



eTHEMBENI
CULTURAL
HERITAGE

**HERITAGE IMPACT ASSESSMENT OF THE PROPOSED UMGENI WATER
LOWER UMKHOMAZI BULK WATER SUPPLY SYSTEM
eTHEKWINI MUNICIPALITY
KWAZULU-NATAL**



For

NM Environmental

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31 January 2018

Management summary

eThembeni Cultural Heritage was appointed by NM Environmental to undertake a heritage impact assessment of Umgeni Water's proposed Lower Umkhomazi Bulk Water Supply Scheme near Craigieburn, in terms of 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). eThembeni staff inspected the area on 22 November and again on 02 December respectively; and completed a controlled-exclusive archaeological surface survey, a landscape assessment of historical farming practices, as well as a database and literature search.

We identified one heritage resource of significance within the proposed project area. A Hindu Temple established in 1915 is located in the vicinity of the proposed BWS pipeline servitude. However, it will not be affected or impinged upon by the proposed project activities.

No archaeological residues were observed at spot checks along the proposed pipeline servitude. Albeit that vegetation was rank and surface visibility constrained, it is my opinion that the archaeological footprint in this deeply incised and steep sided portion of the Umkhomazi Valley is ephemeral to non-existent. However, we recommend a monitoring brief during construction over specific "greenfield" sections of the pipeline alignment.

The proposed development will impose no permanent or negative transformation of the current agricultural and peri-urban landscape. Such services infrastructure provision is in keeping with the current development trends along this section of the KwaZulu-Natal southern coastal landscape.

We recommend that this development project proceed with the proposed heritage resource mitigation recommended in the body of this report.



Lower Umkhomazi River Valley immediately below Goodenough Weir

PHOTO CREDIT. Richard Alessandri

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Introduction

eThembeni Cultural Heritage was appointed by NM Environmental to undertake a heritage impact assessment of Umgeni Water's proposed Lower Umkhomazi Bulk Water Supply Scheme (LUBWSS) near Craigieburn, in terms of 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). See Appendix A.

The current water resources supplying the South Coast of KwaZulu-Natal (KZN) are insufficient to meet currently projected water demands. The LUBWSS is the recommended augmentation option for the existing Upper and Middle South Coast Supply area, which is currently supplied by water from local rivers and dams and augmented by the Mgeni System. The planned supply area to be augmented by the LUBWSS are the coastal areas of eThekweni and Ugu Municipalities from Amanzimtoti to Hibberdene connected to the present South Coast Pipeline.

A Detailed Feasibility Study for the LUBWSS has been completed¹. The overall proposed scheme consists of the following:

- The Ngwadini Weir and abstraction works to fill the Ngwadini off-channel storage (OCS) Dam during summer periods of excess flow;
- The Ngwadini OCS Dam, with a capacity of 10 million m³, and outlet infrastructure to release water back into the river and augment low flow periods;²
- A second abstraction downstream at the Goodenough Weir site to abstract the raw water for delivery to the water treatment plant (WTP);
- A pump station to pump water from the Goodenough abstraction to the WTP via a short rising main and 7km gravity main with a break pressure tank that also serves as a raw water storage reservoir;
- Hydrocyclones before the pump station and WTP to remove sediments during periods of higher turbidity river flows and reduce the WTP residual;
- A 100 Ml/d WTP in the town of Craigieburn; and
- A potable gravity water pipeline from the WTP to the Quarry Reservoir, the potable water delivery and tie-in point on the South Coast Pipeline (see Figure 1).

¹ Information provided by NM Consulting as contained in the Comments and Responses Report from the Public Participation Process.

² The Ngwadini OCS Dam is the subject of a separate EIA application

Description of the study area

Situated on the south bank of the uMkhomazi River, the assessment corridor rises from the existing Goodenough weir pump station up the steeply inclined valley sides to the more level and undulating plateau above. Here the pipeline corridor traverses across a highly modified agricultural and peri-urban landscape before entering the formalized township of Craigieburn. See Fig.1 – 2 and kml file loaded to SAHRIS. The raised Goodenough weir will, at FSL, inundate the current river bank to approximately 30m a.m.s.l. See Fig.3.

