

**McGregor Museum
Department of Archaeology**



**Phase 1 Archaeological Impact
Assessment for proposed upgrading of
Sishen Mine de-watering pipeline
capacity, Kathu,
Northern Cape.**

David Morris
June 2010

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Introduction

The author was contacted by Lidwala EPS to carry out a phase 1 archaeological and heritage impact assessment with respect to proposed upgrading of de-watering pipeline capacity at the Sishen Mine, Kathu.

Lidwala Environmental and Planning Services (Pty) Ltd: P.O. Box 3585, Diamond, 8305. Tel 053-8420035. Contact: Mr Frank van der Kooy, Fvdkooy@absamail.com Tel 082 890 1918.

The site was visited in June 2010 when Mr Frank van der Kooy accompanied the author and an assistant to inspect the alternative pipeline routes.

Fieldnotes and photographs generated during the visit are lodged with the McGregor Museum, Kimberley.

The author of this report is an archaeologist accredited as a Principal Investigator by the Association of Southern African Professional Archaeologists, having previously carried out surveys and fieldwork on sites in the Kathu area (Beaumont & Morris 1990; Morris & Beaumont 2004).

The author works independently of the organization commissioning this specialist input, and provides this phase 1 archaeological impact assessment within the framework of the National Heritage Resources Act (No 25 of 1999).

In terms of heritage more broadly, this study reports on archaeology as well as on the presence/absence of colonial era heritage traces in the impact area.

Legislation

The National Heritage Resources Act (No 25 of 1999) (NHRA) provides protection for archaeological resources.

It is an offence to destroy, damage, excavate, alter, or remove from its original position, or collect, any archaeological material or object (defined in the Act), without a permit issued by the South African Heritage Resources Agency (SAHRA). Section 35 of the Act protects all archaeological and palaeontological sites and requires that anyone wishing to disturb a site must have a permit from the relevant heritage resources authority. Section 36 protects human remains

older than 60 years. In order for the authority to assess whether approval may be given for any form of disturbance, a specialist report is required. No mining, prospecting or development may take place without heritage assessment and approval.

SAHRA at national level acts on an agency basis for the Provincial Heritage Resources Agency (PHRA) in the Northern Cape, where archaeological sites are concerned. Permit applications should be made to the SAHRA office in Cape Town. In the event of any archaeological material being encountered during prospecting, SAHRA should be contacted immediately (021-4624502).

Methods and limitations

A background literature/museum database search provides indications of what might be expected in the region. This includes a history of research at Kathu itself (see below).

During the site visit each of the respective alternative routes was visited and inspected in detail, but this did not include those portions of the routes crossing parts of mining property where the pre-mining landscape has been completely disturbed and transformed. All structures and mining debris dumps in those latter parts are less than 60 years old. It was also not possible to gain access to certain short sections of pipeline because they were submerged by water.

In the unlikely event that any major feature is encountered during development of the pipeline, for example a high density of pottery, a burial or a cache of ostrich eggshell flasks, then work should be halted and SAHRA should be contacted immediately (021-4624502).

