

AN ARCHAEOLOGICAL DESKTOP STUDY FOR THE PROPOSED 200MW WIND ENERGY FACILITY NEAR ABERDEEN, CAMDEBOO LOCAL MUNICIPALITY, EASTERN CAPE PROVINCE - SCOPING PHASE INPUT

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SUMMARY

The area for the proposed Aberdeen Wind Energy Facility is located approximately 24km west of the small Karoo town of Aberdeen within the Camdeboo Local Municipality. The proposed 8 198ha area is situated along the R61 regional road that runs between Aberdeen in the Eastern Cape and Beaufort West in the Western Cape (approximately 108 km to the west of the proposed area for development). Murraysburg is situated about 60km to the north, and Klipplaat and Jansenville are located between 70km-90km to the south-east of the proposed area for development.

The proposed area for development is on a relatively flat part of the landscape, however the Kamdeboo Mountains are situated just to the north-east of the study area. Several perennial streams occur within the proposed area for development as well as smaller dams and reservoirs. The vegetation cover is mainly Southern Karoo Riviere and Eastern Lower Karoo.

Little is known about the archaeology of the immediate area, mainly because no systematic research has been conducted within the proposed area for development. One phase 1 heritage impact assessment (HIA) has been conducted through the area proposed for development (van Schalkwyk 2007) and several phase 1 archaeological impact assessments have been conducted within and surrounding the town of Aberdeen (Binneman 2009a-f), and a recent study for an environmental management plan (Fourie & Shand 2011), provides recent and accurate information about archaeological resources that may be encountered within the area proposed for development. According to the above specialist studies, it is possible that surface scatters of Early, Middle and Later Stone Age stone artefacts may be encountered, as well as associated organic and material remains. Khoekhoen pottery, rock engravings, the remains of historical buildings, features and European ceramics, as well as stone-walled kraals of both pre-colonial and historical origin may also be encountered during the survey.

It is therefore recommended that:

1. A full phase 1 archaeological impact assessment be conducted to establish the range and importance of the exposed and *in situ* archaeological and heritage materials and features, the potential impact of the development and to make recommendations to minimize possible damage to these sites.

INTRODUCTION AND BRIEF

Eskom Holdings SOC Limited is proposing to establish a commercial wind energy facility and associated infrastructure. The proposed area for the Aberdeen Wind Energy Facility has been considered as potentially suitable for the wind energy development to meet economic, social and environmentally sustainable criteria as well as issues relating to landscape character, value, sensitivity and capacity. These aspects have been balanced with technical constraining factors affecting the siting of a wind farm, including the wind resource (wind potential, land availability, accessibility and existing grid infrastructure).

An area of 8 198ha is being considered within which the proposed facility will be constructed. The proposed Farms include: Portion 3 of Sambokdoorns 92; RE of Portion 4 of Sambokdoorns 92; RE of Sambokdoorns 92; Portion 1 of Klipdrift 73; Portion 2 of Farm 94; and RE of Portion 2 of Farm 94 (Maps 1 and 2).

The proposed facility will be made up of a cluster of between 100 and 150 wind turbines with an optimal rated capacity of between 1.3MW and 2MW each and is expected to have a nominal generating capacity of approximately 200MW. Associated infrastructure will include:

- A cluster of between 100 and 150 wind turbines to be constructed over an area of ~ 8 198 ha in extent
- Concrete foundations to support the turbine towers
- Cabling between the turbines to be lain underground
- An on-site substation to facilitate the connection between the facility and the electricity grid
- An overhead power line (400kV) feeding into Eskom's electricity grid at the Droërivier Substation, approximately 140 km from the site¹
- Main access road to site
- Internal access roads between wind turbines
- External roads to access the site may be required
- Borrow pits within the site for the construction of access roads
- Office/Workshop area for operations, maintenance and storage
- Temporary water storage for construction and small storage for Operation
- Storage of fuel during construction
- Small Information centre and Operational & Maintenance building

¹ Note that the power line is the subject of a separate EIA process.

Savannah Environmental (Pty) Ltd has been contracted to conduct the environmental impact assessment (EIA) by Eskom Holdings SOC Limited (the developer). This archaeological desktop assessment has therefore been prepared as part of the scoping phase for the proposed project in accordance with the National Environmental Act 107 of 1998, the National Heritage Resources Act 25 of 1999 and guidelines by the South African Heritage Resources Agency (SAHRA).

