Phase 1 Archaeological Impact Assessment –

Proposed Construction of the Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines, near Flagstaff, Mbizana Local Municipality, Eastern Cape, South Africa

- 21 November 2014 -

Report to:

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Specialist Declaration of Interest

I, Karen van Ryneveld (Company – ArchaeoMaps; Qualification – MSc Archaeology), declare that:

- I am suitably qualified and accredited to act as independent specialist in this application;
- I do not have any financial or personal interest in the application, its' proponent or any subsidiaries, aside from fair remuneration for specialist services rendered; and
- That work conducted has been done in an objective manner – and that any circumstances that may have compromised objectivity have been reported on transparently.

Signature – - 21 November 2014 -

Phase 1 Archaeological Impact Assessment –

Proposed Construction of the Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines, near Flagstaff, Mbizana Local Municipality, Eastern Cape, South Africa

Executive Summary

Terms of Reference -

Aurecon have been appointed as independent EAP by the project proponent, Eskom Distribution Division, to prepare the BAR and EMPr reports for the proposed construction of the *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project, near Flagstaff in the Mbizana Local Municipal area of the Eastern Cape, South Africa. Project proposal particulars are based on the consideration of 4 substation localities for the construction of the Galatyeni substation, namely SS-1 (S30°54'50.1"; E29°35'45.1"), SS-2 (S30°53'24.4"; E29°35'39.5"), SS-3 (S30°53'30.6"; E29°35'44.4") and SS-4 (S30°53'27.6"; E29°36'00.5"). The proposed SS-2 substation site is associated with an approximate 1.2km overhead line (OH:SS-2) and the SS-4 site with a 0.4km overhead line (OH:SS-4). ArchaeoMaps was appointed by Aurecon to conduct the Phase 1 AIA as specialist component to the project's HIA, with findings and recommendations thereof to be included in the BAR and EMPr.

The Phase 1 Archaeological Impact Assessment -

Project Area: *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project, near Flagstaff, Mbizana Local Municipality, Eastern Cape [1:50,000 Map Ref – 3029DC].

Coverage & Gap Analysis: Pre-feasibility and field assessment.

Field Methodology: One day field assessment; GPS co-ordinates – Garmin GPSmap 62s; Photographic documentation – Pentax K20D. Site significance assessment – SAHRA 2007 system.

Summary:

Map Code	Site	Co-ordinates	Recommendations
***Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Power Lines* project**			
The Galatyeni Substation SS-1 area			
GS-1	LIA / Cont. – Cemetery	S30°54'45.6"; E29°35'42.0"	**Temporary conservation fencing** AND **Temporary signage for tenure of construction** • All temporary conservation measures to be removed after construction
GS-2	LIA – Grave	S30°54'48.7"; E29°35'48.7"	
GS-3	LIA / Cont. – Cemetery	S30°54'42.9"; E29°35'59.0"	
The Galatyeni Substation SS-2, SS-3, SS-4 and OH:SS2 and OH:SS4 overhead lines area			
GS-4	LIA / Cont. – Cemetery	S30°53'32.9"; E29°35'46.6"	**Temporary conservation fencing** AND **Temporary signage for tenure of construction** • All temporary conservation measures to be removed after construction
GS-5	LIA – Cemetery	S30°53'19.0"; E29°35'46.2"	
GS-6	LIA / Cont. – Cemetery	S30°53'26.3"; E29°35'50.6"	
GS-7	LIA – Homestead	S30°53'24.5"; E29°35'57.5"	
GS-8	LIA / Cont. – Grave	S30°53'27.8"; E29°36'17.3"	
GS-9	LIA / Cont. – Cemetery	S30°53'26.9"; E29°36'18.6"	

Recommendations –

With reference to archaeological and cultural heritage compliance, as per the requirements of the NHRA 1999, it is recommended that the proposed *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project, near Flagstaff, Mbizana Local Municipality, Eastern Cape, proceed provided the developer complies with the summarized recommendations as follows:

- In the event of development at the Galatyeni substation SS-1 area: Recommendations pertaining to Sites GS-1 to GS-3;
- In the event of development at the Galatyeni substation SS-2, SS-3, SS-4 and OH:SS2 and OH:SS4 overhead lines area: Recommendations pertaining to Sites GS-4 to GS-9.

Development at none of the proposed Galatyeni substation localities will directly impact on any identified, protected archaeological or cultural heritage resource. However, based on community preference and with direct reference to the NHRA 1999 Section 38(3)(e), it is recommended that development be prioritized at either site SS-2 or SS-3.

The EC PHRA HIA Comment will state legal requirements for development to proceed, or reasons why, from a heritage perspective, development may not be further considered.

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1 - Terms of Reference

Aurecon South Africa (Pty) Ltd (Aurecon) have been appointed as independent Environmental Assessment Practitioner (EAP) by the project proponent, Eskom Distribution Division, to prepare the Basic Environmental Impact Assessment (BAR) and Environmental Management Programme (EMPr) reports for the proposed construction of the *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project, near Flagstaff in the Mbizana Local Municipal area of the Eastern Cape, South Africa. Project proposal particulars are based on the consideration of 4 substation localities for the construction of the Galatyeni substation, namely SS-1 (S30°54'50.1"; E29°35'45.1"), SS-2 (S30°53'24.4"; E29°35'39.5"), SS-3 (S30°53'30.6"; E29°35'44.4") and SS-4 (S30°53'27.6"; E29°36'00.5"). The proposed SS-2 substation site is associated with an approximate 1.2km overhead line (OH:SS-2) and the SS-4 site with a 0.4km overhead line (OH:SS-4).

ArchaeoMaps cc (ArchaeoMaps) was appointed by Aurecon to conduct the Phase 1 Archaeological Impact Assessment (AIA) as specialist component to the project's Heritage Impact Assessment (HIA), with findings and recommendations thereof to be included in the BAR and EMPr. Terms of Reference (ToR) for the Phase 1 AIA are summarized as (Aurecon 2014):

- Undertake a desktop study and field assessment to identify important archaeological resources in the area. In particular identify:
  - Potential sites of archaeological significance;
  - Any unique sites (GPS co-ordinates to be provided).
- Identify any potential fatal flaws linked to the proposed development;
- Describe the findings of the study and their potential implications for the proposed project and its alternatives. This should include a description and assessment of the significance of the impacts of the proposed activities on the heritage resources; and
- Provide detailed guideline measures to manage any impacts, particularly during the construction phase, and an assessment of their likely effectiveness.

1.1.1) Development Location, Details and Impact

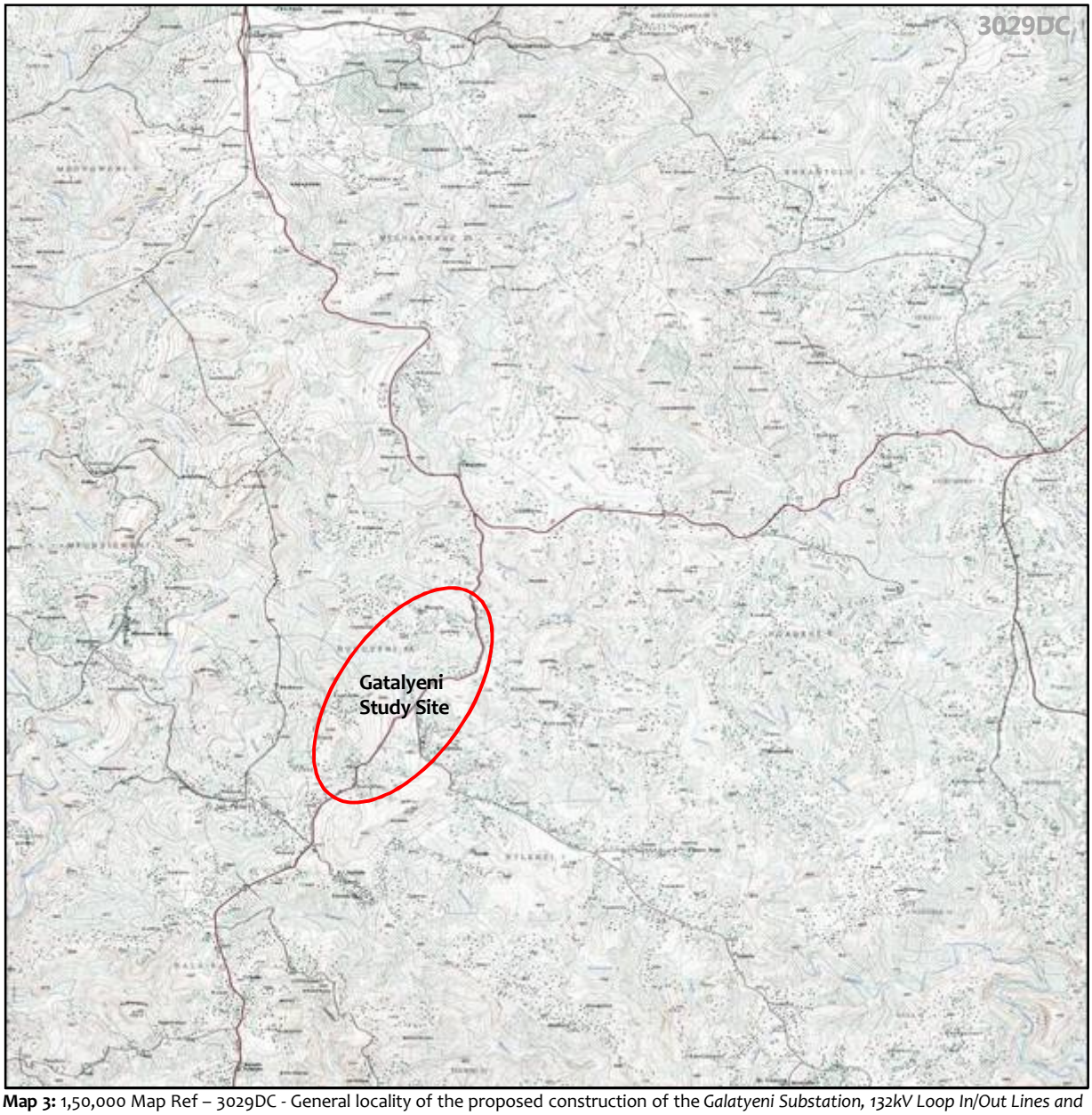
The proposed construction of the *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project study site is situated near the villages of Galatyeni and Dudumeni, approximately 23km north north-east of Flagstaff (along the R61), 23km south-east of Mount Ayliff and 25km west of Bizana in the Mbizana Local Municipal area of the Eastern Cape [1:50,000 Map Ref – 3029DC].

Project proposal particulars are based on the consideration of 4 substation localities for the construction of the Galatyeni substation, namely SS-1 (S30°54'50.1"; E29°35'45.1"), SS-2 (S30°53'24.4"; E29°35'39.5"), SS-3 (S30°53'30.6"; E29°35'44.4") and SS-4 (S30°53'27.6"; E29°36'00.5"). The proposed SS-2 substation site is associated with an approximate 1.2km overhead line (OH:SS-2) and the SS-4 site with a 0.4km overhead line (OH:SS-4). The construction of the proposed substation and associated overhead lines will include the following activities (Aurecon 2014):

- The construction of a new 132/22kV substation with an estimated permanent footprint of 115x110m and a temporary construction footprint of 200x200m;
- The construction of 22kV HARE turn-in lines to connect the proposed Galatyeni Substation to the existing 22kV network;
- The construction of a 132kV overhead line from the L-Sipakweni 132kv Line to the proposed Galatyeni Substation;
- Construction of an access road to the proposed Galatyeni Substation; and
- Clearance of vegetation for construction purposes of the proposed substation, access roads, pylons and underpasses and laydown areas.

