
PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

**WATER SUPPLY BACKLOG IN THE CHDM:
REGIONAL SCHEME 5 (NEAR COFIMVABA),
EASTERN CAPE, SOUTH AFRICA**

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EXECUTIVE SUMMARY

TERMS OF REFERENCE:

BESC has been appointed as environmental consultant by Uhambiso Consult on behalf of the project proponent, the CHDM, to prepare the BIA and the EMP for the proposed *Water Supply Backlog in the CHDM: Regional Scheme 5* project, near Cofimvaba in the Eastern Cape. The proposed approximate 40km line route development is subdivided into 3 routes focusing on the supply of water to the villages of:

- Line Route 1 (17km) – Gqiya, Nyongwana, Khalane, Mampondweni-Dayimani, Qungu, Manuneni and Panatyipphu;
- Line Route 2 (5.5km) – Cube-A and Maphungutyeni; and
- Line Route 3 (17.5km) – Mmangobomvu-Dalubuhle, Ntwashini and Mcambalala.

ArchaeoMaps has been appointed by BESC to conduct the Phase 1 AIA as specialist sub-section to the BIA.

THE PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT:

PROJECT AREA: Regional Scheme 5, near Cofimvaba, Eastern Cape [1:50,000 Map Ref – 3127DC; 3127DD].

GAP ANALYSIS: Phase 1 AIA field assessment covered the total of the approximate 40km line route (including Line Routes 1, 2 and 3) study site with an average development corridor of 50-70m in width, but much narrowed down along corridors defined by village layout.

METHODOLOGY: Two day field assessment; GPS co-ordinates – Garmin GPSMap60CSx; Photographic documentation – Pentax K20D. Archaeological and cultural heritage site significance assessment and mitigation recommendations – SAHRA 2007 system.

SUMMARY:

Line Route 1			
Site S1	Colonial Period – Church	S31°47'51.7"; E27°27'30.1"	<i>In situ conservation</i>
Site S2	Colonial Period – Shop	S31°47'55.2"; E27°27'32.6"	<i>In situ conservation</i>
Site S3	Colonial Period – Residence	S31°47'51.9"; E27°27'37.9"	<i>Formal conservation measures in place</i>
Site S4	Colonial Period – Residential Complex	S31°48'03.4"; E27°27'34.7"	<i>In situ conservation</i>
Site S5	Iron Age – Cemetery	S31°48'25.7"; E27°28'26.1"	<i>Formal / Temporary conservation</i>
Site S6	Iron Age – Cemetery	S31°48'46.9"; E27°28'27.8"	<i>Formal / Temporary conservation</i>
Site S7	Iron Age – Cemetery	S31°49'23.1"; E27°28'31.7"	<i>Formal conservation measures partly in place – Temporary conservation of remainder of site</i>
Site S8	Iron Age – Stock enclosure and cemetery	S31°49'25.2"; E27°27'37.1"	<i>Formal / Temporary conservation</i>
Site S9	Iron Age – Cemetery	S31°50'08.6"; E27°28'35.0"	<i>Formal / Temporary conservation</i>
Site S10	Iron Age – Cemetery	S31°52'10.3"; E27°26'18.7"	<i>Formal conservation measures partly in place – Temporary conservation of remainder of site</i>
Line Route 2			
Site S11	Iron Age – Cemetery	S31°51'28.5"; E27°31'08.6"	<i>Line route to be situated north of access road, AND Formal conservation</i>
Line Route 3			
Site S12	Iron Age – Homestead	S31°52'17.2"; E27°32'40.2"	<i>Realignment to follow existing access road, OR On-site archaeological monitoring</i>
Site S13	Iron Age – Grave	S31°53'52.3"; E27°32'05.1"	<i>Realignment to west of stock enclosures and temporary conservation of grave</i>
Site S14	Iron Age – Cemetery	S31°54'52.7"; E27°31'20.6"	<i>Formal / Temporary conservation</i>

RECOMMENDATIONS:

It is recommended that the proposed development, the *Water Supply Backlog in the CHDM: Regional Scheme 5* project, near Cofimvaba in the Eastern Cape, proceeds as applied for provided the developer complies with the abovementioned recommendations.

PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

**WATER SUPPLY BACKLOG IN THE CHDM:
REGIONAL SCHEME 5 (NEAR COFIMVABA),
EASTERN CAPE, SOUTH AFRICA**

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1) TERMS OF REFERENCE

Biotechnology and Environmental Specialist Consultancy (BESC) has been appointed as independent environmental consultant by Uhambiso Consult (Pty) Ltd on behalf of the project proponent, the Chris Hani District Municipality (CHDM), to prepare the Basic Impact Assessment (BIA) Report and the Environmental Management Plan (EMP) Report for the proposed *Water Supply Backlog in the CHDM: Regional Scheme 5* project, near Cofimvaba in the Eastern Cape. ArchaeoMaps Archaeological Consultancy has been appointed by BESC to conduct the Phase 1 Archaeological Impact Assessment (AIA) as specialist sub-section to the BIA Report.

1.1) Development Location, Details & Impact

The proposed *Water Supply Backlog in the CHDM: Regional Scheme 5* project is situated south of the Lubisi dam, approximately 20km north-west of Cofimvaba, 30km south-east of Lady Frere and 45km south-west of Cala, in the old Transkei region of the Eastern Cape [1:50,000 Map Ref – 3127DC; 3127DD]. The proposed approximate 40km line route development is subdivided into 3 routes focusing on the supply of water to the villages of:

- Line Route 1 (17km) – Gqiya, Nyongwana, Khalane, Mampondweni-Dayimani, Qungu, Manuneni and Panatyiphu;
- Line Route 2 (5.5km) – Cube-A and Maphungutyeni; and
- Line Route 3 (17.5km) – Mmangobomvu-Dalubuhle, Ntwashini and Mcambalala.

The proposed line route is designed to closely follow existing access roads or where not along existing access roads existing previously installed but not necessarily operational line routes. There will be minimal impact on prior undisturbed land.

The *Water Supply Backlog in the CHDM: Regional Scheme 5* study site can be accessed via the R359 (Lady Frere – Cala – Elliot) or the R61 (Cofimvaba), from where a network of gravel access roads leads to the study site.

The study site comprises primarily of communal land, used for agricultural and live stock farming. The most prominent vegetation types can be described as *Tsomo Grassland* and *Drakensberg Foothill Moist Grassland*, while the area is geographically characterized by moderately rolling hills and mountainous areas, much incised by river gorges displaying a mosaic of drier vegetation types and forest (BESC 2011).

The proposed development aims to address, in part, the magnitude of water supply problems across the project area. At present villagers are reliant on an insufficient and unstable supply of water, often requiring them to walk great distances to collect limited quantities of water. Water analysis also showed that water is seldom of a quality suitable for human consumption (BESC 2011).

The proposed *Water Supply Backlog in the CHDM: Regional Scheme 5* project will include the following activities (BESC 2011):

1. Construction of pipelines with diameters between 50mm and 100mm;
2. Installation and replacement of standpipes;
3. Rehabilitation of borehole pumps, meters, mechanical and electrical equipment for boreholes;
4. Repair of equipment and ancillary works to the existing infrastructure and equipment; and
5. Minor earthworks such as the construction of berms and gabions.



Figure 1: General locality of the proposed *Regional Scheme 5* study site, Eastern Cape



Figure 2: Locality of the proposed *Regional Scheme 5* study site

WATER SUPPLY BACKLOG IN THE CHDM – REGIONAL SCHEME 5 (NEAR COFIMVABA), EC

2) THE PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

2.1) *Archaeological Legislative Compliance*

The Phase 1 Archaeological Impact Assessment (AIA) was requested by the South African Heritage Resources Agency (SAHRA) mandatory responsible for the National Heritage Resources Act, Act No 25 of 1999 (NHRA 1999). The Phase 1 AIA comprises of:

1. A basic Phase 1 AIA; and

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 cultural landscapes or views as defined and protected by the NHRA 1999, that may be affected by the proposed development.

- The Phase 1 AIA does not include a Pre-feasibility (desktop) study;
- The Phase 1 AIA does not include any specialist cultural heritage studies inclusive of a built environment assessment, socio-cultural consultation (SCIA) or an in depth assessment of the cultural landscape.

The Phase 1 AIA comprises one of two parts of the SAHRA Heritage Impact Assessment (HIA), including an archaeological (AIA) and palaeontological (PIA) assessment.

2.2) *Methodology & Assessor Accreditation*

The Phase 1 AIA was conducted over a 2 day period (2011-03-03 and 2011-03-05) by one archaeologist. The assessment was done by foot and LVD, and limited to a Phase 1 surface survey; no excavation or sub-surface testing was done. GPS co-ordinates were taken with a Garmin GPSmap 60CSx GPS (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 1	Site conservation / Site development
High Significance	Provincial Significance	Grade 2	Site conservation / Site development
High Significance	Local Significance	Grade 3A / 3B	Site conservation or extensive mitigation prior to development / destruction
High / Medium Significance	Generally Protected A	-	Site conservation or mitigation prior to development / destruction
Medium Significance	Generally Protected B	-	Site conservation or mitigation / test excavation / systematic sampling / monitoring prior to or during development / destruction
Low Significance	Generally Protected 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

The assessment was done by Karen van Ryneveld (ArchaeoMaps):

- Qualification: MSc Archaeology (2003) WITS University.
- Accreditation:
 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 listed CRM archaeologist.