ARCHAEOLOGICAL BACKGROUND AND HERITAGE (“Description of the Affected Environment”)

No systematic archaeological research has been conducted within this region of the Eastern Cape, therefore little is known about the archaeology of the immediate area proposed for the Aberdeen Wind Energy Facility. The Albany Museum holds records of sites recorded mainly to the east of Aberdeen and closer to Graaff-Reinet, approximately 75km to the east of Aberdeen (Map 2). These are mainly rock art sites and open site scatters of stone artefacts in association with some other organic and material archaeological remains. However, one rock engraving, burials and historical buildings have also been recorded. The closest archaeological site in proximity to the proposed area for development that has been recorded is a rock shelter containing rock paintings, situated approximately 40km to the east, past Aberdeen. A farm situated approximately 70km to the north-west of the proposed area has been noted to contain about six to eight Later Stone Age sites including rock shelters with rock paintings. A number of rock engravings have been recorded and published in and around the Beaufort West area, within approximately 114km to the west along the R61 (Parkington *et al.* 2008) and recently, various Middle Stone, Later Stone Age, rock shelters, and rock engravings have been recorded about 75km to the north on a site about 34km south of Victoria West (Binneman *et al.* 2011a).

The Karoo landscape has been occupied by humans since the Early Stone Age (ESA), spanning an occupation period of about 1.5 million years. Archaeological evidence is usually observed as surface scatters and is widely dispersed across the landscape. Caves are uncommon in the Karoo and open sites (Early Stone Age to the last 2000 years) generally consist of single-level occupations near sources of water such as rivers, streams and springs. Rock engravings are widespread over the Karoo landscape, substantial research has been conducted within the Northern and Western Cape areas of the Karoo (Parkington *et al.* 2008). Early travellers and *trekboere* (Dutch farmers) started entering this part of the Eastern Cape towards the end of the 18th century and colonial settlement increased towards the second half of the 19th century.

The following sections describe the possible archaeological encounters that may be expected within the proposed area for development and includes topics such as the Early Stone Age (ESA) and the Middle Stone Age (MSA), the Later Stone Age (LSA) and pastoralism within the last 2000 years, rock art (paintings and engravings) and the historical period.

The Early Stone Age (ESA) (1.5 million-250 000 years ago)

The Early Stone Age from between 1.5 million and 250 000 years ago refers to the earliest that *Homo sapiens sapiens* predecessors began making stone tools. The earliest stone tool industry was referred to as the Olduvai Industry originating from stone artefacts recorded at Olduvai Gorge, Tanzania. The Acheulian Industry, the predominant southern African Early Stone Age Industry, replaced the Olduvai Industry approximately 1.5 million years ago, is attested to in diverse environments and over wide geographical areas. The hallmark of the Acheulian Industry is its large cutting tools (LCTs or bifaces), primarily handaxes and cleavers. Bifaces emerged in East Africa more than 1.5 million years ago (mya) but have been reported from a wide range of areas, from South Africa to northern Europe and from India to the Iberian coast. The end products were similar across the geographical and chronological distribution of the Acheulian techno-complex: large flakes that were suitable in size and morphology for the production of handaxes and cleavers perfectly suited to the available raw materials (Sharon 2009).

The most well know Early Stone Age site in southern Africa is Amanzi Springs, situated about 10km north-east of Uitenhage, near Port Elizabeth (Deacon 1970). In a series of spring deposits a large number of stone tools were found *in situ* to a depth of 3-4m. Wood and seed material preserved remarkably very well within the spring deposits, and possibly date to between 800 000 to 250 000 years old. Other Early Stone Age sites that contained preserved bone and plant material include Wonderwerk Cave in the Northern Province, near Kimberly and Montagu Cave in the Western Cape, near the small town of Montagu (Mitchell 2007). Early Stone Age sites have also been reported in the foothills of the Sneeuwberge Mountains (in Prins 2011). A few Early Stone Age handaxes were also reported from the site near Victoria West to the north (Binneman *et al.* 2011a).

Early Stone Age sites are relatively scarce in the Eastern Cape; however, it is possible that surface scatters of Early Stone Age artefacts such as handaxes, flakes, and cores may be encountered during the survey.

Middle Stone Age (MSA) (250 000 – 30 000 years ago)

The Middle Stone Age spans a period from 250 000 - 30 000 years ago and focuses on the emergence of modern humans through the change in technology, behaviour, physical appearance, art and symbolism. Various stone artefact industries occur during this time

period, although less is known about the time prior to 120 000 years ago, extensive systemic archaeological research is being conducted on sites across southern Africa dating within the last 120 000 years (Thompson & Marean 2008). The large handaxes and cleavers were replaced by smaller stone artefacts called the Middle Stone Age flake and blade industries. Surface scatters of these flake and blade industries occur widespread across southern Africa although rarely with any associated botanical and fauna remains. It is also common for these stone artefacts to be found between the surface and approximately 50-80cm below ground. Fossil bone may in rare cases be associated with Middle Stone Age occurrences (Gess 1969). These stone artefacts, like the Earlier Stone Age handaxes are usually observed in secondary context with no other associated archaeological material.