Map 1: General locality of the proposed construction of the *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project, near Flagstaff, Mbizana Local Municipality, Eastern Cape

Map 2: Close-up of the locality of the proposed construction of the *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project, near Flagstaff, Mbizana Local Municipality, Eastern Cape



Map 3: 1,50,000 Map Ref – 3029DC - General locality of the proposed construction of the *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project, near Flagstaff, Mbizana Local Municipality, Eastern Cape

2 - The Phase 1 Archaeological Impact Assessment

2.1.1) Archaeological Legislative Compliance

The Phase 1 Archaeological Impact Assessment (AIA) for the proposed construction of the *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project, near Flagstaff in the Mbizana Local Municipal area of the Eastern Cape, was requested to meet the Eastern Cape Provincial Heritage Resources Authority's (EC PHRA) requirements with reference to archaeological and basic cultural heritage resources in terms of the National Heritage Resources Act, No 25 of 1999 (NHRA 1999), with specific reference to Section 38(1)(a) and 38(1)(c)(i).

NHRA 1999, Section 38

1) Subject to the provisions of subsections 7), 8) and 9), any person who intends to undertake a development categorized 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.

Table 1: Extracts from the NHRA 1999, Section 38

The Phase 1 AIA aimed to locate, identify and assess the significance of cultural heritage resources, inclusive of archaeological deposits / sites, built structures older than 60 years, burial grounds and graves, graves of victims of conflict and basic cultural landscapes or viewscapes as defined and protected by the NHRA 1999, that may be affected by the development.

This report comprises a Phase 1 AIA, including a basic pre-feasibility study and field assessment only.

Additional relevant legislation pertaining to the Phase 1 AIA is listed as:

- National Environmental Management Act, No 107 of 1998 (NEMA 1998) and associated Regulations (2010).

2.1.2) Methodology & Gap Analysis

The Phase 1 AIA includes a basic pre-feasibility study and field assessment:

- The pre-feasibility assessment is based on the Appendix 1 introductory archaeological literature. In addition the SAHRA 2009 Mapping Project Database (MPD), SAHRIS and the SAHRA Database on Declared Provincial Heritage Sites (PHS) – Eastern Cape, were consulted. The study excludes consultation of the Albany Museum, the SAHRA accredited Data Recording Centre (DRC) for the Eastern Cape region's database.

- The field assessment was done over a 1 day period (2014-11-16) by the author and accompanied by Lonwabo Tsepo Somedlongothi, Ward Councillor of Ward 8. The assessment was done by foot and off-road vehicle and limited to a Phase 1 surface survey. GPS co-ordinates were taken with a Garmin GPSmap 62s (Datum: WGS84). Photographic

documentation was done with a Pentax K20D camera. A combination of Garmap and Google Earth software was used in the display of spatial information.

Archaeological and cultural heritage site significance assessment and associated mitigation recommendations were ascribed according to the SAHRA (2007) system.

SAHRA Archaeological and Cultural Heritage Site Significance Assessment			
Site Significance	**Field Rating**	**Grade**	**Recommended Mitigation**
High Significance	National Significance	Grade I	Site conservation / Site development
High Significance	Provincial Significance	Grade II	Site conservation / Site development
High Significance	Local Significance	Grade III-A	Site conservation or extensive mitigation prior to development / destruction
High Significance	Local Significance	Grade III-B	Site conservation or extensive mitigation prior to development / destruction
High / Medium Significance	Generally Protected A	Grade IV-A	Site conservation or mitigation prior to development / destruction
Medium Significance	Generally Protected B	Grade IV-B	Site conservation or mitigation / test excavation / systematic sampling / monitoring prior to or during development / destruction
Low Significance	Generally Protected C	Grade IV-C	On-site sampling, monitoring or no archaeological mitigation required prior to or during development / destruction

Table 2: SAHRA archaeological and cultural heritage site significance assessment ratings and associated mitigation recommendations

2.1.3) Assessor Accreditation

Karen van Ryneveld (ArchaeoMaps):

- Qualification: MSc Archaeology (2003) WITS University.
- Accreditation: Association of Southern African Professional Archaeologists (ASAPA) accredited Cultural Resources Management (CRM) practitioner [member nr – 163]
    1. 2004 – Association of Southern African Professional Archaeologists (ASAPA) – Professional Member.
    2. 2005 – ASAPA CRM Section: Accreditation – Field Director (Stone Age, Iron Age, Colonial Period).
    3. 2010 – ASAPA CRM Section: Accreditation – Principle Investigator (Stone Age).

Karen van Ryneveld is a SAHRA / AMAFA / EC PHRA / HWC listed CRM archaeologist.

Karen has been involved in CRM archaeology since 2003 and has been the author (including selected co-authored reports) of more than 300 Phase 1 AIA studies. Phase 1 AIA work is centered in South Africa, focusing on the Northern and Eastern Cape provinces and the Free State. She has also conducted Phase 1 work in Botswana (2006/2007). In 2007 she started ArchaeoMaps, an independent archaeological and heritage consultancy. In 2010 she was awarded ASAPA CRM Principle Investigator (PI) status based on large scale Phase 2 Stone Age mitigation work (De Beers Consolidated Mines – Rooipoort, Northern Cape – 2008/2009) and has also been involved in a number of other Phase 2 projects including Stone Age, Shell Middens, Grave / Cemetery projects and Iron Age sites.

In addition to CRM archaeology she has been involved in research, including the international collaborations at Maloney's Kloof and Grootkloof, Ghaap plateau, Northern Cape (2005/2006). Archaeological compliance experience includes her position as Head of the Archaeology, Palaeontology and Meteorites (APM) Unit at AMAFA aKwa-Zulu Natali (2004).

2.2.1) Pre-feasibility Summary

Based on the basic introductory literature assessment of South African archaeology (see Appendix – A) and background heritage database research on the general area of the proposed construction of the *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project, near Flagstaff, Mbizana Local Municipality, Eastern Cape, the probability of archaeological and cultural heritage sites within, or in direct proximity to the study site, can briefly be described as:

Archaeological and Basic Cultural Probability Assessment – *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines*, near Flagstaff, Mbizana, EC			
Primary Type / Period	**Sub-Period**	**Sub-Period Type Site**	**Probability**
EARLY HOMININ / HOMINID	-	-	None
	Graves / Human remains: High scientific significance		
STONE AGE	Earlier Stone Age (ESA)		Low
	Middle Stone Age (MSA)		Low
	Later Stone Age (LSA)		Low
		Rock Art	None-Low
		Shell Middens	None
	Graves / Human remains: ESA & MSA – High scientific significance; LSA – High scientific & social significance		
IRON AGE	Early Iron Age (EIA)		None-Low
	Middle Iron Age (MIA)		None
	Later Iron Age (LIA)		High
	Graves & Human remains: EIA – High scientific & medium social significance; MIA & LIA: High scientific & social significance		
COLONIAL PERIOD	Colonial Period		Low
		LSA – Colonial Period Contact	None
		LIA – Colonial Period Contact	Low-Medium
		Industrial Revolution	Low
		Apartheid & Struggle	Medium-High
	Graves / Human Remains: Medium-high scientific & high social significance		

Table 3: Archaeological and basic cultural probability assessment

2.2.2) The SAHRA 2009 MPD & SAHRIS

Only 5 archaeological Cultural Resources Management (CRM) project reports are recorded in the SAHRA 2009 Mapping Project Database (MPD), situated within the Eastern Cape and within an approximate 50km radius from the proposed construction of the *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project study site, near Flagstaff, Mbizana Local Municipality, Eastern Cape, listed as:

- Anderson, G. (Umlando). 1996. *Archaeological Survey of the Proposed Route for the Kokstad-Mt. Frere Transmission Line.*
- Murimbika, M. (Nzumbululo). 2008. *Phase 1 Archaeological and Heritage Impact Assessment Specialist Study Report: Proposed Ludeke Substation Upgrade in the O.R. Tambo Municipality in the Eastern Cape Province.*
- Van Schalkwyk, L.O. (eThembeni). 2008. *Heritage Impact Assessment of the Proposed N2 Wild Coast Toll Highway.*
- Van Schalkwyk, L.O. & Wahl, B. (eThembeni). 2008a. *Heritage Impact Assessment of Port Edward / Harding Power Lines, KwaZulu-Natal and Eastern Cape Provinces.*
- Van Schalkwyk, L.O. & Wahl, B. (eThembeni). 2008b. *Heritage Resource Desktop Assessment of Proposed Greenville Hospital Road (DR 08117) Borrow Pits, Port Edward, Eastern Cape Province.*

Additional archaeological CRM studies situated within the rough vicinity of the Galatyeni study site available on SAHRIS include, but are not necessarily limited to:

- Anderson, G. (Umlando). 2011a. *Heritage Survey of the Proposed Mfinizo 132kV Line.*

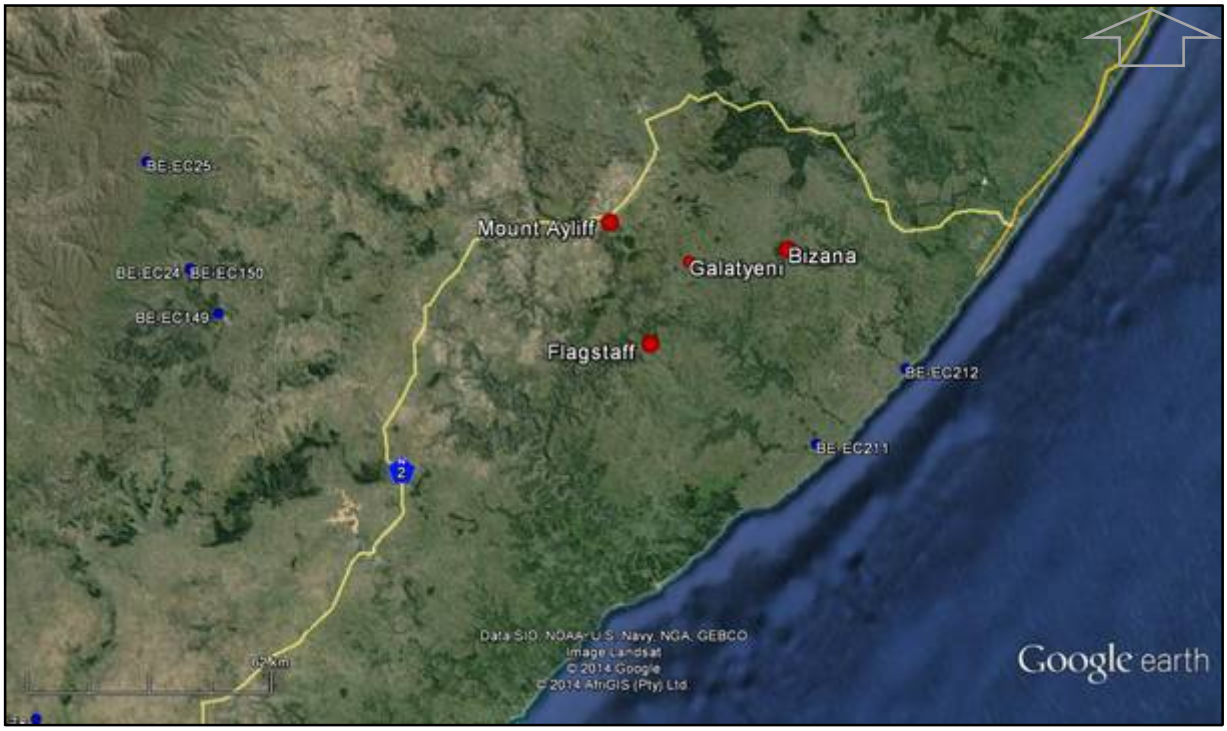
- Anderson, G. (Umlando). 2011b. *Heritage Survey of the Proposed Construction of 132kV Power Line from the Proposed Taweni Substation to the proposed Hombe Substation, Eastern Cape*.
- Becker, E. (Knight Piesold). 2008. *Phase 1 Heritage Impact Assessment for the Bizana Area.*
- Coetzee, F.P. (UNISA). 2011. *Cultural Heritage Assessment of the pPoposed Drilling Platforms to Undertake a Surface Drilling Programme as part of a Prospecting Right Granted to BSC Resources (Pty) Ltd, near Mount Ayliff, Eastern Cape.*
- Kruger, N. (AGES). 2013. *Archaeological Impact Assessment of Surface Demarcated Areas for the Mount Ayliff Peri Urban Water Treatment Works and Bulk Water Supply Pipelines, Umzimvubu Local Municipality, Alfred Nzo District Municipality, Eastern Cape, South Africa*.
- Seliane, M. (Private). 2011. *Phase 1 Cultural Heritage Impact Assessment for the Proposed Mbizana Bulk Water Pipeline, Mbizana Local Municipality, Eastern Cape*.
- Van Ryneveld, K. (ArchaeoMaps). 2011. *Phase 1 Archaeological Impact Assessment – Part 1: Utilization of Borrow Pits – O.R. Tambo District Municipality, Eastern Cape, South Africa*.
- Van Ryneveld, K. (ArchaeoMaps). 2013. *Phase 1 Archaeological Impact Assessment – The Nkantolo Access Road Borrow Pit: N-BP3 (near Bizana), O.R. Tambo District Municipality, Eastern cape, South Africa.*
- Van Schalkwyk, L. & Wahl, E. (eThembeni). 2002. *Cultural Heritage Assessment of Proposed Ludeke Dam, Bizana, Eastern Cape, South Africa.*
- Van Schalkwyk, L. & Wahl, E. (eThembeni). 2009. *Heritage Impact Assessment of Mnt. Ayliff 132/22kV Substation and associated 132kV Feeder Lines, Eastern Cape Province, South Africa*.
- Van Schalkwyk, L. (eThembeni). 2010. *Heritage Impact Assessment of Construction and Upgrading of Ingquza Hill to Mangwanini Access Roads, Flagstaff, Eastern Cape Province, South Africa.*
- Wahl, E. & van Schalkwyk, L. (eThembeni). 2013. *Phase 1 Heritage Impact Assessment Report: Proposed Khananda Interpretive Centre, Mbizana Local Municipality, Alfred Nzo District Municipality, Eastern Cape Province, South Africa*.