2.3) Coverage and Gap Analysis

Phase 1 AIA field assessment covered the total of the approximate 40km line route (including Line Routes 1, 2 and 3) study site with an average development corridor of 50-70m in width, but much narrowed down along corridors defined by village layout. Assessment however did not extend to homestead level, except if residents were present, where assessment was approved by them and where language permitted. Where funerary preparations were in process local traditions were respected; photographic documentation was limited and sites not physically visited unless formal permission was given.

Despite fairly thick grass cover characterizing the study site after a noticeable wet rainy season surface visibility can be described as good across the study site.

2.4) Phase 1 AIA Assessment findings

A total of 14 archaeological and cultural heritage resources or type sites, as defined and protected under the NHRA 1999, were identified during the course of the Phase 1 AIA for the proposed *Water Supply Backlog in the CHDM: Regional Scheme 5* project, near Cofimvaba in the Eastern Cape. Identified heritage resources are classed in the following categories:

1. Iron Age tradition sites;
2. Colonial Period sites; and
3. Contemporary resources.

No Stone Age sites were identified. The Stone Age was represented by the odd lithic artefact only, with densities far too low to ascribe technological or typological association or artefact ratios (artefacts: m²). Surface Stone Age sterility was echoed by large erosion sections, none of which contained an artefact member. In that the general area south-east of the Lubisi dam proved to be in stark contrast to the Stone Age rich deposits known to be present towards the west of the dam (see Van Ryneveld 2010).

Colonial Period sites, comprising primarily of Built Structures pre-dating 60 years of age, were centered towards the north of the study site in the area today known as Gqiya Village. The presence of Colonial Period structures testifies to western occupation of the area from the approximate early to mid 1800's onwards.

Iron Age tradition occupation can be traced at least to the period of Colonial occupation. The lack of identified temporally associated Iron Age homestead remains is argued through cultural continuity where traditional Xhosa custom favors reoccupation of the direct ancestral site. Significant temporal depth associated with modern Iron

Age tradition homesteads is evidenced by the cultural landscape, specifically large trees and settled gardens in the vicinity of development co-ordinates 4-5 (Gqiya Village) and co-ordinate 10 (Qungu Village). Ancestral Iron Age presence and the direct relationship between Colonial and Iron Age tradition sites were confirmed through the brief interview with Mvula Xashimba and specifically also by the Xashimba family cemetery (Site S7).

Identified Contemporary Heritage sites comprise exclusively of burial places and cemeteries of Iron Age tradition, often with inferred Colonial Period temporal depth. The Phase 1 AIA did not extend to homestead level. Within tradition many graves can be expected within the homestead yards; homestead level consultation is not only recommended but would be necessary prior to impact.

2.4.1) Line Route 1



Figure 4: Line Route 1 – Gqiya, Nyongwana, Khalane, Mampondweni-Dayimani, Qungu, Guse, Manuneni and Panatyiphu



Figure 5: Line Route 1 development co-ordinates



Figure 6: Line Route 1 – Phase 1 AIA assessment findings

Line Route 1 comprises of a 17km pipeline route which will address the supply of water to the villages of Gqiya, Nyongwana, Khalane, Mampondweni-Dayimani, Qungu, Manuneni and Panatyipphu. Ten archaeological and cultural heritage sites were identified during assessment of the line route namely Sites S1-S10. Of the identified sites 4 comprise of Colonial Period structures (Sites S1-S4). The remaining 6 sites (Sites S5-S10) all constitute Iron Age tradition cemetery sites dating to Colonial times.



Figure 7: The proposed line route through Nyongwana Village



Figure 8: Graves visible within a fenced agricultural field in Gqiya Village



Figure 9: The existing line route running through homestead yards throughout Mampondweni-Dayimani Village



Figure 10: General view over the southern extremity of Line Route 1

2.4.1.1) SITE S1 - Colonial Period Structure - S31°47'51.7"; E27°27'30.1"

Site S1 (S31°47'51.7"; E27°27'30.1") is situated in Gqiya Village. The structure, an old church building, pre-dates 60 years of age and is formally protected under the NHRA 1999. Date of origin of the building is unknown, but it can reasonably be inferred that the structure dates to the approximate mid 1800's, by association with neighboring Colonial Period structures in the immediate vicinity. The church building is at present not formally fenced with an access gate (fenced on 3 sides but with access to the road open). The site is still in use by villagers. A small later period addition residential structure immediately behind the property does diminish the heritage significance of the structure. The structure is not of significant Colonial Period architectural significance. The site is situated approximately 60m south of the proposed line route but will not be impacted on by development.

- **RECOMMENDATIONS:** *Site S1 comprises of a heritage site as defined and protected under the NHRA 1999. The site is ascribed a SAHRA LOW SIGNIFICANCE and a GENERALLY PROTECTED C FIELD RATING. The site is situated approximately 60m south of the proposed development alignment. Current partial conservation measures are deemed adequate for development purposes – It is recommended that the site be conserved in situ.*



Figure 11: General view of Site S1

2.4.1.2) SITE S2 - Colonial Period Structure - S31°47'55.2"; E27°27'32.6"

Site S2 (S31°47'55.2"; E27°27'32.6"), also situated in Gqiya Village comprises of a Colonial Period Structure, inferred to have been constructed as a shop and today used as the local post office. Again the date of origin is unknown but by association with related Colonial Period structures inferred to date to the mid 1800's. The site is by implication formally protected under the NHRA 1999. The property on which Site S2 is situated is fenced but leaving the façade of the structure unfenced: based on proximity from the proposed development alignment (180m south thereof) and the access road (40m to the west) and considering current use of the structure, no additional conservation measures is proposed. The structure is not of significant Colonial Period architectural significance.

- **RECOMMENDATIONS:** *Site S2 comprises of a heritage site as defined and protected under the NHRA 1999. The site is ascribed a SAHRA LOW SIGNIFICANCE and a GENERALLY PROTECTED C FIELD RATING. The site is situated approximately 180m south of the proposed development alignment. The property on which the structure is situated is fenced, but leaving the façade of the structure unfenced. Development will not impact on the structure. It is recommended that the site be conserved in situ.*



Figure 12: View of Site S2

2.4.1.3) SITE S3 - Colonial Period Structure - S31°47'51.9"; E27°27'37.9"

Site S3 (S31°47'51.9"; E27°27'37.9") is inferred to constitute the 2nd generation farmhouse and may be directly associated with Sites S1, S2 and S4. Based on architectural style and limited local information a rough mid 1800's origin of the structure is inferred; the residence is by implication formally protected under the NHRA 1999. Language prohibited addition information on the site. The site is at present still in use and formally conserved (fenced with an access gate) within the property boundaries implying conservation compliance with SAHRA *Minimum Site Conservation Standards*. The site is situated between 110-200m from the proposed line route. The site is of low-medium Colonial Period architectural significance, based also on the scarcity of Colonial Period structures in the general area.

- **RECOMMENDATIONS:** *Site S3 comprises of a heritage site as defined and protected under the NHRA 1999. The site is ascribed a SAHRA LOW SIGNIFICANCE and a GENERALLY PROTECTED C FIELD RATING. The site is situated between 110-200m from the proposed line route: Site S2 will not be impacted on by development. Current conservation measures comply with SAHRA Minimum Site Conservation Standards.*



Figure 13: General view of Site S3

2.4.1.4) *SITE S4 - Colonial Period Structure Complex - S31°48'03.4"; E27°27'34.7"*

Site S4 (S31°48'03.4"; E27°27'34.7") comprises of a small complex of 3 Colonial Period structures situated in close proximity to one another, located in Gqiya Village. The best conserved and still in use structure is today used as a liquor store. Immediately to the back of the liquor store is the ruined remains of an associated Colonial Period structure. The structure is badly dilapidated; roofs, windows and window frames, doors and door frames and all fittings has been removed leaving only standing walls of the original structure. To the north of the structure is a small Colonial Period outbuilding, today used for residential purposes. Based on architectural style and limited local information the Site S4 Colonial Period complex is assigned a rough early-middle 1800's temporal assignment and is inferred to represent to 1st western style farmstead of the general area. The site, pre-dating 60 years of age, is formally protected under the NHRA 1999. The site is at present partially fenced (on 3 sides), but leaving the façade of the structure used as a bottle store open with a direct street-front view. The site is situated approximately 400m from the proposed line route and will not be impacted on by development. The site is of medium Colonial Period architectural significance, based also on inferred age and the scarcity of Colonial Period structures in the general area.

