

McGregor Museum

Department of Archaeology



Archaeological Impact Assessment - ACWA Power Solafrika Bokpoort CSP Power Plant (PTY) LTD: Amended Alignment: Bokpoort Water Pipeline, Groblershoop, Northern Cape.

David Morris
McGregor Museum, Kimberley
February 2014 Updated August 2014

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Introduction

This further report with respect to the Bokpoort Pipeline is commissioned by Royal HaskoningDHV (attn Bjorn Hoffmann, Tel: 031 7195571, Email: Bjorn.Hoffmann@rhdhv.com).

It provides an additional Archaeological Impact Assessment for alternative amended alignments for the proposed water pipeline supplying water from the Orange River on the farm Sand Draai 391 to a CSP power generation plant near Gorona substation on the farm Bokpoort 390 near Groblershoop in the Northern Cape. The alternatives comprise a section of pipeline running alongside a farm servitude roadway parallel with the Orange River (preferred) and an approximately 3 km of pipeline planned to deviate from the initially proposed route, cross-country, to an abstraction point upstream from the originally proposed position (not preferred). These alternatives are subject to the present assessment. Both alternatives were examined during a field visit in January 2014.

Specialist and legislative framework

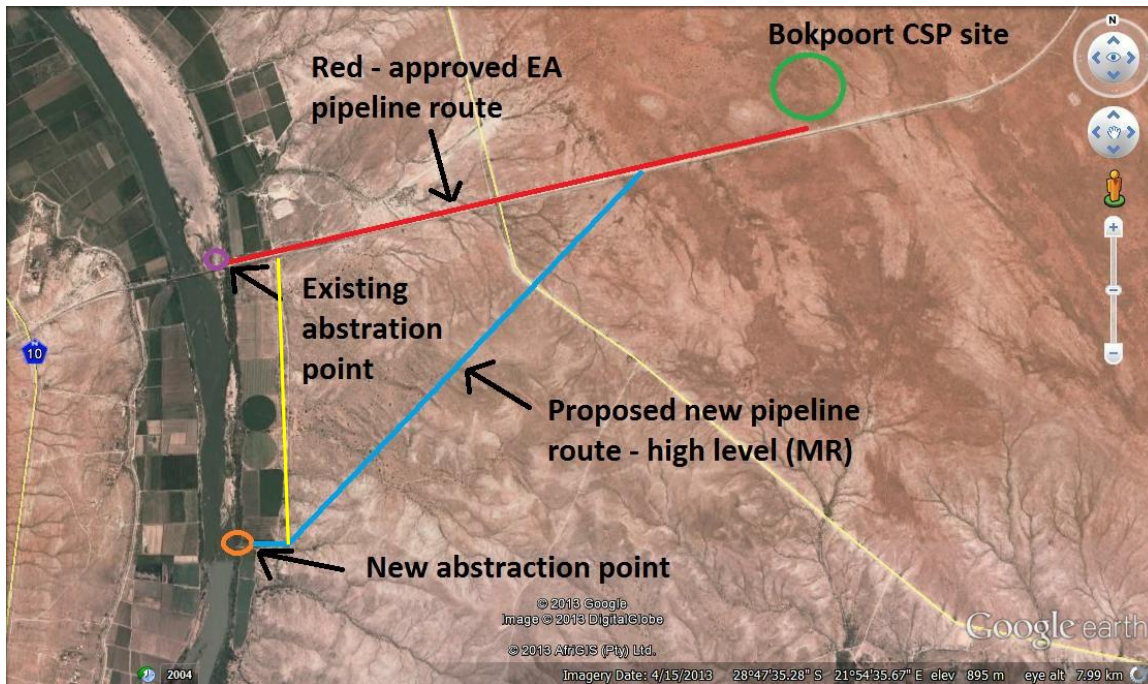
The author of this report is an archaeologist accredited as a Principal Investigator by the Association of Southern African Professional Archaeologists. Previous experience includes research and impact assessments in the region (Beaumont & Morris 1990; Morris & Beaumont 2004).