2.2.3) SAHRA Provincial Heritage Site Database – Eastern Cape

Only 2 geo-referenced declared Provincial Heritage Sites (PHS), recorded in the SAHRA – Eastern Cape database are situated within an approximate 60km radius from the proposed construction of the *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project study site, listed and spatially displayed as (en.wikipedia.org/wiki/List_of_heritage_sites_in_Eastern_Cape):

Declared Provincial Heritage Sites – Eastern Cape					
Map Ref	**Identifier**	**Site Name**	**Town**	**NHRA status**	**Coordinates**
BE-EC211	9/2/503/0003	Jubaeopsis Caffra, Mkambati [1 of 4 species of palms indigenous to South Africa. Probably only species of the genus. Located at the Mkambati Leprosy Institution. Type site: Tree.]	Lusikisiki	Provincial Heritage Site	S31°16′57″; E29°57′03″
BE-EC212	9/2/503/0025	Cretaceous Deposits, Mzamba Beach, Mbizana [On the coast just south of Port Edward, between the outlets of the Umtamvuna and Mzamba Rivers - Fossils of the Upper Cretaceous Period. The Mzamba Formation provides a condensed record of the period circa. 80-86Mya, when there area was a beach and shallow sea, with large trees, marine reptiles and extinct ammonites etc. Discovered by Captain Garden of the 54th Regiment. Type site: Fossil Beds.]	Bizana	Provincial Heritage Site	S31°05′50″; E30°10′30″

Table 4: Declared Provincial Heritage Sites in relation to the study site



Map 4: Declared Provincial Heritage Sites in relation to the study site

2.2.4) General Discussion

Stone Age records from the wider *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project study site remain scant: Anderson (2011b) reported on Earlier (ESA) and Middle Stone Age (MSA) mixed deposits and a MSA and Later Stone Age (LSA) site, while Kruger (2013) commented on a low density MSA occurrence, but cautioned against possible Rock Art on rocky outcrops. Van Schalkwyk (2008) reported on a number of LSA shelter sites, some containing Rock Art, some shell deposits, in cases with ceramic. These are of LSA assignation, but uncertainty exist weather of San or Khoe origin, while subsequent Later Iron Age (LIA) occupation and use of the sites are not overruled.

In stark contrast with Stone Age records of the area are the ample LIA records in archaeological CRM reports: At Mfinizo Anderson (2011a) recorded no less than 7 LIA homestead sites, with these more than often associated with cemeteries or burial grounds at the sites. In addition at least 2 cemetery sites, not directly associated with homestead remains were documented. A religious stone circle and a Monument to the Pondo King, King Cingo, brother of King Faku, who ruled in the 18th Century, compliment the Mfinizo LIA record. Becker (2008) reported on a homestead site, directly associated with religious stone circles near Bizana. Van Schalkwyk & Wahl (2002) commented on the possible locality of a grave and also '*izivivane*' during their Ludeke dam, Bizana, assessment. Anderson (2011b) documented 7 LIA homestead sites and 6 cemetery and grave sites during his Taweni-Hombe assessment and Seliane (2011) documented 6 cemetery and grave sites along the Mbizana bulk water pipe alignment. Coetzee (2011) documented 2 LIA culturally associated grave sites near Mnt. Ayliff and Van Schalkwyk & Wahl (2009) recorded a grave site in close proximity to the Mnt. Ayliff substation site. Also near Mnt. Ayliff Kruger (2013) recorded an additional LIA homestead site and 9 cemetery sites. He also reported on the Tsizwa Community Park, a site of general LIA cultural interest. Murimbika (2008) recorded 3 contemporary graves, of LIA cultural affiliation, near the Ludeke substation site. Near Flagstaff van Schalkwyk (2010) reported on 3 cemetery sites and the cultural landscape of the Pondo Revolt, memorialized by the Ingquza Hill Memorial and the re-interned graves of those who lost their lives, executed in the name of their cause for freedom. Kananda Hill comprises a 2nd Pondo Revolt site in the area, here in memory of the Mountain Committee of the Pondo Revolt: Tried and found guilty of treason 10 men were sentenced

to death and buried at Mamelodi West Prison. After 1994 their bodies were exhumed and re-interned at Kananda Hill. A small visitors' centre close to the graves recalls the history (Wahl & Van Schalkwyk 2013).

Typical Colonial Period resources recorded in archaeological CRM records are again noticeably rare. Anderson (2011a) reported on 2 artefact clusters associated with old Colonial settlements near Mfinizo and closer to Mnt. Ayliff Kruger (2013) commented on the presence of the Elizabeth Paul Memorial Site.

Flagstaff developed from a simple trading store (circa. 1877), with the name believed to be derived from the habit of the owners who raised a white flag on Sundays, indicating the store to be closed (en.wikipedia.org/wiki/Flagstaff,_Eastern_Cape). The general area is still, locally, referred to as Xesibeland, the traditional region of the Xesibe (Xhosa) people (en.wikipedia/wiki/Mount_Ayliff).

Field Assessment

Nine archaeological and cultural heritage sites, labelled Sites GS-1 to GS-9, were identified during field assessment of the *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project study site. Of the identified sites 8 are cemetery and grave sites, being Sites GS-1, GS-2, GS-3, GS-4, GS-5, GS-6, GS-8 and GS-9. All cemetery and grave sites are of Later Iron Age (LIA) cultural affiliation, but Sites GS-1, GS-3, GS-4, GS-6, GS-8 and GS-9 are classed as 'contemporary' in age (post-dating 60 years of age). Site GS-7 comprises an archaeological LIA homestead site.

With the purpose of this Phase 1 AIA being also to guide development decision making, not only with regards to site selection for the proposed Galatyeni substation site but also the geographic fine tuning of development aspects upon site selection, including decision making with regards to site office, access roads, pylons, underpasses etc., assessment was not restricted to the immediate development layout proposal but focussed on the wider terrain. Accordingly site records and recommendations for temporary site conservation were made with regards to sites often in excess of 100m from proposal layout particulars, specifically with the aim of ensuring 'safe' development planning upon final site selection. Recommendations for archaeological and cultural heritage site conservation are made as follows:

- In the event of the SS-1 site being selected for development of the Galatyeni substation, the developer should ensure compliance to temporary conservation requirements pertaining to Sites GS-1, GS-2 and GS-3.
- In the event of the SS-2, SS-3 or SS-4 site being selected for development of the Galatyeni substation it is advised that the developer comply with temporary site conservation measures pertaining to Sites GS-4, GS-5, GS-6, GS-7, GS-8 and GS-9, primarily to ensure no accidental impact on heritage sites during the course of construction.

The incidental on-site meeting with Lonwabo Tsepo Somedlongothi, Ward Councillor of Ward 8, proved invaluable with respect to an Integrated Environmental (heritage) Management (IEM) approach with reference to recommendations pertaining to site selection for the development. According to Somedlongothi (Pers. Comm.: 2014-11-16) proposed substation site SS-1 is situated on private land, to date with unresolved concerns relating to landowner consent for development. The substation SS-4 locality (and Sites GS-8 and GS-9) is situated on land that is in the foreseeable future expected to, in accordance with current land claim applications, be signed over to private landowner title deeds; leaving substation sites SS-2 and SS-3 in confirmed communal ownership, making these development sites preferable for development by the community.

Map 5: Results of the field assessment – The Galatyeni SS-1 study site area

Map 6: Results of the field assessment – The Galatyeni SS-2, SS-3 and SS-4 study sites and OH:SS2 and OH:SS4 overhead lines area

Plate 1: View of the Galatyeni substation SS-1 study site area

Plate 2: View from the Galatyeni substation SS-2 hill with Site GS-4 in the right background

Plate 3: View over the OH:SS2 overhead line alignment

Plate 4: View over the general study site from the Galatyeni substation SS-4 area

2.3.1) Site GS-1: Later Iron Age / Contemporary – Cemetery: S30°54'45.6"; E29°35'42.0"

Site GS-1 comprises a stone built structure housing 2 contemporary graves. Graves are modern in style with inscribed headstones. Metal bar fencing forms part of the structure design, safeguarding the graves. Both graves are younger than 60 years, but the Site GS-1 cemetery is classed as a 'culturally sensitive' burial place, receiving formal protection in terms of the NHRA 1999 Section 36(2). Site GS-1 is situated roughly 150m north north-west of the Galatyeni SS-1 substation site.

- RECOMMENDATIONS: Site GS-1 is formally protected by the NHRA 1999 and is ascribed a SAHRA *High Significance* and a *Generally Protected Grade IV-A Field Rating*. It is recommended that, in the event of development of the SS-1 Galatyeni substation site, Site GS-1 be temporarily conserved. Temporary conservation measures should include:
  - A temporary conservation fence (of construction netting or a similar visually clear demarcation);
  - Temporary signage indicating the site as a '*No Entry – Heritage Sensitive Site*', attached to the conservation fence;
  - A minimum 10m conservation buffer should be maintained between Site GS-1 and the conservation fence; and
  - All temporary conservation measures should be removed after construction.

Plate 5: View of the Site GS-1 burial place

2.3.2) Site GS-2: Later Iron Age – Grave: S30°54′48.7″; E29°35′48.7″

The Site GS-2 area is characterized by a thick vegetation cluster. Community belief holds that a grave is situated within the bush, the exact locality of which is, for the reason given, impossible to verify. The grave is believed to be quite old, estimated as well over 60 years, implying that the site is formally protected in terms of the NHRA 1999 Section 36(3)(b). Site GS-2 is situated approximately 100m east north-east of the Galatyeni SS-1 substation site.