- RECOMMENDATIONS:** *Site S4 comprises of a heritage site as defined and protected under the NHRA 1999. The site is ascribed a SAHRA MEDIUM SIGNIFICANCE and a GENERALLY PROTECTED B FIELD RATING. The site is situated more than 400m from the proposed development line route and will not be impacted on by development. Current partial conservation measures are deemed adequate for development purposes – It is recommended that the site be conserved in situ.*



Figure 14: General view of the Site S4 main structure

2.4.1.5) SITE S5 - Iron Age / Colonial Period Cemetery - S31°48'25.7"; E27°28'26.1"

Site S5 (estimated at S31°48'25.7"; E27°28'26.1") constitutes a fairly large Iron Age tradition cemetery dating to Colonial Period times situated in Mampondweni-Dayimani Village. Funerary preparations were in process at the time of the assessment; based on respect for traditional practices the site was not physically inspected. Brief consultation with a family friend and funeral attendee, Simpiwe Ncube, indicated that the cemetery has been in use for quite a while, but an exact date could not be given. Many graves pre-dating 60 years of age may however be expected; the site may be formally protected under the NHRA 1999. Mr. Ncube indicated that graves at the site represent a number of burial traditions including head and footstone demarcations and stone outlines some of which are marked with headstones. In addition significant members of the community often have their graves individually fenced by loved ones. It is not known if the cemetery is formally fenced or not. It is recommended that the developer negotiate cemetery conservation measures with the community prior to impact; conservation measures can include formal conservation (formal fence with access gate, allowing continued use of the cemetery) or temporary conservation (pole with plastic danger tape to demarcate the area as sensitive during the construction phase of the development. All temporary conservation measures should be removed by the developer). Should formal conservation measures be already in place then no additional measures would be necessary on behalf of the developer

- **RECOMMENDATIONS:** *The Site S5 cemetery comprises of a heritage site as defined and protected under the NHRA 1999. The site is ascribed a SAHRA MEDIUM SIGNIFICANCE and a GENERALLY PROTECTED B FIELD RATING. The site is located roughly 80m east of the proposed development alignment. It is recommended that conservation measures (formal or temporary) be pre-negotiated with the community. Associated financial impact of the agreed conservation measures should be addressed in the SIA (Socio-economic Impact Assessment) of the BIA (as per SAHRA APM Unit e-mail communication to K. van Ryneveld dated 2011-01-19).*

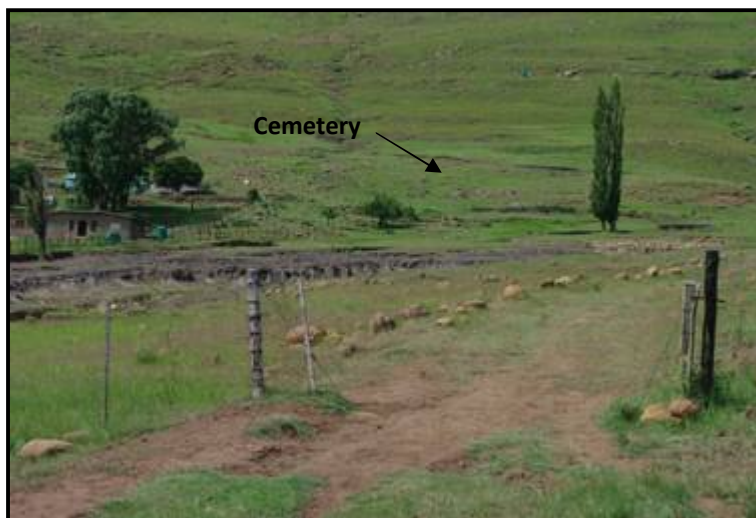


Figure 15: The Site S5 cemetery

2.4.1.6) SITE S6 - Iron Age / Colonial Period Cemetery - S31°48'46.9"; E27°28'27.8"

Site S6 (estimated at S31°48'46.9"; E27°28'27.8") comprises of an Iron Age tradition cemetery that dates to Colonial times. The cemetery is situated in the village of Mampondweni-Dayimani. Due to funerary preparations being in process at the time of the assessment the site was not physically visited, but the presence thereof confirmed photographically as described by Simpiwe Ncube, family friend and funeral attendee. Graves at the site may well pre-date 60 years of age, in which case the site would be formally protected under the NHRA 1999. It is at present not known whether the site is formally conserved or not. It is recommended that the developer negotiate cemetery conservation measures with the community prior to impact; conservation measures can include formal conservation (formal fence with access gate, allowing continued use of the cemetery) or temporary conservation (pole with plastic danger tape to demarcate the area as sensitive during the construction phase of the development. All temporary conservation measures should be removed by the developer). Should formal conservation measures be already in place then no additional measures would be necessary on behalf of the developer

- RECOMMENDATIONS:** *The Site S6 cemetery comprises of a heritage site as defined and protected under the NHRA 1999. The site is ascribed a SAHRA MEDIUM SIGNIFICANCE and a GENERALLY PROTECTED B FIELD RATING. The site is located roughly 100m east of the proposed development alignment. It is recommended that conservation measures (formal or temporary) be pre-negotiated with the community. Associated financial impact of the agreed conservation measures should be addressed in the SIA (Socio-economic Impact Assessment) of the BIA (as per SAHRA APM Unit e-mail communication to K. van Ryneveld dated 2011-01-19).*

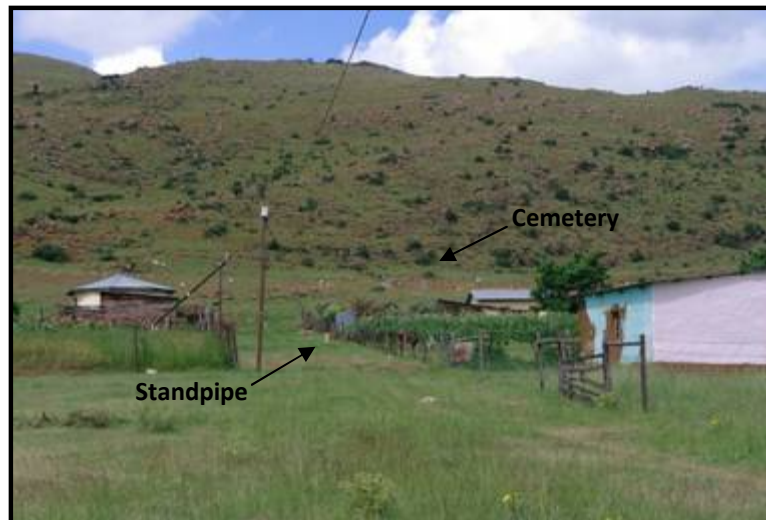


Figure 16: View of the Site S6 cemetery

2.4.1.7) SITE S7 - Iron Age / Colonial Period Cemetery - S31°49'23.1"; E27°28'31.7"

The Site S7 (S31°49'23.1"; E27°28'31.7") cemetery constitutes the official Qungu Village cemetery of the Xashimba family. However, funerary preparations were also ongoing at the time of the assessment. Brief consultation with the family head, Mvula Xashimba, revealed that he was the 4th generation family head of the village / extended family, with the history of the Xashimba family dating back to the mid 1800's. The original Xashimba head of Qungu Village, a former farm worker to the farmer of the Site 1-4 structures acquired the land in the mid 1800's with the help of his former employer and the approximate 500ha property has been in private hands since then. The current main homestead is situated on the exact same locale as the where the original homestead was built, implying that an 'archaeological' residential site would not be identifiable and that temporal depth of occupation can mainly be inferred through the presence of graves. Large rectangular stock enclosures to the east of the cemetery dates back to at least 2-3 generations and are still periodically in use.

The family graveyard, visited in the company of Tamara Xashimba, is home to approximately 30+ graves. The cemetery was revamped in 2000/2001; the majority of the graves are now marked with brick foundations and granite covers, with inscribed granite headstones. One grave within the formally conserved portion of the cemetery (formally fenced with an access gate) still comprises of a 'traditional' stone outlined grave. Similar traditional graves are situated outside of the formal cemetery fence, towards the south-east of the site and north-east of the access road. The graves are also associated with the Xashimba family.

The proposed line route will run in close proximity to the Xashimba cemetery. A portion of the site is formally conserved. It is recommended that temporary conservation (pole and plastic danger tape, to be removed by the developer after construction) of the portion of the cemetery situated to the south-east of the formally conserved portion be pre-negotiated with the family prior to development impact.

