

**A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) FOR THE PROPOSED
RIVERBANK WIND ENERGY FACILITY BETWEEN HAMBURG AND WESLEY,
AMATHOLE DISTRICT MUNICIPALITY, EASTERN CAPE PROVINCE**

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A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT (AIA) FOR THE PROPOSED RIVERBANK WIND ENERGY FACILITY BETWEEN HAMBURG AND WESLEY, AMATHOLE DISTRICT MUNICIPALITY, EASTERN CAPE PROVINCE

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

EXECUTIVE SUMMARY

Purpose of the Study

The purpose of the study was to conduct a phase 1 archaeological impact assessment (AIA) for the proposed Riverbank Wind Energy Facility between Hamburg and Wesley, Amathole District Municipality, Eastern Cape Province. The survey was conducted to establish the range and importance of the exposed and *in situ* archaeological heritage materials and features, the potential impact of the development and, to make recommendations to minimize possible damage to these sites.

Brief Summary of Findings

The area for the proposed Riverbank wind energy facility is located between the small towns/villages of Hamburg and Wesley and is between 3 and 7 km from the coast, falling on the border of the coastal archaeological sensitivity area which is considered to be about 5 km from the coast. The proposed area is mostly covered in dense grassy vegetation which made archaeological visibility difficult when in the field. The area has been heavily disturbed by general farming activities such as cultivation and grazing; quarry activities; the construction of powerlines and telephone lines, fences, farm roads and soil erosion.

The proposed Riverbank wind energy facility entails the construction and operation of a wind energy facility and associated infrastructure. The facility is proposed over a collective area of 20 km² in extent. The proposed development is phased into two stages, the first phase comprises of the construction of up to 17 turbines (≈ 35MW) and the second phase will similarly include the construction of up to 17 (≈ 35MW) turbines, totalling 34 (≈ 70MW) turbines. The associated infrastructure which is required for the facility will include the foundations to support the turbines, cabling between the turbines to be laid underground, a substation to facilitate the connection between the wind energy facility and the grid, a new overhead 66kV powerline to connect to Eskom's existing Wesley substation, internal access roads to each turbine and a workshop area for maintenance and storage.

The proposed farms for the wind energy facility include: Riverbank 147, Sandflat 149, portions 0, 1, 2, 3, 4, 5, 6 and 7; Holstein 148, portions 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12, Porcupine Kop 169 and Bristol 170.

Occasional scatters of predominantly Middle Stone Age (MSA) stone artefacts were observed within the already disturbed and eroded areas as well as dongas and man-made dam areas. It is unlikely that these stone tool scatters are *in situ* and are, therefore, considered to be in a secondary context. Although it is possible that stone artefacts may occur *in situ* under the dense grassy vegetation cover over the entire area proposed for development, no sites containing any depth of deposit or other archaeological material associated with the stone tool artefacts were observed within the area. The proposed area for development is considered as having a medium-low cultural significance, although the following recommendations must be taken into consideration prior to the construction activities.

Recommendations

The area is of a medium-low cultural sensitivity and development may proceed as planned, although the following recommendations must be considered:

1. The modern grave and possible informal burials are protected by legislation and must be avoided to prevent any damage to these features.
2. The possible Historical/Late Iron Age settlement and immediate surrounding area must be identified and cordoned off prior to development to avoid negative impact from the tracks to be used.
3. If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the South African Heritage Resources Agency (SAHRA) (021 642 4502) so that systematic and professional investigation/excavation can be undertaken.
4. Construction managers/foremen must 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.

BACKGROUND INFORMATION

The phase 1 archaeological impact assessment (AIA) report is required for the environmental impact assessment (EIA).

Developer:

Just Energy

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Terms of Reference

To conduct a survey of possible archaeological heritage sites within the area of the proposed Riverbank Wind Energy Facility between Wesley and Hamburg, Amathole District Municipality, Eastern Cape Province. The survey was conducted to establish the range and importance of the exposed and *in situ* archaeological heritage materials and features, the potential impact of the development and, to make recommendations to minimize possible damage to these 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 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.

BRIEF ARCHAEOLOGICAL BACKGROUND

Literature review (Extract from Booth 2010)

Little is known about the archaeology of the immediate area, mainly because no systematic research has been conducted within the area proposed for the Riverbank Wind Energy Facility. A few sites have been formally documented and are held within the records of the Department of Archaeology, Albany Museum, Grahamstown and R.M. Derricourt's *Prehistoric Man in the Ciskei and Transkei* is another main source of information. The area proposed for the wind farm facility borders on the coastal archaeological sensitivity area, which is within 5 km of the coast. The area is also bordered by main river courses and streams which would have been a major attraction for prehistoric hunter-gatherers as well Khoekhoen pastoralists and Iron Age first farming communities which may have infiltrated the area within the last 2000 years. Therefore several focus areas for the prehistoric human settlement within the can be identified: the coastal zone, the main river courses and river valleys, and hilltops. These focus areas will be described in the following sections including other probable archaeological encounters.

