
APPENDIX F

**HERITAGE IMPACT ASSESSMENT FOR THE
MAJUBA-UMFOLOZI 765 KV TRANSMISSION LINE,
IN MPUMALANGA AND KWAZULU-NATAL,
SOUTH AFRICA**

Assessment and report by



for

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Engineering and Environmental Consultants**

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Management summary

eThembeni Cultural Heritage was appointed by BKS (Pty) Ltd to undertake a heritage impact assessment of a proposed 765kV power line in southern Mpumalanga and northern KwaZulu-Natal, in terms of both the South African Heritage Resources Act and the KwaZulu-Natal Heritage Act. This report constitutes the heritage impact assessment.

An eThembeni staff member attended a pre-feasibility and scoping study specialist workshop on 10, 11 and 12 August 2005 along with a team of specialists appointed to the project, and completed a controlled-exclusive surface survey by vehicle and helicopter. We also undertook a database and literature review of the study area. The findings of the field surveys and desktop analysis were the subject of a scoping report meeting held at BKS on 24 January 2006. Subsequent to approval of the final scoping report by the Department of Environment and Tourism a further meeting was held on 28 February 2006 to determine a preferential route alignment on the basis of all specialist inputs.

Various heritage resources of significance, as defined in the above Acts and the criteria contained in the appendix to this report were observed and recorded as being present within the study area.

- Ancestral graves, associated with stone-walled settlements and abandoned labour tenant homesteads, were observed. As is the case with all human remains, the graves have high heritage significance.
- Rock painting sites are recorded along and below the eastern uKhahlamba escarpment in the east and west of the study area.
- Stone Age open sites are recorded throughout the study area, particularly in the areas subject to incised erosion and donga formation.
- Stone-walled settlements dating to the Late Iron Age occur ubiquitously in the north and west of the study area.
- The battlefields of Majuba (1887), Hlobane (1879), Holkrantz (1879), Khambula (1879), Bloed Rivier's Poort (1879), Ncome/Blood River (1838), Fort Newdigate and the Prince Imperial's capture site (1879) lie within and immediately adjacent to the study area.

The cultural landscape of the greater part of the study area is one of both intensive and extensive agriculture, with infrastructure focussed on local needs. It has high local and regional significance.

- The transmission line route will have a permanent adverse effect on the visual aspects of the cultural landscape, wherever it is placed.

A physical inspection of proposed tower placements and new access roads along the entire preferred corridor will take place once it has been surveyed, to ensure that no in situ heritage resources are compromised.

We have submitted this report to Amafa aKwaZulu-Natali and the South African Heritage Resources Agency to apprise them of the project progress.

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Introduction and legislation

eThembeni Cultural Heritage was appointed by BKS (Pty) Ltd to undertake a heritage impact assessment of a proposed 765KV power line in southern Mpumalanga and northern KwaZulu-Natal, in terms of the South African Heritage Resources Act No 25 of 1999 and the KwaZulu-Natal Heritage Act No 10 of 1997.

Section 38(1) of the South African Heritage Resources Management Act requires such an assessment in case of:

- (a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
- (b) the construction of a bridge or similar structure exceeding 50 m in length;
- (c) any development or other activity which will change the character of a site –
 - (i) exceeding 5 000 m² in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven or subdivisions thereof which have been consolidated within the past five years; or
- (d) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
- (e) the re-zoning of a site exceeding 10 000m² in extent; or
- (f) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

Section 27(1) of the KwaZulu-Natal Heritage Act requires a heritage impact assessment in case of:

- (a) construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
- (b) construction of a bridge or similar structure exceeding 50 m in length; and
- (c) any development, or other activity which will change the character of an area of land, or water –
 - (i) exceeding 10 000 m² in extent;
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven, or subdivisions thereof, which have been consolidated within the past five years; or
- (d) the costs of which will exceed a sum set in terms of regulations; or
- (e) any other category of development provided for in regulations.

A heritage impact assessment is not limited to archaeological artefacts, historical buildings and graves. It is far more encompassing and includes intangible and invisible resources such as places, oral traditions and rituals. In both Acts a heritage resource is defined any place or object of cultural significance i.e. of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. This includes the following wide range of places and objects:

- (a) places, buildings, structures and equipment;
- (b) places to which oral traditions are attached or which are associated with living heritage;
- (c) historical settlements and townscapes;
- (d) landscapes and natural features;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and palaeontological sites;
- (g) graves and burial grounds, including -
 - (i) ancestral graves,
 - (ii) royal graves and graves of traditional leaders,
 - (iii) graves of victims of conflict,
 - (iv) graves of important individuals,
 - (v) historical graves and cemeteries older than 60 years, and
 - (vi) other human remains which are not covered under the Human Tissues Act, 1983 (Act No.65 of 1983 as amended);
- (h) sites of significance relating to the history of slavery in South Africa;
- (i) movable objects, including -
 - (i) objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects and material, meteorites and rare geological specimens;

- (ii) ethnographic art and objects;
- (iii) military objects;
- (iv) objects of decorative art;
- (v) objects of fine art;
- (vi) objects of scientific or technological interest;
- (vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings; and
- (viii) any other prescribed categories, but excluding any object made by a living person;
- (j) battlefields and
- (k) traditional building techniques.

