

**HERITAGE SURVEY OF THE CHRIS HANI CLUSTER
9 WATER PROJECT, EASTERN CAPE**

FOR MALUTI GSM CONSULTING ENGINEERS

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**By Gavin Anderson
Umlando: Archaeological Tourism and Resource
Management**

PO Box 102532, Meerensee, 3901

Phone/fax: 035-7531785 Fax: 0865445631

cell: 0836585362



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INTRODUCTION

Umlando cc was contracted by Maluti GSM to undertake a heritage survey of the Chris Hani Cluster 9 water project, between Tsomo and Stutterheim, Eastern Cape¹. The water reticulation is for communities to the north and south of the R352 (fig's 1-2).

The aim of the survey was to identify and assess heritage sites, and to forward a management plan for these sites. The general impact on any potential site will be small. The trenches for the proposed pipeline will be ~1m wide and ~1.5m - 2m deep. The spoil heaps will add an additional 1m to the width. Most of the proposed pipeline runs adjacent to existing roads and tracks and thus in areas that have been partially disturbed.

A few areas were also inaccessible via normal roads, or tracks, and these access roads did not always correlate with the maps (1:50 000 and Google Earth). I used Google Earth to view these areas and make assessments. One area was just inaccessible unless one had local knowledge of the roads: there was only one dirt road, with many T-junctions, and a starting point some 20km away.

The environment is mostly grasslands with subsistence-based agriculture. There is a distinct impression that most of the study area has only been inhabited from the late 19th century onwards by agricultural communities. All of the fifteen sites identified in the survey appear to post-date the late 19th – early 20th centuries, if not the last 60 years. Feeley (1987) notes that while there was farmer occupation in the general area before 1865, there was a more recent Mfengu occupation post-dating 1865. He attributes the stone walling to the latter occupants.

¹ I was assisted by Mr Kevin Cole of the East London Museum.

The geology of the area is varied, however, the Beaufort and Ecca formations are prominent in this area, and especially along the surface. These formations have high potential to yield palaeontological material.

A total of fifteen heritage sites were observed, as well as several areas of palaeontological interest. There are no sites, or areas, that will result in a major route re-alignment.

METHOD

The method for heritage assessment consists of several steps. The first step forms part of the desktop assessment. Here we would consult Umlando's database for known heritage sites. This database does; however, tend to be restricted to archaeological and palaeontological sites. I would also use aerial photography (such as Google Earth) to note areas of stone walling and kraals made from vegetation, and make a general prediction of the types of sites that may occur in the area.

Consulting with the relevant authorities will also cover known battlefields and historical sites. We also consult with an historical architect, palaeontologist, and an historian where necessary. I was assisted by Mr Kevin Cole (of the East London Museum), who would have known of important historical sites of the area. I also looked briefly at Feeley's (1987) and Derricourt's (1977) work for sites in the area. The survey did ignore houses or settlements that were currently occupied. The exceptions to this were the historical buildings in Ngqamakwe itself.

The initial archaeological survey (i.e. fieldwork) consists of a foot survey where the selected area was covered. The survey results will define the significance of each recorded site, as well as a management plan. The pipeline will probably occur within 20m of the road servitudes, if not closer, we did however attempt to

record sites within 50m – 100m of the road, or proposed servitude. This enables a heritage corridor to be formed.

The main problem I had with this pipeline survey was accessibility. It would not have been realistic to walk the ~120km of pipeline. However, there were many occurrences where the pipeline would drop down a steep valley to continue on an isolated spur, or adjacent hill, where there was no road access. Moreover, there were several instances where the roads, as indicated on the various maps, no longer existed, or had eroded. I countered these problem areas by using aerial photography and/or Google Earth imagery to observe old settlements.

All sites are grouped according to low, medium and high significance for the purpose of this report. Sites of low significance have no diagnostic artefacts, especially pottery. Sites of medium significance have diagnostic artefacts and these are sampled. Sampling includes the collection of artefacts for future analysis. All diagnostic pottery, such as rims, lips and decorated sherds are sampled, while bone, stone and shell are mostly noted. Sampling usually occurs on most sites. Sites of high significance are excavated and/or extensively sampled. Those sites that are extensively sampled have high research potential, yet poor preservation of features. We attempt to recover as many artefacts from these sites by means of systematic sampling, as opposed to sampling diagnostic artefacts only.

Defining significance

Heritage sites vary according to significance and several different criteria relate to each type of site. However, there are several criteria that allow for a general significance rating of archaeological sites.

These criteria are:

1. State of preservation of:

1.1. Organic remains:

1.1.1. Faunal

1.1.2. Botanical

1.2. Rock art

1.3. Walling

1.4. Presence of a cultural deposit

1.5. Features:

1.5.1. Ash Features

1.5.2. Graves

1.5.3. Middens

1.5.4. Cattle byres

1.5.5. Bedding and ash complexes

2. Spatial arrangements:

2.1. Internal housing arrangements

2.2. Intra-site settlement patterns

2.3. Inter-site settlement patterns

3. Features of the site:

3.1. Are there any unusual, unique or rare artefacts or images at the site?

3.2. Is it a type site?

3.3. Does the site have a very good example of a specific time period, feature, or artefact?

4. Research:

4.1. Providing information on current research projects

4.2. Salvaging information for potential future research projects

5. Inter- and intra-site variability

5.1. Can this particular site yield information regarding intra-site variability, i.e. spatial relationships between various features and artefacts?

