

PHASE 1 HERITAGE IMPACT ASSESSMENT REPORT:  
GINGINDLOVU TO MANDINI 132KV POWER LINE,  
uTHUNGULU DISTRICT MUNICIPALITY,  
KWAZULU-NATAL

Prepared for

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## MANAGEMENT SUMMARY

eThembeni Cultural Heritage was appointed by Ludloko Developments cc to undertake a Phase 1 Heritage Impact Assessment of a proposed power line upgrade between Gingindlovu and Mandini, as required by the National Environmental Management Act 107 of 1998 as amended, in compliance with Section 38 of the National Heritage Resources Act 25 of 1999 as amended.

### DESCRIPTION AND SIGNIFICANCE ASSESSMENT OF HERITAGE RESOURCES

Virtually the entire proposed power line route is located within cultivated fields, dominated by sugar cane plantations.

- Places, buildings, structures and equipment

Although we identified no buildings that constitute heritage resources within the proposed development area, we observed that the proposed power line immediately north of tower 10 traverses an occupied homestead. The servitude width for a 132 kV Sub-transmission line is 36m (18m on either side of the centre line of the power line) and no occupied residence is allowed within the servitude.

- Battlefields

The proposed power line traverses the scenes of the Battles of Ndondakusuka and Gingindlovu, fought in 1856 and 1879, respectively. These battlefields have medium to high heritage significance at the regional and provincial levels for their historic values. However, the landscape over which these battles were fought has been transformed to such an extent that it retains significance only at specific sites, such as Fort Tenedos overlooking the uThukela River.

### ASSESSMENT OF DEVELOPMENT IMPACT

- Places, buildings, structures and equipment

The impact on the occupied homestead will be MEDIUM.

- Battlefields

Not applicable.

### RECOMMENDED MITIGATION MEASURES

- Places, buildings, structures and equipment

The proposed power line requires re-routing to a distance of at least 18m from the centre line of the power line, and preferably further.

- Battlefields

None.

## RECOMMENDED MONITORING

None.

## CONCLUSION

We recommend that the development proceed with the proposed heritage mitigation and have submitted this report to Amafa in fulfilment of the requirements of the National Heritage Resources Act.

The client may contact Ms Weziwe Tshabalala at Amafa's Pietermaritzburg office in due course to enquire about the Council's decision. If permission is granted for the development to proceed, the client is reminded that the Act requires that a developer cease all work immediately and adhere to the protocol described in Section 10 of this report should any heritage resources, as defined in the Act, be discovered during the course of development activities.

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## 1 INTRODUCTION

eThembeni Cultural Heritage was appointed by Ludloko Developments cc to undertake a Phase 1 Heritage Impact Assessment of a proposed power line upgrade near Eshowe, as required by the National Environmental Management Act 107 of 1998 as amended (NEMA), in compliance with Section 38 of the National Heritage Resources Act 25 of 1999 (NHRA) (refer to Appendix A).

South Africa's heritage resources are both rich and widely diverse, encompassing sites from all periods of human history. Resources may be tangible, such as buildings and archaeological artefacts, or intangible, such as landscapes and living heritage. Their significance is based upon their aesthetic, architectural, historical, scientific, social, spiritual, linguistic, economic or technological values; their representivity of a particular time period; their rarity; and their sphere of influence.

The integrity and significance of heritage resources can be jeopardized by natural (e.g. erosion) and human (e.g. development) activities. In the case of human activities, a range of legislation exists to ensure the timeous identification and effective management of heritage resources for present and future generations.

This report represents compliance with a full Phase 1 HIA (excluding a specialist palaeontological study) for the proposed development.

## 2 TERMS OF REFERENCE

A Phase 1 HIA must address the following key aspects:

- the identification and mapping of all heritage resources in the area affected;
- an assessment of the significance of such resources in terms of heritage assessment criteria set out in regulations;
- an assessment of the impact of the development on heritage resources;
- an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
- the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
- if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- plans for mitigation of any adverse effects during and after completion of the proposed development.

In addition, the HIA should comply with the requirements of NEMA, including providing the assumptions and limitations associated with the study; the details, qualifications and expertise of the person who prepared the report; and a statement of independence.

### 3 PROJECT DESCRIPTION

Ludloko Developments cc has been asked by Eskom Distribution to undertake a Basic Assessment study for a double circuit power line from the new Gingindlovu Substation to Mandini. The scope of work is as follows:

- Dismantling of the existing 24km of 88kV line from Mandini Substation to Gingindlovu Substation.
- Construction of approximately 24km (48km new conductor) of 132kV line. This line will be double circuit line and be constructed along the alignment of the existing servitude of the Mandini-Gingindlovu 88kV line.
- The western side (inland) of this line (Gingindlovu-Amatikulu section) will remain energized at 88kV from Gingindlovu Substation and should be connected to the existing Amatikulu Tee Line.
- Install OPGW on the line with provisions for loop-in loop-out configurations at Mangethe and Mbongolwane Substations.

#### Sub-transmission power lines

In South Africa, thousands of kilometres of high voltage Transmission lines (i.e. 765kV, 400kV or 275kV Transmission lines) transmit electricity generated at power stations to Eskom's major substations. At these major substations, the voltage is reduced, and the electricity is distributed to smaller substations all over the country through Sub-transmission lines (i.e. 132kV, 88kV or 66kV Sub-transmission lines).

At the smaller substations the voltage is further reduced and the power is distributed to local users via numerous smaller power lines (i.e. 22kV and 11kV lines) referred to as Reticulation lines. The power generated by Eskom can only be utilised from those points of supply, which transform the power into a usable voltage.

#### 132 kV Towers

Sub-transmission line conductors are strung on in-line (suspension) towers and bend (strain) towers. The structures proposed to be used for the majority of the 132kV Sub-transmission line are the 132kV steel monopole structures. These poles weigh approximately 1 200 kg each and vary in height from approximately 17.4m to 21m.

The size of the footprint depends on the type of pole, i.e. whether it is a self-supporting, guyed suspension or an angle strain pole structure and ranges from 0.36m<sup>2</sup> to 2.25m<sup>2</sup> with the larger footprint associated with the guyed suspension and angle strain pole used as bend (strain) structures.

The average span between two towers is 200m, but can vary between 250m and 375m depending on the ground profile and the terrain to be spanned. The self-supporting structure (suspension pole) is typically used along the straight sections of the power line, while the guyed intermediate or guyed suspension and angle strain structures are used where there is a bend in the power line alignment.

## Servitude requirements and clearances

The servitude width for a 132kV Sub-transmission line is 36m (18m on either side of the centre line of the power line). The minimum vertical clearance to buildings, poles and structures not forming part of the power line must be 3.8m, while the minimum vertical clearance between the conductors and the ground is 6.7m. No permanent residence is allowed within the servitude. The servitude is required for the safe operation of the power line and reliability of electricity supply to consumers.

The minimum distance of a 132kV Sub-transmission line running parallel to proclaimed public roads is 95m from the centre line of the Sub-transmission line servitude to the centre line of the road servitude. The minimum distance between any part of a tree or shrub and any bare phase conductor of a 132kV Sub-transmission line must be 3.8m to allow for possible lateral movement of vegetation that could be a potential hazard for operational and energised distribution lines.

A minimum 8m (4m either side of the centre line of the power line) wide strip is to be cleared of all trees and shrubs down the centre of the Sub-transmission line servitude for stringing purposes only. If any tree or shrub in other areas will interfere with the operation and/or reliability of the Sub-transmission line it will be trimmed or completely cleared. The clearing of vegetation will take place, with the aid of a surveyor, along approved profiles and in accordance with the approved EMP, and in accordance with the minimum standards to be used for vegetation clearing for the construction of the proposed new 132 kV Sub-transmission lines as listed in the following table.

Item	Standard	Follow-up
Centre line of the proposed Sub-transmission line	Clear to a maximum (depending on tower type and voltage) of an 8m wide strip of all vegetation along centre line. Vegetation to be cut within 100mm of ground. Treat stumps with herbicide.	Re-growth shall be cut within 100mm of the ground and treated with herbicide, as necessary.
Inaccessible valleys (trace line)	Clear a 1m strip for access by foot only, for the pulling of a pilot wire by hand.	Vegetation not to be disturbed after initial clearing; vegetation to be allowed to re-grow.
Access / service roads	Clear a maximum (depending on tower type) 5m wide strip for vehicle access within the maximum 8m width, including de-stumping / cutting stumps to ground level, treating with a herbicide and recompaction of soil.	Re-growth to be cut at ground level and treated with herbicide as necessary.
Proposed tower position and proposed support / stay wire position	Clear all vegetation within proposed tower position and within a maximum (depending on tower type) radius of 5m around the position, including de-stumping / cutting stumps to ground level, treating with a herbicide and recompaction of soil. Allow controlled agricultural practices, where feasible.	Re-growth to be cut at ground level and treated with herbicide as necessary.
Indigenous vegetation within servitude area (outside of maximum 8m strip)	Area outside of the maximum 8m strip and within the servitude area, selective trimming or cutting down of those identified plants posing a threat to the integrity of the proposed Sub-transmission line.	Selective trimming
Alien species within servitude area (outside of maximum 8 m strip)	Area outside of the maximum 8m strip and within the servitude area, remove all vegetation within servitude area and treat with appropriate herbicide.	Cut and treat with appropriate herbicide.