A 'place' is defined as:

- (a) a site, area or region;
- (b) a building or other structure (which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure);
- (c) a group of buildings or other structures (which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures); and
- (d) an open space, including a public square, street or park; and in relation to the management of a place, includes the immediate surroundings of a place.

'Structures' means any building, works, device, or other facility made by people and which is fixed to land and any fixtures, fittings and equipment associated therewith older than 60 years.

'Archaeological' means -

- (a) material remains resulting from human activity which are in a state of disuse and are in or on land and are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
- (b) rock art, being a form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and is older than 100 years including any area within 10 m of such representation; and
- (c) wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land or in the maritime cultural zone referred to in section 5 of the Maritime Zones Act 1994 (Act 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which are older than 60 years or which in terms of national legislation are considered to be worthy of conservation;
- (d) features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found.

'Palaeontological' means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

'Grave' means a place of interment and includes the contents, headstone or other marker of and any other structures on or associated with such place. The South African Heritage Resources Agency and Amafa aKwaZulu-Natali will only issue a permit for the alteration of a grave if they are satisfied that every reasonable effort has been made to contact and obtain permission from the families concerned. Broadly speaking, the following procedures are followed:

- Notification of the impending removals (using English and / or Afrikaans and the local indigenous language media and notices at the grave site);
- Consultation with individuals or communities related or known to the deceased;
- Satisfactory arrangements for the curation of human remains and / or headstones in a museum, where applicable;
- Procurement of a permit from Amafa aKwaZulu-Natali or the South African Heritage Resources Agency;
- Appropriate arrangements for the exhumation (preferably by a suitably trained archaeologist) and reinterment (sometimes by a registered undertaker, in a formally proclaimed cemetery);
- Observation of rituals or ceremonies required by the families.

Nature and description of proposed activities (information obtained from the proceedings of the Specialist Workshop in Wakkerstroom 10 August 2005)

ESKOM (Transmission) intends to construct a new 765 kV transmission power line between the Majuba power station in southern Mpumalanga and the Mfolozi sub-station in northern KwaZulu-Natal to strengthen the existing power supply and accommodate future demands by downstream users. The transmission line will be between 186 and 230 kilometres long and 45 to 55 metres high and will occupy an 80-metre servitude. The power line will be commissioned at 400 kV until it must operate at its maximum 765 kV capability.

A full environmental impact assessment process, encompassing scoping, environmental impact assessment, environmental impact report and the submission of an environmental management plan report have been undertaken for the project.

Scoping study

The aim of the scoping phase ~~was~~ [was](#) to collate specialist inputs to identify preferred routes and no-go areas [within the study area \(see Fig 1\)](#), some of which are:

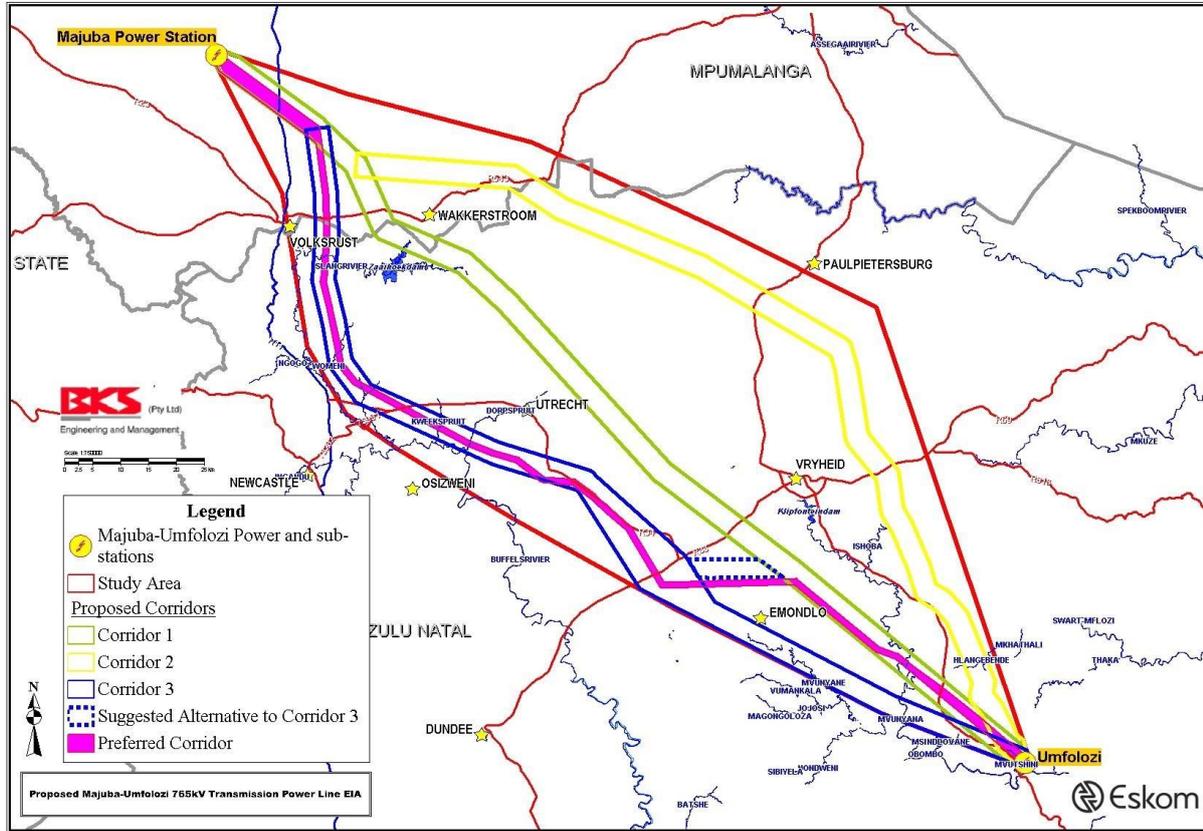
- Towns, rural hamlets and peri-urban areas
- Dams
- Extensive crop cultivation and centre pivots
- Wetlands
- Game farms and conservancies
- Sensitive plant communities and habitats
- Sensitive heritage resources
- Visually sensitive landscapes.

The scoping phase of the study ~~will~~ [will](#) further focus [ed](#) on the identification of technically feasible, cost effective routes with the least socio-environmental impacts. ~~The scoping report will focus~~ [It also focused](#) on identifying and describing issues that will be studied in more detail in the impact assessment phase. The investigation of alternatives ~~will be~~ [was](#) considered at three levels: strategic, route and design alternatives.

Route options

Three routes were investigated during the ground and helicopter surveys, as indicated on [Figure 1](#):

Figure 1



a. Eastern corridor

The consensus of the specialist workshop and site inspection was that this route was not a preferred option due to extensive commercial afforestation to the northwest and southeast of Paulpietersburg and east of the R34 south of Vryheid. The visual integrity of the northwestern aspects of the 1879 Anglo-Zulu War battlefields of Holkrantz and Hlobane could be impaired should this route be chosen.

b. Central corridor

This route traverses an area of highland grasslands, broad meandering drainage lines and extensive wetlands south east of Wakkerstroom towards Utrecht. The cultural landscape is one of extensive agriculture, widely scattered farmsteads and limited infrastructural development. Ecotourism is an important adjunct to commercial farming ventures and a large portion of the landholdings are managed as conservancies. A transmission power line through this area would have a high negative impact on the integrity of this cultural landscape.

Apart from the potential visual impact on the 1879 Anglo-Zulu War battlefield of Khambula, potential impacts on other categories of heritage resource are low due to the general paucity of sites observed along this corridor. Upland and extensive open lowland grasslands generally have a very ephemeral archaeological signature.

c. Western corridor

This corridor appears to offer the best options for aligning the transmission line adjacent to or within existing power line and PetroNet servitudes. Consequently, visual impacts on more integral cultural landscapes are reduced, or at least contained.

A heritage resource consideration that is relevant to all three proposed routes is the presence of Iron Age stone-walled settlements and extant and abandoned labour tenant residences with ancestral graves, particularly to the north and west of the escarpment and in the south east of the study area towards the Mfolozi sub-station. Many such sites were observed during the helicopter survey and their locations will have to be recorded in advance of any ground truthing of proposed tower positions.

Methodology

One eThembeni staff member participated in the pre-feasibility workshop on 10, 11 and 12 August 2005. The specialist team drove and flew over the major portions of the route alternatives discussed above and contributed to consolidatory discussions concerning terrain and landscape analysis. During field and aerial reconnaissance surface visibility was poor to moderate overall, favouring the identification of structures and landscapes above artefacts.

Accordingly, field methodology for this workshop favoured a controlled-exclusive surface survey, where 'sufficient information exists on an area to make solid and defensible assumptions and judgements about where [heritage resource] sites may and may not be' and 'an inspection of the surface of the ground, wherever this surface is visible, is made, with no substantial attempt to clear brush, turf, deadfall, leaves or other material that may cover the surface and with no attempt to look beneath the surface beyond the inspection of rodent burrows, cut banks and other exposures that are observed by accident' (King 1978).