5.2. Can this particular site yield information about a community's social relationships within itself, or between other communities?

6. Field Experience:

6.1. The personal experience and expertise of the CRM practitioner should not be ignored. Experience can indicate sites that have potentially significant aspects, but need to be tested prior to any conclusions.

7. Educational:

7.1. Does the site have the potential to be used as an educational instrument?

7.2. Does the site have the potential to become a tourist attraction?

7.3. The educational value of a site can only be fully determined after initial test-pit excavations and/or full excavations.

8. Other Heritage Significance:

8.1. Palaeontological sites

8.2. Historical buildings

8.3. Battlefields and general Anglo-Zulu and Anglo-Boer sites

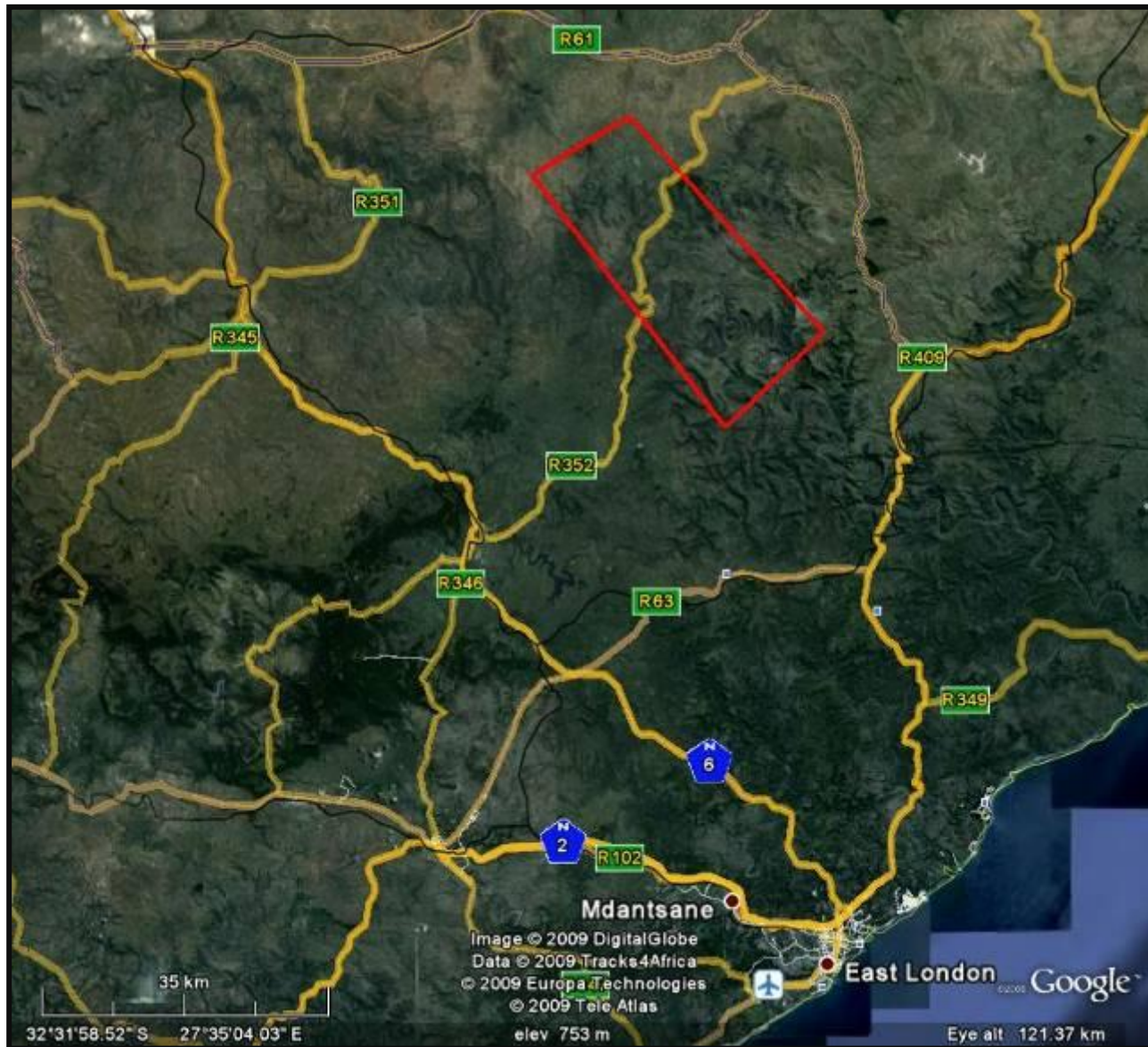
8.4. Graves and/or community cemeteries

8.5. Living Heritage Sites

8.6. Cultural Landscapes, that includes old trees, hills, mountains, rivers, etc related to cultural or historical experiences.