Once the centre line has been cleared, the surveyor pegs every tower position and marks the crossing point with existing fences for new gate installation. Once the tower positions have been marked, the vegetation clearing team will return to every tower position and clear vegetation (in accordance with the EMP management actions) for assembling and erection purposes.

## Foundations

The type of terrain encountered and the underlying geotechnical conditions determine the choice of foundation. The actual size and type of foundation to be installed will depend on the soil bearing capacity (actual sub-soil conditions).

Strain structures require more extensive foundations for support than in-line suspension structures, which contribute to the cost of the construction of the line. The minimum working area required around a structure position is 20m × 20m. Foundations will be mechanically excavated where access to the pole position is readily available. The same applies to the pouring of concrete required for the setting of the foundations. Prior to erecting the poles and filling of the foundations, the excavated foundations will be covered in order to safeguard unsuspecting animals and people from injury. All foundations are back-filled, stabilised through compaction, and capped with concrete at ground level.

## Insulators

Composite insulators have a glass-fibre core with silicon sheds for insulation and are used to connect the conductors to the towers. Glass and porcelain have previously been used to connect the conductors for many years, and are the most common. These products are, however, heavy and susceptible to breakage by vandals, as well as contamination by pollution. Composite insulators are lightweight and resistant to both vandalism and pollution. Composite (Long rod type) insulators with silicone based weathershed material are used for strain assemblies. Composite horizontal line post insulators are used for intermediate structures and on jumper supports.

## Access

A vehicle access/maintenance road is usually required to allow access along the entire length of the servitude. Access is required during both the construction and operation/maintenance phases of the Sub-transmission line's life cycle. The access points and roads, if not already present, will be negotiated with the relevant landowner, and are to be established during the construction phase. Should a new access road be required it will need to be negotiated with the landowners concerned.

## 4 PROJECT LOCATION

The proposed development area falls within the regional jurisdiction of the uThungulu District Municipality and the Msunduzi Local Municipality (Figures 1 and 2).

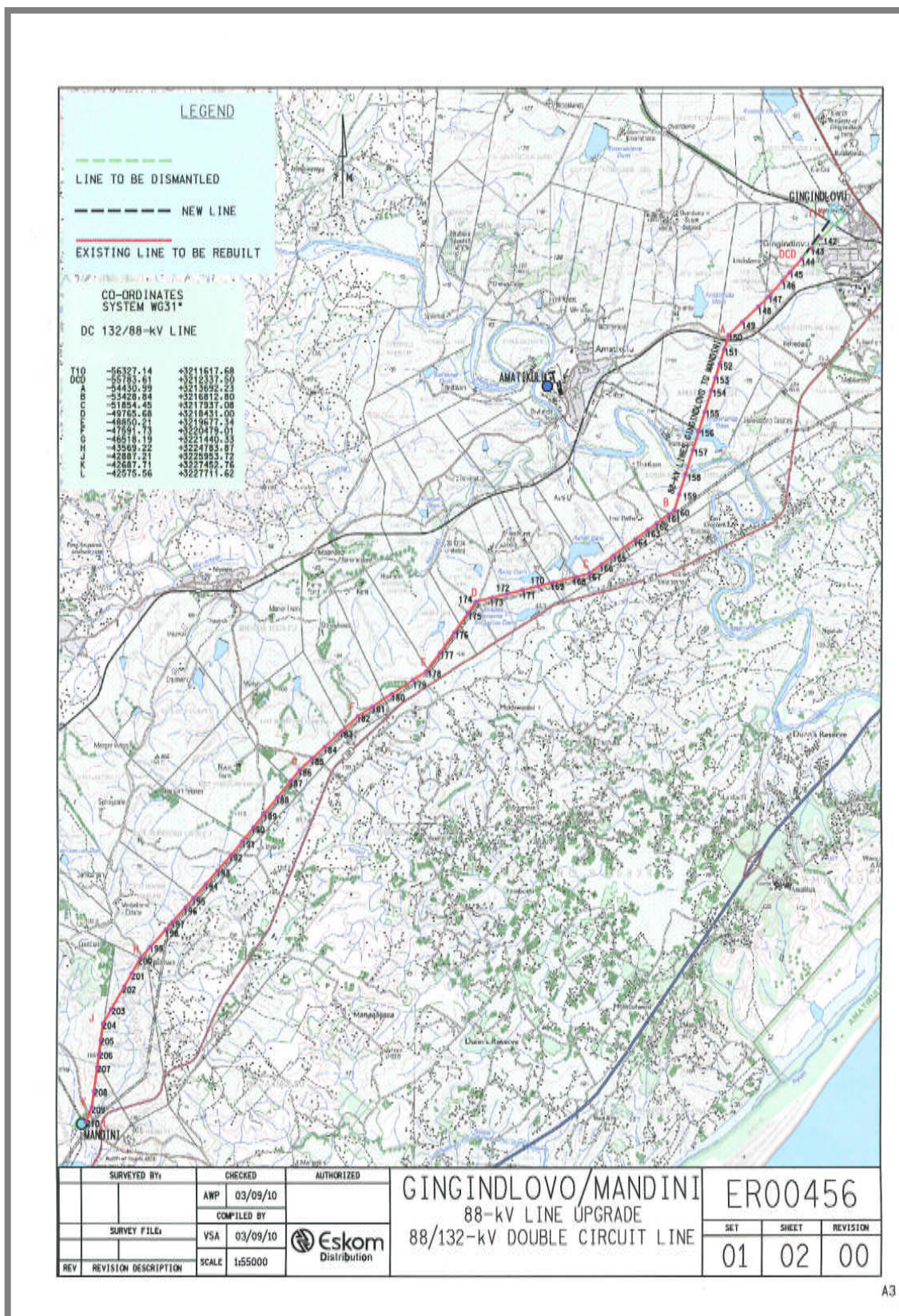
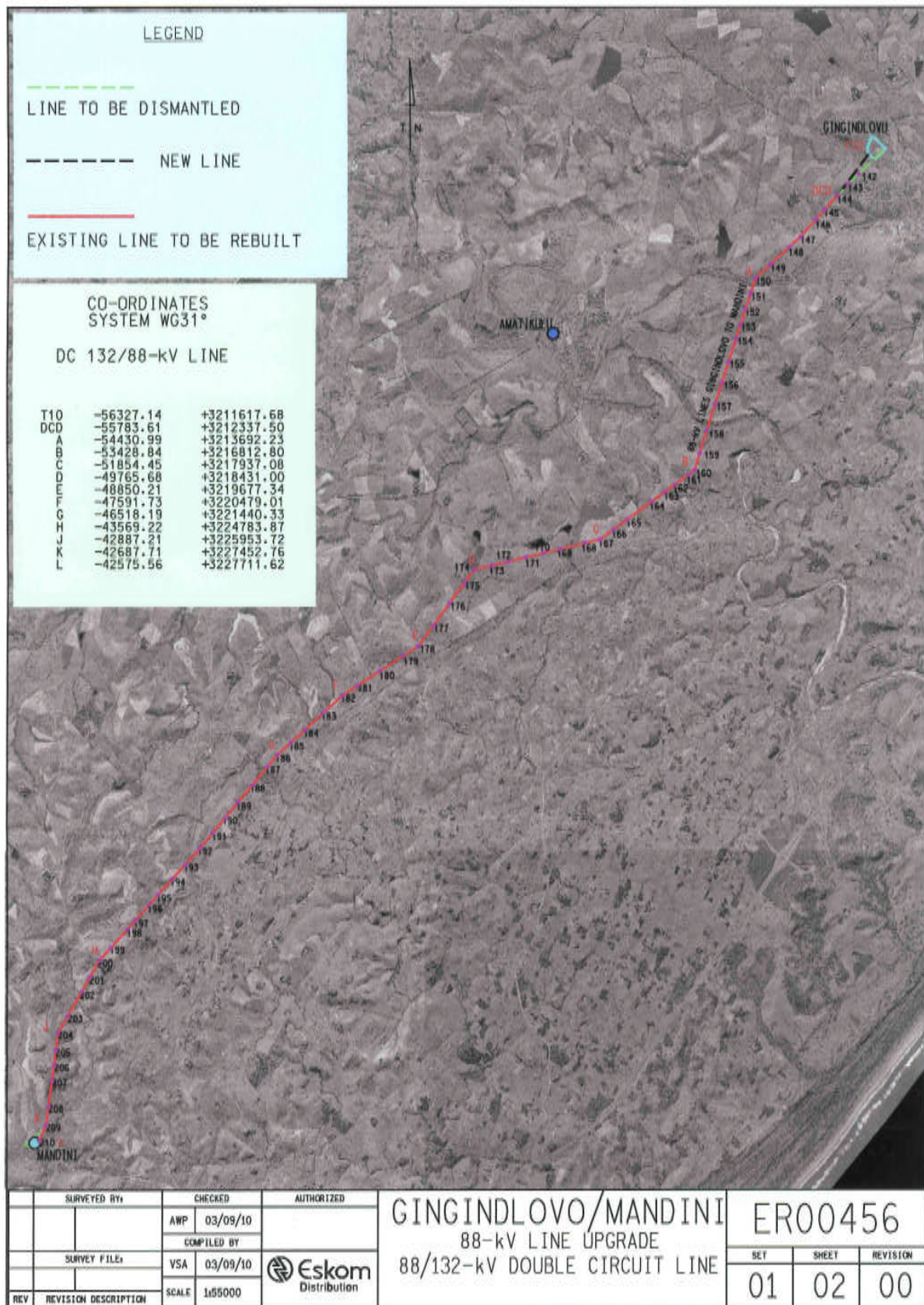