We consulted various provincial databases, including historical, archaeological and geological sources and undertook a limited literature review. Site locations were recorded with a handheld Garmin 72 global positioning instrument. The locations of all recorded archaeological sites within the study area as held by the Natal Museum's Data Recording Centre are plotted on Figure 2.

Heritage resource background

The general area is one of variable heritage resource significance and the following tables provide a brief summary of archaeological time periods:

E arly	1.5 million to 180 000 years ago	Only stone artefacts remain from
S tone		this time period, including large
A ge		choppers, cleavers and hand axes
M iddle	180 000 to 35 000 years ago	Stone tools smaller than in ESA;
S tone		include blades and flakes; human
A ge		and animal remains also found
L ater	35 000 years ago to the time	Variety of artefacts made from
S tone	of European settlement	organic and inorganic materials;
A ge		human remains, shell middens etc

E arly	400 – 500 AD	Mzonjani phase
I ron	500 – 700 AD	Msuluzi phase
A ge	700 – 900 AD	Ndondondwane phase
	900 – 1200 AD	Ntshekane phase
L ate	1200 – 1500 AD	Settlement by Nguni speakers
I ron	1500 – 1700 AD	Introduction of maize
A ge	1700 – 1850 AD	Pre-European settlement
	1850 AD to present	Historical

Numerous Stone and Iron Age sites have been recorded in the area (Maggs 1989, Mazel 1989).

Early Stone Age stone scatters occur in raised beach gravels, eroded areas and ancient coastal dunes. No information is available on the foods eaten by the Early Stone Age people in Natal, but it can be assumed on the basis of evidence on Early Stone Age people elsewhere that their diet consisted primarily of animals and plant foods. It was also during this period that people learnt to control fire' (Mazel 1989: 3-5).

'Clear technological differences separate the Middle Stone Age from the Early Stone Age. Whereas Early Stone Age tools were generally core tools [choppers, handaxes, cleavers], Middle Stone Age tools were made of flakes and blades detached from the core [trapezoids, segments, scrapers, points, flakes, blades]. Handaxes and cleavers were absent...

'Relatively little is known about the particular types of food that the Middle Stone Age hunter-gatherers ate. Border Cave [situated in the Lebombo Mountains on the border between South Africa and Swaziland] is the only site from which information is at present available... Small quantities of a wide variety of animals were found in the Border Cave excavations. These included honey badger, dassie, Burchell's zebra, bushpig, warthog, hippopotamus, steenbok, oribi, mountain reedbuck, waterbuck, roan / sable, impala, blesbok, hartebeest / tsessebe, blue wildebeest, springbok, greater kudu, nyala, bushbuck, eland, Cape buffalo and possibly an extinct giant Cape horse (*Equus capensis*).

'A handful of seeds was also found at Border Cave, while grindstones, which may have been used in the processing of plant foods, have been recovered from the Middle Stone Age layers at Umhlatuzana Shelter [located between Durban and Pietermaritzburg]...

'Evidence of the manufacture of cultural articles from materials other than stone first appears during the Middle Stone Age. So also does evidence concerning religious practices, the final Middle Stone Age stage at Border Cave producing the earliest known burial so far attributed to the Middle Stone Age' (Mazel 1989: 6-8).

Recent excavations at Sibhudu Shelter, a near-coastal site located between the Mvoti and uMngeni rivers, promise to shed more light on the Middle Stone Age of KwaZulu-Natal.

Later Stone Age sites occur throughout the province, with high concentrations in places such as the uKhahlamba mountains where rock shelters suitable for occupation are plentiful.

'Stone artefacts are overwhelmingly the most common cultural item recovered from the excavations that have been carried out, followed by pottery (belonging to the last 2 000 years), ground, polished and shaved bone, beads and ostrich eggshell... [Stone] scrapers were probably used for removing the fat from animal skins before these were pegged out to dry. Adzes were probably used for shaving wood and, to a lesser extent, bone; while backed pieces, of which there are different types, were probably employed in hunting and cutting up carcasses.

'A great deal of information about the foods Later Stone Age hunter-gatherers ate has been obtained from animal, plant and marine and freshwater shell remains. In some cases, it has been possible to identify the remains of individual species. As small animals in particular are sensitive to environmental fluctuations, these remains can also tell us much about past environments. Botanical remains are also very useful, for seeds can indicate which fruits and berries Later Stone Age people ate. And, because fruits and berries are seasonal, they can also provide information about the months during the year when sites were occupied' (Mazel 1989: 11-12).

'One of the main themes of Later Stone Age research in South Africa, including Natal, has been that of seasonality. It has been hypothesized, on the basis of the analysis of the seasonal movements of

large antelope, that the food resources of southern Natal would have been exploited on a seasonal basis by hunter-gatherers. According to this hypothesis, they would have occupied the Drakensberg in summer and the Thornveld and coastal areas during winter, traversing the Midlands along ridges rather than in the valleys.