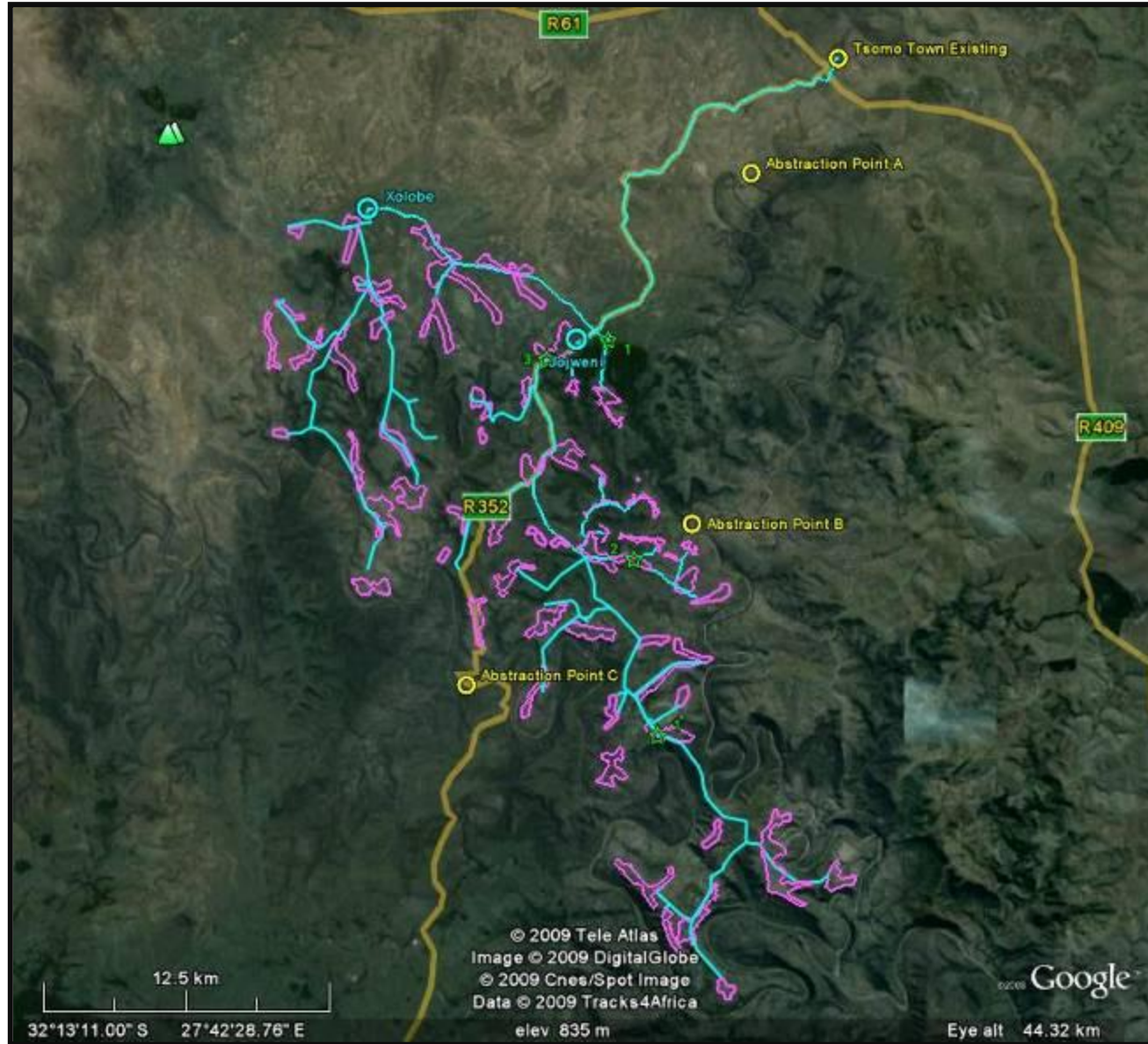
The more a site can fulfill the above criteria, the more significant it becomes. Test-pit excavations are used to test the full potential of an archaeological deposit. This occurs in Phase 2. These test-pit excavations may require further excavations if the site is of significance (Phase 3). Sites may also be mapped and/or have artefacts sampled as a form of mitigation. Sampling normally occurs when the artefacts may be good examples of their type, but are not in a primary archaeological context. Mapping records the spatial relationship between features and artefacts.

FIG. 1: LOCATION OF THE WATER RETICULATION AREA²



² Study area outlined in red

FIG. 2: CLOSEUP VIEW OF THE STUDY AREA³



³ Purple = community clusters; turquoise = bulk pipelines and reservoirs, yellow = abstraction points