Figure 1 Locality of Gingindlovu/Mandini power line upgrade.



A3

Figure 2 Orthophoto of Gingindlovu/Mandini power line upgrade.

The locations of the proposed bend (strain) tower positions of the new power line are:

1	29° 1'20.03"S; 31°34'41.44"E
2	29° 1'43.50"S; 31°34'21.48"E
3	29° 2'27.71"S; 31°33'31.74"E
4	29° 4'9.22"S; 31°32'55.24"E
5	29° 4'45.97"S; 31°31'57.22"E
6	29° 5'2.32"S; 31°30'40.07"E
7	29° 5'42.93"S; 31°30'6.42"E
8	29° 6'9.14"S; 31°29'20.01"E
9	29° 6'40.50"S; 31°28'40.45"E
10	29° 8'29.48"S; 31°26'51.86"E
11	29° 9'7.56"S; 31°26'26.79"E
12	29° 9'56.27"S; 31°26'19.62"E
13	29°10'4.70"S; 31°26'15.50"E

## 5 CULTURAL CONTEXT

Appendix B contains a summary of the archaeological and historical aspects of the broader project area.

## 6 HERITAGE RESOURCE OBSERVATIONS AND ASSESSMENT OF SIGNIFICANCE

No development activities associated with the proposed project had begun at the time of our visit, in accordance with heritage legislation. Virtually the entire proposed power line route is located within cultivated fields, dominated by sugar cane plantations (Figures 3, 4 and 5).

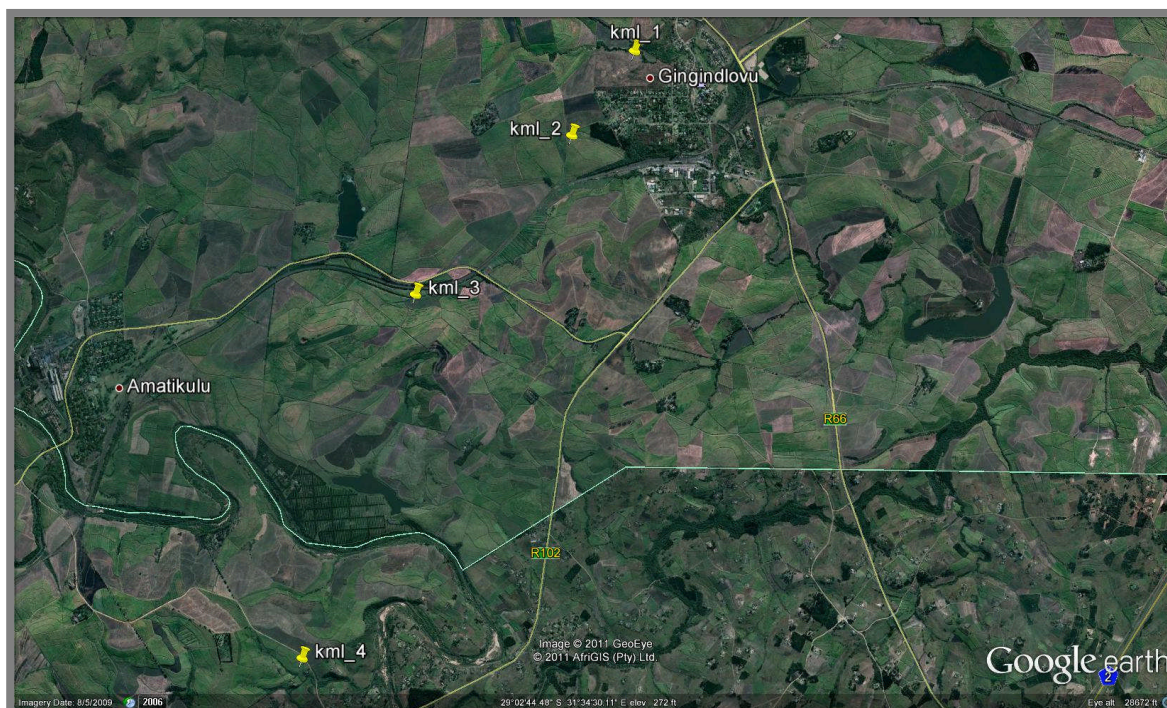


Figure 3 Location of towers 1 to 4.



Figure 4 Location of towers 5 to 9.

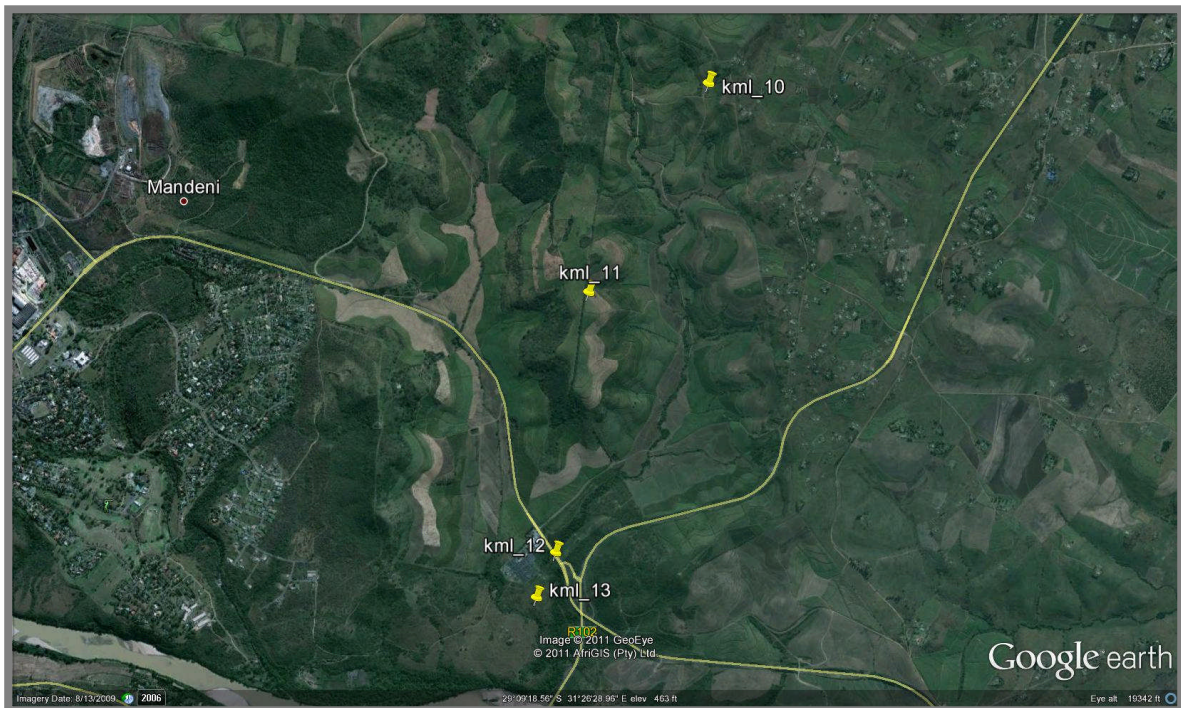


Figure 5 Location of towers 10 to 13.