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

The National Heritage Resources Act No. 25 of 1999 (NHRA) protects heritage resources which include archaeological and palaeontological objects/sites older than 100 years, graves older than 60 years, structures older than 60 years, as well as intangible values attached to places. The Act requires that anyone intending to disturb, destroy or damage such sites, objects and/or structures may not do so without a permit from the relevant heritage resources authority. This means that a Heritage Impact Assessment should be performed, resulting in a specialist report as required by the relevant heritage resources authority/ies to assess whether authorisation may be granted for the disturbance or alteration, or destruction of heritage resources.

Environmental and heritage context

The revised water intake pipeline alternative alignments are indicated in the following map.



Map showing amended alignments: Preferred (yellow); Not Preferred (blue): the corresponding 1:50 000 sheet is 2821DD.

The new pipeline route (Preferred Option) traverses terrain from the east bank of the Orange River, somewhat disturbed by agricultural activity on Sand Draai 391, then follows an existing farm servitude roadway through terrain substantially disturbed by agricultural activity. The latter will have displaced archaeological traces that may once have been in situ along this route.

The second option (Not Preferred) again traverses terrain from the east bank of the Orange River as above, but then heads in a north easterly direction, diagonally along an existing farm boundary fence, over eroded spurs and through Aeolian dune-filled valleys to an upslope calcrete plain which extends beyond the point where the new alignment intersects the previously approved pipeline route. The landscape is generally sparsely vegetated, thereby making any surface archaeological and other heritage traces highly visible. Recent geological processes over much of the terrain will have been predominantly erosional leaving Stone Age material essentially at the surface. On and between the dunes archaeological material may be buried, but exposed in areas of wind deflation.

The archaeology of the Northern Cape is rich and varied, covering long spans of human history. Concerning Stone Age sites of the region, C.G. Sampson has observed: "It is a great and spectacular history when compared to any other place in the world" (Sampson 1985). Some areas are richer than others, and not all sites are equally significant. Heritage impact assessments are a means to facilitate development while ensuring that what should be conserved is saved from destruction, or adequately mitigated and/or managed.

In a similar setting to the south west, near Marydale, a significant Middle Stone Age site with well preserved fauna has been excavated by Kiberd (2006), at the edge of a small pan at Bundu, while a Cretaceous fossil site of note has been researched at Stompoor. Pleistocene material was found at the base of dune sands exposed at the edge of borrow pits associated with the Sishen-Saldanha line close to the proposed pipeline (Morris 2007), while Middle Stone Age material was reportedly found on a red sand plain in the vicinity of

the proposed CSP plant, by Dreyer (2006). The erstwhile route was examined by Morris (2012) and included colonial era stone structures near to the river.

Methods and limitations

The proposed new alignment options were visited on 27-28 January 2014, when the routes were walked between the river and its intersection with the approved route, and along the farm road running parallel with the river.

Vegetation cover is generally minimal, geomorphologic history across much of the area traversed being one of erosion, where archaeological material, where present, tends to occur at the present surface. Parts of the terrain are mantled by wind-blown Kalahari sand, where deflation hollows provide opportunities to assess possible presence of sites.

Anticipated impacts

The impact of the proposed water pipeline would be a linear development running for the most part alongside a farm road in one instance (Preferred option), and along a farm boundary fence in the other (Not preferred). The western-most extent of the latter, near the Orange River, crosses an area already substantially disturbed by agricultural activity, namely creation of terraces for fruit production, while the former option is through terrain disturbed virtually along its entire length.

