phil. thesis: University of the Witwatersrand. 13

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.

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.

11.8 GENERAL REMARKS AND CONDITION

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 Resources 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.

11.9 APPENDICES

11.9.1 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 5000m^2 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^2 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.

11.9.2 Appendix B: 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 m^2 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**.**