Anticipated impacts

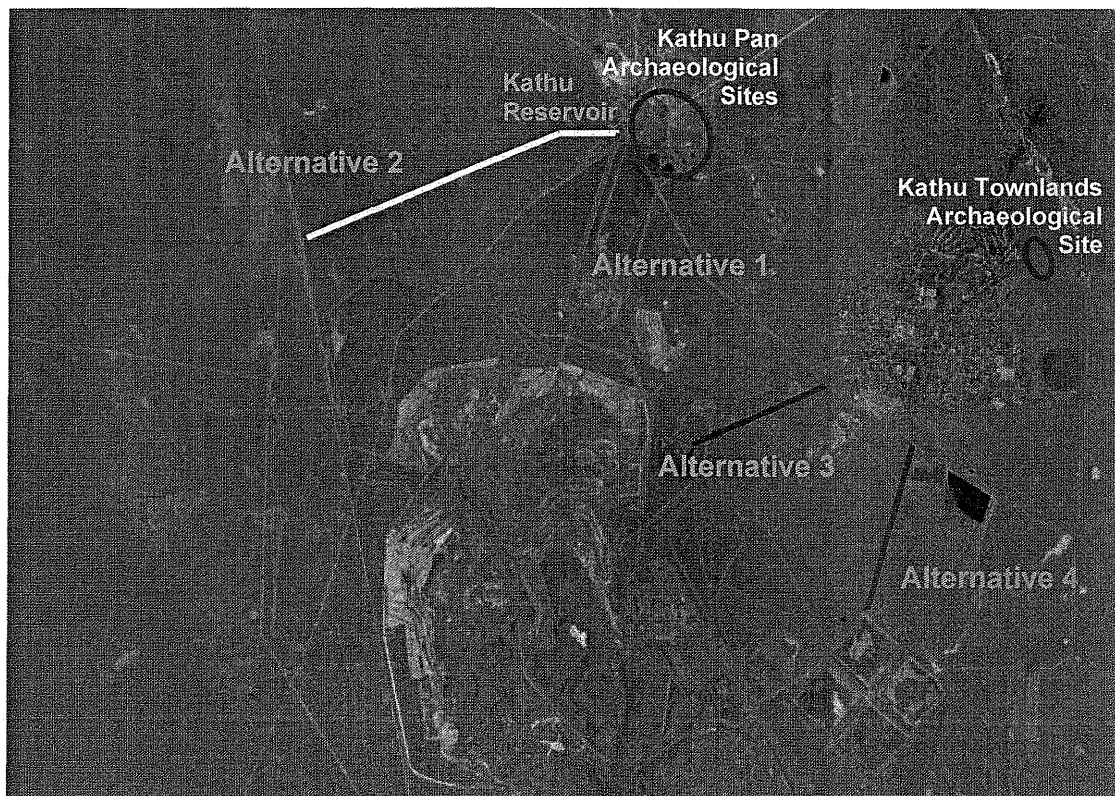
The destructive impacts by the envisaged development that are possible in terms of heritage resources would tend to be direct, once-off events occurring during the initial construction period. In the long term, the proximity of operations in a given area could result in secondary indirect impacts resulting from the movement of people or vehicles along the pipeline.

With respect to the magnitude and extent of potential impacts, it has been noted that the pipeline would run above-ground, supported by concrete saddles – the impact of this being less than if the pipeline was to be buried.

A concern relates not so much to the pipeline as to the vicinity of the Reservoir which is in the immediate vicinity of the Kathu Pan sites which are of international significance (e.g. Porat et al. 2010). If there is to be any modification or extension to the pump station this needs to be assessed further.

Background: archaeological resources in the region

The Northern Cape has a wealth of archaeological sites (Beaumont & Morris 1990; Morris & Beaumont 2004). The significance of any sites encountered in the survey area could be assessed against previous research in the region. Nearby sites of renown include Wonderwerk Cave in the Kuruman Hills, to the east (e.g. Beaumont & Vogel 2006; Chazan *et al.* 2008); Tsantsabane, an ancient specularite working on the eastern side of Postmasburg (Beaumont 1973; Thackeray *et al.* 1983); Doornfontein, another specularite working north of Beeshoek (Beaumont & Boshier 1974; Thackeray *et al.* 1983); and a cluster of important Stone Age sites in the vicinity of Kathu (Beaumont & Morris 1990; Morris & Beaumont 2004; Porat *et al.* 2010; MMK records). Additional specularite workings with associated Ceramic Later Stone Age material, and older cf. Fauresmith sites (Early Middle Stone Age) are known from Lylyfeld, Demaneng, Mashwening, King, Rust en Vrede, Paling, Gloucester and Mount Huxley, to the north (Beaumont 1973; McGregor Museum records). Rock engraving sites are known from Beeshoek and Bruce (sites were salvaged in the 1970s-90s) (Fock & Fock 1984; Morris 1992; Beaumont 1998).



Map indicating portions of route options investigated; also showing the highly sensitive Kathu Pan and Kathu Townlands sites.