Relevant observations

Observations made during the survey along the proposed alternative routes of the amended water pipeline alignments are summarized below with reference to the following GPS log:



At the cluster of points numbered 331-333:

This is a largely disturbed context resulting from twentieth century agricultural activity. River-side silt sediments, substantially disturbed in the creation of terraces for the growing of fruit trees and lucerne, and associated irrigation furrows and roadways, may have contained a wide temporal range of Stone Age material. No in situ artefacts were noted. At point 333 flaked jaspilite artefacts were found which lack any meaningful archaeological context.

Between points 334 and 340:

No significant archaeological observations were made along the proposed new route, with stone artefact finds being in accord with those noted previously (Morris 2012), namely generally low to very low 'background' density of 'off-site' Stone Age traces. The material observed appeared to be consistently of Pleistocene age, mainly Middle Stone Age, and mostly utilizing jaspilite as raw material (probably derived from the Orange River gravels). Preservation contexts on eroded slopes are poor and hence of low significance.

No artefacts were noted on the dunes in the valleys between the eroded spurs and ridges.



The vicinity of the revised proposed abstraction point at the Orange River: riverside silt sediments disturbed (above and below) – terracing for lucerne and fruit trees.





Substantial river-bank and upslope landscape modification for agricultural purposes (above). This is typical of the entire length of the preferred option running parallel with the farm servitude roadway.



Artefacts on jaspilite immediately upslope from the river bank and within a zone of agricultural disturbance, at GPS point 333.



Eroded slopes: view westwards towards Orange River (above). Eastwards, ridges and spurs are separated by valleys with wind-blown sands and dunes (below). This is typical of the entire length of the alternative option (Not preferred) running diagonally along the existing farm boundary fence.



View westwards from near the Sishen-Saldanha line.



Isolated artefacts from an area of greater than 10 x 10 m, photographed at GPS position 335 (see map above).



Artefacts found in the vicinity of GPS position 340 (see map above).



Above and below, evidence of prospecting/drilling at GPS positions 337 and 338 respectively.



Assessment and Recommendations

The Preferred and Not Preferred options are summarised in terms of archaeological observations in the following table.

Option 1 Along farm servitude roadway (Preferred)	Option 2 Cross-country diagonally along farm boundary fence (Not Preferred)
Isolated surface occurrences of Stone Age material were found but in contexts of substantial previous agricultural disturbance/artificially created/terraced settings and hence lacking any archaeological integrity. No significant sites were located.	Generally very widely scattered, i.e. isolated, surface occurrences of Stone Age material were found, essentially 'off-site' Pleistocene age artefacts on eroding surfaces. No archaeological material was found on dunes. No significant sites were located.
No colonial era cultural heritage resources, other than current/recent farming activity	No colonial era cultural heritage resources, other than current/recent farming activity and evidence of twentieth century drilling/prospecting, were found.

Impact significance is assessed by assigning significance points (SP) values, calculated by the following formula:

$$SP = E + D + F + I + P$$

Where:

E = Spatial extent; D = Duration; F = Frequency; I = Intensity; P = Probability

Rating scores for the various aspects are presented in Table 1. Table 2 and **Error! Reference source not found.** present the outcomes of the perceived impacts on archaeological resources for Alternative 1 and Alternative 2, respectively. Impacts are described for the duration of the construction, management and decommissioning phases of the proposed development both before and after the implementation of mitigation measures. Most impacts identified can be effectively reduced or negated through implementation of appropriate mitigation measures. Mitigation measures applicable to the construction, operations and decommissioning phases of the proposed development activities are presented in Table , Table and

Table, respectively.

Table 1: Rating scores for the various factors used for calculating the significance rating of a particular impact.