- RECOMMENDATIONS: Site GS-2 is formally protected by the NHRA 1999. The site is ascribed a SAHRA *High Significance* and a *Generally Protected Grade IV-A Field Rating*. It is recommended that, in the event of development of the SS-1 Galatyeni substation site, Site GS-2 be temporarily conserved. Temporary conservation measures should include:
  - A temporary conservation fence (of construction netting or a similar visually clear demarcation);
  - Temporary signage indicating the site as a '*No Entry – Heritage Sensitive Site*', attached to the conservation fence;
  - A minimum 10m conservation buffer should be maintained between the Site GS-2 vegetation cluster and the conservation fence; and
  - All temporary conservation measures should be removed after construction.

Plate 6: The Site GS-2 area

2.3.3) Site GS-3: Later Iron Age / Contemporary – Cemetery: S30°54'42.9"; E29°35'59.0"

Site GS-3 is characterized by an informal cemetery containing 4 graves. The cemetery is fenced with an access gate. Graves are all modern style graves with platforms and inscribed headstones. All the graves post-date 60 years of age, but the Site GS-3 cemetery does constitute a 'culturally sensitive' burial place, formally protected in terms of the NHRA 1999 Section 36(2). Site GS-3 is situated more than 400m north-east of the Galatyeni SS-1 substation site.

- RECOMMENDATIONS: Site GS-3 is formally protected by the NHRA 1999. The site is ascribed a SAHRA *High Significance* and a *Generally Protected Grade IV-A Field Rating*. Current conservation measures comply with SAHRA / EC PHRA Minimum Site Conservation Standards, but additional temporary conservation measures are recommended in the event of development of site SS-1 as the Galatyeni substation site:
  - A temporary conservation fence (of construction netting or a similar visually clear demarcation) should highlight the existing cemetery fence;
  - Temporary signage indicating the site as a '*No Entry – Heritage Sensitive Site*' should be attached to the conservation fence; and
  - All temporary conservation measures should be removed after construction.

Plate 7: View of the Site GS-3 cemetery

2.3.4) Site GS-4: Later Iron Age / Contemporary – Cemetery: S30°53'32.9"; E29°35'46.6"

Site GS-4 is characterized by a cluster of trees. Two graves are situated underneath the trees. Graves are demarcated by branch staked cairns without any headstones or inscribed markers. Exact dates of the graves are unknown – but not believed to be older than 60 years. The site however receives formal protection as a 'culturally sensitive' burial place in terms of the NHRA 1999 Section 36(2). Site GS-4 is situated roughly 100m south-east of the Galatyeni SS-3 substation study site.

[Based on aerial imagery it seems Site GS-4 is situated on the perimeter fence of an old agricultural field. Should the GS-4 graves be directly related to this archaeological Later Iron Age (LIA) feature the developer needs to take cognizance of the fact that additional older, no longer surface identifiable graves may well be present in the immediate area.]

- RECOMMENDATIONS: Site GS-4 is formally protected by the NHRA 1999 and is ascribed a SAHRA *High Significance* and a *Generally Protected Grade IV-A Field Rating*. It is recommended, in the event of development of the SS-2, SS-3 or SS-4 Galatyeni substation site and associated overhead line, the developer ensures that temporary conservation measures are in place, ensuring no accidental impact on Site GS-4. Recommended temporary conservation measures should include:
  - A temporary conservation fence (of construction netting or a similar visually clear demarcation);
  - Temporary signage indicating the site as a '*No Entry – Heritage Sensitive Site*', attached to the conservation fence;
  - A minimum 10m conservation buffer should be maintained between Site GS-4 graves and the conservation fence; and
  - All temporary conservation measures should be removed after construction.

Plate 8: The 2 graves at Site GS-4

2.3.5) Site GS-5: Later Iron Age – Cemetery: S30°53'19.0"; E29°35'46.2"

Site GS-5 seems to be situated on the perimeter of an archaeological Later Iron Age (LIA) agricultural field, aerially identifiable on Google Earth satellite imagery. The site comprises an informal cemetery containing 7 graves. Three of the graves seem to be adult graves, marked with settled earth mounds and stone headstones, with 2 stones on one of the graves inferred to be displaced stone footstones. Adjacent to the adult graves is a line of 4 graves, all being earth mound demarcated, with notable settled mounds, similar to that of the adult graves indicating at least relative significant age. The small size of these 4 graves designates them as children's graves. The Site GS-5 cemetery was not known to the community and graves may well pre-date 60 years of age, implying that the site is formally protected in terms of the NHRA 1999 Section 36(3)(b). Site GS-5 is situated more or less 100m north of the OH:SS2 overhead line.

- RECOMMENDATIONS: Site GS-5 is formally protected by the NHRA 1999. The site is ascribed a SAHRA *High Significance* and a *Generally Protected Grade IV-A Field Rating*. It is recommended that the site be temporarily conserved in the event of development of the SS-2, SS-3 or SS-4 Galatyeni substation sites and associated overhead line. Recommended temporary conservation measures include:
  - A temporary conservation fence (of construction netting or a similar visually clear demarcation);
  - Temporary signage indicating the site as a '*No Entry – Heritage Sensitive Site*', attached to the conservation fence;
  - A minimum 10m conservation buffer should be maintained between Site GS-5 cemetery and the conservation fence; and
  - All temporary conservation measures should be removed after construction.

Plate 9: View of the 3 adult graves – Site GS-5

Plate 10: Settled earth mounds of the Site GS-5 children's graves

2.3.6) Site GS-6: Later Iron Age / Contemporary – Cemetery: S30°53'26.3"; E29°35'50.6"

Site GS-6 is situated approximately 150m south of the OH:SS2 overhead line. The site is situated within the perimeter boundary of an aerially identifiable archaeological Later Iron Age (LIA) agricultural field. The site or burial place is characterized by thick vegetation, which may well obscure grave localities. At least 5 graves are easily identifiable, all being fairly contemporary in age. These comprise stone built graves and individually fenced modern style graves with inscribed headstones, including a double grave. As mentioned, thick vegetation may well obscure graves – most probably the older, less visible graves. Identifiable inscribed graves at Site GS-6 all post-date 60 years in age, but constituting a 'culturally sensitive' burial ground in terms of the NHRA 1999 Section 36(2). However, cognizance needs to be taken of the probability of older graves at the site, pre-dating 60 years of age, which would imply that the site may well also be protected in terms of the NHRA 1999 Section 36(3)(b).

- RECOMMENDATIONS: Site GS-6 is formally protected by the NHRA 1999 and is ascribed a SAHRA *High Significance* and a *Generally Protected Grade IV-A Field Rating*. It is recommended that, in the event of development of the SS-2, SS-3 or SS-4 substation sites and applicable overhead line, the developer ensures that temporary conservation measures are in place at the site, for the tenure of construction. Temporary conservation measures should include:
  - A temporary conservation fence (of construction netting or a similar visually clear demarcation) at least along the eastern boundary of the burial ground (based on landscape gradient it is highly unlikely that full fencing will be necessary);
  - Temporary signage indicating the site as a '*No Entry – Heritage Sensitive Site*', attached to the conservation fence;
  - A minimum 15-20m conservation buffer should be maintained between the Site GS-6 eastern boundary and the conservation fence; and
  - All temporary conservation measures should be removed after construction.

Plate 11: View of the Site GS-6 cemetery from the northern side of the valley

Plate 12: An individually fenced grave from Site GS-6

2.3.7) Site GS-7: Later Iron Age – Homestead: S30°53'26.3"; E29°35'50.6"

Site GS-7 comprises a Later Iron Age (LIA) homestead site. The site is characterized by an undulated area, the result of manual earthworks where former levelling to create building areas is still identifiable. The general area is however heavily overgrown and individual site features are difficult to identify. Depressions may indicate levelled areas where huts were built; at least 3 clearly identified levelled areas are visible. Overgrown low rising hut walls are also still visible and at least 4 hut feature localities were identified. No graves were identified at the site, but the Site GS-6 or Site GS-5 cemeteries may well relate directly to the Site GS-7 homestead. The LIA homestead remains may well be in the region of 100 years old, thus conforming to the criteria for a formally protected 'archaeological' site in terms of the NHRA 1999 Section 2(ii)(a) and by implication protected in terms of the NHRA Section 35(4)(a). Site GS-7 is situated roughly 150m south of the OH:SS2 overhead line and more or less 120m north-east of the Galatyeni SS-4 substation study site.

- RECOMMENDATIONS: Site GS-7 is formally protected by the NHRA 1999 and is ascribed a SAHRA *Medium Significance* and a *Generally Protected Grade IV-B Field Rating*. It is recommended that, in the event of development at the Galatyeni substation SS-2, SS-3 or SS-4 sites and associated overhead line, the developer ensures that temporary conservation measures are in place for the tenure of construction to ensure no accidental impact on the site. Temporary conservation measures should include:
  - A temporary conservation fence (of construction netting or a similar visually clear demarcation);
  - Temporary signage indicating the site as a '*No Entry – Heritage Sensitive Site*', attached to the conservation fence;
  - A minimum 10m conservation buffer should be maintained between the Site GS-7 homestead remains and the conservation fence; and
  - All temporary conservation measures should be removed after construction.

Plate 13: General view of Site GS-7

Plate 14: Circular hut remains at Site GS-7

2.3.8) Site GS-8: Later Iron Age / Contemporary – Grave: S30°53′26.3″; E29°35′50.6″

Site GS-8 comprises a single, individually fenced modern style grave. The gravesite can reasonably be inferred to be younger than 60 years of age. However, it is classed as a 'culturally sensitive' burial place, receiving formal protection in terms of the NHRA 1999 Section 36(2). Site GS-8 is situated roughly 20m from the proposed OH:SS2 and OH:SS4 overhead line alignments.

- RECOMMENDATIONS: Site GS-8 is formally protected by the NHRA 1999 and is ascribed a SAHRA *High Significance* and a *Generally Protected Grade IV-A Field Rating*. It is recommended that, in the event of development at the Galatyeni substation SS-2, SS-3 or SS-4 site and associated overhead line, the developer ensures that temporary conservation measures are in place. Recommended temporary conservation measures include:
  - A temporary conservation fence (of construction netting or a similar visually clear demarcation);
  - Temporary signage indicating the site as a '*No Entry – Heritage Sensitive Site*', attached to the conservation fence;
  - A minimum 15-20m conservation buffer should be maintained between Site GS-8 and the conservation fence, with specific reference to the permanence of the overhead line; and
  - All temporary conservation measures should be removed after construction.

Plate 15: General view of Site GS-8

2.3.9) Site GS-9: Later Iron Age / Contemporary – Cemetery: S30°53′26.9″; E29°36′18.6″

Site GS-9 comprises a small informal cemetery, containing 2 modern style graves with inscribed headstones. All graves at the cemetery post-date 60 years of age, but the site does constitute a 'culturally sensitive' burial place, formally protected in terms of the NHRA 1999 Section 36(2). Site GS-9 is situated roughly 25m from the proposed OH:SS2 and OH:SS4 overhead line alignments.

- RECOMMENDATIONS: Site GS-9 is formally protected by the NHRA 1999. The site is ascribed a SAHRA *High Significance* and a *Generally Protected Grade IV-A Field Rating*. It is recommended that, in the event of development at the Galatyeni substation SS-2, SS-3 or SS-4 site and associated overhead line, the developer ensures that temporary conservation measures are in place for the tenure of construction. Recommended temporary conservation measures include:
  - A temporary conservation fence (of construction netting or a similar visually clear demarcation);
  - Temporary signage indicating the site as a '*No Entry – Heritage Sensitive Site*', attached to the conservation fence;
  - A minimum 15-20m conservation buffer should be maintained between Site GS-9 and the conservation fence, with specific reference to the permanence of the overhead line; and
  - All temporary conservation measures should be removed after construction.