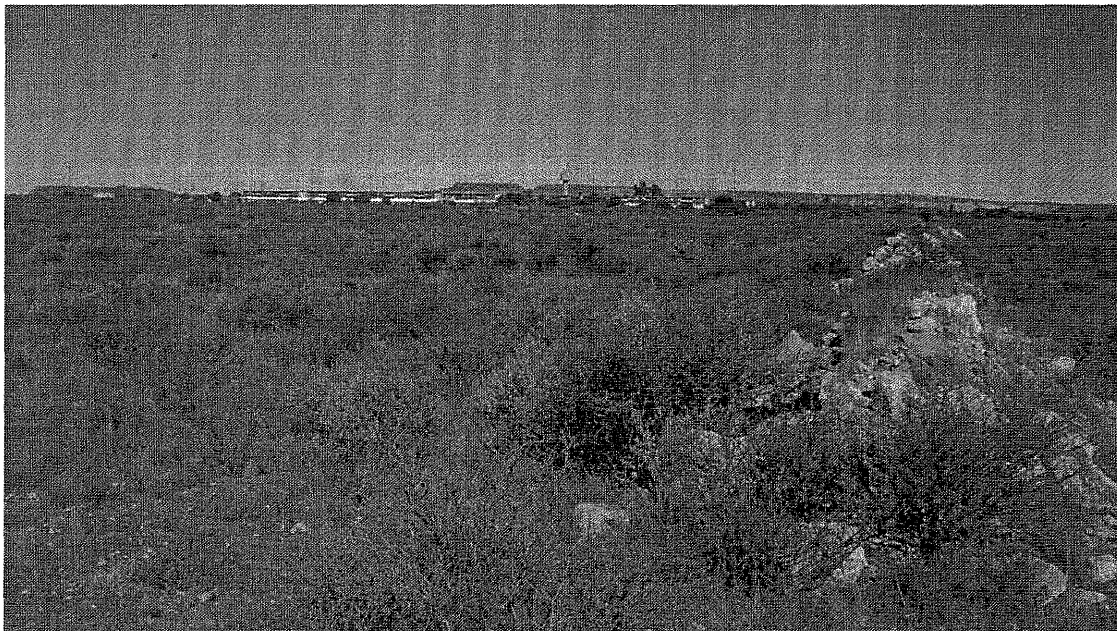
Observations

Of the four alternative routes, portions that run across completely built-over and/or disturbed mining areas were not examined, with assessments being focused on the relatively undisturbed areas.

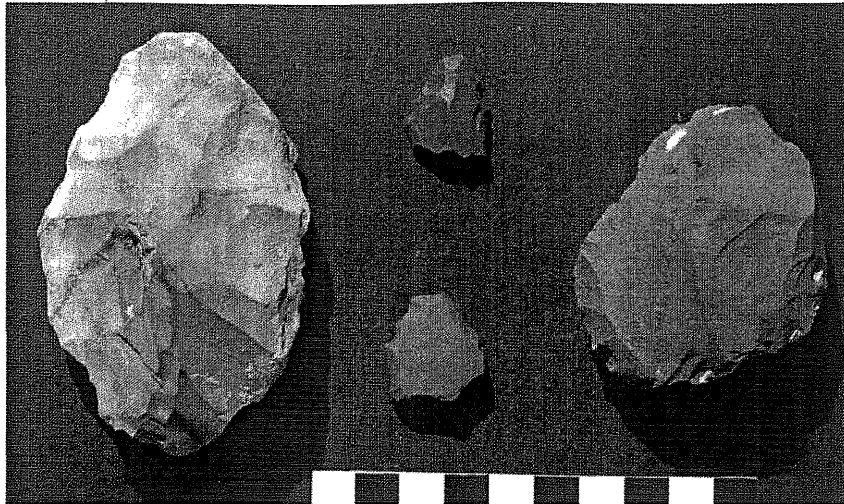
Alternative 1

Running south westwards from a point opposite the reservoir (north west of Kathu), this route runs down towards the hostels and into the mining area. It runs along an old gravel road and alongside an existing (buried) pipeline, so that the route is in fact already disturbed to some extent.

A slightly higher density of artefacts was noted here than along the alternative 3 and 4 routes, but this is probably a factor of the absence of the sand veneer which covers probably comparable spreads of artefacts in the two southern options. On average, no more than about 1 artefact per 10x10 m was noted.