References:

Booth, C. 2010. An archaeological desktop study for the proposed Riverbank Wind Energy Facility between Hamburg and Wesley, Peddie, Amathole District Municipality, Eastern Cape Province.

Relevant archaeological impact assessments:

A desktop study has been conducted for the scoping report for the Riverbank Wind Energy Facility. No relevant archaeological impact assessments have been conducted within the immediate area proposed for development.

DESCRIPTION OF THE PROPERTY

Area surveyed

Location data

The area for the proposed Riverbank wind energy facility is located between the small towns/villages of Hamburg and Wesley and is between 3 and 7 km from the coast, falling on the border of the coastal archaeological sensitivity area which is around 5 km from the coast. Two major rivers border the proposed area for development, the Keiskamma River to the east and the Gqutywa to the west. Two other rivers are included within this area, namely the Mtana River and the Blue Krans River, as well as one smaller perennial river (Ngculura River) and the Fresh Water Poort Stream. The proposed area is mostly covered with dense grassy vegetation, which made archaeological visibility difficult during the field survey. The area has been heavily disturbed by general farming activities such as cultivation and grazing; quarry activities; the construction of powerlines and telephone lines, fences, farm roads and soil erosion.

The proposed farms for the wind energy facility include: Riverbank 147, Sandflat 149, portions 0, 1, 2, 3, 4, 5, 6 and 7; Holstein 148, portions 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12, Porcupine Kop 169 and Bristol 170.

Map

1:50 000 Maps: 3327AD HAMBURG (Map 1).

ARCHAEOLOGICAL INVESTIGATION

Methodology

The survey was conducted by three people conducting spot checks from a vehicle by following the existing farm and service roads. Most of the area was surveyed on foot by investigating disturbed, quarried and eroded areas. GPS readings were taken using a Garmin Plus II (Table 1). The GPS readings have been plotted on Maps 2 and 3.

Riverbank 147:

The farm Riverbank 147 is situated in the most north-western corner of the proposed area for development and covers an area of approximately 2 km x 2 km. The landscape is mostly flat and is covered in dense grassy vegetation which made the archaeological visibility difficult at the surface (Figs 1-4). The area has been disturbed by the construction of farm roads and fences, and cultivated lands occur closer to the river.



Figs 1-4. Views of landscape, vegetation cover and disturbances

The disturbed, eroded areas, dongas and man-made dam areas were investigated for the possible occurrence of archaeological remains. A scatter of Middle Stone Age Stone artefacts were observed within the dam area marked S7 (33°16'40.44"S; 27°23'16.02E) between the surface and approximately 50 cm below ground (Figs 5-6). The stone artefacts were predominantly made on fine-grained quartzite and silcrete raw materials and consisted of flakes, chunks and cores. It is likely that the stone artefact scatter may continue below the ground surface and the vegetation cover.



Figs 5-6. The dam area (left) where the Middle Stone Age stone artefacts (right) occurred.

A modern grave was observed close to one of the houses at GPS14 (33°17'11.16"S; 27°22'39.48"E). About one hundred metres to the east of the modern grave, a few packed stones were observed almost completely covered by the grassy vegetation (Figs 7-8). These stones may represent informal burials as they are situated close to the modern



grave.

Figs 7-8. View of the situation of the packed stones in approximation to the modern grave (left) and a close-up of the packed stones (right).

Scatters of very fragmented shell were observed within the farm road mostly at the most eastern end of the property at S8 (33°17'10.26"S; 27°23'30.84"E) (Figs 9-10). The shell was too fragmented to make any positive identification, although the scatter seemed to consist mostly of the smaller inedible species of shellfish. The area is situated approximately 6 km from the coast and it may be that the shell was collected at the coast and consumed within the area or the shell may have been brought in for construction of the farm road.



Figs 9-10. Fragmented shell scatter in the farm road (left) and a close-up of the scatter (right).

In an archaeological context the farm Riverbank 147 contained: Middle Stone Age (MSA) stone artefacts that were observed within the disturbed dam area therefore making it likely that more stone artefacts occur between the surface and 50cm below ground underneath the thick grassy vegetation; the possible occurrence of informal burials close to a modern grave and; a possible shell scatter which may be associated with prehistoric habitation or used to aid the construction of the farm road.

Sandflat 149, portions 0, 1, 2, 3, 4, 5, 6 and 7:

The farm Sandflat 149, portions 0, 1, 2, 3, 4, 5, 6, and 7 is situated to the west adjacent to the farm Riverbank 147 and covers an area of approximately 3 km x 2.5 km. The landscape is mostly flat and covered in dense grassy vegetation (Figs 11-14). The area has been disturbed by the construction of farm roads, fences and electricity and telephone poles, as well as general farming activities and natural erosion.