From as early as 1915, stone artefacts which were of a "peculiar character", referred to as hand-axes and tortoise-cores by Reginald A. Smith, were plentiful within the Victoria West district. The latter were only found in certain areas and the hand-axes occurred in conjunction with the cores or without them (Smith 1919). During the 1920's, A.H.J. Goodwin (1926, 1946), identified the Victoria West stone artefact industry, presumably referring to those artefacts with a "peculiar character" found within the district, the wider Karoo region, as well as along the Vaal River. They comprised mainly of stone tools that had been manufactured using a prepared core technique, and were regarded as being transitional between the Early Stone Age and Middle Stone Age. Recent research has established that the Victoria West cores were the "evolutionary step" towards the Levallois prepared core industry, indicating an outward spread of this technological change (Lycett 2009).

The Middle Stone Age is distinguished from the Early Stone Age by the smaller-sized and distinctly different stone artefacts and *chaîne opératoire* (method) used in manufacture, the introduction of other types of artefacts and evidence of symbolic behaviour. The prepared core technique was used for the manufacture of the stone artefacts which display a characteristic faceted striking platform and includes mainly unifacial and bifacial flake blades and points. The Howiesons Poort Industry (80 000 - 55 000 years ago) is distinguished from the other Middle Stone Age stone artefacts: the size of tools are generally smaller, the range of raw materials include finer-grained rocks such as silcrete, chalcedony, quartz and hornfels, and include segments, backed blades and trapezoids in the stone toolkit which were sometimes hafted (set or glued) onto handles. In addition to stone artefacts, bone was worked into points, possibly hafted, and used as tools for hunting (Deacon & Deacon 1999).

Other types of artefacts that have been encountered in archaeological excavations include tick shell (*Nassarius kraussianus*) beads, the rim pieces of ostrich eggshell (OES) water flasks, ochre-stained pieces of ostrich eggshell and engraved and scratched ochre pieces, as well as the collection of materials for purely aesthetic reasons. Although Middle Stone Age

artefacts occur throughout the Eastern Cape, the most well-known Middle Stone Age sites include the type-site for the Howiesons Poort stone tool industry, Howiesons Poort (HP) rock shelter, situated close to Grahamstown and Klasies River Mouth Cave (KRM), situated along the Tsitsikamma coast. Middle Stone Age sites are located both at the coast and in the interior across southern Africa.

Surface scatters of Middle Stone Age stone artefacts are widely distributed across the Karoo landscape and have been reported from around the Graaff-Reinet area (Binneman *et al.* 2011b), the site to the north near Victoria West (Binneman *et al.* 2011a), the area to the south-east of the proposed area (Binneman 2009a, b, d, e, f), and within close proximity to the area proposed for development (van Schalkwyk 2007).

It is therefore likely that surface scatters of Middle Stone Age stone artefacts may be encountered within the area proposed for development. Such occurrences may also occur between the surface and approximately 50-80cm below ground. It is rare that these particular stone artefacts are found to be in association with other archaeological remains and are usually out of context owing to natural disturbances over time and, more recently, owing to human impact.

The Later Stone Age (LSA) (30 000 – recent) and Pastoralism within the last 2000 years

The Later Stone Age

The Later Stone Age (LSA) spans the period from about 20 000 years ago until the colonial era, although some communities continue making stone tools today. The period between 30 000 and 20 000 years ago is referred to as the transition from the Middle Stone Age to Later Stone Age; although there is a lack of crucial sites and evidence that represent this change. By the time of the Later Stone Age the genus *Homo*, in southern Africa, had developed into *Homo sapiens sapiens*, and in Europe, had already replaced *Homo Neanderthalensis*.

The Later Stone Age is marked by a series of technological innovations, new tools and artefacts, the development of economic, political and social systems, and core symbolic beliefs and rituals. The stone toolkits changed over time according to time-specific needs and raw material availability, from smaller microlithic Robberg (20/18 000-14 000ya), Wilton (8 000-the last 500 years) Industries and in between, the larger Albany/Oakhurst (14 000-8 000ya) and the Kabeljous (4 500-the last 500 years) Industries. Bored stones used as part of digging sticks, grooved stones for sharpening and grinding and stone tools fixed to handles with mastic also become more common. Fishing equipment such as hooks, gorges and sinkers also appear within archaeological excavations. Polished bone tools such

as eyed needles, awls, linkshafts and arrowheads also become a more common occurrence. Most importantly bows and arrows revolutionized the hunting economy. It was only within the last 2000 years that earthenware pottery was introduced, before then tortoiseshell bowls were used for cooking and ostrich eggshell (OES) flasks were used for storing water. Decorative items like ostrich eggshell and marine/fresh water shell beads and pendants were made.