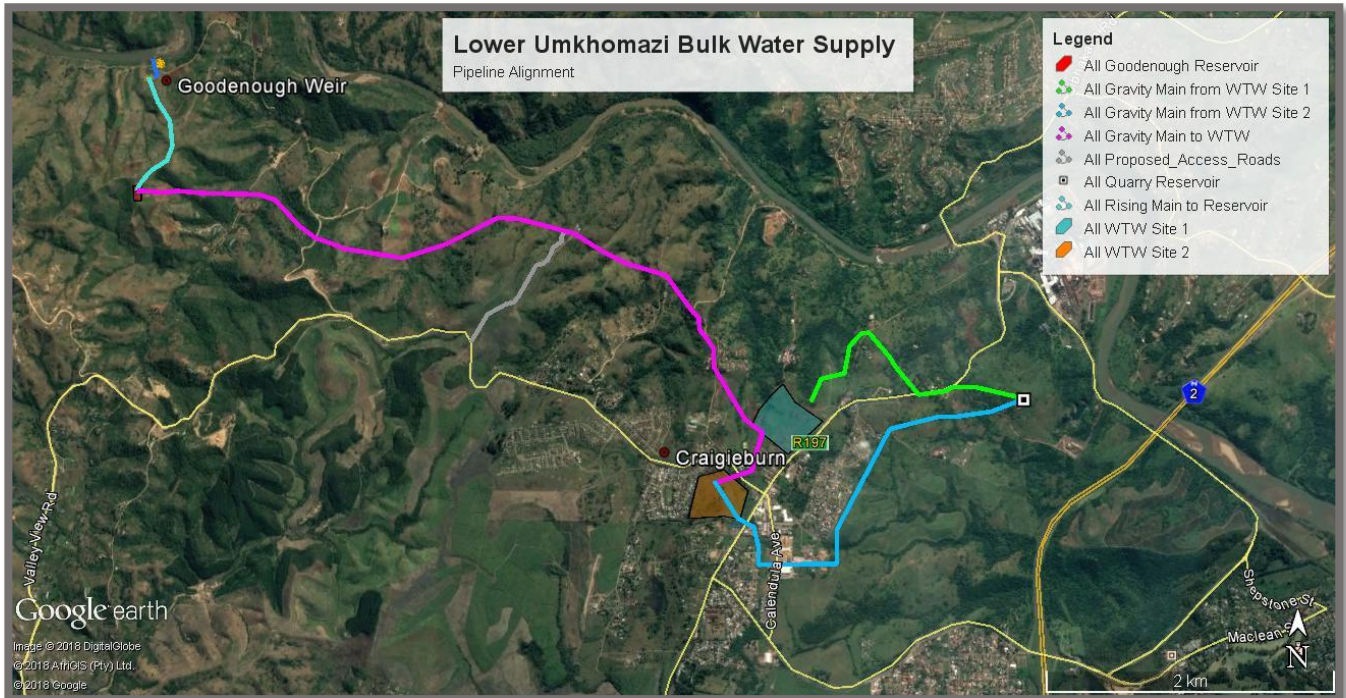


Figure 1. LUBWSS Study Area



Figure 2. Landscape across which pipeline will traverse from Rising Main Reservoir to valley crest



Figure 3 Approximate FSL of raised Goodenough Weir (30 m a.m.s.l)

Methodology

eThembeni staff inspected the survey area on 02 November and 12 December 2017 October respectively; and completed a controlled-exclusive archaeological surface survey.³ The proposed pipeline alignment was assessed at 50m either side of the provided centre line and the FSL to the 30m contour a.m.s.l.

Soil surface visibility was moderate. No excavations or sampling were undertaken, since a permit from Amafa aKwaZulu-Natali is required to disturb a heritage resource. We consulted various provincial databases, including historical, archaeological and geological sources and undertook a limited literature review, included as Appendix

³ 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).

B. We assessed the value and significance of heritage resources, as defined in the NHRA, Act 25 1999 and the criteria contained in Appendix C. Culturally significant landscapes were assessed according to the criteria in Appendix D.

Geographic coordinates and photographs were obtained with a handheld Garmin Montana 680 global positioning unit (GPS). The relevant 1:50 000 map sheet is 3030 BA.

Appendix F contains a statement of independence and a summary of our ability to undertake this heritage impact assessment.

Observations

No construction activities associated with the proposed project had begun prior to our visit, in accordance with provincial heritage legislation.

Places, buildings, structures and equipment

We identified a Hindu Temple dated as being established in 1915.

