

HERITAGE IMPACT ASSESSMENT OF  
UGIE STORAGE AND SUPPLY DAM,  
EASTERN CAPE PROVINCE, SOUTH AFRICA

DEDEA Ref No: NR EC 141-030-2008

Prepared for

**TERRECO cc**

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## Management summary

eThembeni Cultural Heritage was appointed by TERRECO to undertake a heritage impact assessment of a proposed dam near Ugie in the Eastern Cape Province, in terms of the National Heritage Resources Act No 25 of 1999. Two eThembeni staff members inspected the area on 26 and 27 May 2010, and completed a controlled-exclusive surface survey and a database and literature search.

### Observations

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

The Crowlands Dam Site (Site 2) could affect two rock shelters that were identified as being used for religious purposes during the public participation process. We were unable to locate the sites during our fieldwork, but believe that they have at least medium to high heritage significance at the local level for their cultural, social and spiritual values.

- **Archaeological sites**

The general area around Ugie is internationally known for its hunter-gatherer rock paintings, although no records exist for such sites within the areas proposed for inundation. Known archaeological sites are located at some distance from the proposed Boncourt Dam Site and on other landholdings on the Prentjiesberg.

### Recommended mitigation measures

- We recommend that the preferred option, Boncourt Dam Site 1, is chosen for this project, to avoid inundation of two known places associated with living heritage.
- Since the full supply levels of the proposed dam sites were not available at the time of fieldwork, a heritage practitioner should conduct a walk-through of the chosen dam site (Site 1 or Site 2), as well as all other activity areas such as construction camps, materials' storage facilities and new access roads / tracks, prior to the start of any construction activities.
- If Crowlands Dam Site 2 is chosen for this project, a heritage practitioner should investigate the places of living heritage identified during the public participation process and make recommendations for mitigation, in consultation with interested and affected parties.

### Recommended monitoring

None.

## **Conclusion**

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

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 notify SAHRA 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 TERRECO to undertake a heritage impact assessment of a proposed dam near Ugie in the Eastern Cape Province, in terms of the National Heritage Resources Act No 25 of 1999 (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 timely identification and effective management of heritage resources for present and future generations.

This report represents compliance with a full Heritage Impact Assessment for the proposed development, excluding a palaeontological assessment, which we do not deem necessary given the nature of the project and its location.

## 2. Terms of reference

A Heritage Impact Assessment 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 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.

### 3. Project description

Ukhahlamba District Municipality is developing proposals, assisted by Sintec Consulting Engineers, to construct a dam and new water storage reservoir (2.7 million m<sup>3</sup>) to cater for both current and future water supply demands in Ugie to 2030. Specifically, the dam is being proposed in response to the on-going establishment and growth of the timber industry in the area, improvements to the sanitation infrastructure and to meet the associated increased demand for potable water in the area.

The proposed site and design of the project will need to reflect the following geographical, technical and financial requirements:

- The project should be constructed close to Ugie on either the Wildebeest or Gatberg River.
- The selected river catchment must have sufficient to supply and sustain the required dam capacity of at least 2.7 million m<sup>3</sup>.
- Be positioned upstream and as close to Ugie as possible to reduce costs and facilitate a natural gravitational flow to the water purification works, thus reducing the need (and cost) of pump stations.
- Provide storage capacity for the expected water supply demand for Ugie over the next 20 years (2.7 million m<sup>3</sup>) thereby representing a long term investment solution.
- To utilise a narrow part of a, preferably, deep river valley where possible.
- To accommodate a 1 in 100 year flood event which is expected to have a calculated flow rate in the order of approximately 800m<sup>3</sup> per second.
- To utilise an embankment dam design: whether this will comprise an earth fill, or rock fill or combination thereof, is still to be determined.
- The site should be preferably located on municipal property (note: it has not been possible to fulfill this requirement as indicated by the active selection of privately owned sites).
- The site should be geotechnically sound, without significant cost incurred for the excavation of rock during the establishment of the dam wall structure and slipway.
- The site must be acceptable from an environmental perspective, as to be determined during the environmental authorisation process and associated EIA studies.
- To avoid unnecessary human risk.
- The dam wall structure, dam and slipway should be easy to supervise and maintain.
- Access across the dam wall is to be provided.

The project is motivated by district and local municipality responsibilities for providing water services for a reason within their jurisdiction; this includes planning, ensuring access to and regulating the provision of water services in this area.