'Recent field-work based on this hypothesis has suggested that in southern Natal during the last 3 500 years, hunter-gatherers would have occupied the Drakensberg in spring and summer (October to March), the coastal zone in winter (April / May to August), and the Midlands in autumn and late winter (March / April to September). This seasonal hypothesis...has given rise to the speculation that while they were in the Drakensberg, the hunter-gatherers would have lived in large groups and would have operated from large home-base sites.

'One of the results of the formation of these larger social units could have been an increase in ritual activity. Social organisation in the Midlands, however, would have been characterized by the small mobile groups that traversed the zone, while in the coastal zones larger groups, but not as large as those in the Drakensberg, would have been found' (Mazel 1989: 17).

One feature of the Later Stone Age in southern Africa with great academic and popular appeal is its rock paintings, concentrated particularly in the uKhahlamba / Drakensberg mountains.

'The first recordings of rock paintings in the Drakensberg were made over 100 years ago. Since then, they have been the focus of intensive research and of numerous publications. On completion of a three-year survey of painting sites in the Drakensberg in 1981, 516 sites, containing a total of 29 874 paintings, were known. Rock art occurs, but less frequently, in other areas of Natal but it has never been adequately surveyed and researched.

'A great problem lies in establishing the age of the art, but some advances have been made. The earliest dated paintings in southern Africa are from the Apollo 11 Cave in southern Namibia. Dated to about 26 000 years ago, these paintings are about as old as the earliest Palaeolithic art in western Europe [the latter is now thought to be up to 40 000 years old]. The Apollo 11 dates are based on the age of the deposits in which slabs of painted rocks were recovered. The next oldest known art in southern Africa are pieces of engraved stones from Wonderwerk Cave in the northern Cape, dated to around 11 000 years ago. An increasing number of painted and engraved stones date to within the last 10 000 years, especially the last 4 000 years, but none are from Natal.

'In the Natal Drakensberg, besides the paintings of cattle and sheep which, in all likelihood, postdate the arrival of the Iron Age farming communities 1 500 to 2 000 years ago and those of horses, wagons and whites which postdate AD 1 800, we are unable to put dates to the paintings. However, as the area is high in rainfall and experiences great temperature variations, both of which cause weathering in rocks, it is unlikely that the earliest paintings still visible on the rocks are more than a few thousand years old.

'New and improved radio-carbon dating techniques, which have been used with success in the Western Cape, offer some hope of our being able to establish the age of the wall paintings in the not too distant future.

'Interpretation of the paintings is a source of continuing controversy. There are three main theories. The first is that they were executed merely to illustrate what was seen, in other words, 'art for art's sake'. The second is that they represent a form of sympathetic magic, reflecting a belief that the painting of appropriate scenes before a hunt, or after a successful hunt, would enhance the prowess of the hunters. The third is that they are symbolic, related to hunter-gatherer religious practices, primarily trance performance, and perform important social functions.

'Hunter-gatherer historical records as well as ethnography both favour what has been loosely phrased the 'trance hypothesis', for many features of trance performance and trance vision are identifiable in the paintings. During trance dances, shamans enter trance and perform certain tasks such as the maintenance of social relations, the promotion of economic activity by, for example, guiding antelope into ambushes and controlling rain, and the maintenance of sound links between bands by means of 'out of body travel', in which they 'visit' associated bands.

'It has also been speculated that the art may have been a way of preparing novices for religious experience and an instruction for those who had not, or would not, experience trance. Thus, the shaman's art was not 'a luxury indulged in leisure time to provide pleasure and relaxation', but a 'remarkable aesthetic achievement' which lay at 'the very heart of the functioning of San society' (Mazel 1989: 17-19).

Examples of known archaeological sites within and near the study area include Mgede, [Nkupe](#), [Sikhanyisweni](#), Maqonqo, Nqutu and Lenjane Shelters (Mazel 1986, 1998a and b, 1989, 1996; Wahl 1995), which were occupied and sometimes painted by hunter-gatherers during the Later Stone Age.

'The advent of the Iron Age saw not only the introduction of metallurgy. Of even greater significance was the introduction of agriculture, necessitating a settled, village way of life instead of the nomadic patterns of the Stone Age. It also provided for an appreciable increase in population density, as well as a more complex life-style. Richly decorated pottery is a hallmark of these early settlements. Domestic animals including cattle, sheep, goats and dogs were also a feature of the Iron Age, although current information indicates that they had already reached parts of South Africa, but apparently not Natal, during the Late Stone Age, through the agency of Khoisan herders...