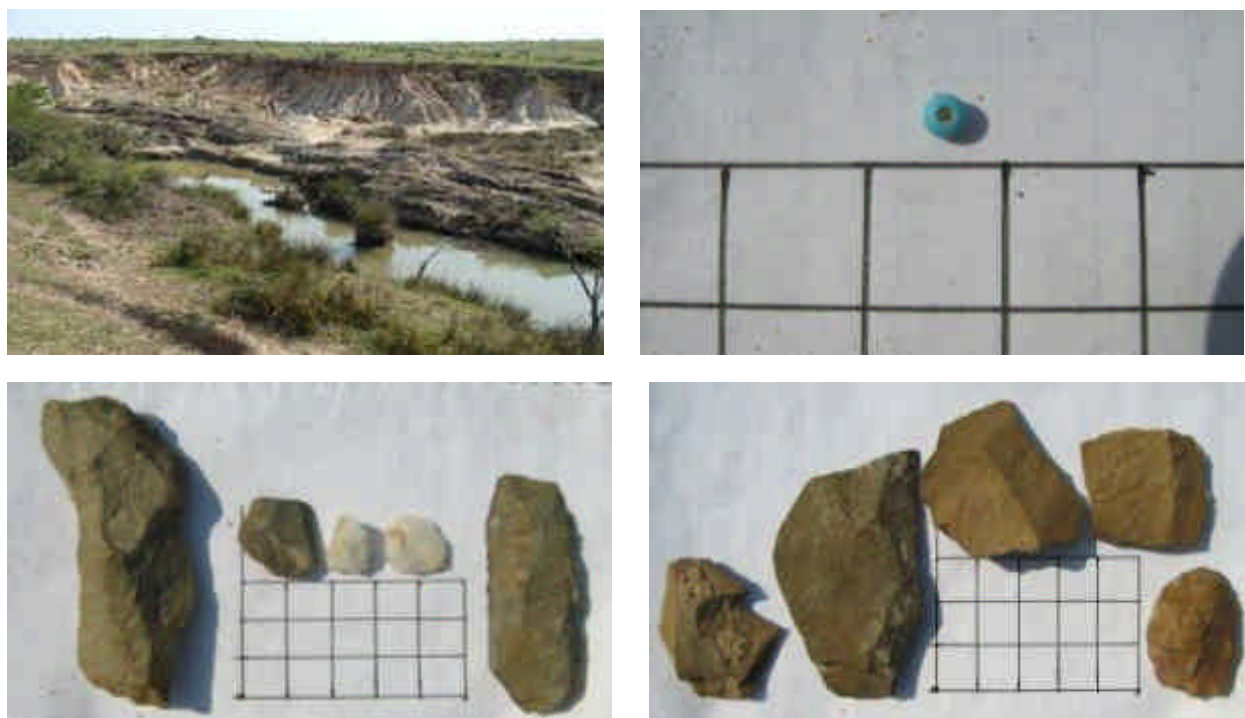
Figs 11-14. Views of the landscape and vegetation cover.

Heavy disturbances next to the farm road at the area marked S4 ($33^{\circ}17'30.30''S$; $27^{\circ}22'0.60''E$) heeded investigation as the impressions in and on the ground, covering an area of about 100 m x 100 m, familiarly resembled those of Iron Age settlements. There were a few raised circular areas ranging between 1 m x 1 m to 6 m x 6 m in diameter, which may represent hut floors. There were also a few depression hollows in the ground about 1 m x 1 m in diameter (Figs 15-16), which could be storage pits. The area is approximately 100 m from the farmhouse and may be related to recent or current farming activities. No archaeological materials were found in association with these features and the depression hollows seem to be used by the occupants as dumping areas.



Figs 15-16. Views of the raised areas (left) and depression hollows (right).

Random scatters of Middle Stone Age stone artefacts were observed at the area marked S5 ($33^{\circ}16'52.98''S$; $27^{\circ}22'10.02''E$) at the bottom of a 4 m-5 m deep donga. A few stone artefacts were observed within the donga walls demonstrating that the stone artefacts had, over time, been washing down the hill and therefore are not in primary archaeological context. The Middle Stone Age stone artefacts comprised mainly of flakes with the characteristic prepared core method of manufacture indicating the period of origin, made predominantly on shale, silcrete and quartz raw materials. A blue glass bead was also documented, although this may be modern as the farmhouse is situated approximately 200 m to the south of the area marked S5 (Figs 17-20).



Figs 17-20. Donga area (top left); glass bead (top right); examples of Middle Stone Age stone artefacts observed (bottom).

A very fragmented shell scatter, similar to that described on the farm Riverbank 147, was observed outside the farmstead's gate at the area marked GPS10 (33°17'2.64"S; 27°22'11.10"E). The shell component was exactly the same as that previously found, smaller inedible shellfish and too fragmented to make any positive identification for consumption. The area is between 6-7 km from the coast and may have been brought so far from the coast by prehistoric occupants, or may have been used for the construction of the farm roads.