The terrain over which this option would run. Note the hostel area in the middle distance. Note also the heaps of calcrete that run alongside the existing pipeline, which is buried.

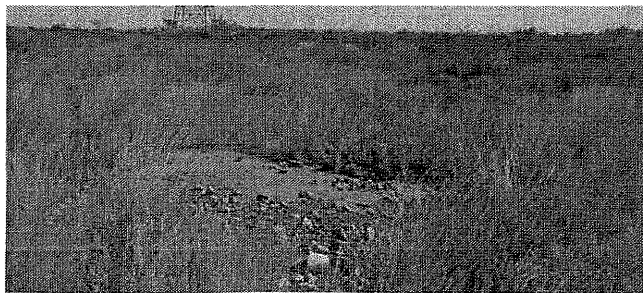


Examples of artefacts noted along the route, including a handaxe found at
27°40'55.2" S 23°00'11.5" E

Alternative 2

This northern-most option runs west south west from the reservoir situated north west of Kathu and like alternative 1 it runs parallel with an existing buried pipeline, towards the railway line from where it would follow the railway (in a disturbed servitude) to the mining area.

There is a higher density of artifacts here in comparison with what was seen along the alternative 3 and 4 routes, thought to be mainly a factor of the absence of the sand veneer which covers probably comparable spreads of artefacts in the two southern options. On average, no more than about 1 artefact per 10x10 m was noted, but densities may be slightly high around slight depressions in the surface along the route. A marked depression, which has been used for borrow pit purposes, in the vicinity of 27°40'40.7" S 22°58'59.9" E



Cement floor noted at 27°40'22.1" S 22°59'48.3" E, most likely the base of a temporary 'prefab' structure associated either with pipeline or power line construction in the later twentieth century.



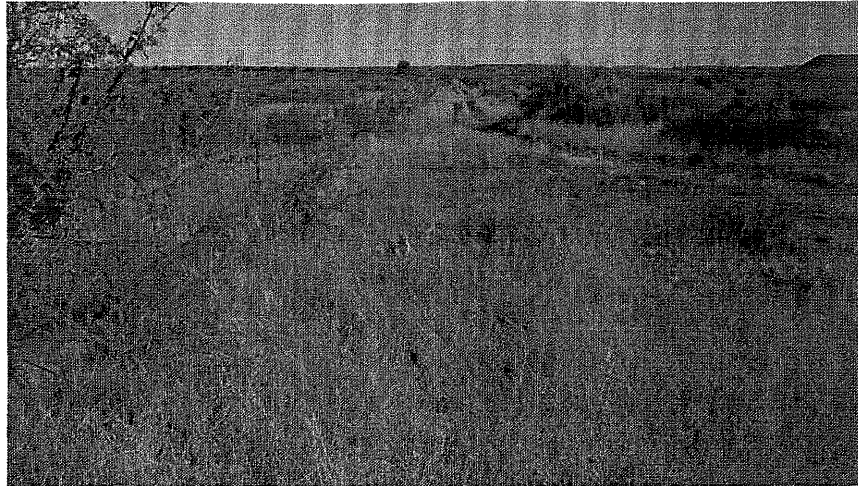
Examples of artefacts found at 27°40'40.7" S 22°58'59.9" E

Alternative 3

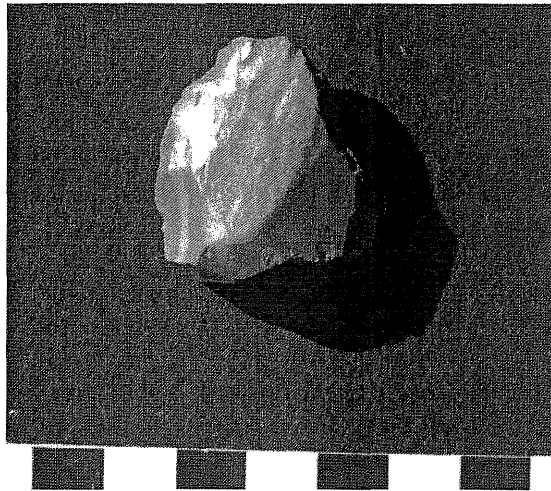
This option runs west south west from the by-pass road (south west of Kathu) towards the mining area. Essentially the same observations were made here as for alternative 4, where a calcrete substrate is covered by Kalahari sand over much of the route. An extremely low density of artefacts was noted.