The Wildebeest River has delivered a raw water supply to Ugie without interruption for the last 25 years, and without the need for water storage facilities. The need for the project is largely described in terms of the current and projected growth and expansion of Ugie which is set to double on account of the timber industry; the associated need to accommodate the labour force and others; and the ongoing improvements to the sanitation infrastructure that are being implemented within Ugie. In addition the expansion of timber production across the area/region could affect general runoff properties which may in turn affect, at worse, the reliability of the existing water supply (volume and quality) for Ugie in the future. Calculations presented in the Preliminary Design Report indicate annual water use will increase from 890 Mℓ per year (2005) to 3040 Mℓ per year (2030).

Ugie currently does not have a bulk raw water storage facility, either in the form of a dam on either the Wildebeest or Gatberg Rivers or in storage reservoirs at the existing water treatment facility. Water is currently extracted from the Wildebeest River, directly downstream from the old bridge adjacent to the R56 to Maclear, where it is retained by a 1.5m high weir.

Although the weir has a limited storage capacity, the Wildebeest River normally flows all year round. The current set up will not be able to accommodate demand levels for a larger population or the additional requirements of the new water borne sewer systems. It has therefore been deemed necessary to establish a water storage facility with a minimum capacity of at least 2 000 Mℓ to meet demand.

The project triggers the need for environmental studies as part of the authorisation process for listed activities described in Section 24 of the National Environmental Management Act No 107 of 1998 (as amended). Specifically, the Project required a Scoping Report and Environmental Impact Assessment Report as per Section 27-36 of the EIA Regulations 2006 (GNR 385). A Scoping Report was prepared in May 2009 the results of which were used to prepare the required 'Plan of Study of EIA'. In short, it was identified that there was a need for a more detailed assessment of the likely impacts of the proposed dam on terrestrial biodiversity and ecosystems, local climate, aquatic biodiversity and ecosystems, the groundwater environment, sites of cultural and historical importance and the socio-economic components. The results of these studies will need to be presented in the forthcoming Environmental Impact Report which will then be submitted to DEDEA for consideration for authorisation. DEDEA approved the need for these studies in July 2009.

Two sites have been selected for the proposed dam and a detailed comparative assessment of these two sites will also need to be presented in the Environmental Impact Report for consideration by DEDEA.

#### **4. Project location**

Ugie is located at 31° 11' 40.7" S and 28° 13' 59.3" E in the Elundini Local Municipality which lies within the jurisdiction of Ukhahlamba District Municipality. Ugie lies approximately 48 km north east of Elliot and approximately 21 km south west of Maclear, as the crow flies, on the R56 which passes through the centre of Ugie. Ugie services both the agricultural community and timber industry.

The main river systems close to Ugie and considered options for the new dam are the Wildebeest River and the Gatberg River. The Wildebeest River passes through Ugie in a north west-south east direction, while the Gatberg River passes to the south of Ugie in a roughly west to south east direction approximately 4 km from the centre of Ugie at its nearest point.

Two sites are currently being considered in these environmental studies for the location of the dam (Figure 1):

**Site 1** Boncourt Dam Site (preferred location)

North west of Ugie on the Wildebeest River 31° 11' 05.40" S 28° 09' 31.80" E on private property approximately 9km upstream of Ugie.

**Site 2** Crowlands Dam Site

North of Ugie on the Wildebeest River 31° 09' 57.18" S 28° 12' 49.83" E on private property approximately 3km upstream of Ugie.