'... the earliest Iron Age sites in South Africa, including Natal, relate to an eastern coastal and lowland cultural tradition with links as far north as the Kwale sites of eastern Kenya. This tradition has been named 'Matola', after a site in southern Mozambique, which provided close typological links between the Natal and eastern Transvaal sites¹. [In KwaZulu-Natal] almost all of them are on the belt of ancient dunes, which would have been covered by coastal forest at the time' (Maggs 1989: 29-31).

'Most Early Iron Age sites in Natal are later than the [Mzonjani] period and are classified according to ceramic styles [refer to the table above]...By this time villages, often about eight hectares in size and probably containing a hundred or more people, had become common in the lower-lying and savannah areas, below an altitude of 1 000 metres. They were most common along the major rivers and in the coastal belt, where there was good, deep soil, sweet year-round grazing, and timber for building and fuel...

'Diet was based on agriculture and pastoralism, with a little supplementary hunting, fishing and gathering of wild plants and shellfish. Crops identified from seeds include several grains (bulrush millet, finger millet and probably sorghum), and probably the African melon... Most villages had one or more iron smelting areas and therefore produced their own requirements' (Maggs 1989: 31-32).

The beginning of the Late Iron Age marked a period of significant change in pottery styles, attributable to both socio-political and demographic factors (Maggs 1989). Settlements were no longer located in river valleys, but were built on higher ground where homesteads would benefit from cooling breezes and good views for strategic purposes.

Steep slopes, wetlands and marshy areas were used for grazing domestic animals and gathering wild food and medicinal plants. Settlements appear to have been much smaller, implying that 'society underwent a change away from the large Early Iron Age villages and towards the individual family homesteads of the historic Nguni-speaking peoples (Maggs 1989: 35).

Artefacts on Iron Age homestead sites include ceramic sherds, upper and lower grindstones and human and animal bones. Metalworking sites are often located in areas where iron ore is available and associated debris includes furnace remains, slag, bloom and ceramic sherds.

'The evidence or written sources [from shipwrecked Portuguese and other European mariners, who traversed lowland and coastal Natal on their way northwards to Mozambique] shows that, by the 1550s, while the coastal sourveld of Pondoland was thinly inhabited, coastal Natal from the Mtamvuna northwards was already well populated. A settlement of twenty hemispherical huts built of poles and thatch is described as being typical of the coast at that time. A later report confirms that such 'small villages' were the homes of kinship groups, each under the authority of a senior man. There can have been little difference between these homesteads and those of the nineteenth century in Natal and Zululand.

'The agro-pastoral economy of the Iron Age prevailed throughout the coastal regions, with cultivation typically a combination of grains, legumes and vegetables of the pumpkin-melon family. There were three types of grains, one being sorghum and another a smaller-seeded millet, specific identification being difficult to establish from the old Portuguese documents. Vegetables included beans, African groundnuts (both legumes), gourds, watermelons and pumpkins, while sorghum was cultivated for its sweet pith as well as for its seeds... There is evidence to show that tobacco was being cultivated and smoked by 1686. Cattle, sheep and goats were seen in quantities, as were chicken from southern Natal northwards' (Maggs 1989: 39).

More recent historical heritage resources include numerous sites associated with the battles of the Anglo-Zulu and Anglo-Boer Wars. Better-known sites are often demarcated and signposted clearly, since they are important cultural markers for extant communities, as well as tourist attractions.

¹ This tradition is now known as Mzonjani in KwaZulu-Natal.

However, other war remains are less noticeable, though no less numerous, and include earth and stone fortifications on many a hilltop. These sites often have high local, regional, national and international heritage value and significance, as defined in the National Heritage Resources Management Act, the KwaZulu-Natal Heritage Act and guidelines such as those included in the Appendix to this report.

Observations and recommendations

For the purposes of ~~the scoping~~ this study, it was useful to distinguish between two broad categories of known heritage resources, namely **discrete sites** and **cultural landscapes**.

In general, resources in the former category are afforded specific definitions and special protection, such as structures older than sixty years, rock art and ancestral graves. Mitigatory measures to avoid site alteration depend largely on heritage value and significance, but a permit from Amafa aKwaZulu-Natali, the provincial heritage management organisation, is usually required before such sites are altered in any way.

The locations of all recorded archaeological sites within the study area as held by the Natal Museum's Data Recording Centre are plotted on Figure 2, below.

Insert Fig 2. To be generated by GIS once she has received the electronic X;Y data from Penny.

Cultural landscapes are less clearly defined; hence their levels of protection and management are more open to interpretation. Examples are places to which oral traditions are attached or that are associated with living heritage; historical settlements and townscapes; and landscapes and natural features. Such resources may receive special protection through declaration as Heritage or Provincial Landmarks, Heritage Conservancies or Sensitive Sites.