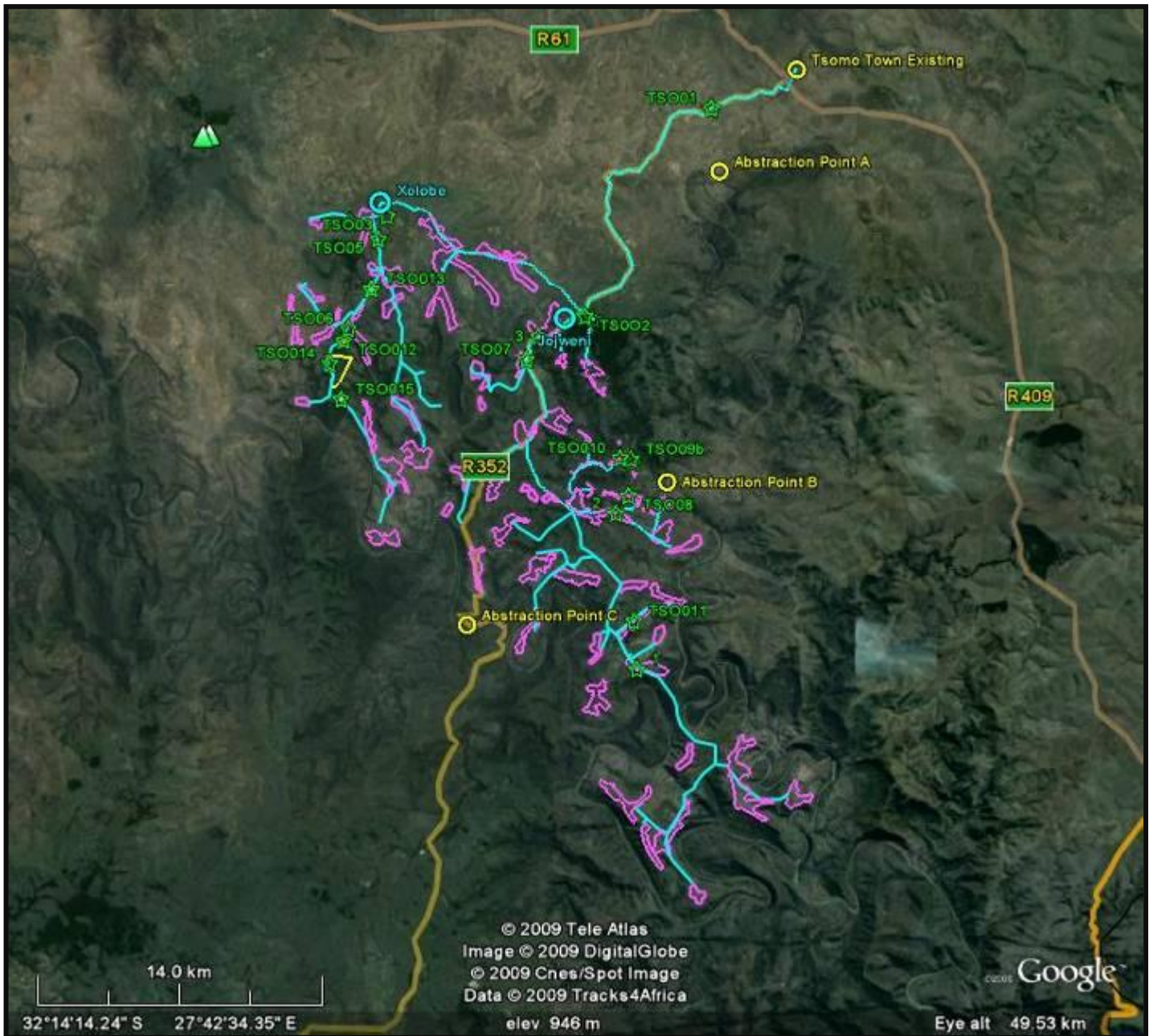
RESULTS

Fifteen sites were recorded during the survey (fig. 3). These are mostly recent historical settlements that probably date no more than 100 years ago. Feeley (1987) does however note that there were settlements predating the 1870s in the Tsomo-Stutterheim area. While the Stone Age sites probably do occur in the general area, they were not observed.

There is a distinct pattern in the human agricultural settlement of this area. I first noticed a basic pattern during the survey of the Ngqamakwe pipeline that is adjacent to this study area. In that survey, I had recorded ~20 similar sites (Anderson 2009). Feeley (1987) notes a similar pattern for settlements in the old Transkei, and has even more specific information relating to slant, geology/soil, etc. All recent historical settlements in the affected area have the following settlement pattern:

1. Row of three houses/huts at the top of the hill or slope – a few have 1-2 houses behind these, but this is rare.
2. A rectangular enclosed area in front of the houses. Stone walling, aloes, sisal or bushes can enclose this. This is either an agricultural field or a large kraal for domestic animals.
3. Attached to the main rectangular structure are 1 – 2 smaller structures that can be rectangular or circular in shape. While these do vary in location, they tend to be located at the bottom-right (facing downhill).
4. Graves tend to be located below the structure mentioned in point 2. I did however locate too few graves to make this a trend. The graves tend to be low stone cairns without discernable features. Very few graves had headstones or other means of physically identifying the person.

FIG. 3: LOCATION OF RECORDED SITES IN THE STUDY AREA



The term settlement refers to a living area that has the first three or four of the above criteria, and generally to a single family, or household, whereas a site may be comprised of several settlements. This settlement pattern allows for an assessment of sites in relation to the pipeline. That is if a few buildings, or structures, can be located one can then make an assumption on where other structures would occur in that settlement. If the „missing“ structures cannot be located, one can still state where they should occur, and thus demarcate the sensitive areas in relation to the pipeline. For example, if the pipeline occurs behind the row of three houses then it is unlikely to have an impact on that specific settlement. However, if the pipeline was to occur in front of the houses, or main kraal, then it is likely to affect graves.

CHC01

The site is located on the top of a hill and consists of two kraals, with upright stones. The site dates to the recent past.

Significance: The site is of low significance.

Mitigation: No further mitigation is required.

CHC02

The site is located near the main dirt road on the top of a hill. It consists of several buildings that make up the old Fairview Villa and “trading post” (fig. 4). I assume that the buildings are older than 60 years in age. The site dates to the recent past.

Significance: The significance of the buildings would need to be assessed by an architect historian.