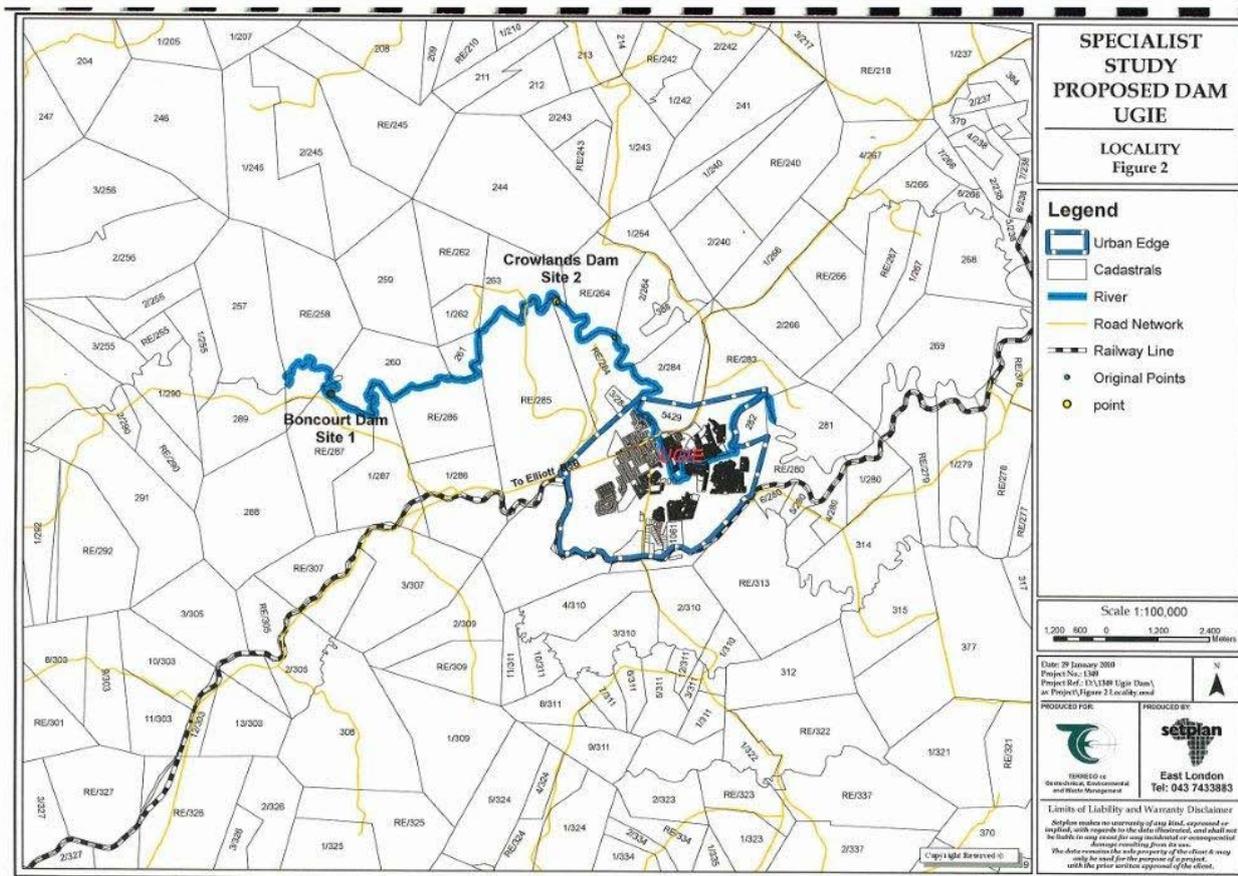


Figure 1. Locations of the dam site options near Ugie in the Eastern Cape Province.

The general geology of the area comprises sedimentary rocks intruded by dolerite. The sedimentary rocks form part of the Molteno Formation of the Karoo Sequence, with the hypabyssal igneous doleritic intrusions post-Karoo in age. The sedimentary rocks generally comprise mostly siltstone, mudstone and shale with sandstones, the latter of which gives rise to the prominent scarps and rock outcrops typical of this area. The mudstones give rise to a rolling hill type topography on account of their lower weathering resistance compared to the sandstone and dolerite.

Dolerite occurs sporadically throughout the general area in thin sills and sheets with occasional dykes. The geology is generally overlain by clayey silt colluvium where underlain by sedimentary rocks, and by silty, clay-rich residual soils where underlain by dolerite. Large

portions of the Wildebeest River floodplains are covered by thin alluvial deposits. The risk of sink holes forming or subsidence occurring is minimised due to the absence of water soluble rocks e.g. dolomite or limestone.

Ugie is located at the base of the foothills of the Southern Drakensberg which extends into the Eastern Cape. The landscape is characterised by undulating to broken topography which gives rise in places to flat-topped mountains. Rivers and streams occur as small drainage systems with small to medium sized floodplains. Ugie lies at approximately 1305m above mean sea level.

Site 1 comprises a narrow, steep valley through which the Wildebeest River flows. The valley opens up into a wide flat wetland area leading downstream to Site 2. It is noted the Glen Fahy Nursery is situated on a local high point adjacent to the Wildebeest River.