Plate 16: View of Site GS-9

3 - Environmental Impact Assessment Rating

Identified archaeological and cultural heritage sites are ascribed an Environmental Impact Assessment (EIA) rating, based on the extent or spatial scale of the impact [E] (0 = None, 1 = Site specific, 2 = Local, 3 = Regional, 4 = National and 5 = International), the magnitude of the impact, positive or negative [M+ / M-] (0 = Zero, 2 = Very low, 4 = Low, 8 = High and 10 = Very high), the duration of the impact [D] (1 = Immediate, 2 = Short term, 3 = Medium term, 4 = Long term and 5 = Permanent), the probability of the occurrence [P] (1 = Improbable, 2 = Low probability, 3 = Medium probability, 4 = High probability and 5 = Definite), the irreplaceable loss of resources [I] (0 = None; 1 = Very low, 2 = Low, 3 = Moderate, 4 = High, 5 = Definite), the reversibility of potential impacts [R] (0 = No impact, 1 = Impact will be reversible; 2 = High potential for reversibility; 3 = Moderate potential for reversibility; 4 = Low potential for reversibility; 5 = Impact cannot be reversed) and cumulative impact (None, Low, Medium and High). A site significance point [SP] is assigned as follows:

- SP = (M + D + E + I + R) x P.

A maximum of 150 SP can be assigned to an impact. Environmental Significance [S] is assigned based on the SP as follows:

- <40 = Low [L];
- 40-74 = Medium [M];
- 75-99 = Medium-High [MH];
- 100-124 = High [H]; and
- 125-150 + Very High [H].

The significance can be either positive [+] or negative [-]. An impact of low [L] is likely to contribute to either + or – decisions about whether or not to proceed with the development, with little real effect and is unlikely to have an influence on project design or alternative motivation. An impact of M implies that if unmanaged could influence a decision on whether or not to proceed with development. An impact of MH is similar to M, with caution to mitigation options and alternative mitigation options should be investigated where possible. An impact of H could influence a decision about whether or not to proceed with development, regardless of available mitigation options and an impact of VH implies that a project cannot proceed and that impacts are irreversible, regardless of available mitigation options.

Environmental impact assessment ratings are grouped per sites with the same basic recommendation per site type or type of impact, with cognizance to the fact that impacts on heritage sites are as a norm irreversible (heritage sites are non-renewable resources) and with reference to the SAHRA (2007) prescribed mitigation options per site significance rating, weighed against development / possible natural impact.

Environmental Impact	Site Number	Environmental Significance																	
		Before Mitigation									After mitigation								
		M	D	E	I	R	P	SP	S	C	M	D	E	I	R	P	SP	S	C
Site Conservation	Sites: GS-1, GS-2, GS-3, GS-4, GS-5, GS-6, GS-8 and GS-9	-5	5	2	4	4	4	80	MH	-MH	+2	1	2	0	0	2	10	L	+L
	Comment: Identified cemetery and grave sites that will be conserved by development. Temporary conservation of these sites during the course of construction will provide for a low positive cumulative impact by development.																		
	Summary of mitigation points: • In the event of development at the Galatyeni substation SS-1 area: Recommendations pertaining to Sites GS-1, GS-2 & GS-3; • In the event of development at the Galatyeni substation SS-2, SS-3, SS-4 and OH:SS2 and OH:SS4 overhead lines area: Recommendations pertaining to Sites GS-4, GS-5, GS-6, GS-8 & GS-9.																		

Table 5: Environmental significance assessment of cemetery and grave sites that will be conserved by development

Environmental Impact	Site Number	Environmental Significance																	
		Before Mitigation									After mitigation								
		M	D	E	I	R	P	SP	S	C	M	D	E	I	R	P	SP	S	C
Site Conservation	Sites: GS-7	-4	4	2	3	3	3	48	M	-M	+2	1	2	0	0	2	10	L	+L
	Comment: Identified LIA homestead site that will be conserved by development. Temporary conservation of the site during the course of construction will provide for a low positive cumulative impact by development.																		
	Summary of mitigation points: • In the event of development at the Galatyeni substation SS-2, SS-3, SS-4 and OH:SS2 and OH:SS4 overhead lines area: Recommendations pertaining to Site GS-7.																		

Table 6: Environmental significance assessment of the LIA homestead site that will be conserved by development

4 - Recommendations

With reference to archaeological and cultural heritage compliance, as per the requirements of the NHRA 1999, it is recommended that the proposed *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project, near Flagstaff, Mbizana Local Municipality, Eastern Cape, proceed provided the developer complies with the summarized recommendations as follows:

- In the event of development at the Galatyeni substation SS-1 area: Recommendations pertaining to Sites GS-1 to GS-3;
- In the event of development at the Galatyeni substation SS-2, SS-3, SS-4 and OH:SS2 and OH:SS4 overhead lines area: Recommendations pertaining to Sites GS-4 to GS-9.

Development at none of the proposed Galatyeni substation localities will directly impact on any identified, protected archaeological or cultural heritage resource. However, based on community preference and with direct reference to the NHRA 1999 Section 38(3)(e), it is recommended that development be prioritized at either site SS-2 or SS-3.

The EC PHRA HIA Comment will state legal requirements for development to proceed, or reasons why, from a heritage perspective, development may not be further considered.

***Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project, Near Flagstaff, Mbizana Local Municipality, Eastern Cape**			
Map Code	**Site**	**Co-ordinates**	**Recommendations**
The Galatyeni Substation SS-1 area			
GS-1	LIA / Cont. – Cemetery	S30°54'45.6"; E29°35'42.0"	**Temporary conservation fencing** AND **Temporary signage for tenure of construction** • All temporary conservation measures to be removed after construction
GS-2	LIA – Grave	S30°54'48.7"; E29°35'48.7"	
GS-3	LIA / Cont. – Cemetery	S30°54'42.9"; E29°35'59.0"	
The Galatyeni Substation SS-2, SS-3, SS-4 and OH:SS2 and OH:SS4 overhead lines area			
GS-4	LIA / Cont. – Cemetery	S30°53'32.9"; E29°35'46.6"	**Temporary conservation fencing** AND **Temporary signage for tenure of construction** • All temporary conservation measures to be removed after construction
GS-5	LIA – Cemetery	S30°53'19.0"; E29°35'46.2"	
GS-6	LIA / Cont. – Cemetery	S30°53'26.3"; E29°35'50.6"	
GS-7	LIA – Homestead	S30°53'24.5"; E29°35'57.5"	
GS-8	LIA / Cont. – Grave	S30°53'27.8"; E29°36'17.3"	

Table 7: Archaeological and cultural heritage compliance summary for the proposed *Galatyeni Substation, 132kV Loop In/Out Lines and Overhead Lines* project

Notes:

- Should any archaeological or cultural heritage resources, including human remains / graves, as defined and protected by the NHRA 1999, and not reported on in this report be identified during the course of development the developer should immediately cease operation in the vicinity of the find and report the site to the EC PHRA and an ASAPA accredited CRM archaeologist. Human remains confirmed younger than 60 years are to be reported directly to the nearest police station.

  Simplified guide to the identification of archaeological sites:

  - **Stone Age** – Knapped stone display flakes that appear unnatural and may result in similar type 'shaped' stones often concentrated in clusters or forming a distinct layer in the geological stratigraphy. ESA shapes may represent 'pear' or oval shaped stones, often in the region of 10cm in length or larger. Typical MSA types include blade-like or triangular shaped stones often associated with randomly shaped stones that display use or edge-wear around the rim of the artefact. LSA types may well be small, informally shaped stones, often associated with bone, pieces of charcoal and in cases ceramic shards.

    Rock Art – Includes both painted and engraves images.

    Shell Middens – Include compact shell lenses that may be quite extensive in size or small ephemeral scatters of shell food remains, often associated with LSA artefact remains, but may also be of MSA and Iron Age cultural association.
  - **Iron Age** – Iron Age sites are often characterized by stone features, i.e. the remains of former livestock enclosures or typical household remains, huts are often identified by either mound or depression hollows. Typical artefacts include ceramic remains, farming equipment, beads and trade goods, metal artefacts (including jewelry) etc. Remains of the 'Struggle' – events, histories

and landmarks associated therewith are often, based on cultural association, classed as part of the Iron Age heritage of South Africa.

- ❖ **Colonial Period** – Built environment remains, either urban or rural, are of a western cultural affiliation with typical artefacts representing early western culture, including typical household remains, trade and manufactured goods, such as old bottles, porcelain and metal artefacts. War memorial remains including the vast array of associated graves and the history of the Industrial Revolution form important parts of South Africa's Colonial Period heritage.

- Should any registered Interested & Affected Party (I&AP) wish to be consulted in terms of Section 38(3)(e) of the NHRA 1999 (Socio-cultural consultation / SAHRA SIA) it is recommended that the developer / EAP ensures that the consultation be prioritized within the timeframe of the Environmental Impact Assessment (EIA).

5 - Acronyms and Abbreviations

AD	: Anno Domini (the year 0.)
AIA	: Archaeological Impact Assessment
AMAFA	: Amafa aKwaZulu-Natali
ASAPA	: Association of Southern African Professional Archaeologists
BAR	: Basic Assessment Report
BC	: Before the Birth of Christ (the year 0.)
BCE	: Before the Common Era (the year 0.)
BIA	: Basic Impact Assessment
BID	: Background Information Document
BP	: Before the Present (the year 1950.)
cm	: Centimeter
CRM	: Cultural Resources Management
DAC	: Department of Arts and Culture
DEAT	: Department of Environmental Affairs and Tourism
DEDEAT	: Department of Economic Development, Environmental Affairs and Tourism
DME	: Department of Minerals and Energy
DSACR	: Department of Sport, Arts, Culture and Recreation
ECO	: Environmental Control Officer
EAP	: Environmental Assessment Practitioner
EC PHRA	: Eastern Cape Provincial Heritage Resources Authority
EIA	: Environmental Impact Assessment
EIA_1	: Early Iron Age
EMPr	: Environmental Management Plan report
ESA	: Earlier Stone Age
ha	: Hectare
HIA	: Heritage Impact Assessment
HWC	: Heritage Western Cape
HCMP	: Heritage Conservation Management Plan
ICOMOS	: International Council on Monuments and Sites
IEM	: Integrated Environmental Management
km	: Kilometer
Kya	: Thousands of years ago
LIA	: Later Iron Age
LSA	: Later Stone Age
m	: Meter
m^2	: Square Meter
MIA	: Middle Iron Age
mm	: Millimeter
MPRDA (2002)	: Mineral and Petroleum Resources Development Act, No 28 of 2002
MSA	: Middle Stone Age
Mya	: Millions of years ago
NEMA (1998)	: National Environmental Management Act, No 107 of 1998
NHRA (1999)	: National Heritage Resources Act, No 25 of 1999
PIA	: Palaeontological Impact Assessment
PHRA	: Provincial Heritage Resources Authority
PSSA	: Palaeontological Society of South Africa
PPP	: Public Participation Process
SAHRA	: South African Heritage Resources Agency
SAHRIS	: South African Heritage Resources Information System
ScIA	: Socio-cultural Impact Assessment
SIA	: Social Impact Assessment