Extent		Duration		Frequency		Intensity		Probability		Cumulative impacts
Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating	Score	Rating
Site specific	1	Very short	1	Very rare	1	Very low	1	Improbable	1	Low: Low occurrence of similar infrastructure within the region. The development represents an isolated occurrence.
Local	2	Short term	2	Unusual	2	Low	2	Probable	2	Medium: Emerging occurrence and development of similar infrastructure within the region.
Regional	3	Medium	3	Frequent	3	Medium	3	Likely	3	High: High occurrence of similar infrastructure within the region. The development represents infrastructure development that will be largely unnoticed due to high occurrences of similar infrastructure.
National	4	Long term	4	Very frequent	4	Med-high	4	Very likely	4	
International	5	Permanent	5	Continuous	5	High	5	Definite	5	

Table 2: Significance assessment of the perceived major heritage impacts (archaeological and cultural heritage) pertaining to a development of this nature both *before* and *after* mitigation measures that are applicable to the proposed development activities. *This rating table is specific to Alignment alternative 1.*

Potential environmental impact	Nature of the activity or issue	Environmental significance <i>before</i> mitigation						Environmental significance <i>after</i> mitigation as per EMPr					
		E	D	F	I	P	SR	E	D	F	I	P	SR
PRECONSTRUCTION & CONSTRUCTION PHASE													
Archaeological resources	Surface/subsurface disturbance of sediment potentially containing archaeological material and its contexts	1	5	2	2	2	12	1	4	2	2	2	11
	<u>Comment:</u> Archaeological materials and/or their contexts would be damaged or destroyed by disturbance of sediment, such as scraping, excavation or other surface or subsurface movement of ground. This is usually an irreversible once-off, i.e. permanent impact. The proposed alignment runs through an area which has been impacted by previous agriculture-related activity so that the probability of the impact is relatively low.												

Potential environmental impact	Nature of the activity or issue	Environmental significance <i>before</i> mitigation					Environmental significance <i>after</i> mitigation as per EMPr						
		E	D	F	I	P	SR	E	D	F	I	P	SR
	<p><u>Summary of pertinent mitigation points:</u></p> <p>It is not considered that a Phase 2 archaeological study is needed, as no major features were noted during the field investigation. Impacts on what archaeological resources do occur may be limited by restricting the footprint of the development as far as possible, avoiding indiscriminate surface clearing/disturbance.</p>												
MANAGEMENT PHASE													
	Disturbance of surfaces/subsurface sediment potentially containing archaeological resources during planned or unplanned maintenance	2	5	2	2	1	12	2	4	2	2	1	11
Archaeological resources	<p><u>Comment:</u></p> <p>Archaeological materials and/or their contexts would be damaged or destroyed by disturbance of previously undisturbed sediment, such as scraping, excavation or other surface or subsurface movement of ground. This is usually an irreversible once-off, i.e. permanent impact. The proposed alignment runs through an area which has been impacted by previous agriculture-related activity so that the probability of the impact is relatively low.</p>												
	<p><u>Summary of pertinent mitigation points:</u></p> <p>Impacts on what archaeological resources remain in situ may be limited by restricting the footprint of any maintenance activity.</p>												
DECOMMISSIONING PHASE													
	Disturbance of surfaces/subsurface sediment potentially containing archaeological resources during the decommissioning phase.	2	5	2	2	1	12	2	4	2	2	1	11
Archaeological resources	<p><u>Comment:</u></p> <p>This will have the same magnitude of impact as per the construction phase</p>												
	<p><u>Summary of pertinent mitigation points:</u></p> <p>Impacts on what archaeological resources remain in situ may be limited by restricting the footprint of any decommissioning activity.</p>												

SP ratings: 0-5 (Low), 6-10 (Medium), 11-15 (High); 15-20 (Very high).

E=Extent; D=Duration; I=Intensity; P=Probability of Occurrence; SR=Significance rating.

NOTE: All impacts are rated as a negative impact (deleterious or adverse impact).

Table 3: Significance assessment of the perceived major heritage impacts (archaeological and cultural heritage) pertaining to a development of this nature both *before* and *after* mitigation measures that are applicable to the proposed development activities. This rating table is specific to Alignment alternative 2.