Places to which oral traditions are attached or which are associated with living heritage

None will be permanently affected.

Historical settlements and townscapes

None will be affected.

See below.

Landscapes and natural features

The proposed pipeline will have a short term impact during construction but no enduring impact to the agrarian landscape once buried and in operation.

Geological sites of scientific or cultural importance

None will be affected.

Archaeological and palaeontological sites

No Iron Age or Stone Age archaeological residues were observed.

Palaeontological significance is low to negligible as the prevailing geology is Mzumbe Granitoid and Dwyka tillite⁴; both being palaeontologically insignificant.⁵

See below

⁴ http://www.geoscience.org.za/rsa_1m_shape_layer_font_tar.zip \RSA_1M_shape_layer

⁵ Dr. John Almond – *Naturaviva*: pers.comm.

Graves and burial grounds

None were observed or reported (*but please see below sub-heading, Graves Protocol*)..

In the event of unidentified graves being found during construction or prior to inundation a Graves and Burial Ground Protocol is provided in **Appendix E**.

Movable objects excluding any object made by a living person

None will be affected.

Battlefields

None will be affected.

Traditional building techniques

None will be affected.

Summary of findings in terms of the NHRA, Act 25 of 1999 Section 38 (3)

(a) the identification and mapping of all heritage resources in the area affected

- i. A Hindu Temple dated to inception in 1915

(b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in regulations

- i. Hindu Temple – high heritage significance at all levels for its historic, social and spiritual values

(c) an assessment of the impact of development on such heritage resources

Low. Possible dust inconvenience during construction

The proposed development will impose no permanent or negative transformation of the current agricultural and peri-urban landscape. Such services infrastructure provision is in keeping with the current development trends along this section of the KwaZulu-Natal southern coastal landscape.

Heritage Resources Assessment Table				
Category	Observed	Significance	Impact	Mitigation
Places, buildings and structures	Hindu Temple	High	Low	dust suppression
places attached to oral traditions; associated with living heritage	None	~	None	None
historical settlements and townscapes	None	~	Low	None
geological sites of scientific or cultural importance	None	~	None	None
archaeological and palaeontological sites	None	~	Low	None *
graves and burial grounds	None	High	Low	None **
public monuments and memorials	None	~	None	None
Battlefields	None	~	None	None

* - see recommendations for watching brief below

** - see Appendix E: Burial grounds and Graves

Table 1 Assessment of Heritage Resources

Recommendations

Potential Archaeological Sites.

No archaeological residues were observed at spot checks along the proposed pipeline servitude. Albeit that vegetation was rank and surface visibility constrained, it is my opinion that the archaeological footprint in this deeply incised and steep sided portion of the Umkhomazi Valley is ephemeral to non-existent.

Watching Brief: It is recommended that at inception of earthworks for the pipeline alignment within the Umkhomazi valley, that an archaeologist be appointed to monitor excavations. This will enable the archaeologist to ascertain whether subterranean *in situ* material is possibly present; and the possible areal extent of any deposits. Further, the appointed project ECO can be inducted as to the protocols for any chance discoveries of archaeological material or human remains during the course of the project. Should such be present, rescue excavation of these will be motivated for as and when their significance has been ascertained.

Graves Protocol: No graves were observed in the vicinity of the pipeline corridor. The pipeline alignment to the Quarry Reservoir traverses the boundary of the Craigieburn Municipal Cemetery. However, there is sufficient buffer to survey the alignment away from any existing graves.

Field verification of the approximate FSL of the raised Goodenough Weir (30m a.m.s.l), on both the north and south banks of the river, indicates that the closest homesteads, both abandoned and extant are more than 100m away from the flood level. This should allay the concerns expressed in the Public Participation process (PPP) regarding graves and burial grounds that were thought to be vulnerable to inundation. In the event of the discovery of unmarked or hidden graves the appended Graves Protocol must be adhered to (**Appendix E**).

The Hindu Temple observed within the assessment corridor (**30°10'36.95"S; 30°43'4.65"E**) will not be directly affected by the installation of the rising main pipeline from the Goodenough Weir. However, should Fountain View Rd, running directly in front of the temple, be used as access for plant and trucks during construction; the implementing of **dust suppression mechanisms** should then be considered. Telephonic communication with a Mr M. Pillay (I&AP) confirms the establishment of the temple in 1915; and that the resident Indian farming community have resided in that part of the valley since the late 19th C. The established families are descendants of indentured Indian labourers (1870's – 1890's) who, on release from their contracts, stayed on in South Africa and began market gardening and farming. These farmers were renowned for the pineapple production and the supply of fresh produce to the Durban Indian Market⁶.