The American National Parks Services sets out various criteria for the identification and management of cultural landscapes:

'Cultural landscapes are complex resources that range from large rural tracts covering several thousand acres to formal gardens of less than an acre. Natural features such as landforms, soils and vegetation are not only part of the cultural landscape, they provide the framework within which it evolves. In the broadest sense, a cultural landscape is a reflection of human adaptation and use of settlement, land use, systems of circulation and the natural resources and is often expressed in the way land is organised and divided, patterns of types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls and vegetation, and by use reflecting cultural values and traditions.

'Identifying the character-defining features in a landscape and understanding them in relation to each other and to significant historic events, trends and persons allows us to read the landscape as a cultural resource. In many cases, these features are dynamic and change over time. In many cases, too, historical significance may be ascribed to more than one period in a landscape's physical and cultural evolution.

'Cultural landscape management involves identifying the type and degree of change that can occur while maintaining the character-defining features. The identification and management of an appropriate level of change in a cultural landscape is closely related to its significance. In a landscape significant for its association with a specific style, individual, trend or event, change may diminish its integrity and needs to be carefully monitored and controlled. In a landscape significant for the pattern of use that has evolved, physical change may be essential to the continuation of the use. In the latter case, the focus should be on perpetuating the use while maintaining the general character and feeling of the historic period(s), rather than on preserving a specific appearance.

'A cultural landscape is a geographic area, including both natural and cultural resources, associated with a historic event, activity or person. The National Park Services recognises four cultural landscape categories: historic designed landscapes, historic vernacular landscapes, historic sites and ethnographic landscapes. These categories are helpful in distinguishing the values that make landscapes cultural resources and in determining how they should be treated, managed and interpreted...

'The four cultural landscape categories are not mutually exclusive. A landscape may be associated with a significant event, include designed or vernacular characteristics and be significant to a specific cultural group.'

However, identification and formal declaration of these resources is not far advanced, either provincially or nationally. Accordingly, it is important to ensure that current development and land use does not permanently compromise the character-defining qualities of these significant, yet less tangible, heritage resources.

Any one of the three transmission line routes selected will have a permanent adverse impact on the visual aspects of the cultural landscape, wherever it is placed. However, this impact will be minimised by routing the line along valleys rather than ridges or skylines and is considered a best-case compromise, given the necessity of the transmission line for network strengthening.

The following tables summarise the impacts of the three transmission line routes, in terms of discrete heritage sites (Table 1) and cultural landscapes (Table 2):

Table 1			
Nature of impact	Discrete Heritage Sites		
Legal requirements	National Heritage Resources Management Act, No.25 of 1999; KwaZulu-Natal Heritage Act, No.10 of 1997		
Stage	Construction, Operation and Decommissioning		
	Eastern	Central	Western
Preferred route (1=most preferred, 3=least preferred)	1	3	2
Extent of impact	Local	Local	Local
Duration of impact	Short Term	Short Term	Short Term
Intensity	Low	Low	Low
Probability of occurrence	Medium	Medium	Medium
Status of the impact	Negative	Negative	Negative
Accumulative impact	Low if mitigated	Low if mitigated	Low if mitigated
Confidence	High	High	High
Level of significance	Moderate	Moderate	Moderate
** Mitigation measures	Physical ground survey and site identification	Physical ground survey and site identification	Physical ground survey and site identification
Level of significance after mitigation	Medium	Medium	Medium
EMP requirements	As per proposed site management mitigation recommendations		

Table 2			
Nature of impact	Cultural Landscapes		
Legal requirements	National Heritage Resources Management Act, No.25 of 1999; KwaZulu-Natal Heritage Act, No.10 of 1997		
Stage	Operation		
	Eastern	Central	Western
Preferred route (1=most preferred, 3=least preferred)	1	3	2
Extent of impact	Regional	Regional	Regional
Duration of impact	Long term	Long term	Long term
Intensity	Medium	High	Medium
Probability of occurrence	High	High	High
Status of the impact	Negative	Negative	Negative
Accumulative Impact	Medium	High	Medium
Confidence	High	High	High
Level of significance	Low	High	Moderate
Mitigation measures	Wherever possible line route should be parallel and in proximity to existing servitudes	"No go" option	Route the line wherever possible along valleys rather than ridges or skylines
Level of significance after mitigation	Moderate	None	Moderate
EMP requirements	NONE APPLICABLE		

Due to the presence of a number of existing transmission servitudes within and immediately adjacent to the eastern corridor, it is our considered opinion that this option will have the least impact on the extant cultural landscape if aligned parallel or in proximity to existing lines and servitudes. Where the proposed alignment traverses ['greenfield' areas](#), cognisance must be taken of the recommendations of the visual impact specialist.

Although the site plots recorded in Figure 2 indicate a greater occurrence of sites within and adjacent to the eastern corridor area this is not a true reflection of reality. This area has been a focus of archaeological research for the last two decades (Hall and Maggs 1979; Hall 1981, Wahl 1995). Further, due to the commissioning of a number of transmission lines in and adjacent to the eastern corridor in the last fifteen years, a series of archaeological surveys has been undertaken for ESKOM and the recorded sites have been entered into the Regional Recording Centre's data base (eThembeni Cultural Heritage 2003, Van Schalkwyk 1994, Whitelaw 1994a and b).