In an archaeological context the farm Sandflat 147, portions 0, 1, 2, 3, 4, 5, 6 and 7 contained: a scatter of Middle Stone Age stone artefacts that have been washed down the slope over time; a possible Iron Age settlement, or otherwise a recent settlement associated with the occupants of the current farmhouse and; a shell scatter in the farm road that be associated with prehistoric consumption or aiding in the construction of the farm road.

Holstein 148, portions 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12:

The farm Holstein 148, portions 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12 is situated to the south of the farms Riverbank 147 and Sandflat 149, is between 4 km and 6 km from the coast and covers an area of approximately 3 km x 1.5 km. The landscape is mostly flat and covered by dense grassy vegetation which made archaeological difficult (Figs 21-24). The area has been heavily disturbed by general farming activities, cultivated lands, and the construction of fences, electricity poles and the farm road and quarrying activities on the side of the hill in the western part of the farm area.



Figs 21-24. Views of the landscape and vegetation cover.

A sporadic scatter of Middle Stone Age stone artefacts were observed within a heavily disturbed quarry area at the lower reaches of a gradual slope at the area marked S6 (33°18'13.86"S; 27°22'27.36"E) (Figs 25-26). The stone artefacts comprised mainly of flakes and were predominantly made on fine-grained quartzite raw materials. It is likely that the stone artefacts have eroded down the slope over time and are not *in situ*, although, it is probable that stone artefacts may occur between the surface and 50-80 cm below ground.



Figs 25-26. Disturbed quarry area (left) and examples of the stone artefacts observed.

In an archaeological context the farm Holstein, portions 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12 contained: a sporadic scatter of Middle Stone Age stone artefacts within a disturbed context. These stone artefacts indicate the occurrence of archaeological material remains within the area. No other archaeological material remains were observed in association with the stone artefacts.

Porcupine Kop 169, portions 0, 2 and 3:

The farm Porcupine Kop 169, portions 0, 2 and 3 is situated in the south-western corner of the proposed area for development and is between 3 km and 6 km from the coast. The landscape is relatively flat and mostly covered in dense grassy vegetation (Figs 27-28). The area has been disturbed by general farming activities, cultivated lands, quarry activities, erosion and the construction of farm roads, fences and electricity poles.



Figs 27-28. Views of the landscape and vegetation cover.

A random scatter of Middle Stone Age stone artefacts were observed within a heavily disturbed sand quarry at the area marked S1 (33°20'14.46"S; 27°21'24.48"E) (Figs 29-30). The stone artefacts comprised mainly of faceted platform flakes and some cores made predominantly on fine-grained raw materials. The stone artefacts were in a heavily disturbed context although it is likely that they would occur between the surface and 50-80 cm below ground underneath the dense grass vegetation. No other archaeological material remains were observed in association with the stone artefacts.



Figs 29-30. The sand quarry area (left) and examples of Middle Stone Age stone artefacts observed.

In an archaeological context the farm Porcupine Kop, portions 0, 2 and 3 contained: a random out-of-context scatter of Middle Stone Age stone artefacts within a heavily disturbed sand quarry. No other archaeological materials remains were associated with the stone artefacts.

Bristol 170:

The farm Bristol 170 is situated in the south-eastern corner of the area proposed for development, is between 3 km and 5 km from the coast, and covers an area of approximately 3 km x 1.5 km. The landscape is mostly flat in the western half of area becoming hillier to the east (Figs 31-34). The area has been disturbed by the construction of general farming activities, cultivated lands, the construction of farm roads, fences and electricity poles, as well as heavy erosion.

A random occurrence of Middle Stone Age stone artefacts were observed at the area marked S3 (33°18'33.24"S; 27°23'16.02"E) at the bottom and in the sides of large 6-7 m deep donga (Figs 35-36). The stone artefacts comprise mainly of flakes and made predominantly on a shale raw material. No depth of deposit or other associated archaeological material remains was observed within the donga. However, it may be likely that stone artefacts would occur between the surface and 50-80 cm below ground.



Figs 31-34. Views of the landscape and vegetation cover.



Figs 35-36. View of the eroded donga (left) and examples of Middle Stone Age artefacts observed.

In an archaeological context the farm Bristol 170 contained: a random occurrence of Middle Stone Age stone artefacts within an eroded donga. It is likely that the stone artefact scatter may continue between the surface and 50-80 cm below ground.

Summary of Survey/Description of sites

Random scatters of Middle Stone Age stone artefacts were observed within disturbed quarry and eroded donga areas over the area proposed for development. The stone artefacts comprised mainly of flakes with faceted platforms and cores made predominantly on fine-grained quartzite, shale and quartz raw materials. The stone artefacts were observed in a secondary, disturbed context, although, it is likely that stone artefacts would occur between the surface and 50-80 cm below ground underneath the dense grassy vegetation cover. No depth of deposit or other archaeological material remains were observed in association with the stone artefacts.