The resident farming community have been consulted during the PPP and a record of this is contained in the Comments and Responses Report of the EIA. (File loaded to SAHRIS).

⁶ Telephone communication with Mr M. Pillay (I&AP) 23 January 2018

Water Treatment Works (WTW) Options: With regard to discrete heritage resources, no impacts are envisaged. Either WTW option can be considered. There is no preference.



Figure 4. Location of Hindu Temple (30°10'36.95"S; 30°43'4.65"E)

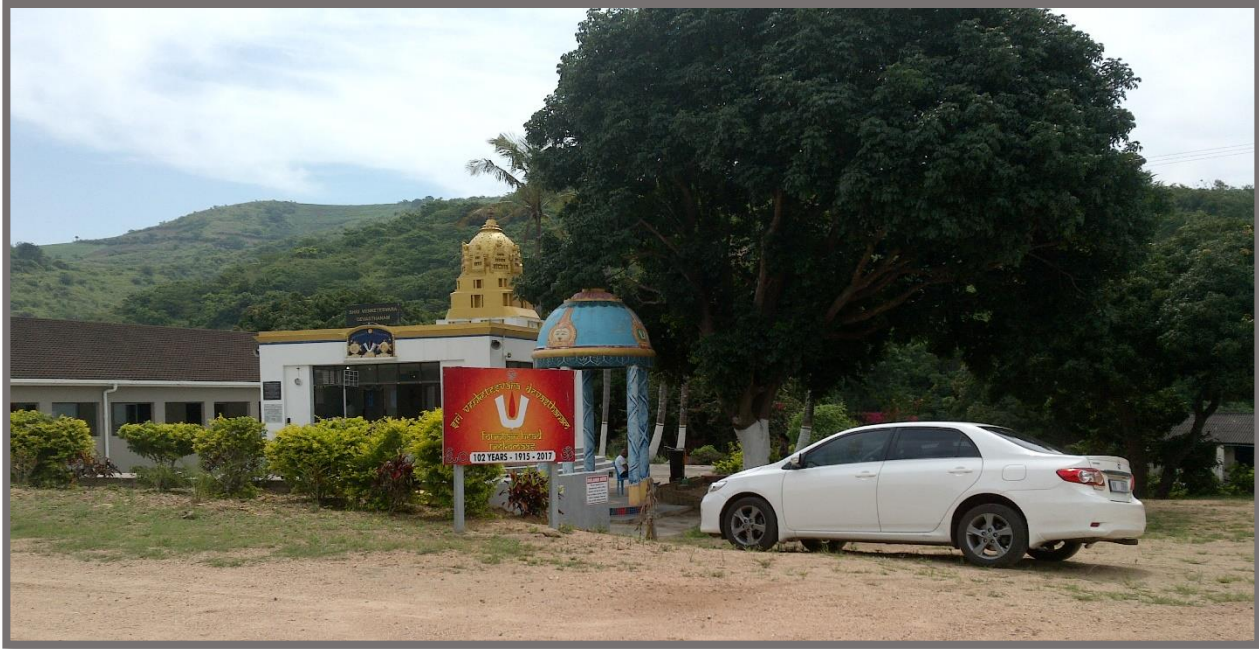


Figure 5. Hindu Temple established in 1915.

Table2. Heritage Resources Impact Table by construction category and BPEO
1. Goodenough Weir raised to 30. a.m.s.l
<p>Field verification of the approximate FSL of the raised Goodenough Weir (30m a.m.s.l), on both the north and south banks of the river, indicates that the closest homesteads, both abandoned and extant are more than 100m away from the flood level.</p> <p>This should allay the concerns expressed in the Public Participation process (PPP) - [Mr. Mkhabela -Isimahla Community Member] - regarding graves and burial grounds that were thought to be vulnerable to inundation.</p> <p>In the event of the discovery of unmarked or hidden graves the appended Graves Protocol must be adhered to (Appendix E) of HIA report (pg 27).</p>
2. Pipeline Route Alignment: - Lift Pump to Craigieburn BWS Options 1 & 2 - to Quarry Reservoir
<p>During the field surveys surface visibility was constrained by rank vegetation and forest thickets. However, it is my considered opinion that prehistoric occupation of the deeply incised and steep sided portion of the Umkhomazi Valley was ephemeral, if not non-existent.</p> <p>People settled on the plateau or the low-lying colluvial soils along the river fringe.</p> <p>No graves were observed in the vicinity of the pipeline corridor. The pipeline alignment to the Quarry Reservoir traverses the boundary of the Craigieburn Municipal Cemetery. However, there is a sufficient buffer to survey the alignment away from any existing graves.</p>

