

**Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades,
near Qunu, King Sabata Dalindyebo Local Municipality, Eastern Cape, South Africa**

- 20 May 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 –

- 20 May 2014 -

Phase 1 Archaeological Impact Assessment –

Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades, near Qunu, King Sabata Dalindyebo Local Municipality, Eastern Cape, South Africa

Executive Summary

Terms of Reference -

CCS has been appointed as independent EAP by AGES, on behalf of the project proponent, the KSDLM, to prepare the EMP for the proposed *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades*, near Qunu, in the KSDLM area of the O.R. Tambo District Municipality, Eastern Cape. The project entails the formalized licencing of the identified borrow pits with the DME – Eastern Cape province. An area of less than 5ha will be mined at each of the borrow pit study sites. Three of the borrow pits are existing and have been previously utilized, while 1 borrow pit is a ‘greenfields’ site, comprising a dolerite outcrop. Borrow pit localities are listed as:

- MM_BP01: S31°49’55.7”; E28°39’40.9”;
- MM_BP02: S31°49’52.9”; E28°39’42.0” (‘greenfields’ site);
- MM_BP03: S31°48’39.9”; E28°33’10.4”; and
- MM_BP04: S31°49’16.8”; E28°33’14.4”.

ArchaeoMaps was appointed by CCS to conduct the Phase 1 AIA as specialist component to the project’s HIA, with findings and recommendations thereof to be included in the EMP.

The Phase 1 Archaeological Impact Assessment -

Project Area: The *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades* development, near Qunu, KSDLM, EC [1:50,000 Map Ref – 3128DC].

Coverage & Gap Analysis: Pre-feasibility and field assessment (4 borrow pits).

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
Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades development, near Qunu, KSDLM, EC			
MM_BP01	Borrow Pit MM_BP01	S31°49’55.7”; E28°39’40.9”	N/A
MM_BP02	Borrow Pit MM_BP02	S31°49’52.9”; E28°39’42.0”	N/A
MM_BP03	Borrow Pit MM_BP03	S31°48’39.9”; E28°33’10.4”	Site MM_BP03-S1: Temporary conservation fencing (western site boundary); and Permanent sign-posting
MM_BP03-S1	Colonial Period Farmstead	S31°48’40.9”; E28°33’16.2”	
MM_BP04	Borrow Pit MM_BP04	S31°49’16.8”; E28°33’14.4”	Site MM_BP04-S1: Temporary conservation fencing; and Permanent sign-posting
MM_BP04-S1	Contemporary Cemetery	S31°49’11.2”; E28°33’15.0”	

Recommendations –

With reference to archaeological and cultural heritage compliance, as per the requirements of the NHRA 1999, it is recommended that the proposed *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades* development, near Qunu, in the KSDLM area of the O.R. Tambo District Municipality, Eastern Cape, proceeds provided the developer comply with the above listed recommendations, together with any additional requirements, constraints or particulars that may be imposed on the development by the EC PHRA.

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1 - Terms of Reference

Control Civil services cc (CCS) has been appointed as independent Environmental Assessment Practitioner (EAP) by AGES Eastern Cape (Pty) Ltd (AGES), on behalf of the project proponent, the King Sabata Dalindyebo Local Municipality (KSDLM), to prepare the Environmental Management Plan Report (EMPr) for the proposed *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades*, near Qunu, in the KSDLM area of the O.R. Tambo District Municipality, Eastern Cape. The project entails the formalized licencing of the identified borrow pits with the Department of Minerals and Energy (DME) – Eastern Cape province. An area of less than 5ha will be mined at each of the borrow pit study sites. Three of the borrow pits are existing and have been previously utilized, while 1 borrow pit is a ‘greenfields’ site, comprising a dolerite outcrop. Borrow pit localities are listed as:

- MM_BP01: S31°49’55.7”; E28°39’40.9”;
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- MM_BP04: S31°49’16.8”; E28°33’14.4”.

ArchaeoMaps cc (ArchaeoMaps) was appointed by CCS 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 EMPr.

1.1.1) Development Location, Details and Impact

The proposed *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades* development is situated in the Bityi / Qunu region of the KSDLM area of the O.R. Tambo District Municipality, Eastern Cape, along the N2, approximately 31km south of Mthatha and 200km north of East London [1:50,000 Map Ref – 3128DC]. The terrain is bisected by the Qunu River, with no existing vehicular crossing. The road upgrade project focusses on the upgrading of Madonisi Road and from Xhora Drive to the Madonisi Primary School, with relevant roads all being within existing settlement. The KSDLM is proposing to upgrade existing gravel roads to asphalt surfaced roads (CCS 2014).

Four borrow pits have been identified and further investigated in order to obtain suitable construction material for the proposed Masimini-Madonisi access road upgrades. An area of less than 5ha will be mined at each of the borrow pit study sites. Three of the borrow pits are existing and have been previously utilized, while 1 borrow pit is a ‘greenfields’ site, comprising a dolerite outcrop. Borrow pit localities are listed as (CCS 2014):

- MM_BP01: S31°49’55.7”; E28°39’40.9”;
- MM_BP02: S31°49’52.9”; E28°39’42.0” (‘greenfields’ site);
- MM_BP03: S31°48’39.9”; E28°33’10.4”; and
- MM_BP04: S31°49’16.8”; E28°33’14.4”.

Identified borrow pits are located on ‘Township Allotment’ land, with surrounding land use including agricultural farm land, communal land and natural landscapes (CCS 2014), characterized by lowlands with gently sloping hills and valleys (Kimopax 2013).