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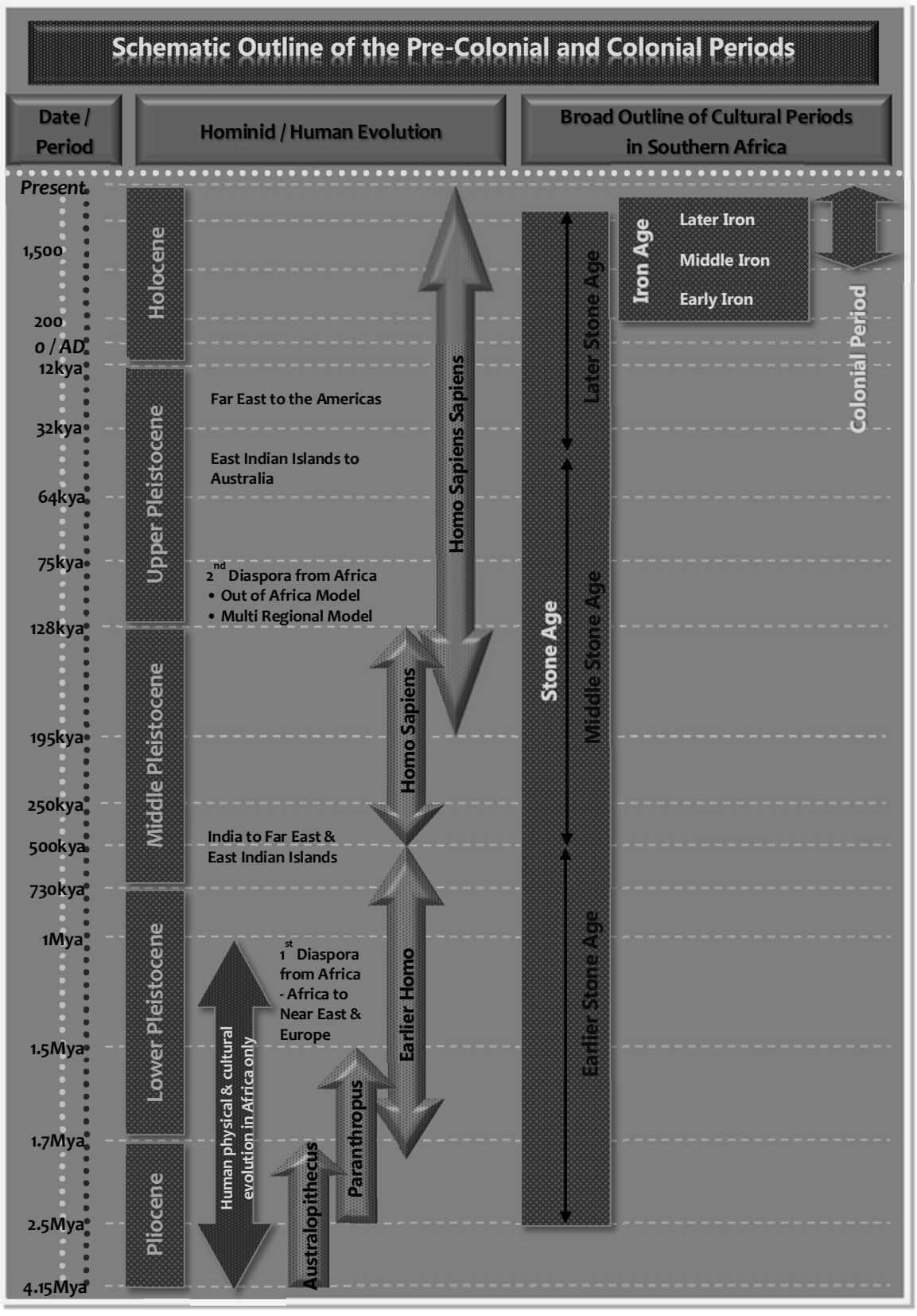
Appendix A:


Schematic Outline of the Pre-Colonial and Colonial Periods
Date / Period
Hominid / Human Evolution
Broad Outline of Cultural Periods in Southern Africa
Present
1,500
200
0 / AD
12kya
32kya
64kya
75kya
128kya
195kya
250kya
500kya
730kya
1Mya
1.5Mya
1.7Mya
2.5Mya
4.15Mya
Holocene
Upper Pleistocene
Middle Pleistocene
Lower Pleistocene
Pliocene
Far East to the Americas
East Indian Islands to Australia
2nd Diaspora from Africa
• Out of Africa Model
• Multi Regional Model
India to Far East & East Indian Islands
1st Diaspora from Africa - Africa to Near East & Europe
Human physical & cultural evolution in Africa only
Homo Sapiens Sapiens
Homo Sapiens
Earlier Homo
Paranthropus
Australopithecus
Stone Age
Later Stone Age
Middle Stone Age
Earlier Stone Age
Iron Age
Later Iron
Middle Iron
Early Iron
Colonial Period

Appendix B:

Introduction to the Archaeology of South Africa

Archaeologically the southern African cultural environment is roughly divided into the Stone Age, the Iron Age and the Colonial Period, including its subsequent Industrial component. This cultural division has a rough temporal association beginning with the Stone Age, followed by the Iron Age and the Colonial Period. The division is based on the identified primary technology used. The hunter-gatherer lifestyle of the Stone Age is identified in the archaeological record through stone being the primary raw material used to produce tools. Iron Age people, known for their skill to work iron and other metal, also practiced agriculture and animal husbandry. Kingships and civilizations associated with the Iron Age are indicative of a complex social hierarchy. The Colonial Period is marked by the advent of writing, in southern Africa primarily associated with the first European travelers (Mitchell 2002).

During the latter part of the Later Stone Age (LSA) hunter-gatherers shared their cultural landscape with both pastoralists and Iron Age people, while the advent of the Colonial Period in South Africa is marked by a complex cultural mosaic of people; including LSA hunter-gatherers, pastoralists, Later Iron Age farming communities and Colonial occupation.

1) Early Hominin Evolution

DNA studies indicates that humans and chimpanzees shared a common ancestor between 6-8Mya (Sibley & Ahlquist 1984). By 4Mya, based on fossil evidence from Ethiopia and Kenya, hominins (humans and their immediate fossil ancestors and relatives) had already evolved. The earliest fossils are ascribed to *Ardipithecus ramidus* (4.4Mya), succeeded by *Australopithecus anamensis* (4.2-3.9Mya). These fossils are inferred to lie at the base from which all other hominins evolved (Leakey *et al.* 1995; White *et al.* 1994).

In South Africa the later hominins are classed into 3 groups or distinct genera; *Australopithecus* (gracile australopithecines), *Paranthropus* (robust australopithecines) and *Homo.* South Africa has 3 major hominin sites: Taung in the North-West Province, where Raymond Dart identified the first *Australopithecus* fossil in 1924 (Dart 1925); The Cradle of Humankind (Sterkfontein Valley) sites in Gauteng, the most prolific hominin locality in the world for the period dating 3.5-1.5Mya which have yielded numerous *Australopithecus, Paranthropus* and limited *Homo* fossils (Keyser *et al.* 2000; Tobias 2000); and Makapansgat in the Limpopo Province, where several more specimens believed to be older than most of the Cradle specimens were discovered (Klein 1999).

A. africanus, represented at all 3 sites are believed to have been present on the South African landscape from about 3Mya. From approximately 2.8Mya they shared, at least in the Cradle area, the landscape with *P. robustus* and from roughly 2.3Mya with early forms of *Homo* (Clarke 1999). Global climatic cooling around 2.5Mya may have stimulated a burst of species turnover amongst hominins (Vrba 1992); the approximate contemporary appearance of the first stone tools suggests that this was a critical stage in human evolution. But exactly which early hominin population is to be accredited as the ancestor of *Homo* remains elusive.

H. ergaster is present in the African palaeo-anthropological record from around 1.8Mya and shortly thereafter the first exodus from Africa is evidenced by *H. erectus* specimens from China, Indonesia and even Europe (Klein 1999).

2) The Stone Age

2.1) The Earlier Stone Age

In South Africa the only Earlier Stone Age (ESA) Oldowan lithic assemblage comes from Sterkfontein Cave. The predominant quartz assemblage is technologically very simple, highly informal and inferred to comprise exclusively of multi-purpose tools (Kuman *et al.* 1997). The latter part of the ESA is characterized by the Acheulean Industrial Complex, present in the archaeological record from at least 1.5Mya. Both *H. ergaster* and *P. robustus* may be accredited with the production of these tools. The association between stone tools and increased access to meat and marrow supporting the greater dietary breath of *Homo* may have been vital to *Homo's* evolutionary success; and the eventual extinction of the robust australopithecines (Klein 1999).

Probably the longest lasting artefact tradition ever created by hominins, the Acheulean is found from Cape Town to north-western Europe and India, occurring widely in South Africa. Despite the many sites it is still considered a '*prehistoric dark age*' by many archaeologists, encompassing one of the most critical periods in human evolution; the transition from *H. ergaster* to archaic forms of *H. Sapiens* (Klein 1999).

The Acheulean industry is characterized by handaxes and cleavers as *fosilles directeurs* (signatory artefact types), in association with cores and flakes. Handaxes and cleavers were multi-purpose tools used to work both meat and plant matter (Binneman & Beaumont 1992). Later Acheulean flaking techniques involved a degree of core preparation that allowed a single large flake of predetermined shape and size to be produced. This *Victoria West technique* indicates an origin within the Acheulean for the *Levallois technique* of the Middle Stone Age (Noble & Davidson 1966). The lithic artefact component was supplemented by wood and other organic material (Deacon 1970).

2.2) The Middle Stone Age

The Middle Stone Age (MSA), dating from approximately 500kya to 40-27/23kya is interpreted as an intermediate technology between the Acheulean and the Later Stone Age (LSA) (Goodwin & van Riet Lowe 1929). The MSA is typologically characterized by the absence of handaxes and cleavers, the use of prepared core techniques and the production of blades, triangular and convergent flakes, with convergent dorsal scars and faceted striking platforms, often produced by means of the *Levallois technique* (Volman 1984). The widespread occurrence of MSA technology across Africa and its spread into much of Eurasia in Oxygen Isotope Stage (OIS) 7 is viewed as part of a process of population dispersal associated with both the ancestors of the later Neanderthals in Europe and anatomically modern humans in Africa (Foley & Lahr 1997).

After the riches offered by the Cradle sites and Makapansgat, southern Africa's Middle Pleistocene fossil record is comparatively poor. Early Middle Pleistocene fossil evidence suggests an archaic appearance and fossils are often assigned to *H. heidelbergensis* and *H. sapiens rhodesiensis* (Rightmire 1976). Modern looking remains, primarily from Border Cave (KwaZulu-Natal) and Klasies River Mouth (Eastern Cape) raised the possibility that anatomically modern humans had, by 120kya, originated south of the Sahara before spreading to other parts of the world (Brauer 1982; Stringer 1985). Subsequent studies of modern DNA indicated that African populations are genetically more diverse and probably older than those elsewhere (Cann *et al.* 1994). Combined, the fossil and genetic evidence underpins the so-called *Out of Africa 2* model (arguing that gene flow and natural selection led regional hominin populations along distinct evolutionary trajectories after *Homo's* expansion from Africa in the Lower Pleistocene *Out of Africa 1* model) of modern human origins and the continuing debate as to whether it should be preferred to its *Multiregional* alternative (arguing that modern humans evolved more or less simultaneously right across the Old World) (Mellars & Stringer 1989; Aitken *et al.* 1993; Nitecki & Nitecki 1994).

Persuasive evidence of ritual activity or bodily decoration is evidenced by the widespread presence of red ochre at particularly MSA 2 sites (after Volman's 1984 MSA 1-4 model; Hensilwood & Sealy 1997), while evidence from Lion Cave, Swaziland, indicates that specularite may have been mined as early as 100kya (Beaumont 1973). Evidence for symbolic behavioral activity is largely absent; no evidence for rock art or formal burial practices exists.

2.3) The Later Stone Age

Artefacts characteristic of the Later Stone Age (LSA) appear in the archaeological record from 40/27-23kya and incorporates micolithic as well as macrolithic assemblages. Artefacts were produced by modern *H. sapien* or *H. sapien sapien*, who subsisted on a hunter-gatherer way of life (Deacon 1984; Mitchell 2002).