- **RECOMMENDATIONS:** *The Site S7 cemetery comprises of a heritage site as defined and protected under the NHRA 1999. The site is ascribed a SAHRA MEDIUM SIGNIFICANCE and a GENERALLY PROTECTED B FIELD RATING. The site is situated immediately east of the proposed development alignment (following the existing access road for purposes of construction and maintenance). A portion of the site is formally conserved. It is recommended that temporary conservation measures be pre-negotiated with the family. Associated financial impact of the agreed conservation measures should be addressed in the SIA (Socio-economic Impact Assessment) of the BIA (as per SAHRA APM Unit e-mail communication to K. van Ryneveld dated 2011-01-19).*



Figure 17: View of the Site S7 Xashimba family cemetery



Figure 18: Two graves from the cemetery with a grave in preparation in the background



Figure 19: Traditional stone outlined graves situated south-east of the formally fenced Xashimba cemetery

2.4.1.8) *SITE S8 - Iron Age Stock Enclosure and Cemetery - S31°49'25.2"; E27°27'37.1"*

Site S8 (S31°49'25.2"; E27°27'37.1") is situated in Guse Village. The site comprises of an Iron Age tradition rectangular stone stock enclosure, with one wall partially collapsed. To the immediate north-east of the stock enclosure a small informal cemetery is present. The cemetery comprises of approximately 10 graves, varying from fairly recent to graves with inferred relative temporal depth. Graves are primarily stone outlined and earth filled, with more recent graves situated towards the west of the site and older graves as a norm towards the east. No additional information could be obtained on the site. The site is located approximately 25m south of the proposed line route. Proximity of the site to the development alignment would necessitate conservation measures to be taken prior to impact. The developer may negotiate either formal conservation (formal fence with access gate, allowing continued use of the cemetery) or temporary conservation (pole with plastic danger tape to demarcate the area as sensitive during the construction phase of the development. All temporary conservation measures should be removed by the developer) with the community.

- **RECOMMENDATIONS:** *The Site S8 Iron Age stock enclosure and cemetery site comprises of a heritage site as defined and protected under the NHRA 1999. The site is ascribed a SAHRA MEDIUM SIGNIFICANCE and a GENERALLY PROTECTED B FIELD RATING. The site is situated approximately 25m south of the proposed development alignment. It is recommended that conservation measures (formal or temporary) be pre-negotiated with the community. Associated financial impact of the agreed conservation measures should be addressed in the SIA (Socio-economic Impact Assessment) of the BIA (as per SAHRA APM Unit e-mail communication to K. van Ryneveld dated 2011-01-19).*



Figure 20: General view of Site S8



Figure 21: Close-up of some of the more recent graves situated towards the west of the site



Figure 22: View of the older portion of the cemetery situated towards the east of the site

2.4.1.9) SITE S9 - Iron Age / Colonial Period Cemetery - S31°50'08.6"; E27°28'35.0"

Site S9 (S31°50'08.6"; E27°28'35.0") is situated between 130-180m from the proposed line route. The site comprises of an informal cemetery, containing approximately 25 graves with styles varying from traditional stone outlined graves to modern graves with inscribed headstones. Both distance from the line route and the locality of the site, situated at a V-shaped 'platform' between 2 erosion gullies, will safeguard the site from development impact. Modern graves at the site as a rule post-date 60 years of age. Some of the 'traditional' style graves may however be older than 60 years, implying that these would be formally protected under the NHRA 1999. It is recommended that the developer negotiate cemetery conservation measures with the community prior to impact, including formal conservation (formal fence with access gate, allowing continued use of the cemetery) or temporary conservation (pole with plastic danger tape to demarcate the area as sensitive during the construction phase of the development. All temporary conservation measures should be removed by the developer).

- **RECOMMENDATIONS:** *The Site S9 cemetery comprises of a heritage site as defined and protected under the NHRA 1999. The site is ascribed a SAHRA MEDIUM SIGNIFICANCE and a GENERALLY PROTECTED B FIELD RATING. The site is situated between 130-180m from the proposed line route: Development will not impact on the site. It is recommended that conservation measures (formal or temporary) be pre-negotiated with the community. Associated financial impact of the agreed conservation measures should be addressed in the SIA (Socio-economic Impact Assessment) of the BIA (as per SAHRA APM Unit e-mail communication to K. van Ryneveld dated 2011-01-19).*



Figure 23: View of the Site S9 cemetery

2.4.1.10) SITE S10 - Iron Age / Colonial Period Cemetery - S31°52'10.3"; E27°26'18.7"

Site S10 (S31°52'10.3"; E27°26'18.7") is situated approximately 50m north of the proposed development alignment and north of the village access road. The site is at present fenced on 3 sides with the portion bordering the access road kept open, complying thus in part with SAHRA *Minimum Site Conservation Standards*. The cemetery contains 45+ graves, many of which may be fairly old and characterized by settled earth mounds within dilapidated stone outlines or mere upright stone headstones. More recent graves are typified by reasonably well kept stone outlines around graves (with less settled earth fillings) as well as modern style graves, some of which are individually fenced. Origin of the cemetery is inferred to well pre-date 60 years of age; Site S10 is by implication formally protected under the NHRA 1999. It is recommended that temporary conservation (pole with plastic danger tape) be negotiated with the community for the portion of the cemetery bordering the access road during the construction phase of the development.

- RECOMMENDATIONS:** *The Site S10 cemetery comprises of a heritage site as defined and protected under the NHRA 1999. The site is ascribed a SAHRA MEDIUM SIGNIFICANCE and a GENERALLY PROTECTED B FIELD RATING. The site is situated 50m north of the proposed line route and will not be impacted on by development. It is recommended that temporary conservation measures for the portion of the cemetery not formally fenced (the portion bordering the access road) be pre-negotiated with the community. Associated financial impact of the agreed conservation measures should be addressed in the SIA (Socio-economic Impact Assessment) of the BIA (as per SAHRA APM Unit e-mail communication to K. van Ryneveld dated 2011-01-19).*



Figure 24: General view of Site S10

2.4.2) Line Route 2



Figure 25: Line Route 2 – Cube-A and Maphungutyeni



Figure 26: Line Route 2 development co-ordinates



Figure 27: Line Route 2 – Phase 1 AIA assessment findings

Line Route 2 comprises of a 5.5km pipeline route which will address the supply of water to the villages of Cube-A and Maphungutyeni. A single archaeological and cultural heritage site was identified situated along the proposed line route comprising of an Iron Age tradition cemetery of inferred Colonial Period times (Site S11).



Figure 28: View of the line route through Cube-A



Figure 29: Anthropically sterile sections of the river crossing between Cube-A and Maphungutyeni



Figure 30: General view of Maphungutyeni Village



Figure 31: View of the development alignment through Maphungutyeni Village

2.4.2.1) SITE S11 - Iron Age / Colonial Period Cemetery - S31°51'28.5"; E27°31'08.6"

Site S11 (S31°51'28.5"; E27°31'08.6") comprises of a large Iron Age tradition cemetery of Colonial Period times. The cemetery is situated south-east of the Cube-A Village, immediately south of the access road (and proposed development line route) to the village of Maphungutweni. Close proximity of Site S11 to the proposed line route remains a major call for caution. More than 100-120 graves are contained within the approximate 70x30m in dimension informal cemetery. Older graves are characterized by lines of stone head and footstones as well as stone outlined grave demarcations with settled earth mounds. Stone outlines and less settled earth mounds demarcate younger graves, often with inscribed headstones while contemporary burial practices are recognizable by a few modern graves, some of which are individually fenced. Old and new graves are fairly mixed, although the majority of the older graves were identified to the eastern side of the cemetery. It can reasonably be inferred that many of the graves at the cemetery post-date 60 years of age, implying that the site is formally protected under the NHRA 1999.

Due to close proximity of the proposed line route to Site S11 it is recommended that the line route be situated north of the access road (but keeping within reasonable distance to the road to ensure a demarcated development or impact corridor). In addition it is recommended that the developer negotiate formal conservation as heritage management option with the community; implying a formal fence with an access gate allowing for reasonable expansion of the cemetery. However, varying cultural preference amongst the Xhosa has been recorded and should the community wish not to have the cemetery formally fenced the developer may consider temporary conservation measures (pole with plastic danger tape to demarcate the area as sensitive during the construction phase of the development. All temporary conservation measures should be removed by the developer).

- **RECOMMENDATIONS:** *The Site S11 cemetery comprises of a heritage site as defined and protected under the NHRA 1999. The site is ascribed a SAHRA MEDIUM SIGNIFICANCE and a GENERALLY PROTECTED B FIELD RATING. The site is situated immediately south of the access road and proposed development line route, south-east of the Cube-A Village. Close proximity of the line route to Site S11 remains a major call for caution. It is recommended that:*
 - *The line route in the vicinity of Site S11 be placed north of the access road; and*
 - *That formal conservation of the site be pre-negotiated with the community, implying that the developer ensures that the site be formally fenced with an access gate allowing for reasonable expansion of the cemetery prior to development impact.*
 - *Should the community however prefer not to have the cemetery formally fenced then the developer should ensure that temporary conservation measures are in place during the construction phase of the development.*

Associated financial impact of the agreed conservation measures should be addressed in the SIA (Socio-economic Impact Assessment) of the BIA (as per SAHRA APM Unit e-mail communication to K. van Ryneveld dated 2011-01-19).