Potential environmental impact	Nature of the activity or issue	Environmental significance <i>before</i> mitigation					Environmental significance <i>after</i> mitigation as per EMPr						
		E	D	F	I	P	SR	E	D	F	I	P	SR
PRECONSTRUCTION & CONSTRUCTION PHASE													
Archaeological resources	Surface/subsurface disturbance of sediment potentially containing archaeological material and its contexts	1	5	2	2	2	12	1	4	2	2	2	11
	<i>Comment:</i> Archaeological materials and/or their contexts would be damaged or destroyed by disturbance of sediment, such as scraping, excavation or other surface or subsurface movement of ground. This is usually an irreversible once-off, i.e. permanent impact. The proposed alignment runs through an area which has been impacted by previous agriculture-related activity so that the probability of the impact is relatively low.												
	<i>Summary of pertinent mitigation points:</i> It is not considered that a Phase 2 archaeological study is needed, as no major features were noted during the field investigation. Impacts on what archaeological resources do occur may be limited by restricting the footprint of the development as far as possible, avoiding indiscriminate surface clearing/disturbance.												
MANAGEMENT PHASE													
Archaeological resources	Disturbance of surfaces/subsurface sediment potentially containing archaeological resources during planned or unplanned maintenance	2	5	2	2	1	12	2	4	2	2	1	11
	<i>Comment:</i> Archaeological materials and/or their contexts would be damaged or destroyed by disturbance of previously undisturbed sediment, such as scraping, excavation or other surface or subsurface movement of ground. This is usually an irreversible once-off, i.e. permanent impact. The proposed alignment runs through an area which has been impacted by previous agriculture-related activity so that the probability of the impact is relatively low.												

Potential environmental impact	Nature of the activity or issue	Environmental significance <i>before</i> mitigation					Environmental significance <i>after</i> mitigation as per EMPr						
		E	D	F	I	P	SR	E	D	F	I	P	SR
	<p><u>Summary of pertinent mitigation points:</u></p> <p>Impacts on what archaeological resources remain in situ may be limited by restricting the footprint of any maintenance activity.</p>												
DECOMMISSIONING PHASE													
Archaeological resources	Disturbance of surfaces/subsurface sediment potentially containing archaeological resources during the decommissioning phase.	2	5	2	2	1	12	2	4	2	2	1	11
	<p><u>Comment:</u></p> <p>This will have the same magnitude of impact as per the construction phase</p>												
	<p><u>Summary of pertinent mitigation points:</u></p> <p>Impacts on what archaeological resources remain in situ may be limited by restricting the footprint of any decommissioning activity.</p>												

SP ratings: 0-5 (Low), 6-10 (Medium), 11-15 (High); 15-20 (Very high).

Table 4: General mitigation measures proposed for the Construction phase of the proposed development activities.

Environmental Consideration	Environmental Impacts	Mitigation Measures	Time Frames	Responsible Party
Archaeological Resources	<ul style="list-style-type: none"> Disturbance, damage, destruction of archaeological artefacts, features and contexts 	<ul style="list-style-type: none"> Archaeological artefacts were observed to occur within the pipeline alignment options investigated in this study. No sites considered to be of major archaeological significance were noted, however. In some instances they were already in secondary contexts, i.e. already disturbed by previous activities, principally agriculture. It is not considered necessary to carry out a Phase 2 archaeological mitigation study. Limit impacts on heritage resources by restricting actions such as surface clearance or ground disturbance to a minimum. 	Continuous throughout the construction phase.	Contractor

Table 5: Mitigation measures proposed for the *Operations phase* of the proposed development activities.

Environmental Consideration	Environmental Impacts	Mitigation Measures
Archaeological Resources	<ul style="list-style-type: none"> Disturbance, damage, destruction of archaeological artefacts, features and contexts 	<ul style="list-style-type: none"> Construction crews to be made aware of archaeological and other heritage traces and their legal protection. Notify the relevant authority, i.e. SAHRA, in the event of any feature or significant find being encountered during operations. Workers and machinery to remain inside the construction/operational footprint.