Site 2 is characterised by a wider, less steep river valley than at Site 1. A cave exists within a river bank cliff which is believed to have some cultural significance (see Section 5 below).

The Wildebeest and Gatberg Rivers form part of the Umzimvubu River system, converging approximately 14km east of Ugie and then draining into the Tsitsa River which in turn merges with the Inxu, Tina, Kaneka and Mzintlava Rivers to form the uMzimvubu River. The uMzimvubu River flows into the Indian Ocean at Port St Johns.

The Wildebeest River is the main water supply for Ugie and the river itself is a central feature of Ugie. Water is abstracted via a weir structure below the R56 bridge by a pump station situated on the bank of the river and fed to the water treatment works via a 70m long pipeline.

The total catchment size of the Wildebeest River is approximately 200km<sup>2</sup> with a mean annual runoff of 12 000 000m<sup>3</sup>. The section of river which passes through Site 2 is deeper and slower moving than the section which passes through Site 1.

According to Bredenkamp et al the Ugie area is generally classified as Moist Upland Grassveld. This vegetation type is also commonly referred to as Highveld Sourveld and Dohne Sourveld, according to Acocks classification. This vegetation type is a dense, sour grassland with Redgrass, Speargrass and Hairy Tridentgrass. The natural vegetation has been vastly disturbed due to urban and peri-urban development and the establishment of timber plantations. Alien invader species which are common in the area include black wattle. The transformed nature of the sites and surrounding areas is likely to favour a limited diversity of fauna and/or more human tolerant species.

Site 1 - There appears to be little to no infestation by invasive alien species along the section of the Wildebeest which passes through Site 1. Grey Crowned Cranes (a 'Vulnerable' Red Data list species) are present on the wetland and associated floodplain approximately 3km upstream of the dam wall. These are an important species which require protection.

Site 2 - Much of the section of the Wildebeest River that passes through Site 2 is infested with invasive alien plant species (wattles). Grey Crowned Cranes utilise a wetland close to Site 2.

Ugie currently has a population of approximately 16 355 inhabitants. The local economy is based primarily on agriculture with a growing emphasis on forestry. Ugie is primarily a

commercial centre for the surrounding farming community with a small retail centre confined to the main street through town (R56). There is a large low-income population housed in RDP-style housing on the outskirts of Ugie and the unemployment and dependency levels are high. Informal trading within the centre of Ugie is on the increase.

Ugie is experiencing what is expected to be a major growth phase largely motivated by the establishment of the new PG Bison board factory as well as by the support industries and retail outlets associated with this development. A new residential development comprising 102 new homes for PG Bison employees is under construction adjacent to the Ugie dam on the R56. Other development projects underway and/or planned include a new sewage treatment works, truck stop and light industrial/wholesale outlet and various new and upgraded link roads.

Land use at Site 1 is predominantly commercial timber production by PG Bison. The PG Bison nursery at Glen Fahy is located to the west of the proposed dam wall. The R56 lies to the south of Site 1 in a west-east orientation and passing through Ugie en route to Maclear.

Land use at Site 2 is predominantly commercial timber production. Land use between the afforested areas or compartments at Site 2 is mostly degraded, overgrassed grassland with some alien vegetation.

## 5. Observations

No development activities associated with the proposed project had begun at the time of our visit, in accordance with heritage legislation. The following table summarises the heritage resources assessed, and our observations.

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

Table 1. Heritage resources and observations: Ugie dam.

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

The Crowlands Dam Site (Site 2) could affect two rock shelters that were identified as being used for religious purposes during the public participation process. We were unable to locate the sites during our fieldwork, but believe that they have at least medium to high heritage significance at the local level for their cultural, social and spiritual values.

– **Archaeological sites**

The general area around Ugie is internationally known for its hunter-gatherer rock paintings. However, staff members of the Rock Art Research Institute of the University of the Witwatersrand, who have conducted research in the area, informed eThembeni that they have not surveyed any of the properties proposed for inundation and are unable to provide a definitive answer<sup>1</sup>.

A painted site is located on Boncourt (S31°12'18.5" E28°09'45.7"), close to the painted Later Stone Age archaeological site known as Te Vrede (approx. S31°12'17.0" E28°09'46.7"), excavated by Opperman in the 1980s. These sites are located at some distance from the proposed Boncourt Dam Site (Site 1), as is evident from Figure 2. Painted sites are also known to occur on other landholdings on the Prentjiesberg.