Figure 32: View of a portion of Site 11 – 1



Figure 33: View of a portion of Site S11 – 2



Figure 34: View of a portion of Site S11 – 3

2.4.3) Line Route 3

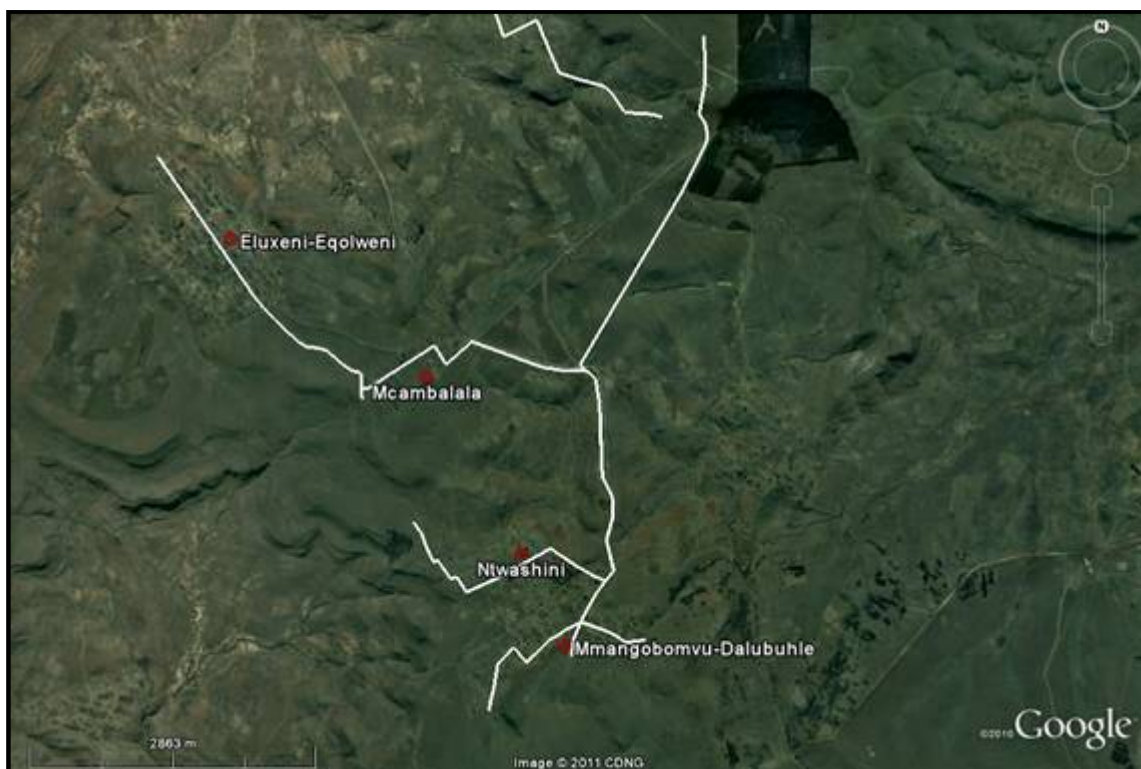


Figure 35: Line Route 3 – Eluxeni-Eqolweni, Mcambalala, Ntwashini and Mmangobomvu-Daubuhle



Figure 36: Line Route 3 development co-ordinates

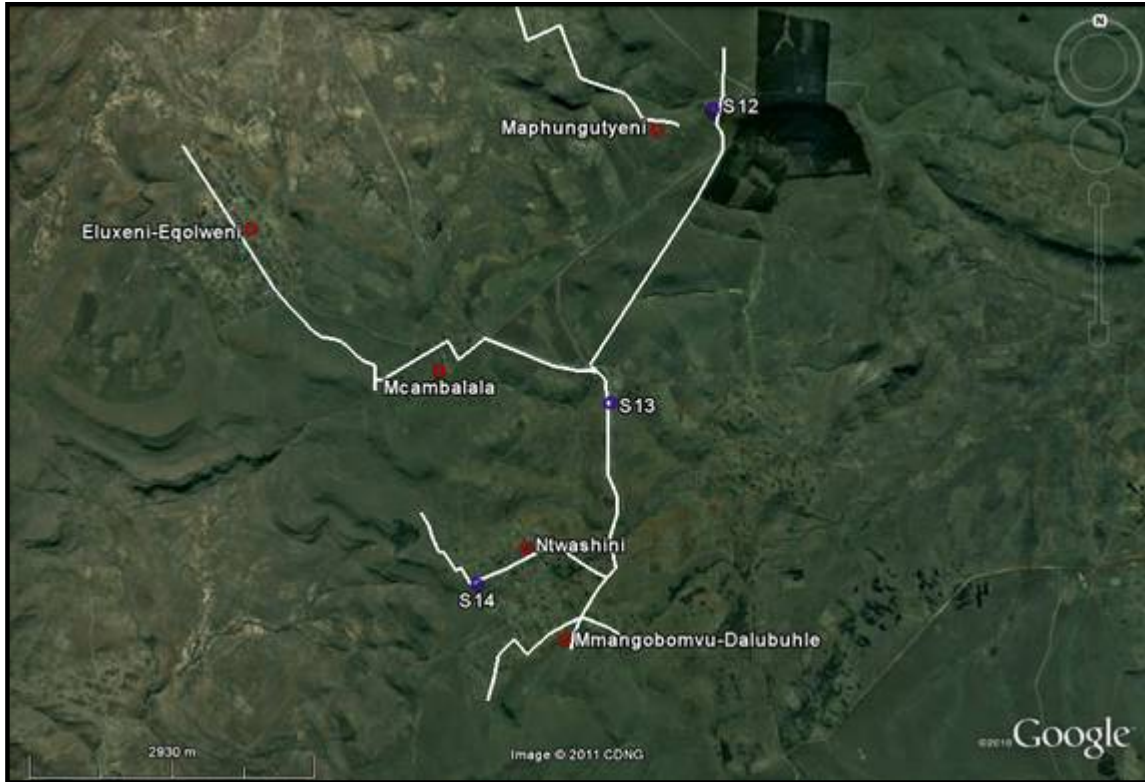


Figure 37: Line Route 3 – Phase 1 AIA assessment findings

Line Route 3 comprises of an approximate 17.5km pipeline route which will address the supply of water to the villages of Eluxeni-Eqolweni, Mcambalala, Ntwashini and Mmangobomvu-Dalubuhle. Three archaeological and cultural heritage sites were identified along the proposed line route. Site S12 comprises of an Iron Age homestead that may well be an ancestral site to occupants from Maphungutyeni Village. Site S13 constitutes a single grave in direct association with rectangular stone stock enclosures and Site S14 an Iron Age tradition cemetery of inferred Colonial times.



Figure 38: View of a portion of the line route through Mmangobomvu-Dalubuhle Village



Figure 39: View of a portion of the line route through the village of Ntwashini



Figure 40: View of the line route through Eluxeni-Eqolweni – 1



Figure 41: View of the line route through Eluxeni-Eqolweni – 2

2.4.3.1) SITE S12 - Iron Age Homestead - S31°52'17.2"; E27°32'40.2"

The Site S12 (S31°52'17.2"; E27°32'40.2") Iron Age homestead is situated north-east of Maphungutyeni Village and may well constitute the original farmstead that in time developed into the present day village. The site measures approximately 160x100m in extent with the proposed line route running through the center thereof, but not impacting on any prominent site features. To the west of the proposed line route a large circular stock enclosure is easily identifiable by stone foundations, home to clearly distinguishable vegetation that serves to clearly demarcate the original feature shape. Close to the proposed line route small clusters of changing vegetation are indicative of associated anthropic disturbance; at present inferred to indicate the localities of graves scattered in the vicinity of the main stock enclosure. Towards the east of the proposed line route a smaller stock enclosure is easily identifiable, with its structure outline clearly demarcated by vegetation. The eastern part of the site is inferred to have also been the main residential area; a number of small structures are represented by partial stone walls, but dilapidated remains do not allow provisional spatial layout reconstruction. Thick vegetation after a particularly rainy season may have obscured surface artefacts. However, the general lack of surface artefacts seems to be quite typical across the Transkei Later Iron Age tradition – continued use of site over many generations resulted in continued clearing of the surface while the last residents as a norm cleaned the area before they moved, more than often to a quite nearby location. It can thus reasonably be inferred that descendants of the site may well still be living in the immediate vicinity including Cube-A or Maphungutyeni Village. The site may well predate 100 years of age. The site is situated on a high rising hill overlooking the surrounding valleys.

An existing erosion / old construction trench runs through the center of the site, the locality also proposed for the proposed line route. However impact on the site and particularly close proximity to inferred graves does call for caution. Because an impact trench is already present, implying no new impact on the site for purposes of the water line and taking cognizance of the challenging topography of the hill and the immediate surrounds it is recommended that development proceeds; provided that an archaeologist be on-site at the time of development. Alternatively it is recommended that realignment of the line route be considered to run along the existing access road.