Table 1 summarises the heritage resources assessed, and our observations.

Table 1 Heritage resources and observations: Gingindlovu/Mandini power line upgrade.

Heritage resource type	Observation
Ecofacts	None were identified within the proposed development area.
Places, buildings, structures and equipment	See below.
Places to which oral traditions are attached or which are associated with living heritage	None were identified within the proposed development area.
Historical settlements and townscapes	None were identified within the proposed development area.
Landscapes and natural features	None were identified within the proposed development area.
Geological sites of scientific or cultural importance	None were identified within the proposed development area.
Archaeological sites	None were identified within the proposed development area.
Graves and burial grounds	None were identified within the proposed development area.
Public monuments and memorials	None were identified within the proposed development area.
Movable objects excluding any object made by a living person	None were identified within the proposed development area.
Battlefields	See below.

– Places, buildings, structures and equipment

Although we identified no buildings that constitute heritage resources within the proposed development area, we observed that the proposed power line immediately north of tower 10 traverses an occupied homestead at S29 08 23.5; E31 26 58.0 (Figure 3). The servitude width for a 132 kV Sub-transmission line is 36m (18m on either side of the centre line of the power line) and no occupied residence is allowed within the servitude.

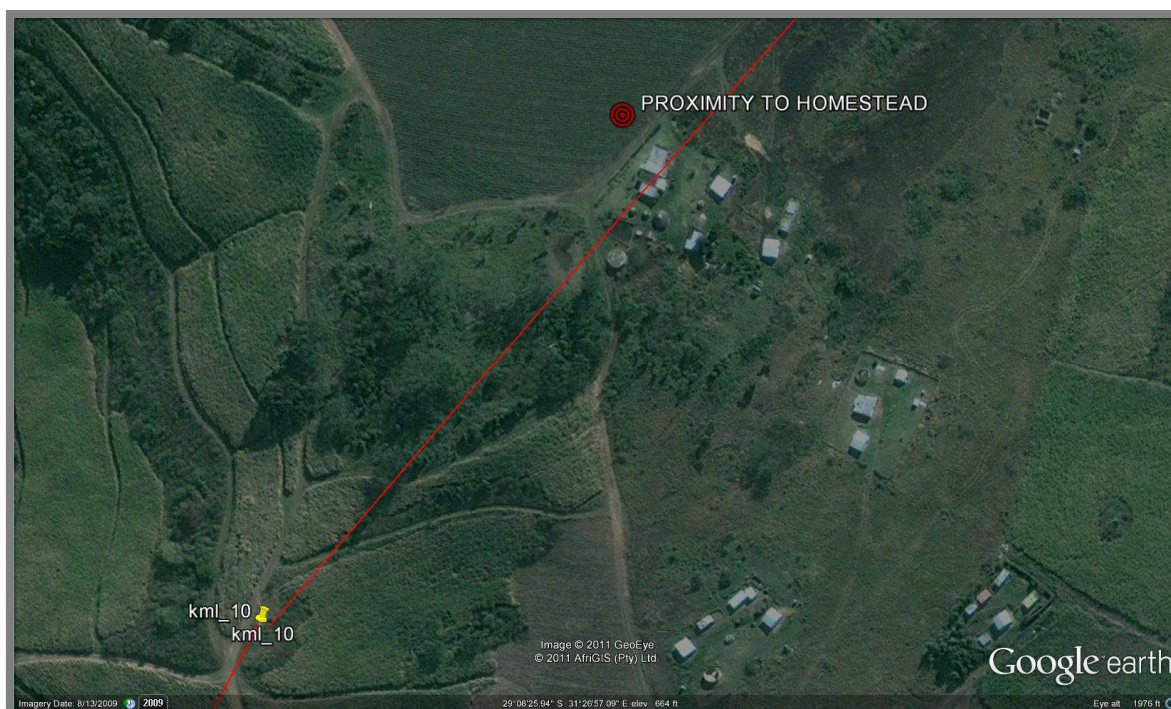


Figure 6 Power line traversing homestead near tower location 10.

– Battlefields

The proposed power line traverses the scenes of the Battles of Ndondakusuka and Gingindlovu, fought in 1856 and 1879, respectively (see Appendix B). These battlefields have medium to high heritage significance at the regional and provincial levels for their historic values. However, the landscape over which these battles were fought has been transformed to such an extent that it retains significance only at specific sites, such as Fort Tenedos overlooking the uThukela River.

## 7 ASSESSMENT OF DEVELOPMENT IMPACT

– Places, buildings, structures and equipment

The occupied homestead located at S29 08 23.5; E31 26 58.0 will be affected as follows (see criteria in Appendix C):

Nature	Negative
Extent	Low
Duration	High
Intensity	Medium to High
Potential for impact on irreplaceable resources	Low
Consequence	Medium
Probability	High
Significance	MEDIUM

– Battlefields

Not applicable.

## 8 RECOMMENDED MITIGATION MEASURES

– Places, buildings, structures and equipment

The proposed power line requires re-routing to a distance of at least 18m from the centre line of the power line, and preferably further.

– Battlefields

None.

## 9 RECOMMENDED MONITORING

None.

## 10 PROTOCOL FOR THE IDENTIFICATION, PROTECTION AND RECOVERY OF HERITAGE RESOURCES DURING CONSTRUCTION AND OPERATION

It is possible that sub-surface heritage resources could be encountered during the construction phase of this project. The Environmental Control Officer and all other persons responsible for site management and excavation should be aware that indicators of sub-surface sites could include:

- Ash deposits (unnaturally grey appearance of soil compared to the surrounding substrate);
- Bone concentrations, either animal or human;
- Ceramic fragments, including potsherds;
- Stone concentrations that appear to be formally arranged (may indicate the presence of an underlying burial, or represent building/structural remains); and
- Fossilised remains of fauna and flora, including trees.

In the event that such indicator(s) of heritage resources are identified, the following actions should be taken immediately:

- All construction within a radius of at least 20m of the indicator should cease. This distance should be increased at the discretion of supervisory staff if heavy machinery or explosives could cause further disturbance to the suspected heritage resource.
- This area must be marked using clearly visible means, such as barrier tape, and all personnel should be informed that it is a no-go area.
- A guard should be appointed to enforce this no-go area if there is any possibility that it could be violated, whether intentionally or inadvertently, by construction staff or members of the public.
- No measures should be taken to cover up the suspected heritage resource with soil, or to collect any remains such as bone or stone.
- If a heritage practitioner has been appointed to monitor the project, s/he should be contacted and a site inspection arranged as soon as possible.
- If no heritage practitioner has been appointed to monitor the project, the head of archaeology at Amafa's Pietermaritzburg office should be contacted; telephone 033 3946 543).
- The South African Police Services should be notified by an Amafa staff member or an independent heritage practitioner if human remains are identified. No SAPS official may disturb or exhume such remains, whether of recent origin or not.
- All parties concerned should respect the potentially sensitive and confidential nature of the heritage resources, particularly human remains, and refrain from making public statements until a mutually agreed time.
- Any extension of the project beyond its current footprint involving vegetation and/or earth clearance should be subject to prior assessment by a qualified heritage practitioner, taking into account all information gathered during this initial heritage impact assessment.

## 11 CONCLUSION

We recommend that the development proceed with the proposed heritage mitigation and will submit the final version of this report to Amafa in fulfilment of the requirements of the NHRA. According to Section 38(4) of the Act the report shall be considered timeously by the Council which shall, after consultation with the person proposing the development, decide –

- whether or not the development may proceed;
- any limitations or conditions are to be applied to the development;
- what general protections in terms of the NHRA apply, and what formal protections may be applied to such heritage resources;
- whether compensatory action shall be required in respect of any heritage resources damaged or destroyed as a result of the development; and
- whether the appointment of specialists is required as a condition of approval of the proposal.

The client may contact Ms Weziwe Tshabalala at Amafa's Pietermaritzburg office (telephone 033 3946 543) in due course to enquire about the Council's decision.

If permission is granted for development to proceed, the client is reminded that the NHRA requires that a developer cease all work immediately and adhere to the protocol described in Section 10 of this report should any heritage resources, as defined in the Act, be discovered during the course of development activities.