Table6: Mitigation measures proposed for the *Decommissioning phase* of the proposed development activities.

Environmental Consideration	Environmental Impacts	Mitigation Measures
<p>Archaeological Resources</p>	<ul style="list-style-type: none"> Disturbance, damage, destruction of archaeological artefacts, features and contexts 	<ul style="list-style-type: none"> All mitigation measures applicable to the construction and operational phases will be applicable to the decommissioning phase. Decommissioning personnel to be made aware of archaeological and other heritage traces and their legal protection. Notify the relevant authority, i.e. SAHRA, in the event of any feature or significant find being encountered during decommissioning. Workers and machinery to remain inside the operational/decommissioning footprint.

Pipeline alternatives

Two alternatives for the pipeline alignment have been presented. The preferred choice for the pipeline alternative route is based on the following main points:

- Avoids impacts on archaeological landscapes that retain their integrity, i.e. not markedly transformed by recent impacts;
- Takes into consideration impacts on heritage resources, principally archaeological resources as described in this report.
- Is associated with similar existing infrastructure or infrastructure that has already imposed an impact to the archaeological integrity of the area (e.g. power lines, railways, roads, urban areas, etc);
- Is associated with a greater proportion of already disturbed/degraded areas;

Table 7: Comparative assessment of the two pipeline alternative alignments.

Alternative	Preference	Aspect/Component/Comment	Rating /10
Alternative 1 – Following the farmer servitude roadway from the proposed abstraction point to the railway servitude (and approved pipeline servitude)	Preferred	Impacts on archaeologically sensitive resources	2
		Integrity of archaeological contexts	1
		Perceived success of mitigation (1 high; 5 med; 10 low)	6
		Total:	9/30
Alternative 2 – Following an existing farm road for only a short distance from the proposed abstraction point and then cutting through undisturbed areas before reaching the railway servitude	Not preferred	Impacts on archaeologically sensitive resources	2
		Integrity of archaeological contexts	6
		Perceived success of mitigation (1 high; 5 med; 10 low)	6
		Total:	14/30

A decision as to the ultimate choice of preferred route would therefore be based, in this study, on which alternative represents the least overall impacts to the integrity of archaeological landscapes within the region. From the impact significance tables (Table 2 and **Error! Reference source not found.**), it can be seen that Alternative 1 has an overall lesser impact, which is the route alternative that follows the existing roads within the area, therefore incorporating the areas that are subject to existing disturbance/degradation, and is the preferred alternative. Standard methodologies for impact evaluations do not present refinements that allow for direct comparisons at a small spatial scale and therefore a further impact analysis has been offered to discern between the two proposed alternatives. Both the route alternatives are presented in a comparison of overall impacts, showing scores for the various components. Scores (out of

10) are based upon the impacts on the given criteria. According to this, Alternative 1 remains the preferred alternative, scoring an impact rating of 9/30, whereas Alternative 2 scores an impact rating of 14/30.

The water pipeline proposed new alignment options should have only very limited impact on the heritage resources of the area. From a heritage perspective the preferred option, running within a servitude of 50 m along the existing farm servitude roadway parallel with the Orange River is estimated to have a lower impact than that running cross-country diagonally over ridges and through valleys along the farm boundary fence.

In the event of any further site/feature being found in the course of development, SAHRA should be contacted immediately (021-4624502: Mrs Colette Scheermeyer/ Dr Mariagrazia Galimberti), so that the find can be investigated and mitigation measures recommended. The Northern Cape PHRA (Ngwao Bošwa jwa Kapa Bokone) should be contacted in respect of the built environment – although in this instance, as noted, none was found.

Records

The archive of field notes and images resulting from this study is preserved at the McGregor Museum in Kimberley.