- **RECOMMENDATIONS:** *Site S12 comprises of a heritage site as defined and protected under the NHRA 1999. The site is ascribed a SAHRA MEDIUM SIGNIFICANCE and a GENERALLY PROTECTED B FIELD RATING. The proposed line route cuts through the site where it will follow an existing erosion / construction trench, not impacting on any of the site features, but impact on the site remains an undesirable development solution. It is recommended that:*
 - *The developer considers realignment of the proposed route to follow the existing access road in the vicinity of Site S12.*
 - *Should topography and geology not allow rerouting of the pipeline it is recommended that on-site archaeological monitoring be done at the time of development activities at Site S12.*



Figure 42: General view of Site S12 from the east of the site



Figure 43: View of the large stock enclosure to the west of the site



Figure 44: Clusters of vegetation west of the proposed line route may indicate the localities of graves



Figure 45: The proposed line route following an existing erosion gully running through the site



Figure 46: Wall remains to the east of the site – 1



Figure 47: Wall remains to the east of the site – 2

2.4.3.2) SITE S13 - Iron Age Grave - S31°53'52.3"; E27°32'05.1"

The Site S13 (S31°53'52.3"; E27°32'05.1") area is characterized by 2 rectangular stone stock enclosure remains situated immediately west of the access road and proposed line route. A single grave mound was located between the access road and the enclosures. The grave may well pre-date 60 years of age. The grave is formally protected under the NHRA 1999. Formal fencing of the grave due to its close immediacy to the access road may not be possible. The suggested safest development option is to ensure that the line route is relocated to the west of the stock enclosures in the Site S13 area and that the grave be temporarily conserved (pole with plastic danger tape) during the construction phase. Conservation measures should be pre-negotiated with the community.

- RECOMMENDATIONS:** *The Site S13 grave comprises of a heritage site as defined and protected under the NHRA 1999. The site is ascribed a SAHRA MEDIUM SIGNIFICANCE and a GENERALLY PROTECTED B FIELD RATING. The site is situated immediately west of the existing access road. Close proximity to the development alignment does call for caution. It is recommended that the line route be moved to the west of the stock enclosures in the vicinity of Site S13 and that the grave be temporarily fenced during the construction phase. Conservation measures should be pre-negotiated with the community and financial implications thereof should be addressed in the SIA (Socio-economic Impact Assessment) of the BIA (as per SAHRA APM Unit e-mail communication to K. van Ryneveld dated 2011-01-19).*



Figure 48: The earth mound indicating the locality of grave S13 with the 2 stock enclosures in the background

2.4.3.3) SITE S14 - Iron Age / Colonial Period Cemetery - S31°54'52.6"; E27°31'16.7"

The Site S14 (S31°54'52.6"; E27°31'16.7") cemetery is situated in Ntwashini Village. The cemetery is situated immediately south of the turn in the line route, but graves constituting the informal cemetery are scattered towards the north of the line route as well. The informal cemetery proper is located south of the line route towards the top of the hill slope within an area measuring roughly 180x70m. Grave style do vary and include primarily traditional graves of stone cairn type and stone outlines, both of which may be adorned with inscribed headstones and modern graves, some of which are individually fenced. The cemetery in general seems to be of fairly recent origin but some graves at the site may well pre-date 60 years of age.

Proximity of the site to the proposed line route remains a development concern. The informal character of the cemetery, with some sites located north of the access road and proposed line route and therefore not clustered with the main cemetery for purposes of conservation will make formalization of the cemetery difficult. Formal (formal fence with access gate, allowing continued use of the cemetery) or temporary conservation (pole with plastic danger tape to demarcate the area as sensitive during the construction phase of the development. All temporary conservation measures should be removed by the developer) may be considered for the cemetery portion situated south of the development alignment. It is recommended that only temporary conservation be considered during the time of construction for the few graves located north of the access road.

- RECOMMENDATIONS:** *The Site S14 cemetery may comprise of a heritage site as defined and protected under the NHRA 1999. The site is ascribed a SAHRA MEDIUM SIGNIFICANCE and a GENERALLY PROTECTED B FIELD RATING. The site is situated mainly south of the proposed line route but a few scattered graves are located north thereof. It is recommended that conservation measures (formal or temporary) be pre-negotiated with the community. Associated financial impact of the agreed conservation measures should be addressed in the SIA (Socio-economic Impact Assessment) of the BIA (as per SAHRA APM Unit e-mail communication to K. van Ryneveld dated 2011-01-19).*



Figure 49: General view of the Site S14 cemetery

3) CONCLUSION AND RECOMMENDATIONS

With reference to cultural heritage compliance as per the requirements of the NHRA 1999 it is recommended that the proposed *Water Supply Backlog in the CHDM: Regional Scheme 5* project, near Cofimvaba in the Eastern Cape proceeds as applied for provided the developer complies with the following requirements:

A total of 14 archaeological and cultural heritage resources, as defined and protected under the NHRA 1999 were identified during the assessment. Identified resources can briefly be summarized as:

1. Line Route 1 – 10 Sites

- Four Colonial Period Sites (Sites S1, S2, S3 and S4): All Colonial Period sites will be conserved by the proposed development. Where formal conservation measures are not already in place it is recommended that sites be conserved in situ (or as is, implying no additional conservation measures to be taken on behalf of the developer prior to development impact).
- Six Iron Age / Colonial Period Grave and Cemetery Sites (Sites S5, S6, S7, S8, S9 and S10): It is recommended that formal or temporary conservation of grave sites be pre-negotiated with the community / family prior to implementation. Formal conservation areas at larger cemeteries should accommodate for reasonable expansion of the site. Temporary conservation areas can be kept to the immediate site locales. Associated financial impact of the agreed conservation measures should be addressed in the SIA of the BIA.

2. Line Route 2 – 1 Site

- One Iron Age / Colonial Period Cemetery Site (Site S11): Site S11 is situated particularly close to the proposed line route. It is recommended that the line in the vicinity of Site S11 be placed north of the access road; and that formal conservation of the site be pre-negotiated with the community. Should the community prefer not to have the cemetery formally fenced then the developer should ensure that temporary conservation measures are in place during the construction phase of the development.

3. Line Route 3 – 3 Sites

- One Iron Age Homestead (Site S12) will directly be impacted on by the proposed line route. It is recommended that the developer considers realignment of the proposed route to follow the existing access road in the vicinity of Site S12. Should topography and geology not allow rerouting it is recommended that on-site archaeological monitoring be done at the time of development activities at Site S12.
- Two Iron Age / Colonial Period Grave and Cemetery Sites (Site S13 and S14): It is recommended that formal or temporary conservation of grave sites be pre-negotiated with the community / family prior to implementation. Formal conservation areas at larger cemeteries should accommodate for reasonable expansion of the site. Temporary conservation areas can be kept to the immediate site locales. Associated financial impact of the agreed conservation measures should be addressed in the SIA of the BIA.

GENERAL

1. No intangible heritage resources or sites associated with oral history were identified that will be negatively impacted on by the proposed *Water Supply Backlog in the CHDM: Regional Scheme 5* project study site.
2. Should any archaeological or cultural heritage resources 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 SAHRA / an ASAPA accredited CRM archaeologist.
3. Unmarked graves may be discovered during the course of development. Should any graves or human remains be encountered the developer should immediately alert both the police and SAHRA / an ASAPA accredited CRM archaeologist. The process associated with the identification of human remains post-dating 60 years of age are managed by the police while the process associated with human remains pre-dating 60 years of age are managed by SAHRA under the NHRA 1999 and in accordance with requirements of the Human Tissues Act, Act No 65 of 1983 (HTA 1983) and the Human Tissues Amendment Act, Act No 51 of 1989 (HTAA 1989).
4. The developer is reminded that graves are not a stationary resource. Increasing grave numbers and locales thereof at the time of development impact may well be different from that recorded in this report.
5. All structures pre-dating 60 years of age are formally protected under the NHRA 1999. Any impact on, alteration to or destruction of such resources should be pre-approved by SAHRA and done under an Eastern Cape Provincial Heritage Resources Agency (EC PHRA) permit.

CHDM WATER SUPPLY – REGIONAL SCHEME 5

GQIYA, NYONQWANA, KHALANE, MAMPONDWENI-DAYIMANI, QUNGU, MANUNENI, PANATYIPHU, MMANGOBOMVU-DALUBUHLE, NTWASHINI, MCAMBALALA, ETUXENI-EQOLWENI, CUBE-A AND MAPHUNHUTYENI