In contrast, the central and western corridor areas have not been subjected to such extensive surveys and research focus, and consequently site occurrence data for these areas are not available. However, the occurrence of discrete heritage sites was recorded within these two corridor options during the field visit for this project.

The potential impacts of a transmission line on discrete heritage sites within all three corridor options is thus rated equally in Table 1 on the understanding that appropriate mitigation will be applied to individual sites identified during the Environmental Impact Assessment phase of this project.

Once the preferred route has been selected and surveyed it will have to undergo physical inspection and discrete site identification. Specific management recommendations will have to be made for all sites relative to their location to proposed tower positions and access and maintenance servitudes.

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APPENDIX

SIGNIFICANCE AND VALUE OF HERITAGE RESOURCE SITES

The following guidelines for determining site significance were developed by the South African Heritage Resources Agency in 2003. We use them in conjunction with tables of our own formulation (see that for the Southern African Iron Age, below) when considering intrinsic site significance and significance relative to development activities, as well as when recommending mitigatory action.

Type of Resource

Place

Structure

Archaeological Site

Palaeontological Site

Geological Feature

Grave

Type of Significance

1. Historical Value

It is important in the community, or pattern of history

- Importance in the evolution of cultural landscapes and settlement patterns
- Importance in exhibiting density, richness or diversity of cultural features illustrating the human occupation and evolution of the nation, Province, region or locality.
- Importance for association with events, developments or cultural phases that have had a significant role in the human occupation and evolution of the nation, Province, region or community.
- Importance as an example for technical, creative, design or artistic excellence, innovation or achievement in a particular period

It has strong or special association with the life or work of a person, group or organisation of importance in history

- Importance for close associations with individuals, groups or organisations whose life, works or activities have been significant within the history of the nation, Province, region or community.

It has significance relating to the history of slavery

- Importance for a direct link to the history of slavery in South Africa.

2. Aesthetic Value

It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group

- Importance to a community for aesthetic characteristics held in high esteem or otherwise valued by the community.
- Importance for its creative, design or artistic excellence, innovation or achievement.
- Importance for its contribution to the aesthetic values of the setting demonstrated by a landmark quality or having impact on important vistas or otherwise contributing to the identified aesthetic qualities of the cultural environs or the natural landscape within which it is located.
- In the case of an historic precinct, importance for the aesthetic character created by the individual components which collectively form a significant streetscape, townscape or cultural environment.

3. Scientific Value

It has potential to yield information that will contribute to an understanding of natural or cultural heritage

- Importance for information contributing to a wider understanding of natural or cultural history by virtue of its use as a research site, teaching site, type locality, reference or benchmark site.
- Importance for information contributing to a wider understanding of the origin of the universe or of the development of the earth.
- Importance for information contributing to a wider understanding of the origin of life; the development of plant or animal species, or the biological or cultural development of hominid or human species.
- Importance for its potential to yield information contributing to a wider understanding of the history of human occupation of the nation, Province, region or locality.

It is important in demonstrating a high degree of creative or technical achievement at a particular period

- Importance for its technical innovation or achievement.

4. Social Value

It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons

- Importance as a place highly valued by a community or cultural group for reasons of social, cultural, religious, spiritual, symbolic, aesthetic or educational associations.
- Importance in contributing to a community's sense of place.

Degrees of Significance

Rarity

It possesses uncommon, rare or endangered aspects of natural or cultural heritage

- Importance for rare, endangered or uncommon structures, landscapes or phenomena.

Representivity

It is important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects

Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class.

Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, Province, region or locality.

Sphere of Significance	High	Medium	Low	
International	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
National	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Provincial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Regional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Local	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Specific Community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-----

What other similar sites may be compared to this site?

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Southern African Iron Age

	Significance		
	- low	- medium	- high
Unique or type site			Yes
Formal protection			Yes
Spatial patterning	?Yes	?Yes	?Yes
Degree of disturbance	75 – 100%	25 – 74%	0 – 24%
Organic remains (list types)	0 – 5 / m ²	6 – 10 / m ²	11 + / m ²
Inorganic remains (list types)	0 – 5 / m ²	6 – 10 / m ²	11 + / m ²
Ancestral graves			Present
Horizontal extent of site	< 100m ²	101 – 1000m ²	1000 + m ²
Depth of deposit	< 20cm	21 – 50cm	51 + cm
Spiritual association			Yes
Oral history association			Yes
➤ Research potential			High
➤ Educational potential			High

Please note that this table is a tool to be used by qualified cultural heritage managers who are also experienced site assessors.