## 12 BIBLIOGRAPHY

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## APPENDIX A

### STATUTORY REQUIREMENTS

#### GENERAL

The identification, evaluation and management of heritage resources in South Africa is required and governed by the following legislation:

- National Environmental Management Act 107 of 1998 (NEMA)
- KwaZulu-Natal Heritage Act 4 of 2008 (KZNHA)
- National Heritage Resources Act 25 of 1999 (NHRA)
- Minerals and Petroleum Resources Development Act 28 of 2002 (MPRDA)
- Development Facilitation Act 67 of 1995 (DFA).

#### KWAZULU-NATAL HERITAGE ACT 4 OF 2008 (KZNHA)

This Act is implemented by Amafa aKwaZulu-Natali/Heritage KwaZulu-Natal, the provincial heritage resources authority charged to provide for the conservation, protection and administration of both the physical and the living or intangible heritage resources of the province; along with a statutory Council to administer heritage conservation in the Province.

#### NATIONAL HERITAGE RESOURCES ACT 25 OF 1999 (NHRA)

The NHRA established the South African Heritage Resources Agency (SAHRA) together with its Council to fulfill the following functions:

- co-ordinate and promote the management of heritage resources at national level;
- set norms and maintain essential national standards for the management of heritage resources in the Republic and to protect heritage resources of national significance;
- control the export of nationally significant heritage objects and the import into the Republic of cultural property illegally exported from foreign countries;
- enable the provinces to establish heritage authorities which must adopt powers to protect and manage certain categories of heritage resources; and
- provide for the protection and management of conservation-worthy places and areas by local authorities.

#### Heritage Impact Assessments

Section 38(1) of the NHRA may require a Heritage Impact Assessment in case of:

- the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
- the construction of a bridge or similar structure exceeding 50m in length;
- any development or other activity which will change the character of a site—
  - (i) exceeding 5 000m<sup>2</sup> in extent; or
  - (ii) involving three or more existing 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 heritage resources authority;
- the re-zoning of a site exceeding 10 000m<sup>2</sup> in extent; or
- any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

Reports in fulfilment of NHRA Section 38(3) must include the following information:

- the identification and mapping of all heritage resources in the area affected;
- an assessment of the significance of such resources in terms of the heritage assessment criteria set out in regulations;
- an assessment of the impact of the development on such heritage resources;
- an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
- the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
- if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
- plans for mitigation of any adverse effects during and after completion of the proposed development.

It is incumbent upon the developer or Environmental Practitioner to approach the South African Heritage Resources Agency (SAHRA) or Amafa to ascertain whether an HIA is required for a project; what categories of heritage resource must be assessed; and request a detailed motivation for such a study in terms of both the nature of the development and the nature of the environment. In this regard we draw your attention to Section 38(2) of the NHRA which states specifically that 'The responsible heritage resources authority must ... if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report'. In other words, the heritage authority must be able to justify a request for an Archaeological, Palaeontological or Heritage Impact Assessment. The Environmental Practitioner may also submit information to the heritage authority in substantiation of exemption from a specific assessment due to existing environmental disturbance, for example.

#### Definitions of heritage resources

The Act defines a heritage resource as any place or object of cultural significance i.e. of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. This includes, but is not limited to, the following wide range of places and objects:

- living heritage as defined in the National Heritage Council Act 11 of 1999 (cultural tradition; oral history; performance; ritual; popular memory; skills and techniques; indigenous knowledge systems; and the holistic approach to nature, society and social relationships);
- ecofacts (non-artefactual organic or environmental remains that may reveal aspects of past human activity; definition used in KwaZulu-Natal Heritage Act 2008);
- places, buildings, structures and equipment;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features;

- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds;
- public monuments and memorials;
- sites of significance relating to the history of slavery in South Africa;
- movable objects, but excluding any object made by a living person; and
- battlefields.

Furthermore, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of—

- its importance in the community, or pattern of South Africa's history;
- its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; and
- its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.

Archaeological means –

- 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;
- rock art, being any 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 10m of such representation;
- wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act 15 of 1994, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation;
- 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.

A place is defined as:

- a site, area or region;

- a building or other structure which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure;
- 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;
- 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.

Public monuments and memorials means all monuments and memorials:

- erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government; or
- which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.

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

## MANAGEMENT OF GRAVES AND BURIAL GROUNDS

- Definitions

### Grave

The NHRA defines a grave as a place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such a place.

The KwaZulu-Natal Cemeteries and Crematoria Act 12 of 1996 defines a grave as an excavation in which human remains have been intentionally placed for the purposes of burial, but excludes any such excavation where all human remains have been removed.

### Burial ground

The term 'burial ground' does not appear to have a legal definition. In common usage the term is used for management purposes to describe two or more graves that are grouped closely enough to be managed as a single entity.

### Cemetery

The KwaZulu-Natal Cemeteries and Crematoria Act 1996 defines a cemetery as any place

- (a) where human remains are buried in an orderly, systematic and pre-planned manner in identifiable burial plots;
- (b) which is intended to be permanently set aside for and used only for the purposes of the burial of human remains.

– Protection of graves and cemeteries

No person may damage, alter, exhume, or remove from its original position any grave, as defined above, without permission from the relevant authority, as detailed in the following table.

Grave type	Relevant legislation	Administrative authority – disinterment	Administrative authority – reburial
Graves located within a formal cemetery administered by a local authority	KwaZulu-Natal Cemeteries and Crematoria Act 12 of 1996 Human Tissue Act 65 of 1983	National and / or Provincial Departments of Health	If relocated to formal cemetery – relevant local authority.
Graves younger than 100 years located outside a formal cemetery administered by a local authority and the graves of victims of conflict	KwaZulu-Natal Heritage Act 4 of 2008 Human Tissue Act 65 of 1983	Amafa aKwaZulu-Natali, the provincial heritage resources authority	If relocated to private or communal property – Amafa. If relocated to formal cemetery – Amafa and relevant local authority.

– Procedures required for permission to disinter and rebury graves

The procedure for consultation regarding burial grounds and graves (Section 36 of the NHRA) is applicable to all graves located outside a formal cemetery administered by a local authority. The following extract from this legislation is applicable to this policy document:

SAHRA or Amafa may not issue a permit for any alteration to or disinterment or reburial of a grave unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority—

- (a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and
- (b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

Any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Services and in accordance with regulations of the responsible heritage resources authority—

- (a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
- (b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

## The Vermillion Accord on Human Remains<sup>1</sup>

Adopted in 1989 at WAC Inter-Congress, South Dakota, USA

1. Respect for the mortal remains of the dead shall be accorded to all, irrespective of origin, race, religion, nationality, custom and tradition.
2. Respect for the wishes of the dead concerning disposition shall be accorded whenever possible, reasonable and lawful, when they are known or can be reasonably inferred.
3. Respect for the wishes of the local community and of relatives or guardians of the dead shall be accorded whenever possible, reasonable and lawful.
4. Respect for the scientific research value of skeletal, mummified and other human remains (including fossil hominids) shall be accorded when such value is demonstrated to exist.
5. Agreement on the disposition of fossil, skeletal, mummified and other remains shall be reached by negotiation on the basis of mutual respect for the legitimate concerns of communities for the proper disposition of their ancestors, as well as the legitimate concerns of science and education.
6. The express recognition that the concerns of various ethnic groups, as well as those of science are legitimate and to be respected, will permit acceptable agreements to be reached and honoured.

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<sup>1</sup> <http://www.worldarchaeologicalcongress.org/>

## APPENDIX B

### ARCHAEOLOGICAL AND HISTORICAL CONTEXT OF THE STUDY AREA

#### The Stone Age<sup>2</sup>

No systematic Early and Middle Stone Age research has been undertaken in the proposed development area, hence the general nature of this section. Open air scatters of stone artefacts, probably with low heritage significance, could be expected in areas with minimal environmental disturbance.

South Africa's prehistory has been divided into a series of phases based on broad patterns of technology. The primary distinction is between a reliance on chipped and flaked stone implements (the Stone Age) and the ability to work iron (the Iron Age). Spanning a large proportion of human history, the Stone Age in Southern Africa is further divided into the Early Stone Age, or Paleolithic Period (about 2 500 000–150 000 years ago), the Middle Stone Age, or Mesolithic Period (about 150 000–30 000 years ago), and the Late Stone Age, or Neolithic Period (about 30 000–2 000 years ago). The simple stone tools found with australopithecine fossil bones fall into the earliest part of the Early Stone Age.

##### o The Early Stone Age

Most Early Stone Age sites in South Africa can probably be connected with the hominin species known as *Homo erectus*. Simply modified stones, hand axes, scraping tools, and other bifacial artifacts had a wide variety of purposes, including butchering animal carcasses, scraping hides, and digging for plant foods. Most South African archaeological sites from this period are the remains of open camps, often by the sides of rivers and lakes, although some are rock shelters, such as Montagu Cave in the Cape region.