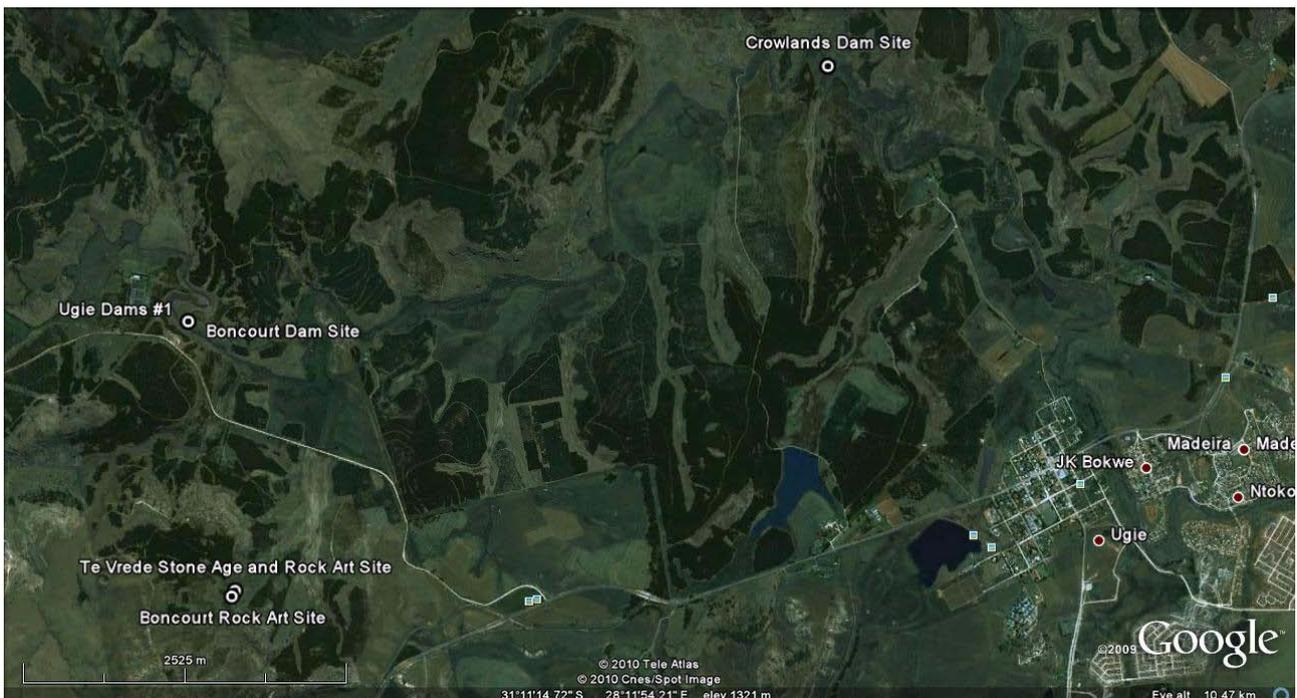


Figure 2. Google Earth image showing relative locations of proposed Ugie Dam and archaeological sites.

<sup>1</sup> Email communication from David Pearce, Research Officer, dated 23 August 2010.

## **6. Recommended mitigation measures**

- We recommend that the preferred option, Boncourt Dam Site 1, is chosen for this project, to avoid inundation of two known places associated with living heritage.
- Since the full supply levels of the proposed dam sites were not available at the time of fieldwork, a heritage practitioner should conduct a walk-through of the chosen dam site (Site 1 or Site 2), as well as all other activity areas such as construction camps, materials' storage facilities and new access roads / tracks, prior to the start of any construction activities.
- If Crowlands Dam Site 2 is chosen for this project, a heritage practitioner should investigate the places of living heritage identified during the public participation process and make recommendations for mitigation, in consultation with interested and affected parties.

## **7. Recommended monitoring**

None.

## **8. Summary of findings in terms of the National Heritage Resources Act 1999 Section 38(3)**

- The identification and mapping of all heritage resources in the area affected  
Two places associated with living heritage.
- An assessment of the significance of such resources in terms of the heritage assessment criteria set out in regulations  
At least medium to high heritage significance at the local level for their cultural, social and spiritual values.
- An assessment of the impact of development on such heritage resources  
The places will be inundated if Crowlands Dam Site 2 is chosen for this project.
- 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  
Unknown at present, but it is likely that the benefits of the proposed development will outweigh any impacts on heritage resources if the preferred Boncourt Dam Site 1 is chosen for this project.
- The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources  
The client has undertaken such consultation in terms of statutory requirements and retains the relevant documentation.