Alternative 4

This route option runs south westwards from a point along the bypass road south west of Kathu to the mining area. An extremely low density of artefacts was noted at the surface along this route. Part of the route is mantled by Kalahari sand, which masks the older surfaces on which Pleistocene artefacts tend to occur (see above). It is to be noted, on the other hand, that Iron Age sites may occur in these sandy areas (as observed north east of the Golf Course where a site with pottery was located in the late 1980s – MMK records): but no site of this nature was found during the survey.



Terrain across which the pipeline would run in this option (above) and example (below) of the kind of stone tools found in very low density in this area, this one at 27°43'31.1" S 23°02'34.4" E



Summary conclusions and Recommendations

Stone Age

None of the alternative routes was found to have any highly significant heritage traces, other than a very sparse surface scattering of Stone Age lithics which is believed to be more visible in the two northern options at least partly because sand cover there, obscuring the surfaces on which they tend to occur in the area,

is less extensive than in the south. The stone tools conform to Earlier and Middle Stone Age typologies. They are generally too dispersed to be considered as occurring in discrete sites.

Colonial era heritage

No graves, heritage structures or other heritage resources dating from the colonial era and older than 60 years were present.

Palaeontology

The area would not appear to be a likely locale for fossils to occur, but the author of this report is not competent to pronounce definitively on this.

Sensitive area: warning about secondary impacts

The only major concern from a heritage perspective is the possible secondary impacts that upgrading might have on the vicinity of the Reservoir in the north eastern corner of the proposed development, where the highly significant Kathu Pan archaeological sites are situated (as indicated in the map, above).

Reporting possible finds

In the event of any site/feature being found (such as large numbers of pot sherds, an unmarked grave or an ostrich eggshell cache) in the course of upgrading pipelines as proposed, SAHRA should be contacted immediately (021-4624502: Mrs Nonofho Ndobochani/ Mrs Colette Scheermeyer), so that the find can be investigated and mitigation measures recommended. The Northern Cape PHRA (Ngwao Bošwa ya Kapa Bokone), to which a copy of this report is also being sent, will assume responsibility for archaeological resources in the province when it is accredited to deal with this aspect of heritage. In the interim Bošwa should be contacted in respect of the built environment.

In light of the above and with these provisos it is recommended that, from a heritage perspective, upgrading of the pipeline/s may go ahead as proposed along whichever of the alternative routes is decided upon.

Acknowledgements

I thank Mr Frank van der Kooy who guided us to the routes, providing local transport; and I thank Mrs Tharina van Tonder who assisted.