Hunting and gathering made up the economic way of life of these communities; therefore, they are normally referred to as hunter-gatherers. Hunter-gatherers hunted both small and large game and gathered edible plantfoods from the veld. For those that lived at or close the coast, marine shellfish and seals and other edible marine resources were available for the gathering. The political system was mainly egalitarian, and socially, hunter-gatherers lived in bands of up to twenty people during the scarce resource availability dispersal seasons and aggregated according to kinship relations during the abundant resource availability seasons. Symbolic beliefs and rituals are evidenced by the deliberate burial of the dead and in the rock art paintings and engravings scattered across the southern African landscape.

Later Stone Age sites occur both at the coast (caves, rock shelters, open sites and shell middens) and in the interior (caves, rock shelters and open sites) across southern Africa. There are more than a few significant Later Stone Age sites in the Eastern Cape. The most popular are the type sites for the above-mentioned stone artefact industries, namely Wilton (for the Wilton Industry), Melkhoutboom (for the Albany Industry), both rock shelters situated to the west of Grahamstown, and Kabeljous Rock Shelter (for the Kabeljous Industry) situated just north of Jeffrey's Bay.

The majority of archaeological sites found in the area would date from the past 10 000 years where San hunter-gatherers inhabited the landscape living in rock shelters and caves as well as on the open landscape. These latter sites are difficult to find because they are in the open veld and often covered by vegetation and sand. Sometimes these sites are only represented by a few stone tools and fragments of bone. The preservation of these sites is poor and it is not always possible to date them (Deacon and Deacon 1999). Caves and rock shelters, however, in most cases, provide a more substantial preservation record of pre-colonial human occupation.

The Later Stone Age archaeology of the Great Karoo stretching across the Eastern Cape, and Western Cape is rich and varied. Various studies (Beaumont & Morris 1990, Beaumont & Vogel 1984, Morris & Beaumont 1990), have shown that the general area surrounding the proposed area for the development has been relatively marginal regarding pre-colonial human settlement, but is in fact exceptionally rich in archaeological sites and rock art (paintings and engravings [to be discussed in the following section]). Garth Sampson has

conducted thirty years of extensive research within the Seacow River Valley and provides valuable insight on the distribution of both Later Stone Age and pastoralist/herder sites across the landscape. Unfortunately no such similar studies have yet been conducted within the area. Sampson has produced innumerable publications on the area (Sampson 1985) including further studies on Later Stone Age artefacts (Close & Sampson 1998, 1999) and in-depth analysis on the ceramics assemblages (Sampson 1988; Sampson et al. 1989 1997; Sampson & Vogel 1996), to name a few. Highlands Rock Shelter (Deacon 1976) and Tafelberg Hall (Hewitt 1931) situated near Cradock also provide information on archaeological remains that may be encountered.

Pastoralism

Until 2000 years ago, hunter-gatherer communities traded, exchanged goods, encountered and interacted with other hunter-gatherer communities. From about 2000 years ago the social dynamics of the southern African landscape started changing with the immigration of two 'other' groups of people, different in physique, political, economic and social systems, beliefs and rituals. Relevant to the study area, one of these groups, the Khoekhoe pastoralists or herders entered southern Africa with domestic animals, namely fat-tailed sheep and goats, travelling through the south towards the coast. They also introduced thin-walled pottery common in the interior and along the coastal regions of southern Africa. Their economic systems were directed by the accumulation of wealth in domestic stock numbers and their political make-up was more hierarchical than that of the hunter-gatherers. The most significant Khoekhoe pastoralist sites in the Eastern Cape include Scott's Cave near Patensie (Deacon 1967), Goedgeloof shell midden along the St. Francis coast (Binneman 2007) and Oakleigh rock shelter near Queenstown (Derricourt 1977). Often, these archaeological sites are found close to the banks of large streams and rivers.

The farm situated 70km to the north-west of the proposed area for development was reported to contain between six and eight Later Stone Age sites, some containing rock paintings and others containing archaeological remains and deposit (Albany Museum records). Archaeological sites are also well-known from the Onder-Sneeuberg (van Schalkwyk 2007). No observances of pre-colonial ceramics have been reported in the specialist studies (Binneman 2009a-f; van Schalkwyk 2007); however a broken pot was observed on the site near Victoria West (Binneman 2011a). Specialist studies acknowledge the presence surface scatters of Later Stone Age stone artefacts to the south-east and within the area proposed for development (Binneman 2009d, e; van Schalkwyk 2007).

It is therefore highly likely that Later Stone Age stone artefacts may be encountered during the survey. In addition, possible open sites containing associated stone artefacts and additional archaeological material remains may be also be encountered during the survey. Evidence of Khoekhoen herders mark may be less evident on the landscape, however, their

presence may be observed by associated packed dry stone walling used as kraals and associated archaeological material remains.

Human Remains

It difficult to detect the presence of archaeological human remains on the landscape as these burials, in most cases, are not marked at the surface. Human remains are usually observed when they are exposed through erosion. In some instances packed stones or rocks may indicate the presence of informal pre-colonial burials. One human skeleton has been reported from the Aberdeen area and more recently, near Wolwefontein to the south of the proposed area for development (Albany Museum records), as well as on the site near Victoria West (Binneman et al. 2011a). The latter two skeletons were eroding out of dongas and the latter skeleton is presumably of more recent origin.