- If heritage resources will be adversely affected by the proposed development, the consideration of alternatives

We recommend that the preferred option, Boncourt Dam Site 1, is chosen for this project, to avoid inundation of two known places associated with living heritage.

Since the full supply levels of the proposed dam sites were not available at the time of fieldwork, a heritage practitioner should conduct a walk-through of the chosen dam site (Site 1 or Site 2), as well as all other activity areas such as construction camps, materials' storage facilities and new access roads / tracks, prior to the start of any construction activities.

If Crowlands Dam Site 2 is chosen for this project, a heritage practitioner should investigate the places of living heritage identified during the public participation process and make recommendations for mitigation, in consultation with interested and affected parties.

- Plans for mitigation of any adverse effects during and after completion of the proposed development

None.

## 9. Conclusion

We recommend that the development proceed with the proposed heritage mitigation and have submitted this report to the South African Heritage Resources Agency in fulfilment of the requirements of the National Heritage Resources Act. 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 this Act apply, and what formal protections may be applied to such heritage resources;
- whether compensatory actions 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.

Relevant staff members may be contacted at the SAHRA Cape Town head office (Mariagrazia Galimberti telephone 021 462 4502; MGALIMBERTI@sahra.org.za).

**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)
- National Heritage Resources Act (NHRA) Act No 25 of 1999
  - a. Protection of heritage resources – Sections 34 to 36
  - b. 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**

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 300m 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 m<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 10 000 m<sup>2</sup> in extent; or
- any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

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);
- 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 N o. 1 5 o f 1994), a n d a n y c a r g o, d e b r i s o r a r t e f a c t s f o u n d o r a s s o c i a t e d t h e r e w i t h, w h i c h i s o l d e r t h a n 6 0 y e a r s o r w h i c h S A H R A c o n s i d e r s t o b e w o r t h y o f c o n s e r v a t i o n;
- 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. 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 No 65 of 1983.

- **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****METHODOLOGY**

Two eThembeni staff members inspected the area on 26 and 27 May 2010. We 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 1989<sup>2</sup>).

We consulted various provincial databases, including historical, archaeological and geological sources and sourced a concise account of South Africa's pre and postcolonial history (available on request). We assessed the value and significance of heritage resources, as defined in the National Heritage Resources Act 1999 and the criteria contained in this Appendix.

Geographic coordinates were obtained with handheld Garmin 60 and nuvi 500 global positioning units. Photographs were taken with a Nikon Coolpix camera and a representative selection is included in Appendix C. A statement of independence and a summary of our ability to undertake this heritage impact assessment are included in Appendix D.

The assumptions and limitations of this heritage impact assessment are as follows:

- We have assumed that the description of the proposed project, provided by the client, is accurate.
- We have assumed that 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 low to moderate. Heritage resources might be present below the surface or in areas of dense vegetation and we remind the client 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.
- No subsurface investigation (including excavations or sampling) were undertaken, since a permit from Amafa aKwaZulu-Natali is required to disturb a heritage resource.
- We are not able to provide a specialist palaeontological assessment, but do not deem such an assessment necessary due to the nature of both the project and the environment.
- 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. We strive to manage heritage resources to the highest standards in accordance with national and

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<sup>2</sup> King, T. F. 1989. The archaeological survey: methods and uses. Quoted in Canter, L. W. 1996. Environmental impact assessment. Second Edition. New York: McGraw-Hill, Inc.

international best practice, but recognise that our opinions might differ from those of other heritage practitioners.

- We take no responsibility for the misuse of the information contained in this report.

### **Criteria for assessing the significance and value of heritage resource sites**

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

#### Type of Resource

- Place
- Structure
- Archaeological Site
- Palaeontological Site
- Geological Feature
- Grave

#### Type of Significance

##### 1. Historical Value

It is important in the community, or pattern of history

- Importance in the evolution of cultural landscapes and settlement patterns
- Importance in exhibiting density, richness or diversity of cultural features illustrating the human occupation and evolution of the nation, Province, region or locality.
- Importance for association with events, developments or cultural phases that have had a significant role in the human occupation and evolution of the nation, Province, region or community.
- Importance as an example for technical, creative, design or artistic excellence, innovation or achievement in a particular period
- It has strong or special association with the life or work of a person, group or organisation of importance in history
- Importance for close associations with individuals, groups or organisations whose life, works or activities have been significant within the history of the nation, Province, region or community.
- It has significance relating to the history of slavery
- Importance for a direct link to the history of slavery in South Africa.