References

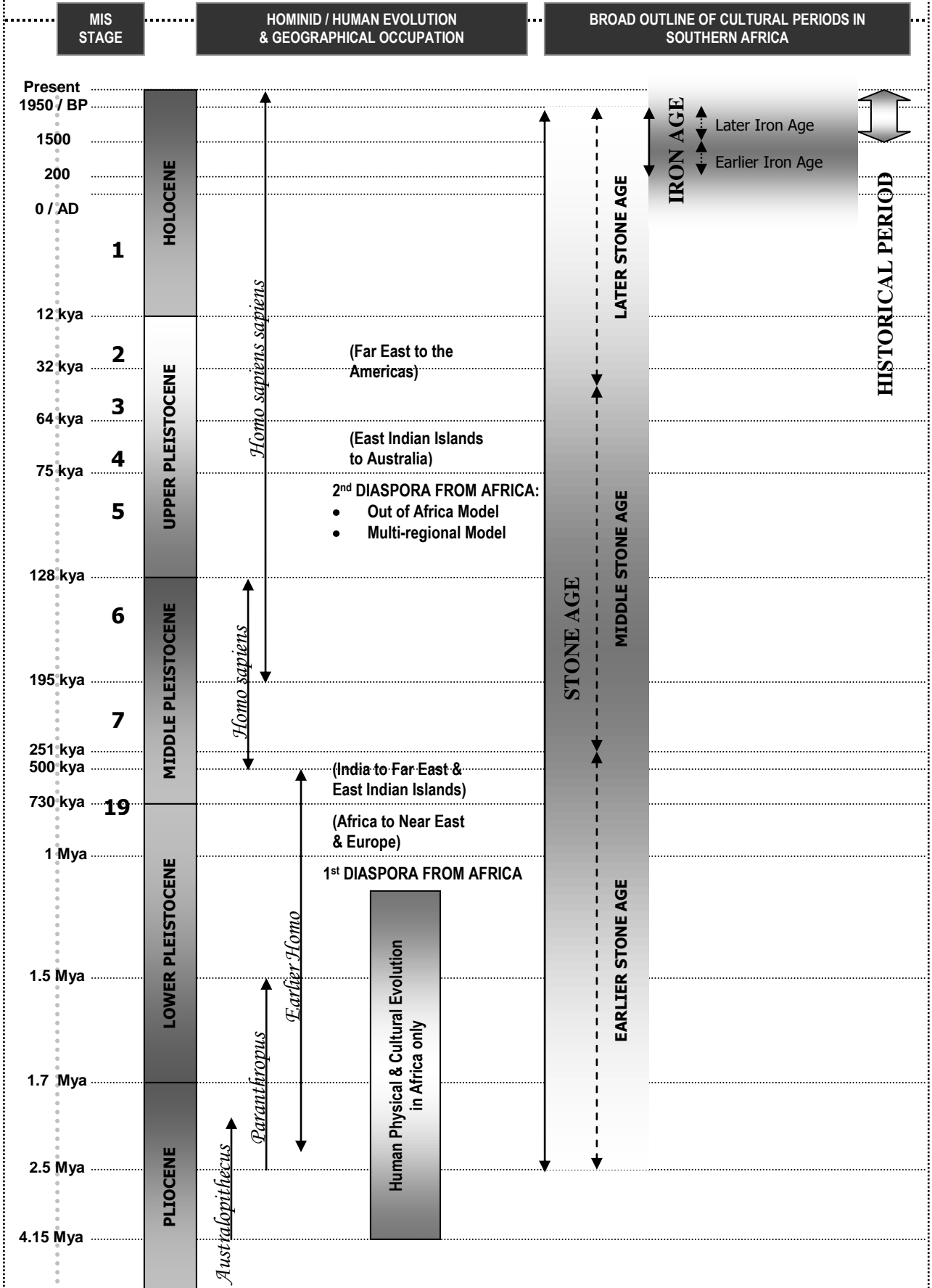
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Schematic Human Physical and Cultural Evolution in Africa



**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.
- xxx. *“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 trances;
- 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-internment 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.