3. Access road to the Hindu Temple

The Hindu Temple observed within the assessment corridor (**30°10'36.95"S; 30°43'4.65"E**) will not be directly affected by the installation of the rising main pipeline from the Goodenough Weir. However, should Fountain View Rd, running directly in front of the temple, be used as access for plant and trucks during construction; the implementing of **dust suppression mechanisms** should then be considered. Telephonic communication with a Mr M. Pillay (I&AP) confirms the establishment of the temple in 1915. It is a place of worship for the resident Indian farming community. They have been consulted during the PPP and a record of this is contained in the Comments and Responses Report of the DSR

4. Archaeological sites

No archaeological residues were observed at spot checks along the proposed pipeline servitude. Albeit that vegetation was rank and surface visibility constrained, it is my opinion that the archaeological footprint in this deeply incised and steep sided portion of the Umkhomazi Valley is ephemeral to non-existent.

It is recommended that at inception of earthworks for the pipeline alignment within the uMkhomazi Valley, that an archaeologist be appointed to monitor excavations. This will enable the archaeologist to ascertain whether subterranean *in situ* material is possibly present; and the possible areal extent of any deposits. Further, the appointed project ECO can be inducted as to the protocols for any chance discoveries of archaeological material or human remains during the course of the project. Should such be present, rescue excavation of these will be motivated for as and when their significance has been ascertained Human and archaeological remains will be managed in terms of the Graves and Chance Finds Protocols.

BPEO

1. WTW Options #1 & #2

With regard to discrete heritage resources, no impacts are envisaged. From a Heritage perspective either reservoir option can be considered. There is no preference.

2. Raised Height of Goodenough Weir FSL and Pipeline Routing

With regard to discrete heritage resources, no impacts are envisaged.

Any heritage resources located as chance finds can be mitigated by means of the ***Chance Finds Protocol*** (see Appendix G).

Conclusion

We recommend that this project proceed with the suggested heritage resource mitigation offered.

If permission is granted for development to proceed, the client is reminded that the Act requires that a developer cease all work immediately and notify Amafa should any heritage resources, as defined in the Act, be discovered during the course of development activities. **See Appendix G – Chance Finds Protocol**

On the clients instruction we will submit the report via SAHRIS to Amafa aKwaZulu-Natali, in fulfilment of the requirements of the NHRA.

According to Section 38(4) of the Act:

The report shall be considered timeously by the PHRA which shall, after consultation with the person/s proposing the development, decide -

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

The client may contact the Case Officer, Ms Bernadet Pawandiwa, at Amafa's Head Office. Tel. 033 3946 543; Email: Bernadetp@amafapmb.co.za; should they have any queries with regards to this application.

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 (NEMA) Act No 107 of 1998
 - a. Basic Environmental Assessment – Section (23)(2)(d)
 - b. Environmental Scoping Report – Section (29)(1)(d)
 - c. Environmental Impacts Assessment – Section (32)(2)(d)
 - d. Environmental Management Plan – Section (34)(b)
- KwaZulu-Natal Heritage Act No 4 of 2008
 - a. Protection of heritage resources – Chapters 8 and 9
 - b. Heritage Resources Management – Chapter 10
- National Heritage Resources Act (NHRA) Act No 25 of 1999
 - a. Definition and management of the national estate – Chapter I
 - b. Protection and management of heritage resources – Chapter II
 - c. Heritage Resources Management – Section 38
- Minerals and Petroleum Resources Development Act (MPRDA) Act No 28 of 2002
 - a. Section 39(3)
- Development Facilitation Act (DFA) Act No 67 of 1995
 - a. The GNR.1 of 7 January 2000: Regulations and rules in terms of the Development Facilitation Act, 1995 Section 31.