MAP CODE	SITE	TYPE / PERIOD	DESCRIPTION	CO-ORDINATES	PRELIMINARY RECOMMENDATIONS
DEVELOPMENT AREA					
1	-	-	-	S31°48'16.5"; E27°26'54.9"	N/A
2	-	-	-	S31°48'10.3"; E27°26'59.6"	N/A
3	-	-	-	S31°48'00.7"; E27°27'10.0"	N/A
4	-	-	-	S31°47'44.4"; E27°27'35.2"	N/A
5	-	-	-	S31°48'01.1"; E27°27'56.0"	N/A
6	-	-	-	S31°48'05.3"; E27°27'58.2"	N/A
7	-	-	-	S31°48'10.1"; E27°27'05.7"	N/A
8	-	-	-	S31°48'16.2"; E27°28'11.4"	N/A
9	-	-	-	S31°48'25.2"; E27°28'18.9"	N/A
10	-	-	-	S31°48'37.1"; E27°28'19.7"	N/A
11	-	-	-	S31°48'53.1"; E27°28'18.3"	N/A
12	-	-	-	S31°49'24.8"; E27°28'34.0"	N/A
13	-	-	-	S31°49'29.3"; E27°28'17.1"	N/A
14	-	-	-	S31°49'33.6"; E27°28'08.2"	N/A
15	-	-	-	S31°49'32.8"; E27°27'54.7"	N/A
16	-	-	-	S31°49'21.7"; E27°27'43.6"	N/A
17	-	-	-	S31°49'23.1"; E27°27'41.0"	N/A
18	-	-	-	S31°49'27.0"; E27°27'34.1"	N/A
19	-	-	-	S31°49'40.3"; E27°27'31.6"	N/A
20	-	-	-	S31°49'09.0"; E27°27'34.7"	N/A
21	-	-	-	S31°49'33.9"; E27°28'04.8"	N/A
22	-	-	-	S31°49'38.0"; E27°28'12.4"	N/A
23	-	-	-	S31°49'36.9"; E27°28'20.6"	N/A
24	-	-	-	S31°49'44.4"; E27°28'28.3"	N/A
25	-	-	-	S31°50'04.3"; E27°28'32.4"	N/A
26	-	-	-	S31°50'05.2"; E27°28'41.9"	N/A
27	-	-	-	S31°50'24.0"; E27°28'45.3"	N/A
28	-	-	-	S31°50'26.0"; E27°28'38.1"	N/A
29	-	-	-	S31°50'54.2"; E27°28'20.6"	N/A
30	-	-	-	S31°50'55.1"; E27°28'17.1"	N/A
31	-	-	-	S31°50'57.9"; E27°28'18.0"	N/A
32	-	-	-	S31°51'03.0"; E27°28'21.9"	N/A
33	-	-	-	S31°50'57.8"; E27°28'07.4"	N/A
34	-	-	-	S31°51'04.2"; E27°28'09.6"	N/A
35	-	-	-	S31°51'05.1"; E27°28'06.0"	N/A
36	-	-	-	S31°51'18.9"; E27°27'56.9"	N/A
37	-	-	-	S31°51'25.9"; E27°27'48.0"	N/A
38	-	-	-	S31°51'39.2"; E27°27'28.1"	N/A
39	-	-	-	S31°52'00.6"; E27°27'24.2"	N/A
40	-	-	-	S31°52'01.5"; E27°27'21.3"	N/A
41	-	-	-	S31°52'08.7"; E27°27'12.9"	N/A
42	-	-	-	S31°52'10.9"; E27°27'14.6"	N/A
43	-	-	-	S31°52'18.4"; E27°26'58.8"	N/A
44	-	-	-	S31°52'19.9"; E27°26'46.9"	N/A
45	-	-	-	S31°52'14.9"; E27°26'27.3"	N/A
46	-	-	-	S31°52'11.6"; E27°26'20.2"	N/A
47	-	-	-	S31°52'08.2"; E27°26'09.8"	N/A
48	-	-	-	S31°51'19.3"; E27°30'03.2"	N/A

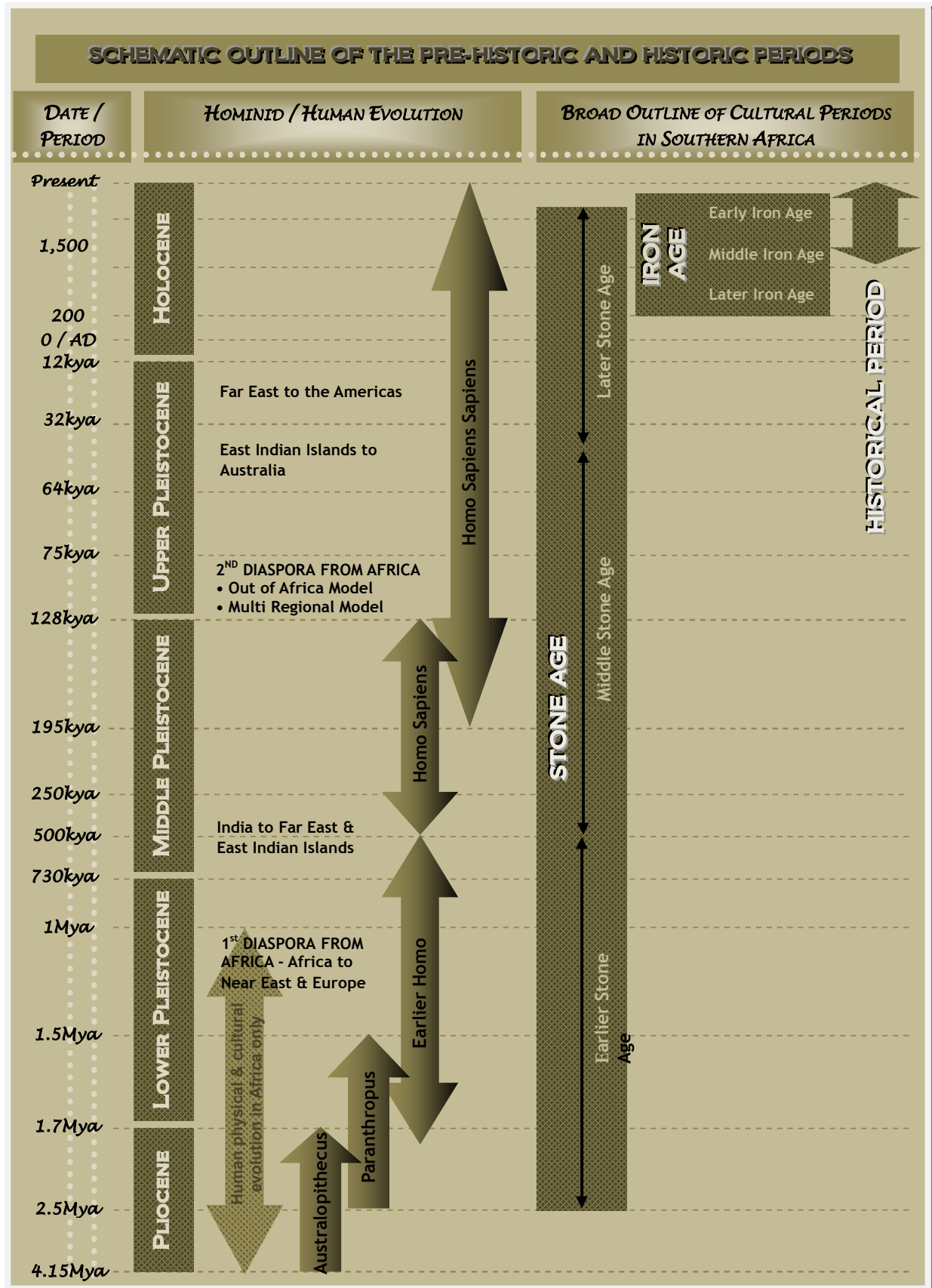
49	-	-	-	S31°51'24.1"; E27°30'18.9"	N/A
50	-	-	-	S31°51'27.5"; E27°30'27.5"	N/A
51	-	-	-	S31°51'32.2"; E27°30'31.3"	N/A
52	-	-	-	S31°51'33.5"; E27°30'34.7"	N/A
53	-	-	-	S31°51'32.2"; E27°30'44.8"	N/A
54	-	-	-	S31°51'26.7"; E27°31'03.7"	N/A
55	-	-	-	S31°51'28.2"; E27°31'06.9"	N/A
56	-	-	-	S31°51'27.7"; E27°31'11.9"	N/A
57	-	-	-	S31°51'26.7"; E27°31'15.0"	N/A
58	-	-	-	S31°51'27.5"; E27°31'18.3"	N/A
59	-	-	-	S31°51'29.8"; E27°31'20.6"	N/A
60	-	-	-	S31°51'43.6"; E27°31'23.8"	N/A
61	-	-	-	S31°51'55.9"; E27°31'28.7"	N/A
62	-	-	-	S31°51'51.3"; E27°31'41.1"	N/A
63	-	-	-	S31°52'07.5"; E27°31'49.5"	N/A
64	-	-	-	S31°52'12.1"; E27°32'06.8"	N/A
65	-	-	-	S31°52'15.4"; E27°32'10.2"	N/A
66	-	-	-	S31°52'20.2"; E27°32'13.8"	N/A
67	-	-	-	S31°52'21.4"; E27°32'24.6"	N/A
68	-	-	-	S31°52'22.4"; E27°32'28.1"	N/A
69	-	-	-	S31°52'33.1"; E27°29'18.5"	N/A
70	-	-	-	S31°53'19.7"; E27°29'56.7"	N/A
71	-	-	-	S31°53'34.1"; E27°30'15.5"	N/A
72	-	-	-	S31°53'35.5"; E27°30'23.0"	N/A
73	-	-	-	S31°53'41.4"; E27°30'31.5"	N/A
74	-	-	-	S31°53'42.8"; E27°30'35.8"	N/A
75	-	-	-	S31°53'47.2"; E27°30'36.0"	N/A
76	-	-	-	S31°53'51.2"; E27°30'36.1"	N/A
78	-	-	-	S31°53'34.3"; E27°31'02.5"	N/A
79	-	-	-	S31°53'39.8"; E27°31'07.3"	N/A
80	-	-	-	S31°53'32.7"; E27°31'16.7"	N/A
81	-	-	-	S31°53'40.7"; E27°31'43.1"	N/A
82	-	-	-	S31°53'42.2"; E27°31'59.8"	N/A
83	-	-	-	S31°53'39.6"; E27°31'57.1"	N/A
84	-	-	-	S31°52'29.5"; E27°32'45.1"	N/A
85	-	-	-	S31°52'23.9"; E27°32'43.9"	N/A
86	-	-	-	S31°52'21.7"; E27°32'41.5"	N/A
87	-	-	-	S31°52'13.0"; E27°32'43.5"	N/A
88	-	-	-	S31°51'57.3"; E27°32'43.5"	N/A
89	-	-	-	S31°53'44.6"; E27°32'03.0"	N/A
90	-	-	-	S31°54'14.9"; E27°32'05.3"	N/A
91	-	-	-	S31°54'22.0"; E27°32'09.1"	N/A
92	-	-	-	S31°54'28.9"; E27°32'09.3"	N/A
93	-	-	-	S31°54'35.7"; E27°32'06.9"	N/A
94	-	-	-	S31°54'45.6"; E27°32'09.5"	N/A
95	-	-	-	S31°54'48.8"; E27°32'06.3"	N/A
96	-	-	-	S31°54'38.6"; E27°31'45.7"	N/A
97	-	-	-	S31°54'51.9"; E27°31'14.5"	N/A
98	-	-	-	S31°54'47.0"; E27°31'10.8"	N/A
99	-	-	-	S31°54'47.6"; E27°31'08.6"	N/A
100	-	-	-	S31°54'42.1"; E27°31'03.8"	N/A
101	-	-	-	S31°54'42.2"; E27°31'02.1"	N/A
102	-	-	-	S31°54'35.8"; E27°30'58.5"	N/A
103	-	-	-	S31°54'29.7"; E27°30'54.8"	N/A
104	-	-	-	S31°55'02.0"; E27°31'57.0"	N/A
105	-	-	-	S31°55'07.4"; E27°31'44.9"	N/A
106	-	-	-	S31°55'13.8"; E27°31'36.8"	N/A