##### o The Middle Stone Age

The long episode of cultural and physical evolution gave way to a period of more rapid change about 200 000 years ago. Hand axes and large bifacial stone tools were replaced by stone flakes and blades that were fashioned into scrapers, spear points, and parts for hafted, composite implements. This technological stage, now known as the Middle Stone Age, is represented by numerous sites in South Africa.

Open camps and rock overhangs were used for shelter. Day-to-day debris has survived to provide some evidence of early ways of life, although plant foods have rarely been preserved. Middle Stone Age bands hunted medium-sized and large prey, including antelope and zebra, although they tended to avoid the largest and most dangerous animals, such as the elephant and the rhinoceros. They also ate seabirds and marine mammals that could be found along the shore and sometimes collected tortoises and ostrich eggs in large quantities.

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<sup>2</sup> <http://www.britannica.com>; article authored by Colin J. Bundy, Julian R. D. Cobbing, Martin Hall and Leonard Monteath Thompson

- o The Late Stone Age

Basic toolmaking techniques began to undergo additional change about 40 000 years ago. Small finely worked stone implements known as microliths became more common, while the heavier scrapers and points of the Middle Stone Age appeared less frequently. Archaeologists refer to this technological stage as the Late Stone Age. The numerous collections of stone tools from South African archaeological sites show a great degree of variation through time and across the subcontinent.

The remains of plant foods have been well preserved at such sites as Melkhoutboom Cave, De Hangen, and Diepkloof in the Cape region. Animals were trapped and hunted with spears and arrows on which were mounted well-crafted stone blades. Bands moved with the seasons as they followed game into higher lands in the spring and early summer months, when plant foods could also be found. When available, rock overhangs became shelters; otherwise, windbreaks were built. Shellfish, crayfish, seals, and seabirds were also important sources of food, as were fish caught on lines, with spears, in traps, and possibly with nets.

Dating from this period are numerous engravings on rock surfaces, mostly on the interior plateau, and paintings on the walls of rock shelters in the mountainous regions, such as the Drakensberg and Cederberg ranges. The images were made over a period of at least 25 000 years. Although scholars originally saw the South African rock art as the work of exotic foreigners such as Minoans or Phoenicians or as the product of primitive minds, they now believe that the paintings were closely associated with the work of medicine men, shamans who were involved in the well-being of the band and often worked in a state of trance. Specific representations include depictions of trance dances, metaphors for trance such as death and flight, rainmaking, and control of the movement of antelope herds.

### Iron Age<sup>3</sup>

Archaeological evidence shows that Bantu-speaking agriculturists first settled in southern Africa around AD 300. Bantu-speakers originated in the vicinity of modern Cameroon from where they began to move eastwards and southwards, some time after 400 BC, skirting around the equatorial forest. An extremely rapid spread throughout much of sub-equatorial Africa followed: dating shows that the earliest communities in Tanzania and South Africa are separated in time by only 200 years, despite the 3 000 km distance between the two regions. It seems likely that the speed of the spread was a consequence of agriculturists deliberately seeking iron ore sources and particular combinations of soil and climate suitable for the cultivation of their crops.

The earliest agricultural sites in KwaZulu-Natal date to between AD 400 and 550. All are situated close to sources of iron ore, and within 15 km of the coast. Current evidence suggests it may have been too dry further inland at this time for successful cultivation. From 650 onwards, however, climatic conditions improved and agriculturists expanded into the valleys of KwaZulu-Natal, where they settled close to rivers in savanna or bushveld environments. There is a considerable body of information available about these early agriculturists.

Seed remains show that they cultivated finger millet, bulrush millet, sorghum and probably the African melon. It seems likely that they also planted African groundnuts and cowpeas, though direct evidence for these plants is lacking from the earlier periods. Faunal remains indicate that

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<sup>3</sup> Whitelaw (1997). See also Whitelaw (1991, 2009).

they kept sheep, cattle, goats, chickens and dogs, with cattle and sheep providing most of the meat. Men hunted, perhaps with dogs, but hunted animals made only a limited contribution to the diet in the region.

Metal production was a key activity since it provided the tools of cultivation and hunting. The evidence indicates that people who worked metal lived in almost every village, even those that were considerable distances from ore sources.

Large-scale excavations in recent years have provided data indicating that first-millennium agriculturist society was patrilineal and that men used cattle as bridewealth in exchange for wives. On a political level, society was organised into chiefdoms that, in our region, may have had up to three hierarchical levels. The villages of chiefs tended to be larger than others, with several livestock enclosures, and some were occupied continuously for lengthy periods. Social forces of the time resulted in the concentration of unusual items on these sites. These include artefacts that originated from great distances, ivory items (which as early as AD 700 appear to have been a symbol of chieftainship), and initiation paraphernalia.

This particular way of life came to an end around AD 1000, for reasons that we do not yet fully understand. There was a radical change in the decorative style of agriculturist ceramics at this time, while the preferred village locations of the last four centuries were abandoned in favour of sites along the coastal littoral. In general, sites dating to between 1050 and 1250 are smaller than most earlier agriculturist settlements. It is tempting to see in this change the origin of the Nguni settlement pattern. Indeed, some archaeologists have suggested that the changes were a result of the movement into the region of people who were directly ancestral to the Nguni-speakers of today. Others prefer to see the change as the product of social and cultural restructuring within resident agriculturist communities.

Whatever the case, it seems likely that this new pattern of settlement was in some way influenced by a changing climate, for there is evidence of increasing aridity from about AD 900. A new pattern of economic inter-dependence evolved that is substantially different from that of earlier centuries, and is one that continued into the colonial period nearly 500 years later.

## The Battle of Ndondakusuka and Taking Control of the Zulu Nation<sup>4</sup>



Cetshwayo sends ambassadors to the British Army.  
From the *Illustrated London News*, 23rd August 1879  
© Hulton Archive / Getty Images

Cetshwayo, heir to the Zulu throne had his father, Mpande, worried over his rapid gain of influence amongst the Zulu. Mpande decided therefore to encourage the rivalry between Cetshwayo and his brother Mbuyazi by suggesting Mbuyazi could be chosen instead as the royal heir. The situation became fraught, and when John Dunn, who came to negotiate a peace between the brothers, offered his services to Mbuyazi, battle was inevitable.

### The Battle of Ndondakusuka

Despite the advantage of firearms provided by John Dunn's *iziNqobo*, the overwhelming numbers of Cetshwayo's uSuthu (between 15,000 and 20,000 warriors) forced the battle held on 2 December 1856, and Mbuyazi's *iziGqoza* were driven towards the Thukela. Only about 2,000 of Mbuyazi's 7,000 warriors survived the crossing, with a similar proportion of losses amongst the accompanying women and children.

### Cetshwayo Takes Power

In 1857 Cetshwayo and Mpanda came to terms. Cetshwayo would have effective control of the nation whilst Mpanda would retain 'ultimate' authority and the title of king. That same year, Cetshwayo sought out John Dunn and the Colonial hunter-traders who he had fought against at Ndondakusuka. It is recorded that he desired "*a white man as a friend to live near him and advise him*"<sup>1</sup> and someone who could provide modern firearms -- the one thing his side lacked in the battle. Dunn was settled with a tract of coastal land just north of the Thukela River where he became an influential chief, and acted as the main means of communication with the British authorities and settlers of Natal.

Over the next 15 years Cetshwayo took control of the nation, re-energising the *amaButho* system and trying to stem the diffusion of power away from the crown and out to the *iziKhulu* (territorial chiefs). During this period Zululand was repeatedly invaded by Boers from the South African Republic (Transvaal) who were seeking land. Cetshwayo looked for additional help against the Boers from the British in Natal.

<sup>4</sup> <http://africanhistory.about.com/od/anglozuluwar/ss/Biography-Of-Cetshwayo-Kampande.htm>

## Cetshwayo King of the Zulu

Mpande is recorded as having died on 18 October 1872, although this was an estimate by the Colonial administrator and Secretary for Native Affairs, Sir Theophilus Shepstone. Mpande was buried with several of his servants -- it was an ancient tradition for servants, wives, and girls from the *isiGodlo* (royal enclosure) to be killed and buried with the king in order to serve him in the spirit world. (Zulu tradition has it that Mpande's grave was desecrated by British soldiers after the Anglo-Zulu war of 1879 and his bones removed for display in Britain.)