NATIONAL HERITAGE RESOURCES ACT NO 25 OF 1999

Heritage Impact Assessments

Section 38(1) of the National Heritage Resources Act of 1999 requires 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 300 m in length;
- the construction of a bridge or similar structure exceeding 50 m in length;
- 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 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 10 000 m² in extent; or
- any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

Reports in fulfilment of Section 38(3) of the Act 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.

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 No 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;
- sites of significance relating to the history of slavery in South Africa;

- movable objects, but excluding any object made by a living person;
- battlefields; and
- traditional building techniques.

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.

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.

'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.

'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 10 m 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, 1994 (Act No. 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.

MANAGEMENT OF GRAVES AND BURIAL GROUNDS

- **Graves younger than 60 years** fall under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance No 7 of 1925 as well as the Human Tissues Act No 65 of 1983 and the National Health Act (Act 61 of 2003) Regulations relating to the management of human remains No.R.363 of 22 May 2013. Such graves are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the Office of the relevant Provincial Premier. This function is usually delegated to the Provincial Member of the Executive Council for Local Government and Planning, or in some cases the MEC for Housing and Welfare.

Authorisation for exhumation and reinternment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. In order to handle and transport human remains the institution conducting the relocation should be authorised under Section 24 of the Human Tissues Act No 65 of 1983 and the National Health Act (Act 61 of 2003) Regulations relating to the management of human remains No.R.363 of 22 May 2013.

- **Graves older than 60 years situated outside a formal cemetery administered by a local authority** fall under Section 36 of the National Heritage Resources Act No 25 of 1999 as well as the Human Tissues Act of 1983. Accordingly, such graves are the jurisdiction of the South African Heritage Resources Agency (SAHRA). The procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of NHRA) is applicable to graves older than 60 years that are situated outside a formal cemetery administered by a local authority. Graves in the category located inside a formal cemetery administered by a local authority will also require the same authorisation as set out for graves younger than 60 years over and above SAHRA authorisation.

If the grave is not situated inside a formal cemetery but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws set by the cemetery authority must be adhered to.

The **protocol for the management of graves older than 60 years situated outside a formal cemetery administered by a local authority** is detailed in Section 36 of the National Heritage Resources Act:

(3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;

(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

(5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) 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.

(6) Subject to the provision of any other law, 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 Service 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.

APPENDIX B

ARCHAEOLOGICAL AND HISTORICAL CONTEXT OF THE STUDY AREA

The Stone Age⁷

No systematic Early and Middle Stone Age research has been undertaken in the immediate proposed development area. However, open air scatters of stone artefacts, probably with low heritage significance, have been reported along the coastal littoral by Davies (O. Davies, 1970. Pleistocene beaches of Natal. Annals of Natal Museum 20(2). Sibudu Cave, along the middle reaches of the Tongaat River, is the focus of current Middle Stone Age investigation and is serially nominated for World Heritage status⁸.

At a general level, 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.

○ **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.

○ **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.

○ **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.

⁷ <http://www.britannica.com>; article authored by **Colin J. Bundy**, Julian R. D. Cobbing, Martin Hall and **Leonard Monteath Thompson**.

⁸ (Wadley, L. and Jacobs, Z. 2004. SAJS. 100 (3). 146-151; Sibudu Cave, KwaZulu-Natal: Background to the excavations of Middle Stone Age and Iron Age occupations. Wadley, L. 2006. Partners in grime: results of multi-disciplinary archaeology at Sibudu Cave. Southern African Humanities 18:315-341.

The remains of plant foods have been well preserved in numerous cave and shelter sites in KwaZulu-Natal. 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, scavenged cetaceans and seabirds were also important sources of food, as were fish caught on lines, with spears, in traps, and possibly with nets.

In the foothills of the Drakensberg and above the escarpment a large number of rock shelters with occupation deposits occur in the Clarence Formation formerly known as Cave Sandstone. These sandstones provide the canvas for the wealth of rock art sites that have been recorded in the Okhahlamba/Drakensberg mountains.