Mitigation: While the buildings are unlikely to be damaged, the pipeline may unearth old rubbish dumps. An environmental Control Officer should be on site when this area is excavated and report ANY artefacts. These then should be reported to SAHRA and or the heritage practitioner for comment. If historical artefacts, such as bottles and plates, were located, the excavations would need to stop and continue further along the line,

until the artefacts have been assessed. Any rubbish dump exposed in this area will need a further heritage assessment.

CHC03

The site is located near the edge of the hill and consists of a single rectangular stone kraal. No graves were observed. The site dates to the recent past.

Significance: The site is of low significance.

Mitigation: No further mitigation is required

CHC04

The site is located on the top of the hill and on the southern side of the road. The site consists of approximately seven kraals. No other structures were visible. The site dates to the recent past.

Significance: The site is of low significance.

Mitigation: No further mitigation is required as the pipeline is unlikely to affect the site.

CHC05

The site is located near the top of a long hill. The site consists of a series of kraals demarcated by aloes. Some of the kraals have low stone walling. The site dates to the recent past.

Significance: The site is of low significance.

Mitigation: No further mitigation is required.

FIG. 4: FAIRVIEW VILLA, OUTBUILDINGS AND TRADING STORE



FIG. 5: GRAVES AT CHC06⁴



FIG. 6: MBULUKWEZA STORE AT CHC07



⁴ Yellow arrow = older graves, white arrow = recent graves

CHC06

The site is located near the end of a long ridge just below a cell phone tower. The site consists of approx eight graves of various ages (fig. 5). The more recent graves date to c. 1974 and have headstones. Other graves do not have headstones and are presumably older. These older graves are surrounded by aloes and bushes. It appears that the graves are associated with the Mbane family.

Significance: The site is of high significance.

Mitigation: The graves should not be affected.

CHC07

The site is located to the above the road on a hill. It consists of a series of kraals made from aloes and/or stone. I did not observe any graves in the area. The site dates to the recent past.

Significance: The site appears to be of low significance as no graves were observed.

Mitigation: No further mitigation is required, as the pipeline will occur to the east of the road, thus missing the site.

CHC08

The site is located near the bottom of the valley and is just outside of the affected area. The site consists of the Mbulukweza Store (fig. 6) that appears to be older than 60 years.

Significance: The site is probably of low significance, but will need to be assessed by an architect historian.

Mitigation: the site will not be directly affected by the pipeline.

CHC09

The site is located just outside of the study area, and is located at the bottom of the valley. The site consists of a recent grave and several stone terraces and walling (fig. 7). The latter occur up to 200m away from the grave. The walling and terracing is may date to the 19th century as mentioned by Feeley (1987).

Significance: The grave is of high significance while the rest of the site is of low significance.

Mitigation: The site will not be affected by the pipeline. If it is affected by later pipelines then it will need to be mapped.

CHC010

The site is located just outside of the study area, and is located at the bottom of the valley. The site consists of stone walling and two graves associated with the stone walling.

Significance: The grave is of high significance while the rest of the site is of low significance.

Mitigation: The site will not be affected by the pipeline. If it is affected by later pipelines then it will need to be mapped.

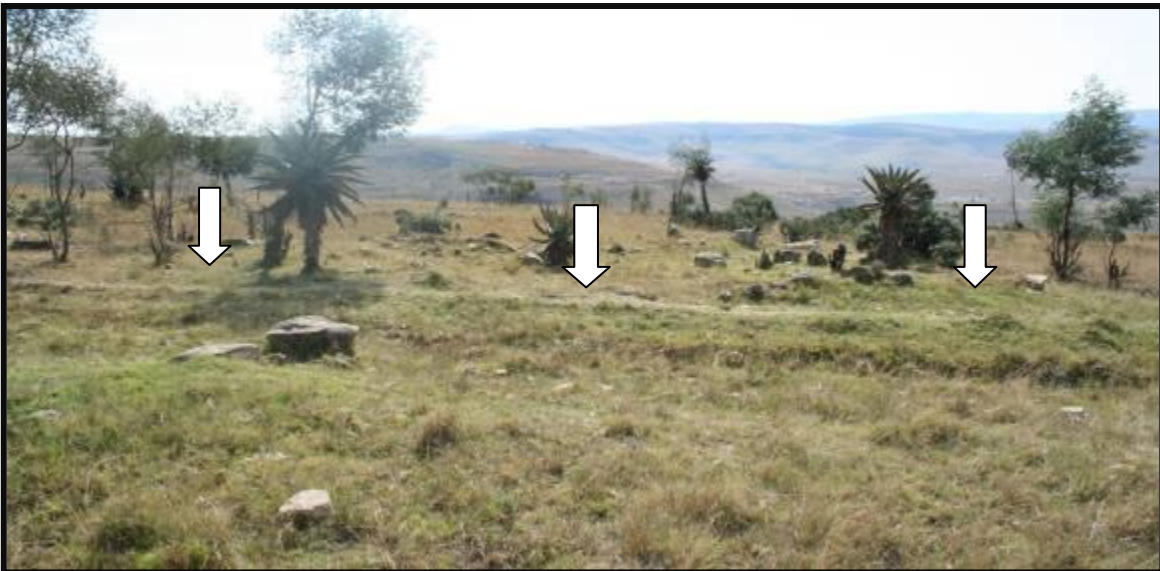
CHC011

The site is located on the top of the long hill that leads to the valley below. The site consists of two stone walled kraals with a stonewall base, and two house foundations. There are two recent graves on the opposite side of the road. The graves date to the 21st century and are thus not associated with the rest of the site. The walling and terracing is may date to the 19th century as mentioned by Feeley (1987).