It is possible that informal burials and eroding human remains may be encountered during the survey. Formal graves and family cemeteries related to the farmsteads may also be encountered.

Rock Art (Paintings and Engravings)

Rock art is generally associated with the Later Stone Age period mostly dating from the last 5000 years to the historical period. It is difficult to accurately date the rock art without destructive practices. The southern African landscape is exceptionally rich in the distribution of rock art which is determined between paintings and engravings. Rock paintings occur on the walls of caves and rock shelters across southern Africa. Rock engravings, however, are generally distributed on the semi-arid central plateau, with most of the engravings found in the Orange-Vaal basin, the Karoo stretching from the Eastern Cape (Cradock area) into the Northern Cape as well as the Western Cape, and Namibia. At some sites both paintings and engravings occur in close proximity to one another especially in the Karoo and Northern Cape. The greatest concentrations of engravings occur on the andesite basement rocks and the intrusive Karoo dolerites, but sites are also found on about nine other rock types including dolomite, granite, gneiss, and in a few cases on sandstone (Morris 1988). Substantial research has also been conducted in the Western Cape Karoo area around Beaufort West (Parkington 2008).

No systematic research on the occurrence of rock paintings and engravings has been conducted within the immediate area proposed for development. However, numerous rock engravings, both of a later and historical origin were documented on a site near Victoria West (Binneman *et al.* 2011a).

It is possible that rock shelters and caves containing rock painting images and rock engravings on boulders and flat bedrock may be encountered within the proposed area for development.

Historical / Colonial Period (Last 500 years)

Historical archaeology refers to the last 500 years when European settlers and colonialism entered into southern Africa. In the early days of colonialism the Karoo was still a sparse and unknown area. It was only until the early travellers and pioneer Dutch *trekboere* (trek farmers or migrant farmers) ventured into this harsh landscape and documented their encounters with the San hunter-gatherers and Khoekhoen who had originally inhabited the landscape. Various trade goods exchanged between these pioneering Europeans, the San hunter-gatherers, and Khoekhoen have been recorded in travellers' diaries, historical documents and archaeological excavations within the wider region of the proposed area for development. These include glass beads that documentary evidence suggests were first given to the local Bushmen in the upper Seacow Valley during the Sneeuberg War (c. AD 1770-1795) and later by travellers, missionaries, and resident farmers (Saitowitz & Sampson 1992). This may be a similar situation at Highlands Rock Shelter (Deacon 1976). In addition, rare instances of ammunition and firearm paraphernalia have been excavated from sites in the upper Seacow Valley. Historical records show that the first Dutch farmers transferred their firearms to the Bushmen as early as the 1770's. During this decade firearms and ammunition were being poured into the region that would come to be known as Graaff-Reinet (Westbury & Sampson 1993). A new drostie was established at Graaff-Reinet in 1785 to try and maintain a semblance of order in the region (Beinart 2003; Gilliomee 1982).

Aberdeen was founded in 1856, originally a farm named "Brakfontein, it was changed to be named after the birthplace of Rev. Andrew Murray, Aberdeen, in Scotland. Aberdeen has been declared an architectural conservation town and includes Victorian, Georgian, Karoo, German, Gothic Revival, Russian, Art Nouveau and Flemish Revival style buildings. The Old Post Office and Magistrates Court in Grey Street, was built in 1855 and declared a provincial heritage site in 1991 (SAHRA heritage site list, 2000). Aberdeen also played a role in the Anglo-Boer War (1899-1901) in mention being made that the Smuts Commando's progress through the Eastern Cape Colony from the Bedford/Adelaide area to reach their destination of Aberdeen and the Camdeboo Mountains during September and October 2001 (Tomlinson 1995).

Evidence of the remains of historical buildings, stone cairns and features, as well as European ceramic ware has been recorded in one of the specialist studies, situated to the south-east of the proposed area for development (Binneman 2009f). Stone packed foundations of a rectangular cottages and associated dumping (waste) area, as well as

stone packed kraals positioned on the bottom half of slight-gradient koppies (hillocks) have been documented within the wider region near Graaff-Reinet (Albany Museum records) and at the site near Victoria West (Binneman *et al.* 2011b). Mainly broken and fragmented pieces of iron implements, glass bottles and European ceramic wares including stoneware, transfer print and willow pattern ceramic types are included. It is likely that these features may be associated with early farming activities where shepherds would have lived with their flocks and herds of domesticated stock (cattle, sheep, and goats).

It is likely that a variety of historical features and artefacts will be encountered within the proposed area for development owing to early farming activities, the region's historical settlements, movements and migrations through the area, as well as the remnants of the Anglo-Boer war.