##### 2. Aesthetic Value

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

- Importance to a community for aesthetic characteristics held in high esteem or otherwise valued by the community.
- Importance for its creative, design or artistic excellence, innovation or achievement.
- Importance for its contribution to the aesthetic values of the setting demonstrated by a landmark quality or having impact on important vistas or otherwise contributing to the

identified aesthetic qualities of the cultural environs or the natural landscape within which it is located.

- In the case of an historic precinct, importance for the aesthetic character created by the individual components which collectively form a significant streetscape, townscape or cultural environment.

### 3. Scientific Value

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

- Importance for information contributing to a wider understanding of natural or cultural history by virtue of its use as a research site, teaching site, type locality, reference or benchmark site.
- Importance for information contributing to a wider understanding of the origin of the universe or of the development of the earth.
- Importance for information contributing to a wider understanding of the origin of life; the development of plant or animal species, or the biological or cultural development of hominid or human species.
- Importance for its potential to yield information contributing to a wider understanding of the history of human occupation of the nation, Province, region or locality.
- It is important in demonstrating a high degree of creative or technical achievement at a particular period.
- Importance for its technical innovation or achievement.

### 4. Social Value

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

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

### Degrees of Significance

#### Rarity

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

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

#### Representivity

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

- Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class.
- Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, Province, region or locality.

#### Sphere of Significance: High, Medium, Low

- International; National; Provincial; Regional; Local

## 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 <sup>2</sup>	6 – 10 / m <sup>2</sup>	11 + / m <sup>2</sup>
Inorganic remains (list types)	0 – 5 / m <sup>2</sup>	6 – 10 / m <sup>2</sup>	11 + / m <sup>2</sup>
Ancestral graves			Present
Horizontal extent of site	< 100m <sup>2</sup>	101 – 1000m <sup>2</sup>	1000 + m <sup>2</sup>
Depth of deposit	< 20cm	21 – 50cm	51 + cm
Spiritual association			Yes
Oral history association			Yes
➤ Research potential			High
➤ Educational potential			High

### The management of cultural landscapes

The Cultural Landscape Foundation<sup>3</sup> defines cultural landscapes as follows:

A cultural landscape is a geographic area that includes resources and natural resources associated with a historic event, activity, or person. Sometimes cultural landscapes are the result of one person or group of people acting upon the land. Other times they are the result of an idea one person or a group had and then created at that time. Cultural landscapes can range from thousands of acres of rural lands to a small homestead with a front yard of less than one acre. They include grand estates, farmland, public gardens and parks, college campuses, cemeteries, scenic highways and even industrial sites.

Four general types of Cultural Landscapes, not mutually exclusive, are:

- Historic Sites
- Historic Designed Landscapes
- Historic Vernacular Landscapes
- Ethnographic Landscapes

Cultural Landscapes can:

- Be man-made expressions of visual and spatial relationships.
- Serve as texts and narratives of cultures.
- Be valuable expressions of regional identity.
- Be works of art that are part of our national heritage.
- Exist in relationship to their ecological contexts.

<sup>3</sup> Though professional techniques for identifying, documenting, and managing cultural landscapes have evolved rapidly in the past 30 years, the results of the professionals' work often fails to reach the general public. Consequently, many of the places in which we live, work, and play often change considerably—sometimes over years and sometimes overnight! The Cultural Landscape Foundation is the only not-for-profit foundation in America dedicated to increasing the public's awareness of the importance and irreplaceable legacy of cultural landscapes. Through education, technical assistance, and outreach, the Cultural Landscape Foundation aims to broaden the support and understanding for cultural landscapes nationwide in hopes of saving our priceless heritage for future generations. The CLF achieves this mission by: (1) heightening the awareness of those who impact cultural landscapes; (2) assisting those groups and organizations who are working to increase the appreciation and recognition of cultural landscapes; and, (3) developing educational tools for young people to better connect them to their cultural landscape environs.