FIG. 7: STONE WALLING AT CHC09



FIG. 8: STONE WALLING AT CHC010



Significance: The main site is of medium significance, while the graves are of high significance.

Mitigation: The graves should not be disturbed. If the pipeline goes through the walling then it will need to be mapped and have possible test-pit excavations. Currently the pipeline is to the north of the graves and stone walling.

CHC012

The site is located near the top of a hill. The site consists of at least four settlements, with the kraals made from bushes. We did not observe any graves, and if they do occur, they will be further away from the pipeline. The site appears to date to the recent past.

Significance: The site is of low significance.

Mitigation: The pipeline will occur ~30m to the west of the site. No further mitigation is required.

CHC013

The site is located along the ridge of a hill. The site consists of six – seven settlements. The main kraal is made from bushes and/or aloes. No graves were observed, and if they did occur, they would be further away from the road that goes through the site. The site appears to date to the recent past.

Significance: The site is of low significance.

Mitigation: The pipeline appears to follow the road. If that is the case then it will not affect the site to a large degree. If graves do occur then they will be furthest away from the road. Thus the pipeline must stay as close to the road as possible in this area.

CHC014

The site is located on the top of a hill overlooking the Tsomo and Kei Rivers. We could get access to the site and have relied on aerial photography to demarcate the site (fig. 9). The site consists of approx. twenty settlements, of which seven are currently occupied. These span ~1.5km of the pipeline. The other thirteen settlements conform to the standard settlement pattern of the area. The site appears to date to the recent past.

The pipeline will occur mostly to the west of these settlements and thus bypass any potential graves. However, the northern part of the area needs to be carefully monitored for potential graves.

Significance: The site is of low significance unless graves occur.

Mitigation: No further mitigation is required. An ECO should be on site when this section is excavated to ensure that potential recent graves are not disturbed.

CHC015

This site is located ~700m southeast of CHC014. The site consists of a single settlement and appears to date to the recent past. The pipeline occurs to the south of the settlement.

Significance: The site appears to be of low significance.

Mitigation: No further mitigation is required, as the pipeline will not directly affect the site.

GENERAL

The pipeline route goes through several formations that are palaeontologically sensitive: Ecca and Beaufort. The areas where the pipeline will affect these formations will need to be surveyed by a palaeontologist. Dr Gideon Groenewald described the area as follows

“Ecca Group – it is known that this group of rocks represent a deep water deposit and that the most important palaeontological information is present as “trace fossils” or the remains of the tracks of animals and plants that lived in relatively deep water environments, with an important transition to shallow water environments where the resulting rocks reveal information about the shallow water living creatures of the time.

Beaufort Group – it is well known that this group of rocks presents us with a unique opportunity to discover some of the oldest terrestrial (land-living) animals on earth. Fossils from the Lower Beaufort or Adelaide Subgroup include the formidable Gorgonopsian predators and the large plant eaters (Dicynodonts) that lived with them, albeit being their food. The site of the development falls in an area with rugged topography and might dissect all the important Lower Beaufort (Adelaide Subgroup) strata and it is possible that severe faulting in the region could have resulted in the down-faulting of younger geology such as the Triassic aged Middle Beaufort (Tarkastad Subgroup) rocks. The Tarkastad Subgroup is well-known for the Lystosaurus and related animals with the important discovery of casts of vertebrate burrows, possibly made by the Lystrosaurus animals.

Younger travertine and other geological formations – due to the uplift of this part of South Africa in more recent times, the present river systems show clear indications of very fast incision into the old flows of the river channels. In situations like this it is possible to find small remnants of more recent geological deposits with remains of related aged animals (and possibly humans) in these small outcrops of very young rock on the sides of mountains and even on the top of some of the hills in the area.” (see Appendix B for the full report).

Significance: A palaeontological survey will be required for those areas that are to be affected.

Mitigation: Dr. Groenewald suggested that he spends one day looking at the formations to obtain a sense of their significance. If these appear to be significant then he would be on site during the excavation phase to monitor and salvage any fossils. This will not result in the line being rerouted or stopped.

FIG. 9: SERIES OF SETTLEMENTS AT CHC014 AND CHC015



MANAGEMENT PLAN

Of the fifteen recorded heritage sites, only two are possibly older than 100 years. The rest of the sites appear to be more recent in age and probably date to the 20th century. The implication of this is that these thirteen sites are not subject to the National Heritage Resources Act (No. 25 of 1999). Some sites do have graves that may border on being older than 60 years and would be subject to the National Heritage Resources Act (No. 25 of 1999). However, there is no reason for the pipeline to impact on any graves as it can be re-aligned where/if necessary. With the above in mind I would suggest that the pipeline is proactive to the more recent heritage sites and have a minimal impact. In this way future heritage sites are not damaged. That is, the pipeline should stay as close to the existing roads where possible as these areas have already been disturbed.

The pipeline will be impacting on the Ecca and Beaufort formations. These are palaeontologically sensitive formations. I suggest that the geological report is sent to a qualified palaeontologist who can then make an informed decision on which areas will be directly affected. The palaeontologist will then be able to undertake a survey and note which specific areas may need on-site monitoring during the construction phase. If palaeontological sites are located during the construction phase, then it will become a salvage exercise, as opposed to stopping or rerouting the pipeline. The possibility of these sites occurring in the study area is not a „red flag“.