A geological literature study indicated the general area as underlain by the Tarkastad Subgroup of the Beaufort Group of the Karoo Super Group; indicating that soil in the area comprises a Sedimentary Formation consisting mainly of grey and brownish Mudstone and Sandstone, formed under large fresh water lake conditions (Kimopax 2013).

Kimopax (2013) excavated 27 trial pits of up to 3m deep along relevant access roads as part of the geotechnical survey; with no clear anthropogenic member identified in photographic documentation of these TLB test pits. In addition 45 hand-held dynamic cone penetrometer DCP tests were carried out on the surface between trial pits. Geotechnical analysis of samples

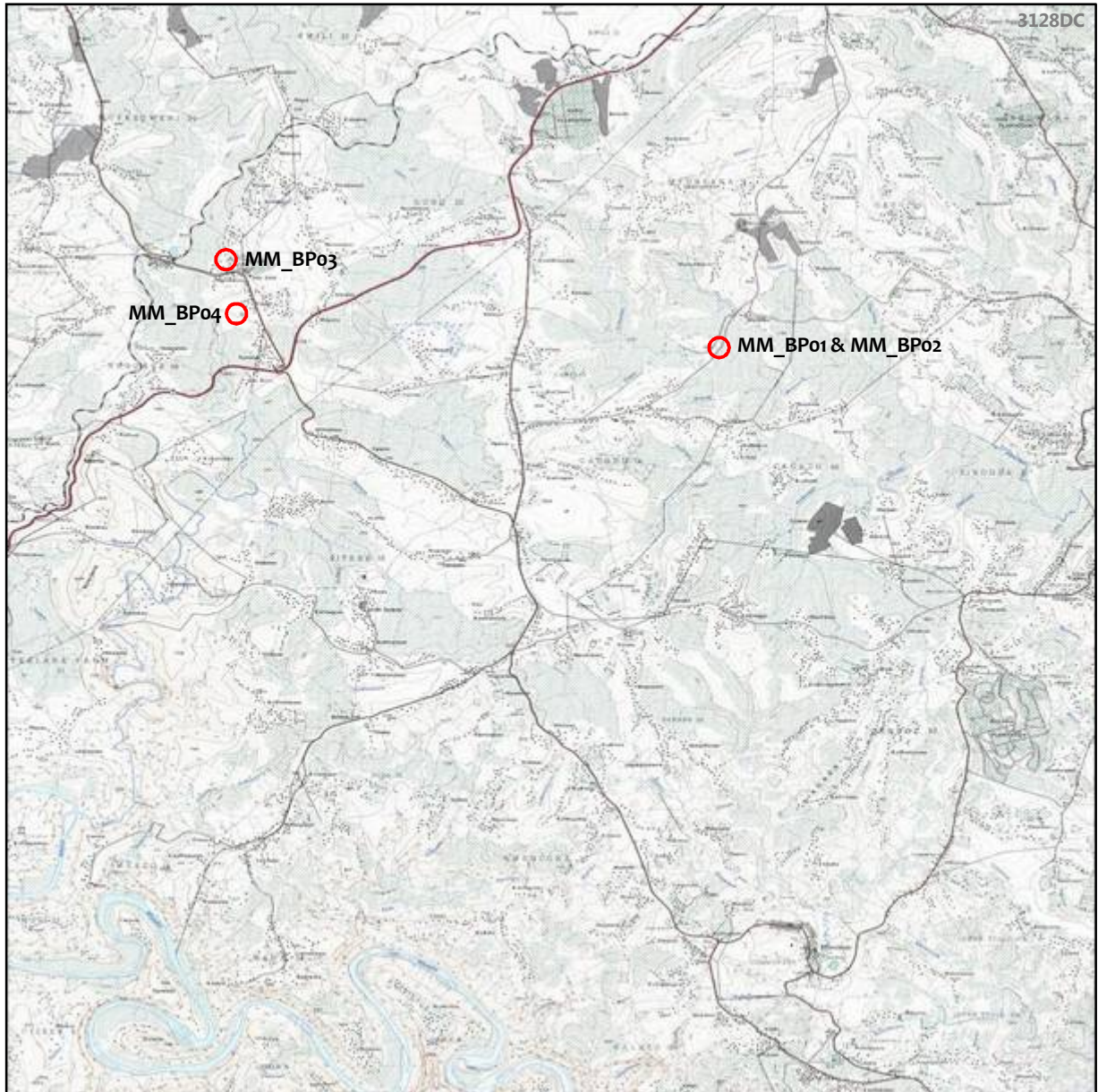
indicates a basic 3m soil stratigraphy of, from top to bottom: Colluvium overlying Pedogenic soils, underlain by Residual Siltstone and Residual Shale, with the excavated basal member comprising of Alluvium.



Map 1: General locality of Qunu in relation to Mthatha



Map 2: General locality of the proposed Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades development, near Qunu, KSDL, Eastern Cape



Map 3: General locality of the proposed Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades development, near Qunu, KSDLM, Eastern Cape [1:50,000 Map Ref – 3128DC]

2 - The Phase 1 Archaeological Impact Assessment

2.1.1) Archaeological Legislative Compliance

The Phase 1 Archaeological Impact Assessment (AIA) for the proposed *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades*, near Qunu, in the King Sabata Dalindyebo Local Municipal (KSDLM) area of the O.R. Tambo District Municipality, Eastern Cape, was requested by the Eastern Cape Provincial Heritage Resources Authority (EC PHRA) as specialist component to the project's Heritage Impact Assessment (HIA), in terms of the National Heritage Resources Act, No 25 of 1999 (NHRA 1999), with specific reference to 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 views 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);
- Mineral and Petroleum Resources Development Act, No 28 of 2002 (MPRDA 2002).