CONCLUSIONS AND RECOMMENDATIONS

The area proposed for the Aberdeen Wind Energy Facility has not been systematically researched archaeologically, although, there is enough information available, such as previous phase 1 archaeological impact assessments closer to the proposed area and within the wider region to determine the probable archaeological artefacts and remains that may be encountered during the impact assessment. It has been established that the semi-arid Karoo region stretching across the Eastern Cape and Western Cape seems marginal regarding pre-colonial human settlement although is rich in archaeological sites and rock art. There is a variety of archaeological resources within the proposed area that may be encountered, ranging from Early, Middle and Later Stone Age stone artefacts as well as associated organic and material remains. Khoekhoen pottery, rock engravings, human remains and graves, the remains of historical buildings, features and European ceramics, as well as stone-walled kraals of both pre-colonial and historical origin may also be encountered during the survey.

The environment (archaeological and heritage resources) will be affected by the proposed project. No archaeological sites have been systematically plotted within the proposed area for development, it is difficult, in the scoping phase, to assess the potential significance and identify issues based on the nature and extent of direct, indirect or cumulative impacts in detail. During the phase 1 archaeological impact assessment for the environmental impact phase, archaeological resources will be identified and assessed. These assessments will be evaluated and compared to the potential impact of the proposed project and appropriate recommendations and mitigation measures will be made so as to lessen the negative impact that the proposed project may incur on the archaeological and heritage resources.

It is therefore recommended that:

1. A full phase 1 archaeological impact assessment be 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.

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

1. Human Skeletal material

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

2. 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.

3. 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

4. Fossil bone

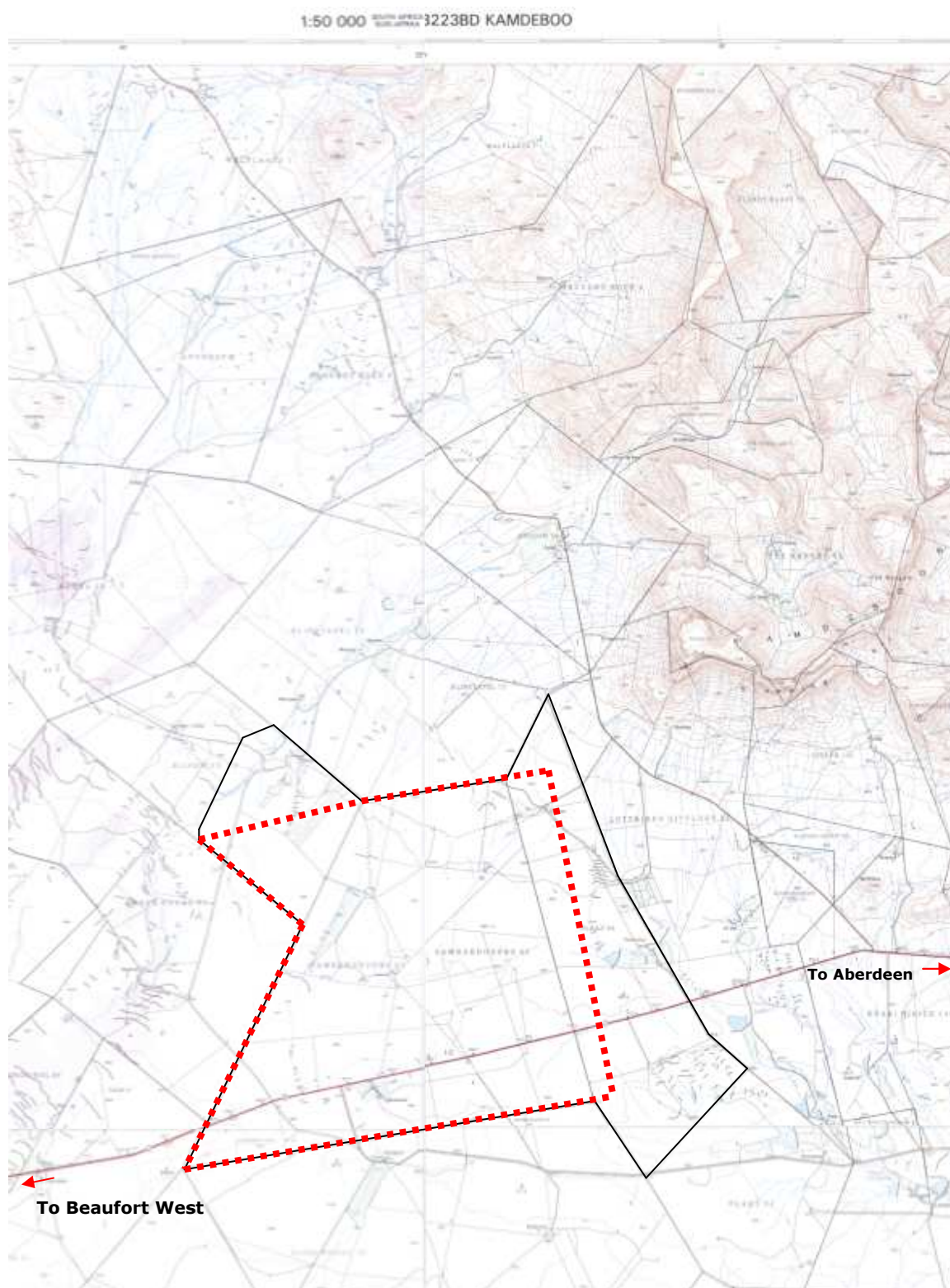
Fossil bones may be found embedded in geological deposits. Any concentrations of bones, whether fossilized or not, should be reported.