I have two concerns regarding the survey:

1. Accessibility
2. Stone Age sites

Some areas were inaccessible because of the rugged terrain and river crossings (where there were no bridges) or the lack of roads. Given the limited time for the survey, these more remote areas were not surveyed. To counter this

I relied on aerial photographs to delineate sensitive areas. An ECO should be on site for these areas during pipeline construction to ensure that human remains are not accidentally damaged. If human remains are observed, the pipeline can be re-routed by 10m from the grave(s).

I did not record any Stone Age sites during the survey, although I did record several Stone Age sites in an adjacent water reticulation project (Anderson 2009). Feeley (1987) notes that San gatherer-hunters were recorded in the Kei River Valley as late as the 1870s. The sites recorded by myself were as open scatters of stone tools dating mostly to the Middle Stone Age, although Early and Late Stone Age artefacts were observed. These probably do occur in this study area and would be of equally low significance. The impact of the pipeline on an open scatter of artefacts would be low. Feeley's historical references to the San gatherer-hunters in the valleys were of people living in small shelters. The pipeline does not go through any shelters or overhangs.

Since the recorded sites are not protected by heritage legislation, permits will not be required from SAHRA. Only if sites CHC09 and CHC11 are affected in the future will permits be required. Permits will be required if palaeontological remains are disturbed.

CONCLUSION & WAY FORWARD

A heritage survey was undertaken for the Chris Hani Municipality water reticulation project. The aim of the project is to provide water for communities between Tsomo and Stutterheim, in the E. Cape. The pipeline will have minimal impact on most heritage sites due to its small width

While several human graves were noted during the course of the survey, these will not be affected by the pipeline.

The palaeontological report was a quick assessment of the sensitivity and significance of the study area: it was not a full assessment. The palaeontological study will need further clarification and the following needs to occur:

1. The geological report is sent to a qualified palaeontologist who can then make an informed decision on which areas will be directly affected.
2. This assessment will be in conjunction with the maps used for the desktop study, and the pipeline route.
3. The palaeontologist will then be able to pinpoint those areas that may require on-site monitoring during construction phase.
4. These areas will be noted within the construction phase timetable and the palaeontologist will need to be advised of these dates.
5. If palaeontological sites are located during the construction phase, then it will become a salvage exercise, as opposed to stopping or rerouting the pipeline. The possibility of these sites occurring in the study area is not a „red flag“.

REFERENCES

Derricourt, R.M. 1977. **Prehistoric Man in the Ciskei and Transkei**. Cape Town: C. Struik (Pty) Ltd

Feeley, J.M. 1987 **The Early Farmers of Transkei, Southern Africa, Before AD 1870**. Cambridge Monographs in African Archaeology 24. BAR International Series 378. Cambridge.

APPENDIX A

SITE RECORD FORMS

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:
Early Iron Age:
Late Iron Age
Historical Period: x

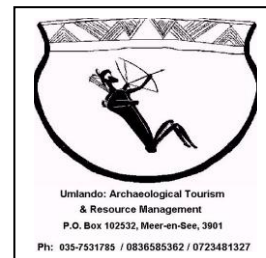
Recorder's Site No.: CHC001

Official Name:

Local Name:

Map Sheet:

GPS reading: S: 32 03" 08.9" E: 27 46" 50.7" Alt: 89m



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

See GPS. Site is located on the right hand side of the road.

SITE DESCRIPTION:

Type of Site: Kraals
Merits conservation: No
Threats: Yes
What threats: Chris Hani Water Project

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 16 April 2009

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

Site consists of 2 x kraals, near the erect stones

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:
Early Iron Age:
Late Iron Age:
Historical Period: x

Recorder's Site No.: CHC002
Official Name:
Local Name:
Map Sheet:
GPS reading: S: 32 08" 45.9" E: 27 42" 51.5"



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

See GPS.

SITE DESCRIPTION:

Type of Site: Trading Post
Merits conservation: Yes
Threats: Yes
What threats: Chris Hani Water Project

RECORDING:

Graphic record: Yes
Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole
Address: PO Box 102532, Meerensee, 3901
Date: 16 April 2009
Owner:
References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

Site consists of the Fairview Villa and "trading post".

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age:

Historical Period: x

Recorder's Site No.: CHC003

Official Name:

Local Name:

Map Sheet:

GPS reading: S: 32 06" 05.8" E: 27 36" 39.1"



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

See GPS. Site is to the left of the road.

SITE DESCRIPTION:

Type of Site: Kraal

Merits conservation: No

Threats: Yes

What threats: Chris Hani Water Project

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 16 April 2009

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

Site consists of a stone kraal.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: CHC004

Official Name:

Local Name:

Map Sheet:

GPS reading: S: 32 06" 14.7" E: 27 35" 29.5"



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

See GPS. Site is located on the left hand side of the road.

SITE DESCRIPTION:

Type of Site: Kraal

Merits conservation: No

Threats: Yes

What threats: Chris Hani Water Project

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 16 April 2009

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

Site consists of ~7 kraals made from aloes/bushes and some with stone walling base.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: CHC005

Official Name:

Local Name:

Map Sheet:

GPS reading: S: 32 06" 42" E: 27 36" 22.2" Alt: 1108m



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

See GPS. Site is located on the left hand side of the road.