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 – 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 (2014-05-15). The assessment was done by foot 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 done according to the system prescribed by SAHRA (2007).

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

2.1.3) Assessor Accreditation

The Phase 1 AIA was directed by 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 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 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).

Based on the basic introductory literature assessment of South African archaeology (see Appendix – A) the probability of archaeological and cultural heritage sites within the proposed *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades*, near Qunu, in the KSDLM area of the O.R. Tambo District Municipality, Eastern Cape, can briefly be described as:

- | | |
|---------------------------------------|--|
| 1. Early Hominin | : Probability – None |
| 2. Stone Age | |
| a. ESA | : Probability – None-Low |
| b. MSA | : Probability – None-Low |
| c. LSA | : Probability – None-Low (Human remains may be expected; if identified of both scientific and social significance) |
| i. Rock Art | : Probability – None-Low |
| ii. Shell Middens | : Probability – None |
| 3. Iron Age | |
| a. Early Iron Age | : Probability – Low |
| b. Middle Iron Age | : Probability – None |
| c. Later Iron Age | : Probability – High |
| 4. Colonial Period | |
| a. Colonial Period | : Probability – Medium (Human remains expected to be primarily associated with formal cemeteries) |
| b. Iron Age / Colonial Period Contact | : Probability – Medium |
| c. Industrial Revolution | : Probability – Low |

2.2.1) The SAHRA 2009 MPD & SAHRIS

Only 2 archaeological Cultural Resources Management (CRM) projects are recorded in the SAHRA 2009 Mapping Project Database (MPD) and situated within an approximate 40km radius from the *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades* development, listed as:

- Van Schalkwyk, L.O. (eThembeni). 2008. *Heritage Impact Assessment of the Proposed N2 Wild Coast Toll Highway*.
- Van Schalkwyk, L.O. & Wahl, B. (eThembeni). 2008. *Heritage Impact Assessment of Zithulele Borrow Pits and Quarry, Coffee Bay, Eastern Cape Province, South Africa*.

A number of additional archaeological CRM studies are available on SAHRIS, the majority of which post-dates compilation of the SAHRA 2009 MPD, reflecting on increasing development in the general area and serving to further describe the greater receiving cultural environment of the *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades* development, including but not limited to:

- Anderson, G. (Umlando). 2011. *Heritage Survey of the Proposed Photovoltaic and Wind Turbine Farm at Qunu*.
- Anderson, G. (Umlando). 2013a. *Heritage Survey of the Upgrade of the R61 National Route from Mthatha to Umngazi, Eastern Cape*.

- Anderson, G. (Umlando). 2013b. *Heritage Survey of the R61 Mthatha-Baziya Road Upgrade*.
- Bennie, J. (Private). 2013. *Heritage Impact Assessment (Historical Component). Sidwadeni River, Mthatha and Mngazi River Access Roads and Bridges*.
- De Jong, R. (CHCS). 2011. *Heritage Impact Assessment Report: Installation of Long-Haul Dark Fibre Ducting Infrastructure along the N2 between Durban and East London, Kwa-Zulu-Natal and Eastern Cape Province*.
- Fourie, W. (PGS). 2012. *Proposed Mgwali Water Supply, iDutywa, Mbhashe Municipality, Amathole District Municipality, Eastern Cape*.
- Seliane, M. (SEF). 2012. *Mthatha Mall Project – Phase 1 Cultural Heritage Impact Assessment*.
- Van Ryneveld, K. (ArchaeoMaps). 2010a. *Phase 1 Archaeological Impact Assessment – Upgrade and Realignment of the N2, Sitebe Komkhulu to Viedgesvulle, near Mthatha, Eastern Cape, South Africa*.
- Van Ryneveld, K. 2010b. *Phase 1 Archaeological Impact Assessment – Mbhashe Mall and Service Station Project, Dutywa, Eastern Cape, South Africa*.
- Van Ryneveld, K. (ArchaeoMaps). 2010c. *Phase 1 Archaeological Impact Assessment – Mzamomhle Township Establishment, iDutywa Commonage, Dutywa, Eastern Cape, South Africa*.
- Van Ryneveld, K. (ArchaeoMaps). 2013a. *Phase 1 Archaeological Impact Assessment – Eskom Power Lines – Neptune to Chaba, near East London and Tylara to Qunu, near Mthatha, Eastern Cape, South Africa*.
- Van Ryneveld, K. (ArchaeoMaps). 2013b. *Archaeological Site Inspection – Two Grave Sites along the Qunu-Zimbane Power Line, Mthatha, Eastern Cape, South Africa*.
- Van Schalkwyk, L.O. (eThembeni). 2006. *Heritage Impact Assessment of Re-routing of Power Line, Mthatha, Eastern Cape Province, South Africa*.
- Van Schalkwyk, L.O. (eThembeni). 2009. *Heritage Impact Assessment of Eskom Network Strengthening, Mthatha, Eastern Cape Province, South Africa*.
- Van Schalkwyk, L.O. & Wahl, B. (eThembeni). 2012. *Phase 1 Heritage Impact Assessment Report: Proposed Eskom Dutywa-Gatyana 132kV Power Line and Construction of Gatyana Substation, Mbhashe Local Municipality, Amathole District Municipality, Eastern Cape Province, South Africa*.