References

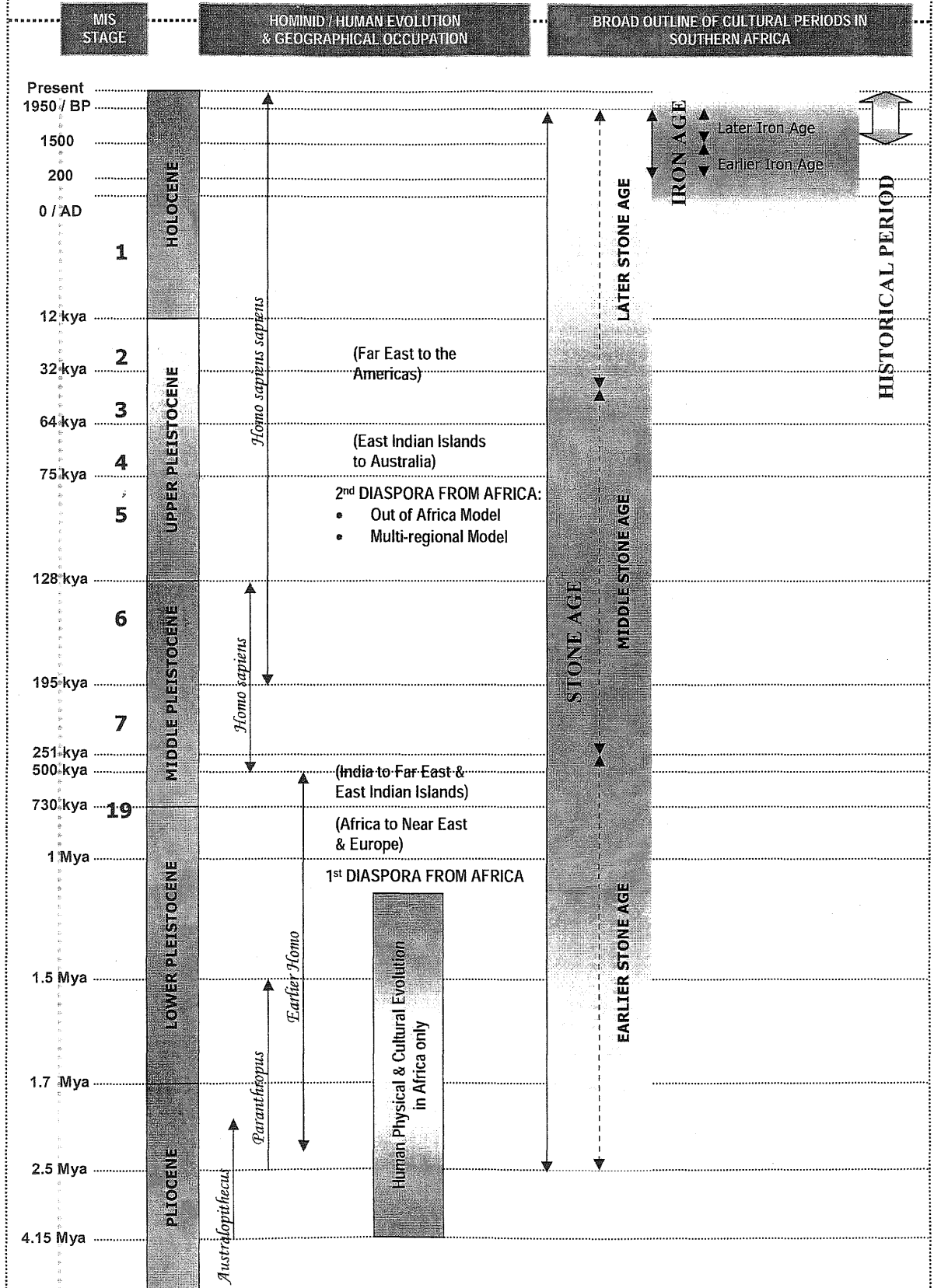
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DAVID MORRIS.

Schematic Human Physical and Cultural Evolution in Africa



Extracts from the
National Heritage Resources Act (No 25 of 1999)

DEFINITIONS

Section 2

In this Act, unless the context requires otherwise:

- ii. "*Archaeological*" means –
 - a) material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
 - b) 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 which is older than 100 years, including any area within 10 m of such representation;
 - c) 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 maritime culture zone of the Republic, ... 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.
- viii. "*Development*" means any physical intervention, excavation or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including –
 - a) construction, alteration, demolition, removal or change of use of a place or structure at a place;
 - b) carrying out any works on or over or under a place;
 - c) subdivision or consolidation of land comprising, a place, including the structures or airspace of a place;
 - d) constructing or putting up for display signs or hoardings;
 - e) any change to the natural or existing condition or topography of land; and
 - f) any removal or destruction of trees, or removal of vegetation or topsoil;
- xiii. "*Grave*" means a place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place;
- xxi. "*Living heritage*" means the intangible aspects of inherited culture, and may include –
 - a) cultural tradition;
 - b) oral history;
 - c) performance;
 - d) ritual;
 - e) popular memory;
 - f) skills and techniques;
 - g) indigenous knowledge systems; and
 - h) the holistic approach to nature, society and social relationships.
- xxxi. "*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;
- xli. "*Site*" means any area of land, including land covered by water, and including any structures or objects thereon;
- xliv. "*Structure*" 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;

NATIONAL ESTATE

Section 3

- 1) For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.
- 2) Without limiting the generality of subsection 1), the national estate may include –
 - a) places, buildings, structures and equipment of cultural significance;