107	-	-	-	S31°55'09.6"; E27°31'31.9"	N/A
108	-	-	-	S31°55'14.7"; E27°31'26.2"	N/A
109	-	-	-	S31°55'29.1"; E27°31'22.8"	N/A
110	-	-	-	S31°55'08.1"; E27°32'14.6"	N/A
111	-	-	-	S31°55'07.6"; E27°32'21.4"	N/A
HERITAGE SITES					
<i>Line Route 1</i>					
S1	Site S1	Colonial Period	Church	S31°47'51.7"; E27°27'30.1"	<i>In situ conservation</i>
S2	Site S2	Colonial Period	Shop	S31°47'55.2"; E27°27'32.6"	<i>In situ conservation</i>
S3	Site S3	Colonial Period	Residence	S31°47'51.9"; E27°27'37.9"	<i>Formal conservation measures in place</i>
S4	Site S4	Colonial Period	Residential Complex	S31°48'03.4"; E27°27'34.7"	<i>In situ conservation</i>
S5	Site S5	Iron Age	Cemetery	S31°48'25.7"; E27°28'26.1"	<i>Formal / Temporary conservation</i>
S6	Site S6	Iron Age	Cemetery	S31°48'46.9"; E27°28'27.8"	<i>Formal / Temporary conservation</i>
S7	Site S7	Iron Age	Cemetery	S31°49'23.1"; E27°28'31.7"	<i>Formal conservation measures partly in place – Temporary conservation of remainder of site</i>
S8	Site S8	Iron Age	S/enclosure and cemetery	S31°49'25.2"; E27°27'37.1"	<i>Formal / Temporary conservation</i>
S9	Site S9	Iron Age	Cemetery	S31°50'08.6"; E27°28'35.0"	<i>Formal / Temporary conservation</i>
S10	Site S10	Iron Age	Cemetery	S31°52'10.3"; E27°26'18.7"	<i>Formal conservation measures partly in place – Temporary conservation of remainder of site</i>
<i>Line Route 2</i>					
S11	Site S11	Iron Age	Cemetery	S31°51'28.5"; E27°31'08.6"	1. <i>Line route to be situated north of access road, AND</i> 2. <i>Formal conservation</i>
<i>Line Route 3</i>					
S12	Site S12	Iron Age	Homestead	S31°52'17.2"; E27°32'40.2"	1. <i>Realignment of line route to follow existing access road, OR</i> 2. <i>On-site archaeological monitoring</i>
S13	Site S13	Iron Age	Grave	S31°53'52.3"; E27°32'05.1"	<i>Realignment to west of stock enclosures and temporary conservation of grave</i>
S14	Site S14	Iron Age	Cemetery	S31°54'52.7"; E27°31'26.0"	<i>Formal / Temporary conservation</i>

Table 2: Development and Phase 1 AIA assessment findings – co-ordinate details

4) REFERENCES CITED

1. BESC. 2011. *Background Information Document. Water Supply Backlog in the CHDM: Regional Scheme 5 (Chris Hani District Municipality)*. Unpublished report.
2. South African Government. (No. 107) of 1998. *National Environmental Management Act*.
3. South African Government. (No. 62) of 2008. *National Environmental Management Second Amendment Act*.
4. South African Government. (No. 25) of 1999. *National Heritage Resources Act*.
5. South African Heritage Resources Agency. 2007. *Minimum standards for the archaeological and heritage components of impact assessments*. Unpublished guidelines.
6. Van Ryneveld, K. 2010. *Phase 1 Archaeological Impact Assessment: Water Supply Backlog in the CHDM: Cluster 2, Phase 2, Regional Scheme 3 (near Lady Frere), Eastern Cape, South Africa*.



EXTRACTS FROM THE NATIONAL HERITAGE RESOURCES ACT (No 25 OF 1999)

DEFINITIONS

Section 2

In this Act, unless the context requires otherwise:

- ii. *"Archaeological"* means –
 - a) material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
 - b) rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10 m of such representation;
 - c) wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic,... and any cargo, debris, or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation.
- viii. *"Development"* means any physical intervention, excavation or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including –
 - a) construction, alteration, demolition, removal or change of use of a place or structure at a place;
 - b) carrying out any works on or over or under a place;
 - c) subdivision or consolidation of land comprising, a place, including the structures or airspace of a place;
 - d) constructing or putting up for display signs or hoardings;
 - e) any change to the natural or existing condition or topography of land; and
 - f) any removal or destruction of trees, or removal of vegetation or topsoil;
- xiii. *"Grave"* means a place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place;
- xxi. *"Living heritage"* means the intangible aspects of inherited culture, and may include –
 - a) cultural tradition;
 - b) oral history;
 - c) performance;
 - d) ritual;
 - e) popular memory;
 - f) skills and techniques;
 - g) indigenous knowledge systems; and
 - h) the holistic approach to nature, society and social relationships.
- xxxi. *"Palaeontological"* means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trances;
- xli. *"Site"* means any area of land, including land covered by water, and including any structures or objects thereon;
- xliv. *"Structure"* means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith;

NATIONAL ESTATE

Section 3

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

STRUCTURES

Section 34

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

ARCHAEOLOGY, PALAEOLOGY AND METEORITES

Section 35

- 3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.
- 4) No person may, without a permit issued by the responsible heritage resources authority –
 - a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
 - b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
 - c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
 - d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
- 5) When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and no heritage resources management procedure in terms of section 38 has been followed, it may –
 - a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;
 - b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;
 - c) if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph a) to apply for a permit as required in subsection 4); and
 - d) recover the costs of such investigation from the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.
- 6) The responsible heritage resources authority may, after consultation with the owner of the land on which an archaeological or palaeontological site or meteorite is situated, serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

BURIAL GROUNDS AND GRAVES

Section 36

- 3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority –
 - a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
 - b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
 - c) bring onto or use at a burial ground or grave referred to in paragraph a) or b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.
- 4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction of any burial ground or grave referred to in subsection 3a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.
- 5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection 3b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority –
 - a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and
 - b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.
- 6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority –
 - a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
 - b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

HERITAGE RESOURCES MANAGEMENT

Section 38

- 1) Subject to the provisions of subsections 7), 8) and 9), any person who intends to undertake a development categorised as –
 - a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
 - b) the construction of a bridge or similar structure exceeding 50 m in length;
 - c) any development or other activity which will change the character of a site –
 - i. exceeding 5 000 m² in extent; or
 - ii. involving three or more existing erven or subdivisions thereof; or
 - iii. involving three or more erven or subdivisions thereof which have been consolidated within the past five years; or
 - iv. the costs which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
 - d) the rezoning of a site exceeding 10 000 m² in extent; or
 - e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority,
 must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.
- 2) The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection 1) –
 - a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management; or
 - b) notify the person concerned that this section does not apply.
- 3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection 2a) ...
- 4) The report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development decide –
 - a) whether or not the development may proceed;
 - b) any limitations or conditions to be applied to the development;
 - c) what general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;
 - d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and
 - e) whether the appointment of specialists is required as a condition of approval of the proposal.

APPOINTMENT AND POWERS OF HERITAGE INSPECTORS

Section 50

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