Of the archaeological CRM documentation available on SAHRIS, the study by Kruger (2014) is directly applicable to the Phase 1 AIA of the *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades* development, referenced as:

- Kruger, N. (AGES). 2014. *King Sabata Dalinyebo Local Municipality. Construction of the Magabu and Madonisi Access Roads, Qunu Area, Eastern Cape Province – Archaeological Impact Assessment*.

2.2.2) SAHRA Provincial Heritage Site Database – Eastern Cape

No geo-referenced Declared Provincial Heritage Sites, recorded in the SAHRA – Eastern Cape database, are situated within an approximate 40km radius from the proposed *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades* development (en.wikipedia.org/wiki/List_of_heritage_sites_in_Eastern_Cape).



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

2.2.3) General Discussion

No Stone Age records, including Earlier (ESA), Middle (MSA) or Later Stone Age (LSA) sites or occurrences, were reported on in any of the consulted archaeological CRM reports. The absence of recorded Stone Age sites should however not be confused with evidence of absence of type sites: The possibility exists that sites may well still be encountered or may be present sub-surface with little surface indicators.

Early Iron Age (EIA) records are absent from archaeological CRM literature. However, Nogwasa (1994) confirmed EIA, distribution to as far south as Canasta Place, near East London, while Feely & Bell-Cross (2011) recorded at least 4 EIA sites (Sites 4013, 3075, 3042 and 3036) within approximately 50km from the *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades* study site.

Later Iron Age (LIA) records dominate archaeological CRM reports from the greater area, whilst many contemporary sites, specifically cemetery and grave sites, point towards strong LIA continuing cultural tradition (living heritage). LIA homestead sites, including aspects of homesteads such as livestock enclosure remains, were reported on by Anderson (2013b), Fourie (2012) and Van Ryneveld (2010a, 2010c, 2013a). Homestead remains directly associated with cemetery and grave sites were reported on by Anderson (2013b) and the possibility of such occurrences emphasized by Van Schalkwyk & Wahl (2012). However, cemetery and grave sites dominate the record by far: Fourie (2012) recorded 53 cemetery and grave sites in proximity to the Mgwali South Water Supply project alignment, while only 1 LIA homestead site was threatened by the proposed development layout. Van Ryneveld (2013a) reported on 4 cemeteries and the AbaThembu Bumbane Great Place, containing both the Royal Wives' and the AbaThembu Kings' cemeteries along the Tylara to Qunu Power Line route, with 5 cemeteries and a singular grave reported on along the Qunu-Zimbane Power Line (Van Ryneveld 2013b). Anderson (2011) offers, in part, an explanation of note in his Qunu Photovoltaic and Wind Turbine Farm assessment. Sixteen sites were recorded, all being LIA homestead and cemetery and grave sites. 1937, 1982 and 2001 1:50,000 maps consulted during his pre-feasibility study indicated discrepancies in records; whilst many a homestead was indicated on the 1937 map, much less were present on the 1982 map, with 1 previously indicated cemetery omitted in totality on the 2001 map. Anderson is of

the opinion that discrepancies in map records may well reflect land-use changes and zoning requirements, in turn affecting cultural settlement pattern: As people move away from original homesteads, remains become derelict and cemeteries and grave sites neglected, in time becoming more and more difficult to discern on the surface. Added thereto new people may move into an area; people who may have no (or little) knowledge of the archaeological and cultural heritage remains of the area. Van Schalkwyk (2006) reported on an unmarked grave, known as the Qokolweni grave, discovered during the course of construction. In the case of the Qokolweni grave the local community had no knowledge of the grave site. Unfortunately construction was not stopped despite the fact that an archaeological investigation of the discovery was commissioned, resulting in the unnecessary loss of information and complications regarding to permitting and Grave Relocation process.

Colonial Period sites were reported on by Anderson (2013b), although it is the work by De Jong (2011) that most prolifically highlights the sensitivity of Colonial Period resources across the greater terrain: Bridges older than 60 years, buildings older than 60 years in Mount Frere, the Tsolo Commonage Memorial, a number of buildings older than 60 years in Mthatha, including the St. John Cathedral, buildings older than 60 years in Dutywa, including the Magistrates Court, the Old Post Office, the Anglican Church and the War Memorial, together with buildings older than 60 years in Butterworth and the Butterworth Monument.

It is the Phase 1 AIA by Kruger (2014) that most directly applies to the *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades* study site, where Kruger reported on sites encountered along the access roads for which construction material will be sourced from the borrow pits to be licenced under this application. Kruger (2014) reported on 18 cemetery and grave sites, of LIA assignation or contemporary, of LIA cultural tradition, with the majority of identified sites situated within fenced homestead yards. In addition 3 Colonial Period sites were reported on, including livestock enclosures with hut foundations dating to the mid-20th Century, the Nozolile café associated with additional circular and square shaped structures and the Mqhekezweni homestead, trade post and Colonial Period landscape, the former AbaThembu Great Place. Kruger paid particular attention to tangible and intangible heritage aspects associated with Nelson Mandela, Mqhekezweni and Qunu.