Two scatters of very fragmented marine shell was observed on the farms Riverbank 147 and Sandflat 149 within the farm roads. However, no positive identification of edible marine shells could be determined and most of the marine shell scatter comprised of smaller inedible marine shell. This may imply that the material is not of archaeological origin.

A possible Historical/Late Iron Age settlement showing various sizes of circular raised features and depressions hollows was observed on the farm Sandflat 147, approximately 100 m from the farmhouse. However, the features may be of recent origin.

Possible informal burials identified by a few packed stones were observed about 100 m from a modern grave close to the farm house on the farm Riverbank 147.

RECOMMENDATIONS

The area is of a medium-low cultural sensitivity and development may proceed as planned, although the following recommendations must be considered:

1. The modern grave and possible informal burial ground are protected by legislation and must be avoided to prevent any damage to these features.
2. The possible Historical/Late Iron Age settlement and immediate surrounding area must be identified and cordoned off prior to development to avoid negative impact from the tracks to be used.
3. If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the South African Heritage Resources Agency (SAHRA) (021 642 4502) so that systematic and professional investigation/excavation can be undertaken (see Appendix A for a list of possible archaeological sites that may be 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 a phase 1 archaeological heritage impact assessment/ investigation only and does not include or exempt other required heritage impact assessments (see below).

The National Heritage Resources Act (Act No. 25 of 1999, section 35) (Brief legislative requirements) 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 emphasized that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/features and may not therefore, reflect the true state of affairs. Many sites/features 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, (such as 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 Act No. 25 of 1999.

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

APPENDIX A: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM THE SURROUNDING COASTAL AND INLAND AREAS: guidelines and procedures for developers

1. Identification of Iron Age archaeological features and material

- Upper and lower grindstones, broken or complete. Upper grindstone/rubber will be pitted.
- Circular hollows –sunken soil, would indicate storage pits and often associated with grindstones.
- Ash heaps, called middens with cultural remains and food waste such as bone.
- Khaki green soils would indicate kraal areas.
- Baked clay/soil blocks with or without pole impressions marks indicate hut structures.
- Decorated and undecorated pots sherds.
- Iron slag and/or blowpipes indicate iron working.
- Human remains may also be associated with khaki green soils.
- Metal objects and ornaments.

2. 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.

3. 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 or in ceramic pots. Developers are requested to be on alert for these features and remains.

4. Fossil bone

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

5. Stone artefacts

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

6. 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 1-2metres 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.

7. Large stone cairns

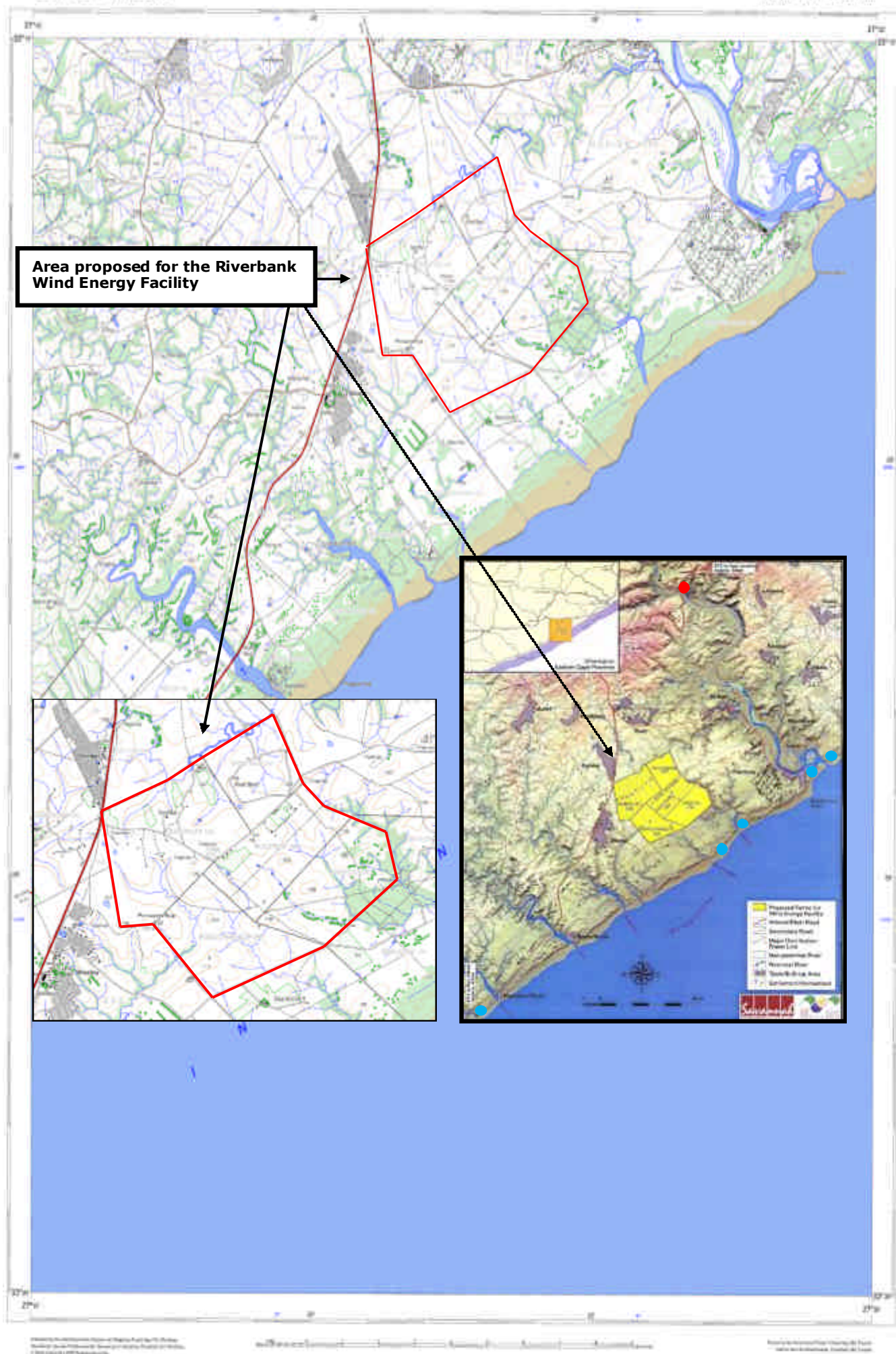
The most common cairns consist of large piles of stones of different sizes and heights are known as *isisivane*. They are usually near river and mountain crossings. Their purpose and meaning is not fully understood, however, some are thought to represent burial cairns while others may have symbolic value.