According to Deacon (1984) the LSA can temporally be divided into 4 broad units directly associated with climatic, technological and subsistence changes:

1. Late Pleistocene microlithic assemblages (40-12kya);
2. Terminal Pleistocene / early Holocene non-microlithic assemblages (12-8kya);
3. Holocene microlithic assemblages (8kya to the Historic Period); and
4. Holocene assemblages with pottery (2kya to the Historic Period) closely associated with the influx of pastoralist communities into South Africa (Mitchell 2002).

Elements of material culture characteristic of the LSA reflect modern behavior. Deacon (1984) summarizes these as:

1. Symbolic and representational art (paintings and engravings);
2. Items of personal adornment such as decorated ostrich eggshell, decorated bone tools and beads, pendants and amulets of ostrich eggshell, marine and freshwater shells;
3. Specialized hunting and fishing equipment in the form of bows and arrows, fish hooks and sinkers;
4. A greater variety of specialized tools including bone needles and awls and bone skin-working tools;
5. Specialized food gathering tools and containers such as bored stone digging stick weights, carrying bags of leather and netting, ostrich eggshell water containers, tortoiseshell bowls and scoops and later pottery and stone bowls;
6. Formal burial of the dead in graves (sometimes covered with painted stones or grindstones and accompanied by grave goods);
7. The miniaturization of selected stone tools linked to the practice of hafting for composite tools production; and
8. A characteristic range of specialized tools designed for making some of the items listed above.

➢ Rock Art

Rock Art is one of the most visible and informative components of South Africa's archaeological record. Research into LSA ethnography (as KhoiSan history) has revolutionized our understanding of both painted and engraved (petroglyph) images, resulting in a paradigm shift in Stone Age archaeology (Deacon & Dowson 2001). Paintings are concentrated in the Drakensberg / Maluti mountains, the eastern Free State, the Cape Fold Mountains, the Waterberg Plateau and the Soutpansberg mountains. Engravings on the other hand are found throughout the Karoo, the western Free State and North-West Province (Mitchell 2002). Both forms of LSA art drew upon a common stock of motifs, derived from widely shared beliefs and include a restricted range of naturalistically depicted animals, geometric imagery, human body postures and non-realistic combinations of human and animal figures (anthropomorphic figurines). LSA Rock Art is closely associated with spiritual or magical significance (Lewis-Williams & Dowson 1999).

Aside from LSA or KhoiSan Rock Art, thus art produced by both hunter-gatherer and pastoralist and agro-pastoralist groups, Rock Art produced by Iron Age populations are known the be present towards the north of the country.

➢ Shell Middens ('Strandloper' Cultures)

South Africa's nearly 3,000km coastline is dotted by thousands of shell middens, situated between the high water mark and approximately 5km inland, bearing witness to long-term exploitation of shellfish mainly over the past 12,000 years. These LSA shell middens are easily distinguishable from natural accumulations of shells and deposits can include bones of animals eaten such as shellfish, turtles and seabirds, crustaceans like crabs and crayfish and marine mammal remains of seals, dolphins and occasionally whales. Artefacts and hearth and cooking remains are often found in shell midden deposits. Evidence exist that fish were speared, collected by hand, reed baskets and by means of stone fish traps in tidal pools (Mitchell 2002).

Shell midden remains were in the past erroneously assigned to 'Strandloper cultures'. Deacon & Deacon (1999) explain that '*no biological or cultural group had exclusive rights to coastal resources.*' Some LSA groups visited the coast periodically while others stayed year round and it is misleading to call them all by the same name. Two primary sources of archaeological enquiry serves to shed more light on the lifestyles of people who accumulated shell middens, one being the analysis of food remains in the middens itself and the other being the analysis of LSA human skeletal remains of people buried either in shell middens or within reasonable proximity to the coast.

Shell middens vary in character ranging from large sites tens of meters in extent and with considerable depositional depth to fairly small ephemeral collections, easily exposed and destroyed by shifting dune action. Shell middens are also found inland, along rivers where fresh water mussels occur. These middens are often fairly small and less common; in the Eastern Cape often dated to within the past 3,000 years (Deacon & Deacon 1999).

In addition shell middens are not exclusively assigned to LSA cultures; shellfish were exploited during the Last Interglacial, indicating that the practice was most probably continuous for the past 120,000 years (MSA shell middens). Along the coast of KwaZulu-Natal evidence exist for the exploitation of marine food resources by Iron Age communities. These shell middens are easily distinguished from Stone Age middens by particularly rich, often decorated ceramic artefact content. Colonial Period shell middens are quite rare and extremely ephemeral in character; primarily the result of European shipwreck survivors and reported on along the coast of KwaZulu-Natal and the Transkei, Eastern Cape.

3) The Iron Age

For close to 2 millennia people combining cereal agriculture with stock keeping have occupied most of southern Africa's summer rainfall zone. The rapid spread of farming, distinctive ceramics and metallurgy is understood as the expansion of a Bantu-speaking population, in archaeological terms referred to as the Iron Age.

3.1) The Early Iron Age

Ceramic typology is central to current discussions of the expansion of iron using farming communities. The most widely used approach is that of Huffman (1980), who employs a multidimensional analysis (vessel profile, decoration layout and motif) to reconstruct different ceramic types. Huffman (1998) argues that ceramics can be used to trace the movements of people, though not necessarily of specific social or political groupings. Huffman's Urewe Tradition coincides largely with Phillipson's (1977) Eastern Stream. A combined Urewe Tradition / Eastern Stream model for the Early Iron Age can be summarized as:

1. The Kwale branch (extending along the coast from Kenya to KwaZulu-Natal);
2. The Nkope branch (located inland and reaching from southern Tanzania through Malawi and eastern Zambia into Zimbabwe); and
3. The Kalundu branch (strething from Angola through western Zambia, Botswana and Zimbabwe into South Africa).

In southern Africa, recent work distinguishes two phases of the Kwale branch: The earlier Silver Leaves facies (250-430AD) occurring as far south as the Northern Province. The later expression or Mzonjani facies (420-580AD) occurs in the Northern Province a well as along the KwaZulu-Natal coastal belt (Huffman 1998). Since the Silver Leaves facies is only slightly younger than the Kwale type site in Kenya, very rapid movement along the coast, perhaps partly by boat, is inferred (Klapwijk 1974). Subsequently (550-650AD) people making Mzonjani derived ceramics settled more widely in the interior of South Africa.

Assemblages attributable to the Nkope branch appear south of the Zambezi but north of South Africa from the 5th Century. Ziwa represents an early facies, with Gokomere deriving jointly from Ziwa and Bambata. A subsequent phase is represented by the Zhizo facies of the Shashe-Limpopo basin, and by Taukome (Huffman 1994). Related sites occur in the Kruger National Park (Meyer 1988). Zhizo (7th – 10th Century) is ancestral to the Toutswe tradition which persisted in eastern Botswana into the 13th Century.

Kalundu origins need further investigation; its subsequent development is however better understood. A post Bambata phase is represented by the 5th – 7th Century sites of Happy Rest, Klein Africa and Maunatlana in the Northern Province and Mpumalanga (Prinsloo 1974, 1989). Later phases are present at the Lydenburg Heads site (Whitelaw & Moon 1996) and by the succession of Mzuluzi, Ndondonwane and Ntshekane in KwaZulu-Natal (7th – 10th Centuries) (Prins & Grainger 1993). Later Kalundu facies include Klingbeil and Eiland in the northern part of the country (Evers 1980) with Kgopolwe being a lowveld variant in Mpumalanga (10th – 12th Century). Broadhurst and other sites indicate a still later survival in Botswana (Campbell 1991).

Despite the importance accorded to iron agricultural implements in expanding the spread of farming and frequent finds of production debris, metal objects are rare. Metal techniques were simple, with no particular sign of casting, wire drawing or hot working. Jewelry (bangles, beads, pendants etc.) constitute by far the largest number of finds but arrows, adzes, chisels, points and spatulae are known (Miller 1996).

Early Iron Age people were limited to the Miombo and Savannah biomes; excluded from much of the continents western half by aridity and confined in the south during the 1st millennium to bushveld areas of the old Transvaal. Declining summer rainfall restricted occupation to a diminishing belt close to the East Coast and north of S33° (Maggs 1994); sites such as Canasta Place (800AD), Eastern Cape, mark the southern-most limit of Early Iron Age settlement (Nogwaza 1994).

➢ The Central Cattle Pattern

The Central Cattle Pattern (CCP) was the main cognitive pattern since the Early Iron Age (Huffman 1986). The system can be summarized as opposition between male pastoralism and female agriculture; ancestors and descendants; rulers and subjects; and men and women. Cattle served as the primary means of transaction; they represented symbols exchanged for the fertility of wives, legitimacy of children and appeasement of ancestors. Cattle were also used as tribute to rulers confirming sub-ordination and redistribution as loan cattle by the ruler to gain political support. Cattle represented healing and fertilizing qualities (Huffman 1998; Kuper 1980).

This cognitive and conceptual structure underlies all cultural behavior, including the placement of features in a settlement. The oppositions of male and female, pastoralism and agriculture, ancestors and descendants, rulers and subjects, cool and hot are represented in spatial oppositions, either concentric or diametric (Huffman 1986).

A typical CCP village comprise of a central cattle enclosure (byre) where men are buried. The *Kgotla* (men's meeting place / court) is situated adjacent to the cattle enclosure. Surrounding the enclosure is an arc of houses, occupied according to seniority. Around the outer perimeter of the houses is an arc of granaries where women keep their pots and grinding stones (Huffman 1986). The model varies per ethnic group which helps to distinguish ethnicity throughout the Iron Age, but more studies are required to recognize the patterns.

3.2) The Middle Iron Age

The hiatus of South African Middle Iron Age activity was centered in the Shashe-Limpopo Valley and characterized by the 5-tier hierarchical Mapungubwe State spanning some 30,000km^2. By the 1st millennium ivory and skins were already exported overseas, with sites like Sofala and Chibuene, Mosambique, interfacing between interior and transoceanic traders. Exotic glass beads, cloth and Middle Eastern ceramics present at southern African sites mark the beginning of the regions incorporation into the expanding economic system that, partly tied together with maritime trading links across the Indian Ocean, increasingly united Africa, Asia and Europe long before Da Gama or Columbus (Eloff & Meyer 1981; Meyer 1998).

Occupation was initially focused at Bambandanyalo and K2. The Bambananyalo main midden (1030-1220AD) stands out above the surrounding area, reaching more than 6m in places and covering more than 8ha the site may have housed as many as 2,000 people (Meyer 1998). The CCP was not strictly followed; whether this is ideologically significant or merely a reflection of local typography remains unclear. The midden, the size of which may reflect the status of the settlement's ruler, engulfed the byre around 1060-1080AD, necessitating relocation of the cattle previously kept there. The re-organization of space and worldview implied suggests profound social changes even before the sites' abandonment in the early 13th century, when the focus of occupation moved to Mapungubwe Hill, 1 km away (Huffman 1998).

Excavations at Mapungubwe Hill, though only occupied for a few decades (1220-1290AD), yielded a deep succession of gravel floors and house debris (Eloff & Meyer 1981). Huffman (1998) suggests that the suddenness with which Mapungubwe was occupied may imply a deliberate decision to give spatial expression to a new social order in which leaders physically removed themselves from ordinary people by moving onto more inaccessible, higher elevations behind the stone walls demarcating elite residential areas. Social and settlement changes speak of considerable centralization of power and perhaps the elaboration of new ways of linking leaders and subjects.

At Bambandanyalo and Mapungubwe elite burial grave goods include copper, bone, ivory and golden ornaments and beads. Social significance of cattle is reinforced by their importance among the many human and animal ceramic figurines and at least 6 'beast burials' (Meyer 1998).

Today the drought prone Shashe-Limpopo Valley receives less than 350mm of rainfall per annum, making cereal cultivation virtually impossible. The shift to drier conditions in the late 1200's across the Shashe-Limpopo basin and the eastern Kalahari may have been pivotal in the break-up of the Mapungubwe polity, the collapse of Botswana's Toutswe tradition and the emergence of Great Zimbabwe (1220-1550AD), southern Africa's best known and largest (720ha) archaeological site (Meyer 1998).