What are cultural landscapes? by Alice E. Ingerson, Institute for Cultural Landscape Studies<sup>4</sup>

Virtually all landscapes have cultural associations, because virtually all landscapes have been affected in some way by human action or perception. Therefore, the Institute for Cultural Landscape Studies does not use the phrase "cultural landscape" to mean a special type of landscape. Instead, we use "cultural landscape" to mean a way of seeing landscapes that emphasizes the interaction between human beings and nature over time. ICLS also works with many other organizations, some of which have contrasting or even conflicting definitions of "cultural landscape":

individual, special, aesthetic, collective, representative, useful, cultural, related to the arts (consciously designed objects), ideas of enduring value related to the everyday beliefs and practices of a group of people, the work of landscape architects or garden designers, scenery portrayed in a painting or photograph, or that is seen as worth painting or photographing, the land that can be seen from a single vantage point (usually larger than a "site", smaller than a "region"), "nearly everything we see when we go outdoors" — Peirce Lewis 1979

The National Park Service and the National Register of Historic Places, as well as organizations that look to these agencies for management models and standards, use the operational definition of "cultural landscape" from the 1996 Secretary of the Interior's . . . Guidelines for the Treatment of Cultural Landscapes:

a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.

Historic landscapes, unlike works of art, have to function as contemporary environments — we have literally to enter and become involved with them. — Catherine Howett 1987

Much public discussion about cultural landscapes is about preserving special or historic places. Yet the definition of "special" varies over time, among different cultures, and in different places. A landscape valued by one group may be simply invisible, or even offensive, to another. Next to an official historic district may be a neighborhood that is not eligible for any special treatment but has deep meaning and associations for the people who live there. Mobile homes may be critical to a farm economy, though they jar the sensibilities of visitors expecting to see only white clapboard houses and wooded hillsides from a "scenic overlook" in a state forest. The historic district and the ordinary neighbourhood, working farms and protected forests, are all cultural landscapes. Even when landscape preservation standards are broadened to include a wide range of landscape types, strict preservation is not always an appropriate stance. Designers and communities may also choose to transform existing landscapes or create new ones. Managing cultural landscapes thus involves planning for positive change as well as preventing negative change.

<sup>4</sup> From the website of the Institute for Cultural Landscape Studies of the Arnold Arboretum (<http://www.icls.harvard.edu>), © The President and Fellows of Harvard College. The Institute for Cultural Landscape Studies was formed in 1997 to support the emerging community of professionals and volunteers who manage and interpret landscapes with a significant history of human use, particularly in the northeastern United States. These practitioners work with a wide variety of places, from historic gardens and public parks to urban streetscapes, broad agricultural or industrial regions, and conservation or ecological reserves. These landscapes are neither static nor self-contained. Managing them requires active experimentation and continuous learning, to understand how past events and decisions produced today's landscapes, and how today's decisions and events are already producing tomorrow's landscapes. The Institute for Cultural Landscape Studies worked with nonprofit organizations, public agencies, and colleges and universities to capture place-based knowledge about cultural landscapes, and to respond to emerging issues.

**APPENDIX C**

**PHOTOGRAPHS**



**Plate 1.** The location of the proposed Boncourt Dam Site 1 wall.



**Plate 2.** Part of the river valley that will be inundated by the proposed Boncourt Dam Site 1.

**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 to undertake heritage impact assessments 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 20 years' experience in heritage management. He has worked on projects as diverse as the establishment of the Ondini Cultural Museum in Umlazi, 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 a assistant director of Amafama KwaZulu-Natali, the provincial cultural heritage authority, to start eThembeni. During the past ten years he has directed more than 800 heritage impact assessments throughout South Africa, as well as in Mozambique.

Beth Wahl has a BA Honours African Studies (first class), with archaeology and sociology majors, and has completed various Masters courses in Heritage and Tourism at the University of KwaZulu-Natal. She is a member of the Association of Southern African Professional Archaeologists (ASAPA).

Ms Wahl has undertaken more than 800 heritage impact assessments and monitoring projects throughout South Africa. She was a n 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 has undertaken surveys and monitoring of archaeological sites, excavation of a human skeleton and subsequent community liaison, and written a heritage management plan for Catalina Bay in the iSimangaliso Wetland Park World Heritage Site. She compiled the first cultural landscape management plan for the Mntweni 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, Beth 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 heritage impact assessment and management consulting services.