Nelson Rolihlahla Mandela (1918-2013), affectionately known as ‘Madiba’ or ‘Tata’ (Father of the Nation), was born on the 18th of July 1918 in Mvezo to the Madiba clan, a Royal family lineage of the ‘Left-Hand House’ of the AbaThembu. Mandela grew up with his mother (1 of 4 wives to Gadla Henry Mphakanyisa) and 2 sisters, in his mother’s ‘kraal’ in the village of Qunu. At age 9 his father moved to Qunu, but died soon thereafter, upon which his mother took him to the Mqhekezweni AbaThembu Great Place ‘palace’ where she entrusted her son to the guardianship of the Thembu Regent, Chief Jongintaba Dalindyebo. Dalindyebo brought Mandela up as 1 of his own. Mandela attended the University of Fort Hare and studied law at UNISA and the University of the Witwatersrand. During his student years he became increasingly involved in the anti-Apartheid campaign: He joined the African National Congress (ANC) and became the founding member of the ANC’s Youth League. Sentenced and convicted to life imprisonment as anti-Apartheid revolutionary during the Rivonia Trial in 1962 he spend 27 years in prison; 1st on Robben Island and later at Pollsmoor and the Victor Verster prisons. Released in 1990 he served as President of the ANC from 1991-1997 and became the 1st democratically elected President of South Africa from 1994-1999. ‘Madiba’ declined to run presidency for a 2nd term, instead turning his attention to international peace concerns and negotiations, philanthropy and charitable work through the Nelson Mandela Foundation. He was awarded more than 250 honours awards for his contribution to world peace, including the 1993 Nobel Peace Prize. ‘Madiba’ died on the 5th of December 2013, at age 95, at his home in Houghton, Johannesburg. The following day President Jacob Zuma announced a ‘National Day of Prayer and Reflection’ and a ‘National 10 Day Mourning Period’. The former presidents’ body lay in state from 11-13 December at the Union Buildings, Pretoria, and a state funeral, attended by more than 90 foreign state representatives was held on 15 December 2013 at his home village of Qunu (en.wikipedia.org/wiki/Nelson_Mandela).

‘Madiba’s’ house and the Nelson Mandela Museum and Youth and Heritage Centre are notable landmarks in the rural Qunu village. Mandela (2001) stated that of his ‘happiest’ years were spend in Qunu and many of the landmarks that formed so affectionately a part of his early years can still be seen there, including his mother’s ‘kraal’ where he grew up, the primary school he attended, the old stone church where he was baptised, the ‘sliding rocks’ where he played with friends, as well as the family cemetery where his 2 sons, daughter and parents are buried.

Two archaeological and cultural heritage sites, as defined and protected by the NHRA 1999, were identified during the field assessment of the *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades* development, labelled Site MM_BP03-S1, in proximity to the Borrow Pit MM_BP03 study site and Site MM_BP04-S1, situated along the access road to Borrow Pit MM_BP04. Site MM_BP03-S1 comprises a Colonial Period farmstead and Site MM_BP04-S1 a small informal contemporary cemetery. Development will not impact on any of the recorded sites; in both cases proximity of the heritage sites to the applicable borrow pit study sites form the basis for conservation recommendations. In both cases light-weight temporary conservation measures and permanent sign-posting is recommended, rather than permanent conservation associated with fairly extensive conservation buffer zones – this with cognizance to existing rural development, with specific reference to access roads and in the case of Site MM_BP04-S1 to also accommodated local community / affected family preference with reference to ‘living heritage’, where burial in close proximity to a homestead, often associated with the practice of appeasement of ancestors, represent continuing Later Iron Age (LIA) cultural tradition (living heritage).

Findings of the field assessment are, considering the small development footprint(s), in accord with the reported, fairly rich, archaeological and cultural heritage of the greater Qunu area.

2.3.1) Borrow Pit MM_BP01: S31°49'55.7"; E28°39'40.9"



Map 5: Results of the field assessment – Borrow Pit MM_BP01 (tracklog – white)

No archaeological or cultural heritage resources, as defined and protected by the NHRA 1999, were identified during the field assessment of the Borrow Pit MM_BP01 study site.

The MM_BP01 study site is characterized by fairly thick surface grass cover with the eastern extremity of the study site and the area adjoining the site to the east typified by infrequent dolerite boulders, with little to no exposed sub-surface sections aside from the large sections at the existing borrow pit area. Here exposed sections yielded a basic, anthropogenic sterile, single-soil membered stratigraphy of more than 2.5m in depth.

- **RECOMMENDATIONS:** It is recommended that development at the Borrow Pit MM_BP01 study site proceeds as applied for without the developer having to comply with additional heritage compliance requirements.



Plate 1: Existing borrowing impact at the MM_BP01 study site [1]



Plate 3: View over the eastern portion of the MM-PP01 study site and adjoining area



Plate 2: Existing borrowing impact at the MM_BP01 study site [2]



Plate 4: View over the southern portion of the MM-PP01 study site and adjoining area

2.3.2) Borrow Pit MM_BP02: S31°49'52.9"; E28°39'42.0" ('greenfields' site)



Map 6: Results of the field assessment – Borrow Pit MM_BP02 (tracklog – white)

No archaeological or cultural heritage resources, as defined and protected by the NHRA 1999, were identified during the field assessment of the Borrow Pit MM_BP02 study site.

The 'greenfields' Borrow Pit MM_BP02 study site is typified by a dolerite outcrop – anthropogenically sterile, including the absence of evidence for use of the dolerite as raw material during Stone Age times. No exposed sub-surface sections were present at the site, but based on proximity to the MM_BP01 site similar anthropogenic sterile sub-surface sections can reasonably be expected.

- **RECOMMENDATIONS:** It is recommended that development at the Borrow Pit MM_BP02 study site proceeds as applied for without the developer having to comply with additional heritage compliance requirements.