Cetshwayo was crowned at a gathering at kwaNodwengu on the 22 October. This was an important pre-emptive move to maintain his independent rule of the Zulu nation. Shepstone had let it be known that as part of the British support for Cetshwayo, he would travel north from Natal and carry out a coronation with full pomp and circumstance. Shepstone and his entourage traveled to oNdini on the Mahlabathini plain for the official event on 1 September 1873. He was incensed by Cetshwayo's earlier coronation by the *iziKhulu*.

## Boers and British

In 1875 Boers flooded across into Zululand, claiming land south of the Phongolo River as well as attempting to tax Zulu homesteads in the north-west. Several thousand warriors were sent to the border and the Boers eventually retreated. The situation was finally alleviated when the British annexed the South African Republic in April 1877.

Cetshwayo and the Zulu nation now faced a new threat, British plans to confederate the whole of Southern Africa. War between the Zulu and British was looming.

## Reference

<sup>1</sup> John Laband, *Rope of Sand*, Jonathan Ball, p158, © 1995.

## The Battle of Gingindlovu<sup>5</sup>

The Battle of Gingindlovu (uMgungundlovu) was fought on 2 April 1879 between a British relief column sent to break the Siege of Eshowe and a Zulu impi of king Cetshwayo. Charles Pearson had led the No. 1 Column of the British invasion force across the Tugela River with the intention of creating an advanced base at Eshowe. This they did, but found themselves besieged in the hastily constructed base, at a deserted Norwegian mission station.

A relief column was organised, and under the leadership of Lord Chelmsford it departed Fort Tenedos on 29 March to march to Pearson's relief. The column composed 3,390 Europeans and 2,280 Africans, and a range of artillery, including two 9-pounders (4 kg), four 24-pounder (11 kg) rocket tubes and two Gatling guns. The progress was slow, as Chelmsford took a roundabout route to avoid ambush in the close country Pearson had previously passed through. In addition, the rivers they had to traverse were swollen by heavy rains and fearing a repeat of Isandlwana, Chelmsford ensured his men spent much time laagering and entrenching their camp at the end of each day.

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<sup>5</sup> <http://en.wikipedia.org>

Despite this slow progress, Pearson's observers at Eshowe could see the relief column laagering on the south bank of the Inyezane on the evening of 1 April. The laager was sited on a 300-foot (100 m) ridge running roughly west-east. West of the ridge, the ground dipped, only to rise again to the 470 foot (140 m) Umisi Hill. The ground sloped away in all directions, allowing a good field of fire. A trench surrounded a waist high wall of earth, which itself encompassed 120 wagons formed a square with sides of 130 yards (120 m) in length. While these defences were being constructed, a scout returned in the evening bearing news of Zulus massing on the far side of Umisi Hill. A second scouting party reported no forces there, but that an impi was camped to the north west of the laager. While the scouts could not assess the Zulu strength because of the darkness, this impi was in fact composed of 12,000 warriors, all of whom had been at Isandlwana. The impi had been ordered to ambush the relief column, and thwarted by Chelmsford already; this was their final chance to stop the column before it reached Eshowe. The night passed with no attack.

At daybreak on 2 April 1879, the morning sun revealed a muddy and sodden ground and a heavy mist. Chelmsford could not move his wagons until the ground dried out, and so sent out the Natal Native Contingent to provoke the Zulus into an attack while he held a strong position. Once the mist lifted, the left horn of the impi was seen advancing eastwards over the river towards the British laager before disappearing into tall grass. A long burst of fire from one of the Gatling guns saw the warriors disappear into the long grass. When the left horn re-emerged it had joined the rest of the impi and the left horn, chest and right horn were advancing over Umisi Hill. The whole charging buffalo formation came in at a run on the three sides of the laager.

This was the scenario Chelmsford had planned for, at a range of between 300 and 400 yards (300 to 400 m), the British infantry opened fire, supported by the Gatling guns and rockets. Zulu marksmen caused a few casualties within the laager, but the defenders kept the Zulus at bay and Chelmsford's defence was working. Though the Zulu regiments made persistent rushes to get within stabbing range, their charges lacked the drive and spirit that had pushed them forward at the Battle of Isandlwana and Rorke's Drift. After 20 minutes, the Zulu impi began to crumble away. Seeing this, Chelmsford ordered pursuit by the mounted troops and the native contingent. Large numbers of Zulu warriors were killed in this chase. By 07:30, the Zulus had fled and the grim task of killing Zulu wounded was undertaken.

Around the laager itself, 700 Zulu bodies were counted and 300 more were killed in the mounted chase of the retreating warriors. The British took eleven dead, including a Lieutenant-Colonel, and 48 wounded.

The battle restored Chelmsford's confidence in his army and their ability to defeat Zulu attacks. With the last resistance between Chelmsford and Pearson's columns removed, he was able to advance and relieve Eshowe.

## APPENDIX C

### METHODOLOGY

#### Site survey

eThembeni staff members inspected the proposed activity area and completed 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; see bibliography for other references informing methodological approach).

The site survey comprised unsystematic walks over a distance of approximately 50 metres on either side of the locations provided for bend (strain) towers listed in Section 4, with the exception of areas with high vegetation density and wetlands. Photographs were taken with a Nikon Coolpix camera and a representative selection is included in Appendix D. Geographic coordinates were obtained using a handheld Garmin global positioning unit (WGS 84).

#### Database and literature review

No archaeological site data was available for the project area from the Natal Museum database. A concise account of the archaeology and history of the broader study area was compiled from sources including those listed in the bibliography.

#### Assessment of heritage resource value and significance

Heritage resources are significant only to the extent that they have public value, as demonstrated by the following guidelines for determining site significance developed by Heritage Western Cape in 2007 and utilised during this assessment.

#### Grade I Sites (National Heritage Sites)

Regulation 43 Government Gazette no 6820. 8 No. 24893 30 May 2003, Notice No. 694 states that:

Grade I heritage resources are heritage resources with qualities so exceptional that they are of special national significance should be applied to any heritage resource which is

- a) Of outstanding significance in terms of one or more of the criteria set out in section 3(3) of the NHRA;
- b) Authentic in terms of design, materials, workmanship or setting; and is of such universal value and symbolic importance that it can promote human understanding and contribute to nation building, and its loss would significantly diminish the national heritage.

1. Is the site of outstanding national significance?
2. Is the site the best possible representative of a national issue, event or group or person of national historical importance?
3. Does it fall within the proposed themes that are to be represented by National Heritage Sites?
4. Does the site contribute to nation building and reconciliation?

5. Does the site illustrate an issue or theme, or the side of an issue already represented by an existing National Heritage Site – or would the issue be better represented by another site?
6. Is the site authentic and intact?
7. Should the declaration be part of a serial declaration?
8. Is it appropriate that this site be managed at a national level?
9. What are the implications of not managing the site at national level?

#### Grade II Sites (Provincial Heritage Sites)

Regulation 43 Government Gazette no 6820. 8 No. 24893 30 May 2003, Notice No. 694 states that:

Grade II heritage resources are those with special qualities which make them significant in the context of a province or region and should be applied to any heritage resource which -

- a) is of great significance in terms of one or more of the criteria set out in section 3(3) of the NHRA; and
- (b) enriches the understanding of cultural, historical, social and scientific development in the province or region in which it is situated, but that does not fulfil the criteria for Grade 1 status.

Grade II sites may include, but are not limited to –

- (a) places, buildings, structures and immovable equipment of cultural significance;
- (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 of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and palaeontological sites; and
- (g) graves and burial grounds.

The cultural significance or other special value that Grade II sites may have, could include, but are not limited to –

- (a) its importance in the community or pattern of the history of the province;
- (b) the uncommon, rare or endangered aspects that it possess reflecting the province's natural or cultural heritage
- (c) the potential that the site may yield information that will contribute to an understanding of the province's natural or cultural heritage;
- (d) its importance in demonstrating the principal characteristics of a particular class of the province's natural or cultural places or objects;
- (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group in the province;
- (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period in the development or history of the province;
- (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; and
- (h) its strong or special association with the life or work of a person, group or organization of importance in the history of the province.

### Grade III (Local Heritage Resources)

Regulation 43 Government Gazette no 6820. 8 No. 24893 30 May 2003, Notice No. 694 states that:

Grade III heritage status should be applied to any heritage resource which

- (a) fulfils one or more of the criteria set out in section 3(3) of the NHRA; or
- (b) in the case of a site contributes to the environmental quality or cultural significance of a larger area which fulfils one of the above criteria, but that does not fulfill the criteria for Grade 2 status.