8. Historical artefacts or features

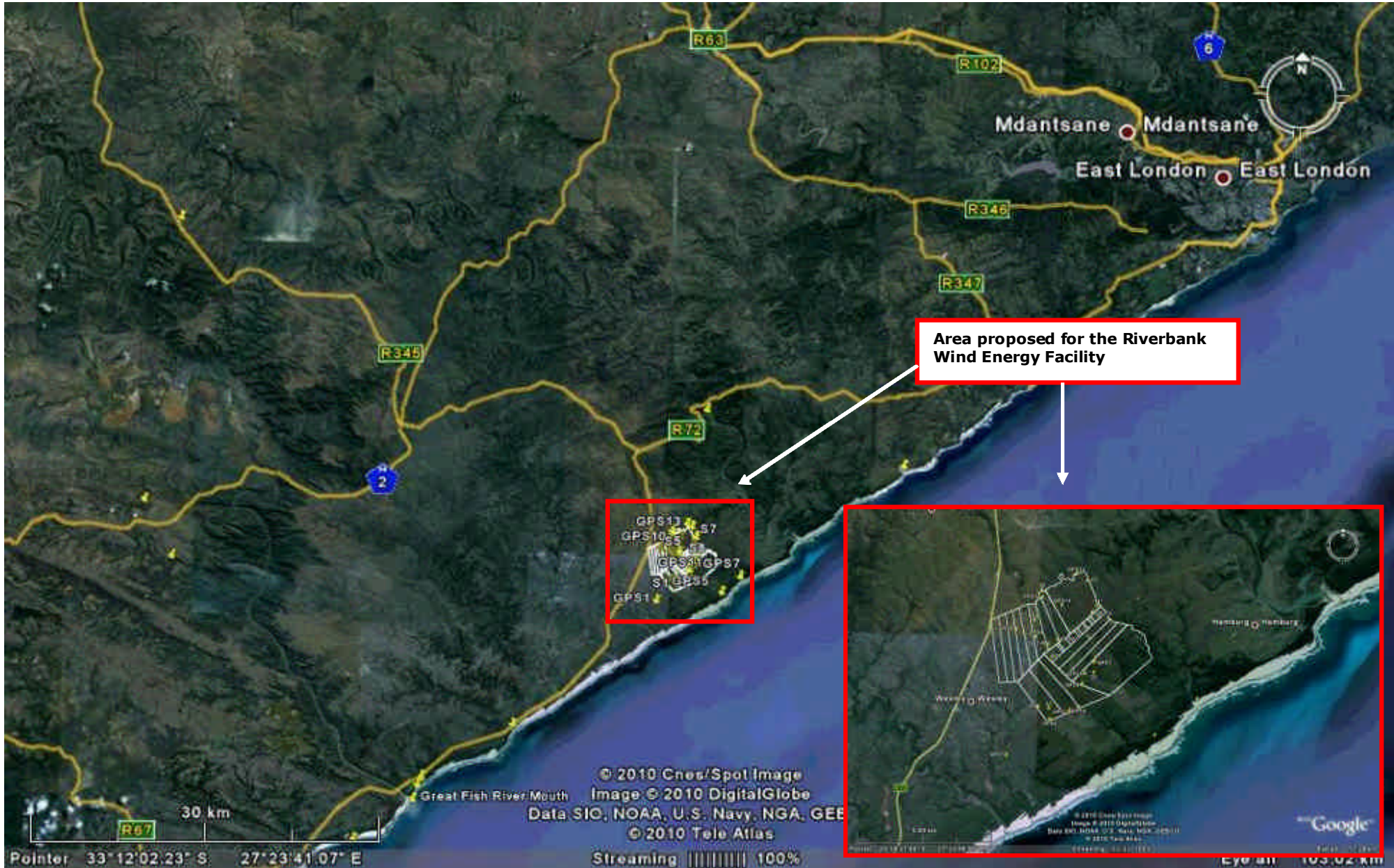
These are easy to identify and include foundations of buildings or other construction features and items from domestic and military activities.