Plate 5: View of the Borrow Pit MM_BP02 study site



Plate 7: General view from the MM_BP02 dolerite outcrop towards the north-east



Plate 6: Close-up of the dolerite outcrop characterizing the MM_BP02 study site



Plate 8: General view from the MM_BP02 dolerite outcrop towards the north-west

2.3.3) Borrow Pit MM_BP03: S31°48'39.9"; E28°33'10.4"



Map 7: Results of the field assessment – Borrow Pit MM_BP03 (tracklog – white)

No archaeological or cultural heritage resources, as defined and protected by the NHRA 1999, were identified during the field assessment of the direct Borrow Pit MM_BP03 study site, but a Colonial Period farmstead is situated immediately east of the study site, across the access road.

The general Borrow Pit MM_BP03 study site, the surface of which proved to yield no traces of archaeological or cultural heritage material, is typified by shallow former quarrying evidence. Many sections are overgrown, but a few recent scrapings yielded an exposed single-soil member, anthropogenically sterile, up to at least 1.5m in depth.

2.3.3.1.) Site MM_BP03-S1 – Colonial Period Farmstead – S31°48'40.9"; E28°33'16.2"

The Site MM_BP03-S1 Colonial Period farmstead is situated east of the Borrow Pit MM_BP03 study site, across the access road. The site comprises a Colonial Period farmstead, including a main residence (Site co-ordinate - S31°48'40.9"; E28°33'16.2"), a number of outbuildings and related farming infrastructure. Clear evidence of sequential additions to the farmstead is visible, with the original structure most probably being the western part of the main residence. The farmstead, comprising a collection of vernacular structures, may easily, based on architectural style, date to the early 1900's, with later additions continuing to around the 1950's / 1960's, implying that the farmstead is formally protected by the NHRA 1999. The main residence (2 individual buildings, residentially linked and with a small outbuilding to the west) is located centrally with 2 outbuildings, a barn and smaller structure, to the north and a series of associated farming infrastructure, including the remains of a cement dam, an additional 'rondavel' floor, feedlots and water troughs to the south. At the time of assessment the site was deserted, with structures evidently not having been in use for a number of years, and with basic neglect negatively affecting the current conservation status or 'status quo' of the site.

The Site MM_BP03-S1 Colonial Period farmstead will not be impacted on by development of the Borrow Pit MM_BP03 site, but it is recommended that the developer ensures reasonable conservation measures to be in place during the tenure of development to avoid accidental impact.

- **RECOMMENDATIONS:** Site MM_BP03-S1, a Colonial Period farmstead pre-dating 60 years of age, receives automatic SAHRA / EC PHRA protection as a site of *High Significance* with a *Provincial Grade II Field Rating*. Individual structures comprising the site are however architecturally of *Low Significance*. The site will not be impacted on by development of the MM_BP03 borrow pit, with the access road between the site and the borrow pit constituting a significant conservation barrier in itself. It is however recommended that additional conservation measures be in place to ensure no accidental impact on Site MM_BP03-S1 during utilization of the MM-BP03 borrow pit:

Temporary conservation and permanent sign-posting:

1. The developer should ensure that Site MM_BP03-S1 be cordoned off with temporary fencing (construction netting or a similar visually clear demarcation) along at least the western boundary of the site for the tenure of utilization of the MM-BP03 borrow pit. Temporary signage should indicate the area as a 'no-entry' or 'heritage sensitive' zone. All temporary conservation measures should be removed after development.
2. Site MM_BP03-S1 should be permanently sign-posted, indicating that the site is formally protected by the NHRA 1999. Permanent sign boards can be kept fairly small, approximately 30x50cm in size, preferably on metal board mounted on a metal or treated wooden pole. Recommended signage can read:

Site MM_BP03-S1 – Colonial Period Farmstead
KSDLM
This site is protected under the National Heritage Resources Act, No 25 of 1999



Plate 9: General view of the Borrow Pit MM_BP03 study site



Plate 11: Close-up of exposed deposits at MM_BP03-S1



Plate 10: Close-up of exposed sections at MM_BP03 [1]



Plate 12: View of the MM_BP03 study site with the Colonial Period Site MM_BP03-S1 in the background



Plate 13: Site MM-BP03-S1 – The main residence and northern outbuildings



Plate 15: View of the Site MM_BP03 main residence structures from the south with remains of farming infrastructure in the foreground



Plate 14: Close-up of the Site MM_BP03-S1 main residence



Plate 16: Farming infrastructure with the floor remains of a 'rondavel' in the foreground

2.3.4) Borrow Pit MM_BP04: S31°49'16.8"; E28°33'14.4"



Map 8: Results of the field assessment – Borrow Pit MM_BP04 (tracklog – white)

No archaeological or cultural heritage resources, as defined and protected by the NHRA 1999, were identified during the field assessment of the direct Borrow Pit MM_BP03 study site. A small contemporary cemetery is situated in proximity to the study site, adjacent to the access road leading thereto.

The general Borrow Pit MM_BP04 study site is characterised by open grass field with existing works having exposed a large, in excess of 6m in height open section, yielding a very shallow topsoil level of no more than 40-50cm, underlain by the anthropogenic basal geological dolerite member, indicating also that the probability of encountering archaeological or cultural heritage material once development starts is extremely low.

2.3.4.1) Site MM_BP04-S1 – Contemporary Cemetery – S31°49'11.2"; E28°33'15.0"

Site SMM_BP04-S1 comprises a small contemporary cemetery of 2 graves. Both graves are modern style graves, without inscribed headstones (at the time of assessment). The site, an informal cemetery, is formally protected by the NHRA 1999. The cemetery is situated approximately 100m from the Borrow Pit MM_BP04 study site, but a mere 6-8m from the access road.