- b) places to which oral traditions are attached or which are associated with living heritage;
- c) historical settlements and townscapes;
- d) landscapes and natural features of cultural significance;
- e) geological sites of scientific or cultural importance
- f) archaeological and palaeontological sites;
- g) graves and burial grounds, including –
 - i. ancestral graves;
 - ii. royal graves and graves of traditional leaders;
 - iii. graves of victims of conflict
 - iv. graves of individuals designated by the Minister by notice in the Gazette;
 - v. historical graves and cemeteries; and
 - vi. other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No 65 of 1983)
- h) sites of significance relating to the history of slavery in South Africa;
- i) movable objects, including –
 - i. objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - ii. objects to which oral traditions are attached or which are associated with living heritage;
 - iii. ethnographic art and objects;
 - iv. military objects;
 - v. objects of decorative or fine art;
 - vi. objects of scientific or technological interest; and
 - vii. books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

STRUCTURES

Section 34

- 1) No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

ARCHAEOLOGY, PALAEOLOGY AND METEORITES

Section 35

- 3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.
- 4) No person may, without a permit issued by the responsible heritage resources authority –
 - a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
 - b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
 - c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
 - d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
- 5) When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and no heritage resources management procedure in terms of section 38 has been followed, it may –
 - a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;
 - b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;

- c) if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph a) to apply for a permit as required in subsection 4); and
 - d) recover the costs of such investigation from the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.
- 6) The responsible heritage resources authority may, after consultation with the owner of the land on which an archaeological or palaeontological site or meteorite is situated, serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

BURIAL GROUNDS AND GRAVES

Section 36

- 3) 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 of any burial ground or grave referred to in subsection 3a) 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 3b) 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.

HERITAGE RESOURCES MANAGEMENT

Section 38

- 1) Subject to the provisions of subsections 7), 8) and 9), any person who intends to undertake a development categorised as –
- a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
 - b) the construction of a bridge or similar structure exceeding 50 m in length;
 - c) any development or other activity which will change the character of a site –
 - i. exceeding 5 000 m² in extent; or
 - ii. involving three or more existing erven or subdivisions thereof; or

- iii. involving three or more erven or subdivisions thereof which have been consolidated within the past five years; or
 - iv. the costs which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
 - d) the rezoning of a site exceeding 10 000 m² in extent; or
 - e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,
- must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.
- 2) The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection 1) –
 - a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management; or
 - b) notify the person concerned that this section does not apply.
 - 3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection 2a) ...
 - 4) The report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development decide –
 - a) whether or not the development may proceed;
 - b) any limitations or conditions 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 is 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.

APPOINTMENT AND POWERS OF HERITAGE INSPECTORS

Section 50

- 7) Subject to the provision of any other law, a heritage inspector or any other person authorised by a heritage resources authority in writing, may at all reasonable times enter upon any land or premises for the purpose of inspecting any heritage resource protected in terms of the provisions of this Act, or any other property in respect of which the heritage resources authority is exercising its functions and powers in terms of this Act, and may take photographs, make measurements and sketches and use any other means of recording information necessary for the purposes of this Act.
- 8) A heritage inspector may at any time inspect work being done under a permit issued in terms of this Act and may for that purpose at all reasonable times enter any place protected in terms of this Act.
- 9) Where a heritage inspector has reasonable grounds to suspect that an offence in terms of this Act has been, is being, or is about to be committed, the heritage inspector may with such assistance as he or she thinks necessary –
 - a) enter and search any place, premises, vehicle, vessel or craft, and for that purpose stop and detain any vehicle, vessel or craft, in or on which the heritage inspector believes, on reasonable grounds, there is evidence related to that offence;
 - b) confiscate and detain any heritage resource or evidence concerned with the commission of the offence pending any further order from the responsible heritage resources authority; and
 - c) take such action as is reasonably necessary to prevent the commission of an offence in terms of this Act.

A heritage inspector may, if there is reason to believe that any work is being done or any action is being taken in contravention of this Act or the conditions of a permit issued in terms of this Act, order the immediate cessation of such work or action pending any further order from the responsible heritage resources authority.