### Grade IIIA

This grading is applied to buildings and sites that have sufficient intrinsic significance to be regarded as local heritage resources; and are significant enough to warrant *any* alteration being regulated. The significances of these buildings and/or sites should include at least some of the following characteristics:

- Highly significant association with a
  - o historic person
  - o social grouping
  - o historic events
  - o historical activities or roles
  - o public memory
- Historical and/or visual-spatial landmark within a place
- High architectural quality, well-constructed and of fine materials
- Historical fabric is mostly intact (this fabric may be layered historically and/or past damage should be easily reversible)
- Fabric dates to the early origins of a place
- Fabric clearly illustrates an historical period in the evolution of a place
- Fabric clearly illustrates the key uses and roles of a place over time
- Contributes significantly to the environmental quality of a Grade I or Grade II heritage resource or a conservation/heritage area

Such buildings and sites may be representative, being excellent examples of their kind, or may be rare: as such they should receive maximum protection at local level.

### Grade IIIB

This grading is applied to buildings and/or sites of a marginally lesser significance than grade IIIA; and such marginally lesser significance argues against the regulation of internal alterations. Such buildings and sites may have similar significances to those of a grade IIIA building or site, but to a lesser degree. Like grade IIIA buildings and sites, such buildings and sites may be representative, being excellent examples of their kind, or may be rare, but less so than grade IIIA examples: as such they should receive less stringent protection than grade IIIA buildings and sites at local level and internal alterations should not be regulated (in this context).

### Grade IIIC

This grading is applied to buildings and/or sites whose significance is, in large part, a significance that contributes to the character or significance of the environs. These buildings and sites should, as a consequence, only be protected and regulated *if the significance of the environs is sufficient to warrant protective measures*. In other words, these buildings and/or sites will only be protected if they are within declared conservation or heritage areas.

## Assessment of development impacts

A heritage resource impact may be defined broadly as the net change, either beneficial or adverse, between the integrity of a heritage site with and without the proposed development. Beneficial impacts occur wherever a proposed development actively protects, preserves or enhances a heritage resource, by minimising natural site erosion or facilitating non-destructive public use, for example. More commonly, development impacts are of an adverse nature and can include:

- destruction or alteration of all or part of a heritage site;
- isolation of a site from its natural setting; and / or
- introduction of physical, chemical or visual elements that are out of character with the heritage resource and its setting.

Beneficial and adverse impacts can be direct or indirect, as well as cumulative, as implied by the aforementioned examples. Although indirect impacts may be more difficult to foresee, assess and quantify, they must form part of the assessment process. The following assessment criteria have been used to assess the impacts of the proposed development on identified heritage resources:

Criteria	Rating Scales	Notes
Nature	Positive	An evaluation of the type of effect the construction, operation and management of the proposed development would have on the heritage resource.
	Negative	
	Neutral	
Extent	Low	Site-specific, affects only the development footprint.
	Medium	Local (limited to the site and its immediate surroundings, including the surrounding towns and settlements within a 10 km radius);
	High	Regional (beyond a 10 km radius) to national.
Duration	Low	0-4 years (i.e. duration of construction phase).
	Medium	5-10 years.
	High	More than 10 years to permanent.
Intensity	Low	Where the impact affects the heritage resource in such a way that its significance and value are minimally affected.
	Medium	Where the heritage resource is altered and its significance and value are measurably reduced.
	High	Where the heritage resource is altered or destroyed to the extent that its significance and value cease to exist.
Potential for impact on irreplaceable resources	Low	No irreplaceable resources will be impacted.
	Medium	Resources that will be impacted can be replaced, with effort.
	High	There is no potential for replacing a particular vulnerable resource that will be impacted.
Consequence (a combination of extent, duration, intensity and the potential for impact on irreplaceable resources).	Low	A combination of any of the following: - Intensity, duration, extent and impact on irreplaceable resources are all rated low. - Intensity is low and up to two of the other criteria are rated medium. - Intensity is medium and all three other criteria are rated low.
	Medium	Intensity is medium and at least two of the other criteria are rated medium.
	High	Intensity and impact on irreplaceable resources are rated high, with any combination of extent and duration. Intensity is rated high, with all of the other criteria being rated medium or higher.
Probability (the likelihood of the impact occurring)	Low	It is highly unlikely or less than 50 % likely that an impact will occur.
	Medium	It is between 50 and 70 % certain that the impact will occur.
	High	It is more than 75 % certain that the impact will occur or it is definite that the impact will occur.

Significance (all impacts including potential cumulative impacts)	Low	Low consequence and low probability. Low consequence and medium probability. Low consequence and high probability.
	Medium	Medium consequence and low probability. Medium consequence and medium probability. Medium consequence and high probability. High consequence and low probability.
	High	High consequence and medium probability. High consequence and high probability.

### Assumptions and limitations of this HIA

- The description of the proposed project, provided by the client, is assumed to be accurate.
- The public consultation process undertaken as part of the Environmental Impact Assessment is sufficient and adequate and does not require repetition as part of the heritage impact assessment.
- Soil surface visibility was moderate to poor. Heritage resources might be present below the surface or in areas of dense vegetation and we remind the client that the NHRA requires that a developer cease all work immediately and observe the protocol in Section any heritage resources, as defined in the Act, be discovered during the course of development activities.
- No subsurface investigation (including excavations or sampling) were undertaken, since a permit from Amafa is required to disturb a heritage resource.
- eThembeni is not able to provide a specialist palaeontological assessment for this project and informed the client as much at the time of quotation.
- A key concept in the management of heritage resources is that of non-renewability: damage to or destruction of most resources, including that caused by bona fide research endeavours, cannot be reversed or undone. Accordingly, management recommendations for heritage resources in the context of development are as conservative as possible.
- Human sciences are necessarily both subjective and objective in nature. eThembeni staff members strive to manage heritage resources to the highest standards in accordance with national and international best practice, but recognise that their opinions might differ from those of other heritage practitioners.
- Staff members involved in this project have no vested interest in it; are qualified to undertake the tasks as described in the terms of reference (refer to Appendix E); and comply at all times with the Codes of Ethics and Conduct of the Association of Southern African Professional Archaeologists.
- eThembeni staff members take no personal or professional responsibility for the misuse of the information contained in this report, although they will take all reasonable precautions against such misuse.

## APPENDIX D

### SPECIALIST COMPETENCY AND DECLARATION OF INDEPENDENCE

#### Specialist competency

Len van Schalkwyk is accredited by the Cultural Resources Management section of the Association of South African Professional Archaeologists (ASAPA) to undertake HIAs in South Africa. Mr van Schalkwyk has a master's degree in archaeology (specialising in the history of early farmers in southern Africa) from the University of Cape Town and 25 years' experience in heritage management. He has worked on projects as diverse as the establishment of the Ondini Cultural Museum in Ulundi, the cultural management of Chobe National Park in Botswana and various archaeological excavations and oral history recording projects. He was part of the writing team that produced the KwaZulu-Natal Heritage Act 1997. He has worked with many rural communities to establish integrated heritage and land use plans and speaks good Zulu.

Mr van Schalkwyk left his position as assistant director of Amafa aKwaZulu-Natali, the provincial heritage management authority, to start eThembeni in partnership with Elizabeth Wahl, who was head of archaeology at Amafa at the time. Over the past decade they have undertaken almost 1000 HIAs throughout South Africa, as well as in Mozambique.

Elizabeth Wahl has a BA Honours in African Studies from the University of Cape Town, majoring in archaeology, and has completed various Masters courses in Heritage and Tourism at the University of KwaZulu-Natal. She is currently studying for an MPhil in the Conservation of the Built Environment at the University of Cape Town. She is also a member of ASAPA.

Ms Wahl was an excavator and logistical coordinator for Glasgow University Archaeological Research Division's heritage programme at Isandlwana Battlefield; has undertaken numerous rock painting surveys in the uKhahlamba/Drakensberg Mountains, northern KwaZulu-Natal, the Cederberg and the Koue Bokkeveld in the Cape Province; and was the principal excavator of Scorpion Shelter in the Cape Province, and Lenjane and Crystal Shelters in KwaZulu-Natal. Ms Wahl compiled the first cultural landscape management plan for the Mnweni Valley, northern uKhahlamba/Drakensberg, and undertook an assessment of and made recommendations for cultural heritage databases and organisational capacity in parts of Lesotho and South Africa for the Global Environment Facility of the World Bank for the Maloti Drakensberg Transfrontier Conservation and Development Area. She developed the first cultural heritage management plan for the uKhahlamba Drakensberg Park World Heritage Site, following UNESCO recommendations for rock art management in southern Africa.

#### Declaration of independence

We declare that Len van Schalkwyk, Elizabeth Wahl and eThembeni Cultural Heritage have no financial or personal interest in the proposed development, nor its developers or any of its subsidiaries, apart from in the provision of HIA and management consulting services.