Development will not impact on the Site MM_BP04-S1 cemetery, but the site, situated adjacent to the access road necessitated the instatement of additional conservation measures for the tenure of utilization. Though permanent conservation measures (permanent fence with access gate) associated with an approximate 30-50m conservation buffer remains the preferred conservation measure for cemeteries by the EC PHRA, it is requested that standard permanent conservation measures be waived and instead replaced by temporary conservation with minimal conservation buffer zones associated with permanent sign posting. This request is based on reported cases where fencing of ancestral sites was found to be perceived as 'offensive' by communities: Permanent fencing should only be further considered upon prior

approval by the community / affected family. It is requested that standard conservation buffer zones be waived with reference to negative impact of a 30-50m conservation buffer on existing rural infrastructure, namely the existing access road. Consideration of Phase 2 grave relocation for purposes of utilization of Borrow Pit MM_BP04 is not recommended.

- **RECOMMENDATIONS:** Site MM_BP04-S1, a small contemporary informal cemetery site, receives formal protection under the NHRA 1999. The site is ascribed a SAHRA / EC PHRA *High Significance* and a *Generally Protected IV-A Field Rating*. The site will not be impacted by utilization of Borrow Pit MM_BP04, but being situated immediately adjacent to the access road leading to the study site additional conservation measures during the course of development are recommended.

Temporary conservation and permanent sign-posting:

1. The developer should ensure that Site MM_BP04-S1 be cordoned off with temporary fencing (construction netting or a similar visually clear demarcation) allowing for an approximate 2-5m conservation buffer between the graves and the conservation fence. Temporary signage should indicate the area as a 'no-entry' or 'heritage sensitive' zone. All temporary conservation measures should be removed after development.
2. Site MM_BP04-S1 should be permanently sign-posted, indicating that the site is formally protected by the NHRA 1999. Recommended signage can read:

Site MM_BP04-S1 – Cemetery	
KSDLM	
This site is protected under the National Heritage Resources Act, No 25 of 1999	



Plate 17: View of the Borrow Pit MM_BP04 study site [1]



Plate 19: Close-up of large exposed sections at MM_BP04



Plate 18: View of the Borrow Pit MM_BP04 study site [2]



Plate 20: The 2 contemporary graves comprising Site MM_BP04-S

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:

- $SP = (M + D + E + I + R) \times P$.

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: MM_BP03-S1; MM_BP04-S1	2	2	1	3	3	3	33	L	L	-	-	-	-	-	-	-	-	-
		-								-									

Comment:

Identified archaeological and cultural heritage sites that will be conserved by development.

Summary of mitigation points:

MM_BP03-S1: Temporary conservation fence (along western boundary of site) & permanent sign posting.

MM_BP04-S1: Temporary conservation fence & permanent sign posting.

Table 2: Environmental significance assessment of archaeological and cultural heritage sites that will be conserved by the Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades development, near Qunu, EC

4 - Recommendations

With reference to archaeological and cultural heritage compliance, as per the requirements of the NHRA 1999, it is recommended that the proposed *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades* development, near Qunu, KSDLM, Eastern Cape, proceeds as applied for provided the developer comply with the below listed recommendations, together with any additional requirements, constraints or particulars that may be imposed on the development by the EC PHRA.

[It is recommended that a photographic record of heritage compliance be submitted to the EC PHRA, by an appointed heritage practitioner or the ECO].

Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades, near Qunu, KSDLM, Eastern Cape			
Map Code	Site	Co-ordinates	Recommendations
<i>Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades development, near Qunu, KSDLM, EC</i>			
MM_BP01	Borrow Pit MM_BP01	S31°49'55.7"; E28°39'40.9"	N/A
MM_BP02	Borrow Pit MM_BP02	S31°49'52.9"; E28°39'42.0"	N/A
MM_BP03	Borrow Pit MM_BP03	S31°48'39.9"; E28°33'10.4"	Site MM_BP03-S1: Temporary conservation fencing (western site boundary); and Permanent sign-posting
MM_BP03-S1	Colonial Period Farmstead	S31°48'40.9"; E28°33'16.2"	
MM_BP04	Borrow Pit MM_BP04	S31°49'16.8"; E28°33'14.4"	Site MM_BP04-S1: Temporary conservation fencing; and Permanent sign-posting
MM_BP04-S1	Contemporary Cemetery	S31°49'11.2"; E28°33'15.0"	

Table 3: Archaeological and cultural heritage compliance summary for the *Utilization of 4 Borrow Pits for the Masimini-Madonisi Access Road Upgrades* development, near Qunu, EC.

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.
- 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).