3327AD HAMBURG

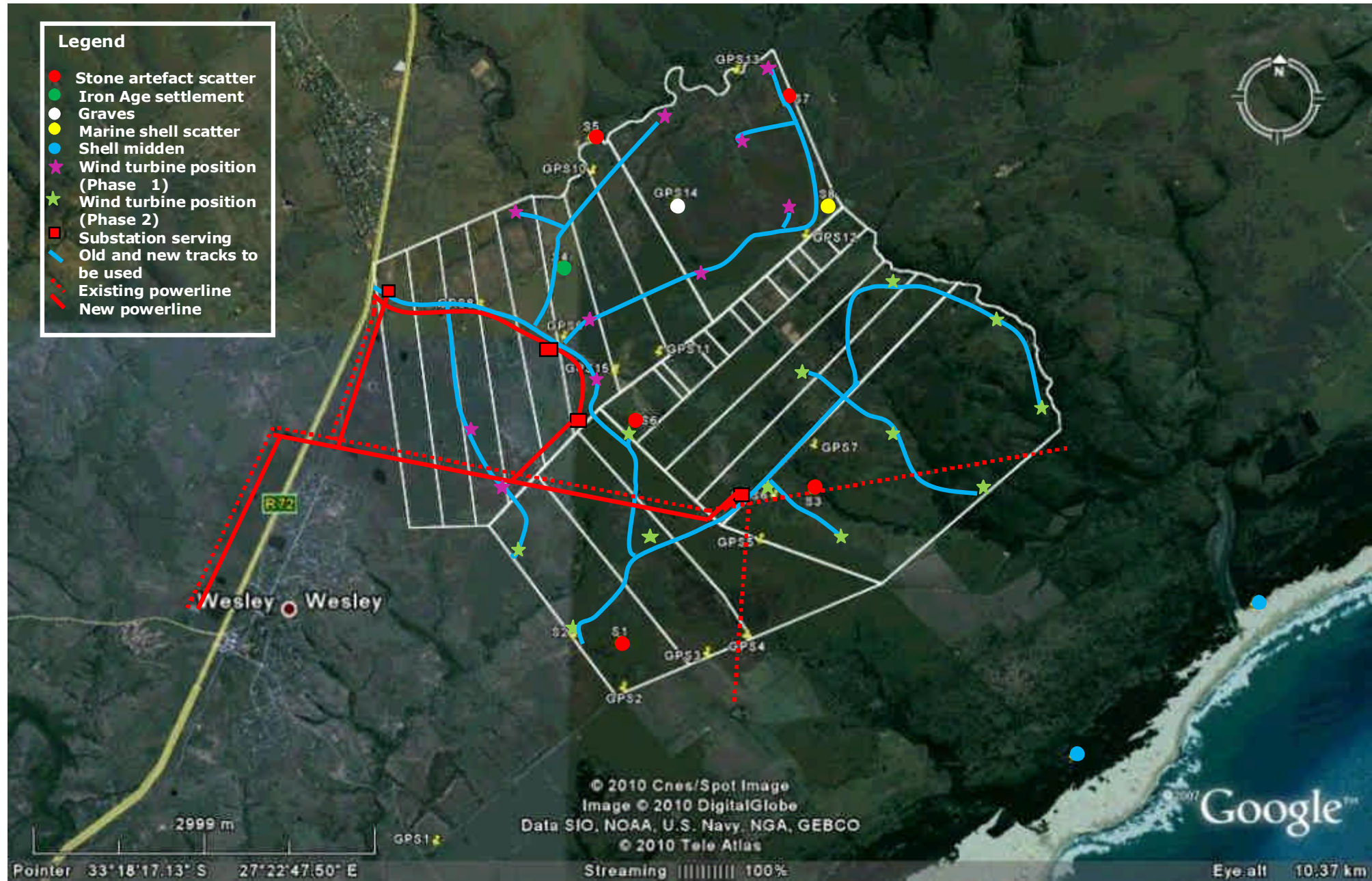
1:50 000 SOUTH AFRICA
SOUTH AFRICA



Map 1. 1:50 000 map indicating the area proposed for the Riverbank Wind Energy Facility and nearest sites plotted (blue: shell midden; red: painted rock shelter) [Insert map (right) courtesy of Savannah Environmental (Pty) Ltd] [Map copied from Booth, C 2010]



Map 2. Aerial view of the proposed area for the Riverbank Wind Energy Facility.