5. Large stone features

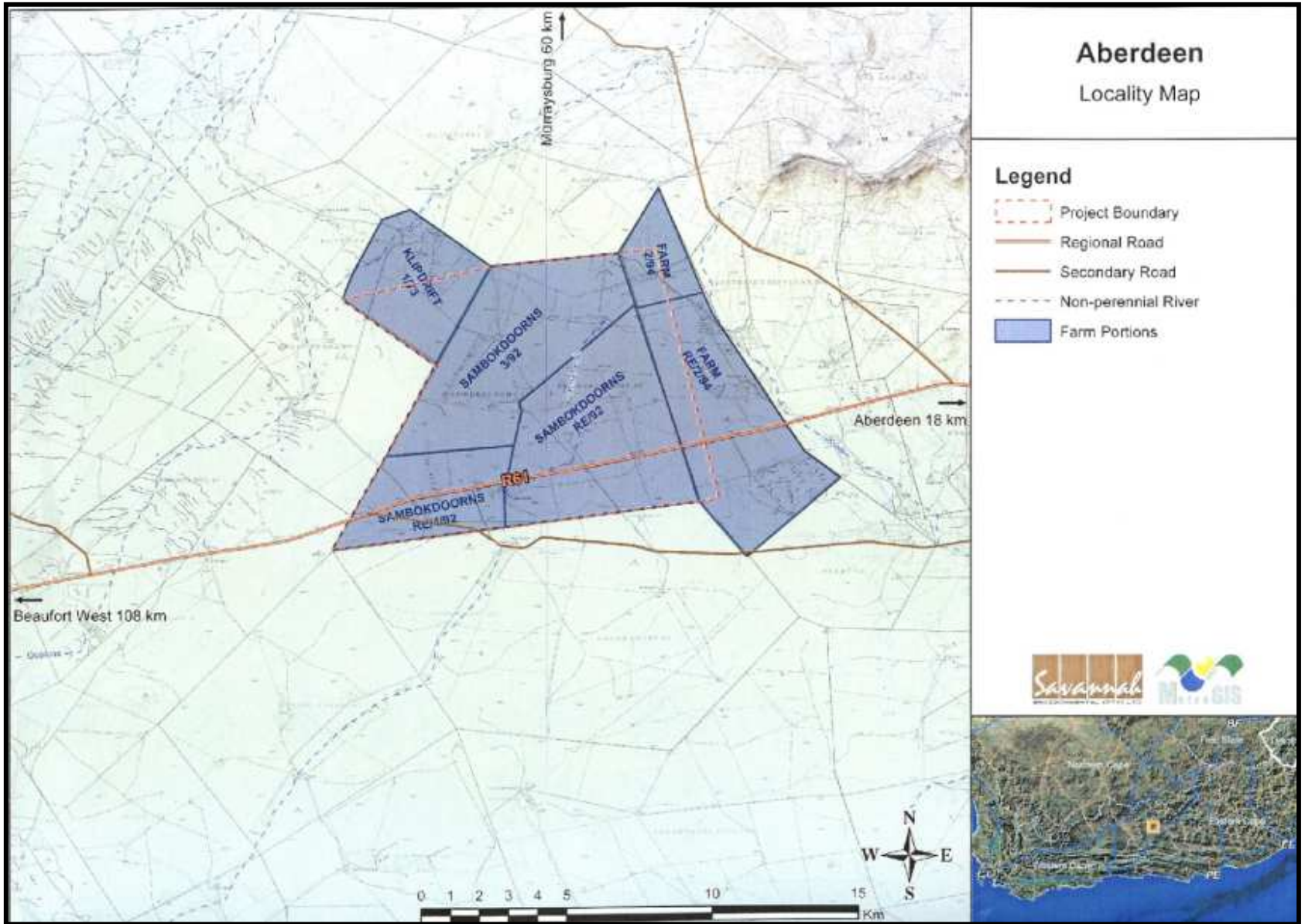
They come in different forms and sizes, but are easy to identify. The most common are roughly circular stone walls (mostly collapsed) and may represent stock enclosures, remains of wind breaks or cooking shelters. Others consist of large piles of stones of different sizes and heights and are known as *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.