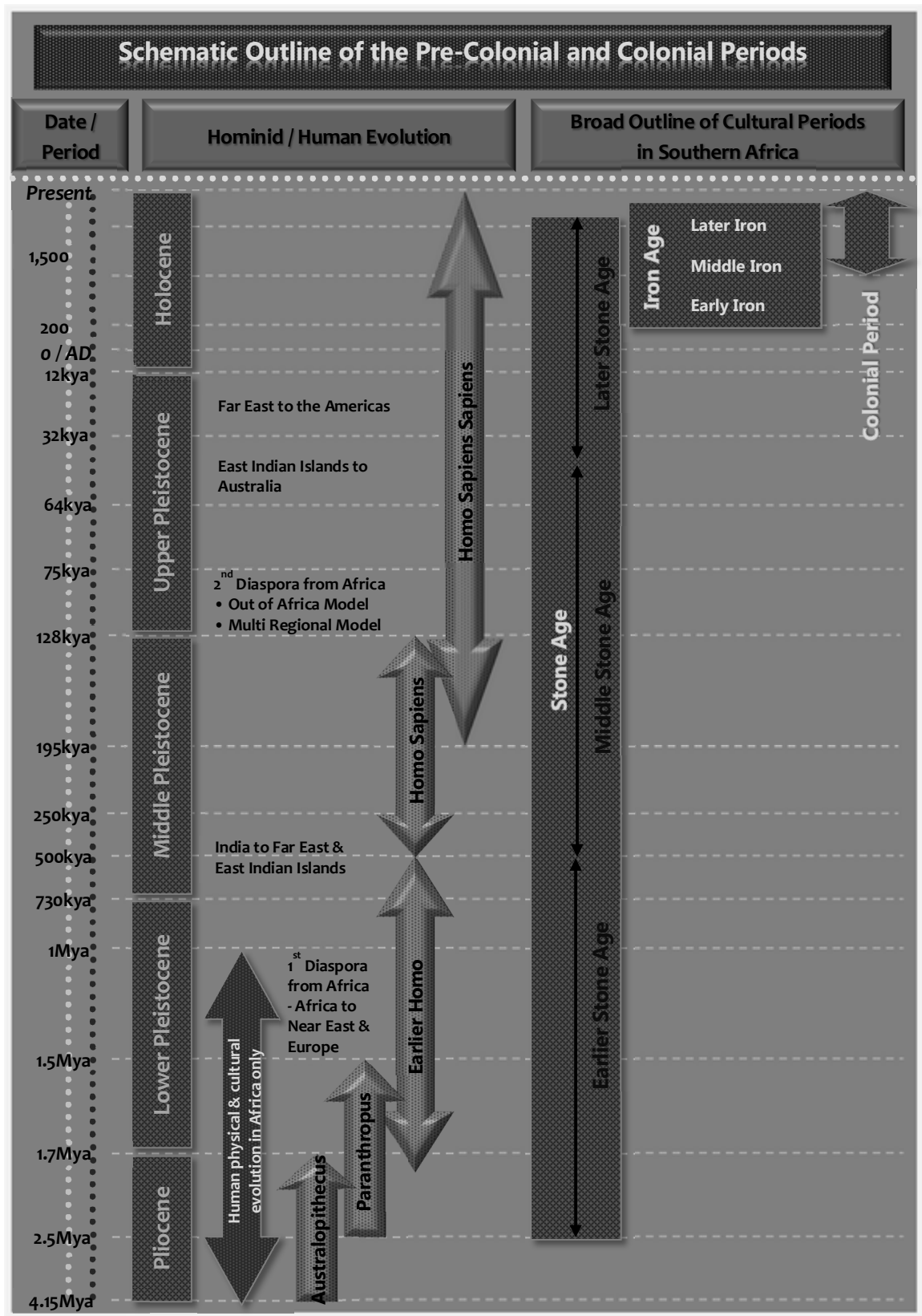
5 - Acronyms and Abbreviations

AD	: Anno Domini (the year o.)
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 o.)
BCE	: Before the Common Era (the year o.)
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:



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. Kingdoms 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 indicate 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 breadth 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 *folies 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 microlithic 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 to 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 Kwaile 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 (stretching from Angola through western Zambia, Botswana and Zimbabwe into South Africa).

In southern Africa, recent work distinguishes two phases of the Kwaile 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 as well as along the KwaZulu-Natal coastal belt (Huffman 1998). Since the Silver Leaves facies is only slightly younger than the Kwaile 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 Maunatana 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 continent's 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 30,000km². By the 1st millennium ivory and skins were already exported overseas, with sites like Sofala and Chibueni, Mozambique, 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 Bambandanyalo 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 dolomite 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 India 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 trace;
- xli. “*Site*” means any area of land, including land covered by water, and including any structures or objects thereon;
- xliv. “*Structure*” means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith;

National Estate

Section 3

- 1) For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.
- 2) Without limiting the generality of subsection 1), the national estate may include –
 - a) places, buildings, structures and equipment of cultural significance;
 - b) places to which oral traditions are attached or which are associated with living heritage;
 - c) historical settlements and townscapes;
 - d) landscapes and natural features of cultural significance;
 - e) geological sites of scientific or cultural importance
 - f) archaeological and palaeontological sites;
 - g) graves and burial grounds, including –
 - i. ancestral graves;
 - ii. royal graves and graves of traditional leaders;
 - iii. graves of victims of conflict
 - iv. graves of individuals designated by the Minister by notice in the Gazette;
 - v. historical graves and cemeteries; and
 - vi. other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No 65 of 1983)
 - h) sites of significance relating to the history of slavery in South Africa;
 - i) movable objects, including –
 - i. objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - ii. objects to which oral traditions are attached or which are associated with living heritage;
 - iii. ethnographic art and objects;
 - iv. military objects;
 - v. objects of decorative or fine art;
 - vi. objects of scientific or technological interest; and
 - vii. books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

Structures

Section 34

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

Archaeology, 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-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

Heritage Resources Management

Section 38

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

- iv. the costs which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
 - d) the rezoning of a site exceeding 10 000 m² in extent; or
 - e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,
 must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.
- 2) The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection 1) –
 - a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management; or
 - b) notify the person concerned that this section does not apply.
- 3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection 2a) ...
- 4) The report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development decide –
 - a) whether or not the development may proceed;
 - b) any limitations or conditions to be applied to the development;
 - c) what general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;
 - d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and
 - e) whether the appointment of specialists is required as a condition of approval of the proposal.