Map 3. Aerial close-up of the area proposed for the Riverbank Wind Energy Facility showing site locations, wind turbine positions and associated infrastructure (both existing and new associated infrastructure have been plotted on this map).

Table 1: GPS co-ordinates and sites.

Reference	Description	GPS Co-ordinates
S1	MSA stone artefact scatter in sand quarry	33°19'16.32"S; 27°22'11.70"E
S2	General reading	33°19'14.52"S; 27°22'09.36"E
S3	MSA stone artefact scatter in donga	33°18'31.62"S; 27°23'29.04"E
S4	Possible Iron Age settlement	33°17'30.30"S; 27°22'00.60"E
S5	MSA stone artefact scatter and glass bead in donga	33°16'52.98"S; 27°22'10.02"E
S6	MSA stone artefact scatter in quarry	33°18'13.86"S; 27°22'27.36"E
S7	MSA stone artefact scatter in dam	33°16'40.44"S; 27°23'16.02"E
S8	Fragmented shell scatter in farm road	33°17'10.26"S; 27°23'30.84"E
GPS1	General reading	33°20'14.46"S; 27°21'24.48"E
GPS2	General reading	33°19'29.22"S; 27°22'24.66"E
GPS3	General reading	33°19'18.66"S; 27°22'54.72"E
GPS4	General reading	33°19'13.38"S; 27°23'07.86"E
GPS5	General reading	33°18'45.96"S; 27°23'11.04"E
GPS6	General reading	33°18'33.24"S; 27°23'16.02"E
GPS7	General reading	33°18'18.66"S; 27°23'40.56"E
GPS8	General reading	33°17'41.82"S; 27°21'39.24"E
GPS9	General reading	33°17'49.92"S; 27°22'03.06"E
GPS10	General reading	33°17'02.64"S; 27°22'11.10"E
GPS11	General reading	33°17'58.38"S; 27°22'35.40"E
GPS12	General reading	33°17'18.96"S; 27°23'24.06"E
GPS13	General reading	33°16'32.70"S; 27°22'59.16"E
GPS14	Possible informal stone-packed burials and modern grave	33°17'11.16"S; 27°22'39.48"E
GPS15	General reading	33°17'59.16"S; 27°22'20.76"E

Table 2: List of predicted impacts on the archaeological heritage as a result of the proposed Riverbank Wind Energy Facility

Construction Phase Direct Impacts										
Impact	Extent	Duration	Intensity	Probability	Significance without mitigation	Significance assuming mitigation	Status	Reversibility	Irreplaceable loss of resources	Can impacts be mitigated?
Impact: Loss of stone artefact scatters and possible sites										
Impact rating	Site specific	Permanent	High	High	Medium	Medium	Negative	None	Yes	Yes
Assigned Score	5	5	10	5	50	30				
Mitigation: <ul style="list-style-type: none"> • No phase 2 archaeological mitigation is required for the proposed development to proceed. • The grave and burial areas must be identified and cordoned off prior to the commencement of development so that no negative impact and vandalism occurs. • The possible Historical/Late Iron Age settlement and immediate surrounding area must be identified and cordoned off prior to development to avoid negative impact from the tracks to be used. • If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the South African Heritage Resources Agency (SAHRA) (021 642 4502) so that systematic and professional investigation/excavation can be undertaken. • 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. 										

Table 3: Impact table summarising the significance of impacts (with and without mitigation):

Nature: Archaeological Heritage		
	Without Mitigation	With Mitigation
Extent	Unknown	Unknown
Duration	Permanent	Permanent
Magnitude	Unknown	Unknown
Probability	Possible	Possible
Significance	Medium-Low Cultural Sensitivity	Medium-Low Cultural Sensitivity
Status (positive or negative)	Negative	Negative
Reversibility	Not reversible	Not reversible
Irreplaceable loss of resources?	Yes	Yes
Can impacts be mitigated?	Yes	Yes
<p>Mitigation:</p> <ul style="list-style-type: none"> • No phase 2 archaeological mitigation is required for the proposed development to proceed. • The grave and burial areas must be identified and cordoned off prior to the commencement of development so that no negative impact and vandalism occurs. • The possible Historical/Late Iron Age settlement and immediate surrounding area must be identified and cordoned off prior to development to avoid negative impact from the tracks to be used. • If concentrations of archaeological heritage material and human remains are uncovered during construction, all work must cease immediately and be reported to the Albany Museum (046 622 2312) and/or the South African Heritage Resources Agency (SAHRA) (021 642 4502) so that systematic and professional investigation/excavation can be undertaken. • 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. 		
<p>Cumulative impacts: Archaeological heritage remains (artefacts and sites) will be disturbed.</p>		
<p>Residual impacts: Archaeological sites will be irreversibly disturbed.</p>		