Dating from the Later Stone Age 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:

'Most rock art researchers accept that southern African hunter-gatherer (Bushman/San) painters used animal imagery to model beliefs and concepts central to their cosmology. The eland is probably the best-known model, but species choice varies according to geographical area. Previous studies have tended to focus on morphology in order to identify painted and engraved animal depictions that the painters used as natural models. Morphology, however, is not always sufficient to positively identify a motif's zoological affinities [including] therianthropic images from the Western Cape Province and adjacent parts of the Eastern Cape Province, South Africa, popularly known as 'mermaids' (Hollmann 2005b:84).

Iron Age⁹

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, sometime 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 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.

⁹ Whitelaw (1997). Whitelaw (2009). Whitelaw (2015).

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 interdependence evolved that is substantially different from that of earlier centuries, and is one that continued into the colonial period nearly 500 years later.

Along this part of the coastline, within a distance of about three kilometres from the shore, virtually every dune top includes the remains of a Late Iron Age homestead. Typically, artefacts include undecorated ceramic sherds, marine shell and upper and lower grindstones. Artefacts on metalworking sites include furnace remains, slag, bloom and ceramic sherds.

Decades of agricultural activity (consisting mainly of sugar cane cultivation along this coastline) churn the upper 30 centimetres of soil, blurring the visible spatial layout of sites. However, the presence of a site can still be noted by the occurrence of the aforementioned artefacts, and deposits sometimes remain intact at depth.

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APPENDIX C

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

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.

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.

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.

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.

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?

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 practitioners who are also experienced site assessors.

APPENDIX D

CULTURAL LANDSCAPES

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.'

Appendix E

Protocol for Management of Graves and Burial Grounds

No person may damage, alter, exhume, or remove from its original position any grave 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. National Health Act 61 of 2003, Regulation 363 of 22 May 2013.	National and / or Provincial Departments of Health. Provincial Department of Co-operative Governance and Traditional Affairs (CoGTA)	If relocated to an existing cemetery or private property – CoGTA.
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. KwaZulu-Natal Cemeteries and Crematoria Amendment Act 2 of 2005. National Health Act 61 of 2003, Regulation 363 of 22 May 2013. Commonwealth War Graves Act 8 of 1992.	Amafa aKwaZulu-Natali, the provincial heritage resources authority and CoGTA.	If relocated to private or communal property – Amafa and CoGTA. If relocated to formal cemetery – Amafa and CoGTA.

MANAGEMENT OF GRAVES AND BURIAL GROUNDS

- **Graves younger than 60 years** are protected in terms of Section 2(1) of the Removal of Graves and Dead Bodies Ordinance 7 of 1925 as well as the Human Tissues Act 65 of 1983. Such graves are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the Office of the relevant Provincial Premier. This function is usually delegated to the Provincial Member of the Executive Council for Local Government and Planning, or in some cases the MEC for Housing and Welfare.

Authorisation for exhumation and reinterment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. In order to handle and transport human remains the institution conducting the relocation should be authorised under Section 24 of the Human Tissues Act 65 of 1983.

- **Graves older than 60 years situated outside a formal cemetery administered by a local authority** are protected in terms of Section 36 of the NHRA as well as the Human Tissues Act of 1983. Accordingly, such graves are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36(5) of NHRA) is applicable to graves older than 60 years that are situated outside a formal cemetery administered by a local authority. Graves in the category located inside a formal cemetery administered by a local authority will also require the same authorisation as set out for graves younger than 60 years over and above SAHRA authorisation.

If the grave is not situated inside a formal cemetery but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws set by the cemetery authority must be adhered to.

The **protocol for the management of graves older than 60 years situated outside a formal cemetery administered by a local authority** is detailed in Section 36 of the NHRA:

- (3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—
- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
 - (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
 - (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.
- (4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.
- (5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection (3)(b) 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.

(6) Subject to the provision of any other law, 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 Service 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 Remains¹⁰

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.

¹⁰ <http://www.worldarchaeologicalcongress.org/>

Appendix F

Chance Finds 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 the initial assessment.

Appendix G

DECLARATION OF INDEPENDENCE

I, Leonard van Schalkwyk, declare that –

- I act as the independent specialist in this application.
- I will perform the work relating to the application in an objective manner even if this results in views and findings that are not favourable to the applicant.
- I declare that there are no circumstances that may compromise my objectivity in performing such work.
- I have no, and will not engage in, conflicting interests in the undertaking of the activity.
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority.
- All the particulars furnished by me in this form are true and correct.

Leonard van Schalkwyk

31 January 2018