South of the Limpopo and north of the Soutpansberg, Mapungubwe derived communities survived into the 14th Century, contemporary with the establishment of Sotho-speaking makers of Maloko pottery.

3.3) The Later Iron Age

South African farming communities of the 2nd millennium experienced increased specialization of production and exchange, the development of more nucleated settlement patterns and growing political centralization, albeit not to the same extent as those participating in the Zimbabwe tradition. However, together they form the background to the cataclysmic events of the late 18th / early 19th Century *Mfecane* (Mitchell 2002).

Archaeological evidence of settlement pattern, social organization and ritual practice often differ from those recorded ethnographically. The Moloko ceramic tradition seems to be ancestral to modern Sotho-Tswana speakers (Evers 1980) and from about 1,100AD a second tradition, the Blackburn tradition, appears along South Africa's eastern coastline. Blackburn produced mostly undecorated pottery (Davies 1971), while Mpambanyoni assemblages, reaching as far south as Transkei, includes examples of rim notching, incised lines and burnished ochre slip (Robey 1980). At present, no contemporary farming sites are known further inland in KwaZulu-Natal or the Eastern Cape.

Huffman (1989) argues that similarities between Blackburn and early Maloko wares imply a related origin, presumably in the Chifumbaze of Zambia or the Ivuna of Tanzania, which contains a range of ceramic attributes important in the Blackburn as well as beehive grass huts similar to those made by the Nguni. This is one of the few suggestions of contact between Sotho-Tswana and Nguni speakers on the one hand and farming communities who, if Huffman is correct, were already long established south of the Limpopo. Both ethnographic and archaeological data demonstrate that Sotho-Tswana and Nguni are patrilineal and organize their settlements according to the CCP (Kuper 1980).

From 1,300AD there is increasing evidence for the beginning of agro-pastoralist expansion considerably beyond the area of previous occupation. It is also to this time that the genealogies of several contemporary Bantu speaking groups can be traced (Wilson & Thompson 1969). Associated with this expansion was the regular employment of stone, rather than wood, as building material, an adaptation that has greatly facilitated the discovery and identification of settlements. Maggs (1976) describes 4 basic settlement types all characterized by the use of semi weathered dolorite to produce hard binding *daga* for house floors and a wall building tradition employing larger more regular stones for the inner and outer faces and smaller rubble for the infill. As with the more dispersed homesteads of KwaZulu-Natal and the Eastern Cape, sites tend to be in locally elevated situations, reflecting a deep seated Sotho and Nguni preference for benign higher places rather than supernaturally dangerous riverside localities; another important contrast to both 1st millennium (Maggs 1976) and later Zulu Kingdom settlement patterns (Hall & Maggs 1979).

The lack of evidence for iron production in the interior and eastern part of South Africa emphasize exchange relationships between various groups and associated more centralized polities. By the 19th Century iron production in KwaZulu-Natal was concentrated in particular clans and lineages and associated with a range of social and religious taboos (Maggs 1992). South of Durban comparatively few smelting sites are known (Whitelaw 1991), a trend even more apparent in Transkei (Feely 1987). However, metal remained the most important and archaeologically evident item traded between later farming communities. (Other recorded trade items include glass and ostrich eggshell beads; Indian Ocean seashells; siltstone pipes; *dagga*, and later on tobacco; pigments including ochre, graphite and specularite; hides and salt.)

Rising polity settlements are particularly evident in the north of the country and dated to the 17th Century, including Molokwane, capital of the Bakwena chiefdom (Pistorius 1994) and Kaditshwene, capital of a major section of the Hurutshe, whose population of 20,000 in 1820 almost equals contemporary Cape Town in size (Boeyens 2000). The agglomeration of Tswana settlements in the north of the country was fuelled by both population growth and conflict over access to elephant herds for ivory and long distance trade with the East Coast. During this period ceramic decoration became blander and more standardized than the earlier elaborate decoration that included red ochre and graphite coloring.

The *Mfecane* refers to the wars and population movements of the early 19th Century which culminated in the establishment of the Zulu Kingdom and came to affect much of the interior, even beyond the Zambezi: The late 18th Century was marked by increasing demands for ivory (and slaves) on the part of European traders at Delagoa Bay; as many as 50 tons of ivory were exported annually from 1750-1790. As elephant populations declined, competition increased both for them and for the post 1790 supply of food to European and American whalers calling at Delagoa Bay (Smith 1970). Cattle raiding, conflict over land and changes in climatic and subsistence strategies characterized much of the cultural landscape of the time.

Competition for access to overseas trade encouraged some leaders to replace locally organized circumcision schools and age-sets with more permanently maintained military regiments. These were now used to gain access through warfare to land, cattle and stored food. By 1810 three groups, the Mthethwa, Ndwandwe and Ngwane dominated northern KwaZulu-Natal (Wright 1995). The Mthethwa paramountcy was undermined by the killing of its leader Dingiswayo in *circa* 1818, which led to a brief period of Ndwandwe dominance. In consequence one of Dingiswayo's former tributaries, Shaka, established often forceful alliances with chiefdoms further south. Shaka's Zulu dominated coalition resisted the Ndwandwe who in return fled to Mozambique. As the Zulu polity expanded it consolidated its control over large areas, incorporating many communities into it. Others sought refuge from political instability by moving south of the Thukela River, precipitating a further *domino effect* as far as the Cape Colony's eastern border (Wright 1995).

4) The Colonial Period

In the 15th Century Admiral Zheng He and his subordinates impressed the power of the Ming Dynasty rulers in a series of voyages as far afield as Java, Sri Lanka, southern Arabia and along the East African coast, collecting exotic animals *en route*. But nothing more came of his expeditions and China never pursued opportunities for trade or colonization (Mote 1991).

Portuguese maritime expansion began around the time of Zheng He's voyages; motivated by a desire to establish a sea route to the riches of the Far East. By 1485 Diogo Cao had reached Cape Cross, 3 years later Bartolomeu Dias rounded the Cape of Good Hope and less than a decade later Vasco da Gama called at several places along South Africa's coast, trading with Khoekhoen (Khoi) at Mossel Bay before reaching Mozambique and crossing the ocean to India. His voyage initiated subsequent Portuguese bases from China to Iraq. In Africa interest was focused on seizing important coastal trading towns such as Sofala and gaining access to the gold of Zimbabwe. Following the 1510 Portuguese-Khoekhoen battle at Table Bay, in which the viceroy of India was killed, Portuguese ships ceased to call along the South African coast (Elphick 1985).

A number of shipwrecks, primarily along the eastern coast attest to Portuguese activity including the Sao Joao, wrecked in 1552 near Port Edward and the Sao Bento, destroyed in 1554 off the Transkei coast. Survivors' accounts provided the 1st detailed information on Africa's inhabitants (Auret & Maggs 1982).

By the late 1500's Portuguese supremacy of the Indian Ocean was threatened. From 1591 numerous Dutch and English ships called at Table Bay and in 1652 the Dutch East Indian Company (VOC) established a permanent base, with the intent to provide fresh food and water to VOC ships. In an attempt to improve the food supply a few settlers (free burghers) were allowed to establish farms. The establishment of an intensive mixed farming economy failed due to shortages of capital and labor, and free burghers turned to wheat cultivation and livestock farming. While the population grew slowly the area of settlement expanded rapidly with new administrative centers established at Stellenbosch (1676), Swellendam (1743) and Graaf-Reinet (1785). By the 1960's the Colony's frontier was too long to be effectively policed by VOC officials (Elphick 1985).

From the 1700's many settlers expanded inland over the Cape Fold Mountain Belt. The high cost of overland transport constrained the ability to sell their produce while settlement of the interior was increasingly made difficult by resident KhoiSan groups, contributing due to a lack of VOC military support to growing Company opposition in the years before British control of the Cape (1795 / 1806) (Davenport & Saunders 2000).

In 1820 a major British settlement was implanted on the eastern frontier of the Cape Colony, resulting in large numbers of the community moving into the interior, initially to KwaZulu-Natal, and then after Britain annexed Natal (1843), further into the interior to beyond the Vaal River. Disruptions of the *Mfecane* eased their takeover of African lands and the *Boers* (farmers) established several Republics. A few years later the 2nd South African War saw both the South African and Orange Free State Republics annexed by Britain, a move largely motivated by British desire to control the goldfields of the Witwatersrand. With adjacent regions of the sub-continent also falling, directly or indirectly, under British rule and German colonization of Namibia, European control of the whole of southern Africa was firmly established before the 1st World War (Davenport & Saunders 2000).

➢ Xhosa Iron Age Cultures meets Colonists in the Eastern Cape

From the late 1600's conflict between migrants from the Cape (predominantly Boers) and Xhosa people in the region of the Fish River were strife, ultimately resulting in a series of 9 Frontier Wars (1702-1878) (Milton 1983). Both cultures were heavily based and reliant on agriculture and cattle farming. As more Cape migrants, and later settlers from Britain (1820) and elsewhere arrived, population pressures and competition over land, cattle and good grazing became intense. Cattle raiding became endemic on all sides, with retaliatory raids launched in response. As missionaries arrived with evangelical messages, confrontations with hostile chiefs who saw them as undermining traditional Xhosa ways of life resulted in conflicts which flared into wars.

As pressures between the European settlers and the Xhosa grew, settlers organized themselves into local militia, counteracted by Xhosa warring skills: But both sides were limited by the demands of seasonal farming and the need for labor during harvest. Wars between the Boers and the Xhosa resulted in shifting borders, from the Fish to the Sundays River, but it was only after the British annexed the Cape in 1806 that authorities turned their attention to the Eastern

regions and petitions by the settlers about Xhosa raids. British expeditions, in particular under Colonel John Graham in 1811 and later Harry Smith in 1834, were sent not only to secure the frontier against the Xhosa, but also to impose British authority on the settlers, with the aim to establish a permanent British presence. Military forts were built and permanently manned. Over time the British came to dominate the area both militarily and through occupation with the introduction of British settlers. The imposition of British authority led to confrontations not only with the Xhosa but also with disaffected Boers and other settlers, and other native groups such as the Khoikhoi, the Griqua and the Mpondo. The frontier wars continued over a period of about 150 years; from the 1st arrival of the Cape settlers, and with the intervention of the British military ultimately ending in the subjugation of the Xhosa people. Fighting ended on the Eastern Cape frontier in June 1878 with the annexation of the western areas of the Transkei and administration under the authority of the Cape Colony (Milton 1983).

➢ The Industrial Revolution

The Industrial Revolution refers roughly to the period between the 18th - 19th Centuries, typified by major changes in agriculture, manufacturing, mining, transport, and technology. Changing industry had a profound effect on socio-economic and socio-cultural conditions across the world: The Industrial Revolution marks a major turning point in human history; almost every aspect of daily life was eventually influenced in some way. Average income and population size began to exhibit unprecedented growth; in the two centuries following 1800 the world's population increased over 6-fold, associated with increasing urbanization and demand of resources. Starting in the latter part of the 18th century, the transition from manual labor towards machine-based manufacturing changed the face of economic activity; including the mechanization of the textile industries, the development of iron-making techniques and the increased use of refined coal. Trade expansion was enabled by the introduction of canals, improved roads and railways. The introduction of steam power fuelled primarily by coal and powered machinery was underpinned by dramatic increases in production capacity. The development of all-metal machine tools in the first two decades of the 19th century facilitated the manufacture of more production machines in other industries (More 2000).

Effects of the Industrial Revolution were widespread across the world, with its enormous impact of change on society, a process that continues today as 'industrialization'.

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Appendix C:

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 trance;

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, Palaeontology 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 & 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 m^2 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.