6. Historical artefacts or features

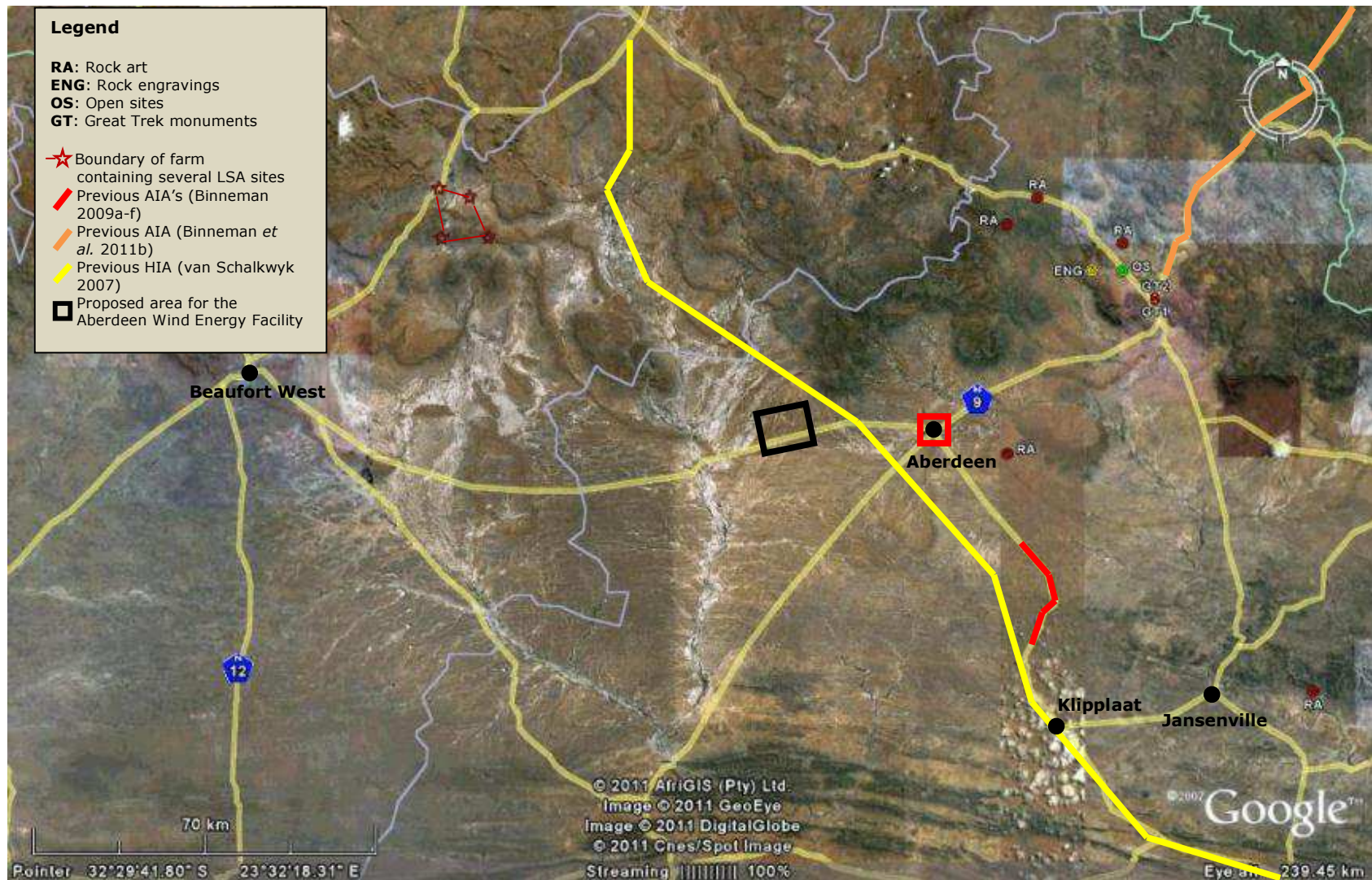
These are easy to identified and include foundations of buildings or other construction features and items from domestic and military activities.



Map 1. 1:50 000 maps (3223BC KUNNA, 3223BD KAMDEBOO, 3223DA KIEWIETSKUIL, 3223DB KAAPSEPOORTJIE) showing the location of the proposed Aberdeen Wind Energy Facility (black lines: extent of the properties; red dotted lines: extent of the project boundary).



Map 2. Locality map of the proposed Aberdeen Wind Energy Facility (map courtesy of Savannah Environmental (Pty) Ltd).



Map 3. Aerial view of the proposed area for the Aberdeen Wind Energy Facility showing the location of recorded sites and previous specialist studies.