SITE DESCRIPTION:

Type of Site: Kraal

Merits conservation: No

Threats: Yes

What threats: Chris Hani Water Project

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 16 April 2009

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

Site consists of a series of aloë kraals.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: CHC006

Official Name:

Local Name:

Map Sheet:

GPS reading: S: 32 09" 05.5" E: 27 35" 25.6"



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

See GPS.

SITE DESCRIPTION:

Type of Site: Graves

Merits conservation: Yes

Threats: Yes

What threats: Chris Hani Water Project

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 16 April 2009

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

Site consists of 8x graves, some older and some more recent. Some of headstones. Mbane Family.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:
Early Iron Age:
Late Iron Age
Historical Period: x



Recorder's Site No.: CHC007

Official Name:
Local Name:
Map Sheet:
GPS reading: S: 32 09" 54.0" E: 27 41" 01.0" 1028m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

See GPS.

SITE DESCRIPTION:

Type of Site: kraals
Merits conservation: No
Threats: Yes
What threats: Chris Hani Water Project

RECORDING:

Graphic record: Yes
Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 16 April 2009

Owner:

References:

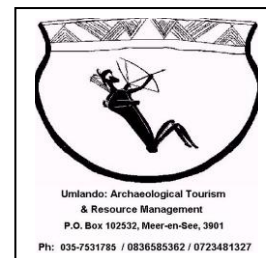
DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

Series of kraals made from aloes and/or stone

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:
Early Iron Age:
Late Iron Age:
Historical Period: x



Recorder's Site No.: CHC008
Official Name:
Local Name:
Map Sheet:
GPS reading: S: 32 09" 54.0"E: 27 41" 01.0" Alt: 1028m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

See GPS.
The site is located near the bottom of the valley and is just outside of the affected area.

SITE DESCRIPTION:

Type of Site: Kraal
Merits conservation: No
Threats: Yes
What threats: Chris Hani Water Project

RECORDING:

Graphic record: Yes
Digital pictures: x Tracings : Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole
Address: PO Box 102532, Meerensee, 3901
Date: 16 April 2009
Owner:
References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

The site consists of the Mbulukweza Store that appears to be older than 60 years.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:
Early Iron Age:
Late Iron Age
Historical Period: x



Recorder's Site No.: CHC009

Official Name:

Local Name:

Map Sheet:

GPS reading: S: 32 12" 38.2" E: 27 44" 24.1" Graves

S: 32 12" 32.5" E: 27 44" 19.7" Walling and terraces

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

See GPS.

SITE DESCRIPTION:

Type of Site: Graves, walling, terraces
Merits conservation: Yes
Threats: Yes
What threats: Chris Hani Water Project

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 16 April 2009

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

Site consists of graves(Mphetsheni) and walling with some terracing. Latter is ~200m north of the grave.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: CHC010

Official Name:

Local Name:

Map Sheet:

GPS reading: S: 32 12" 30.6"E: 27 43" 59.1"



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

See GPS.

SITE DESCRIPTION:

Type of Site: Grave and stonewalling

Merits conservation:

Threats: Yes

What threats: Chris Hani Water Project

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 16 April 2009

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

Site consists of a recent grave and some stonewalling.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:
Early Iron Age:
Late Iron Age
Historical Period:



Recorder's Site No.: CHC011
Official Name:
Local Name:
Map Sheet:
GPS reading: S; 32 16" 52.4"" E; 27 44" 25.4""

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

See GPS

SITE DESCRIPTION:

Type of Site: Kraals, graves
Merits conservation: Yes
Threats: Yes
What threats: Chris Hani Water Project

RECORDING:

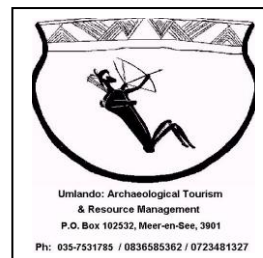
Graphic record: Yes
Digital pictures: Tracings : Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole
Address: PO Box 102532, Meerensee, 3901
Date: 16 April 2009
Owner:
References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

The site is located on the top of the long hill that leads to the valley below. The site consists of two stone walled kraals with a stonewall base, and two house foundations. There are two recent graves on the opposite side of the road. The graves date to the 21st century and are thus not associated with the rest of the site.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM



SITE CATEGORY: (X where applicable)

Stone Age:
Early Iron Age:
Late Iron Age
Historical Period: x

Recorder's Site No.: CHC012
Official Name:
Local Name:
Map Sheet:
GPS reading: S:° 32 09' 24.1" E: 27 35' 16.6" Alt: 1046m

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

See GPS.
The site is located near the top of a hill.

SITE DESCRIPTION:

Type of Site: Settlements
Merits conservation: No
Threats: Yes
What threats: Chris Hani Water Project

RECORDING:

Graphic record: Yes
Digital pictures: x Tracings : Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole
Address: PO Box 102532, Meerensee, 3901
Date: 16 April 2009
Owner:
References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

The site consists of at least four settlements, with the kraals made from bushes. We did not observe any graves, and if they do occur, they will be further away from the pipeline. The site appears to date to the recent past.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM**SITE CATEGORY:** (X where applicable)

Stone Age:

Early Iron Age:

Late Iron Age

Historical Period: x

Recorder's Site No.: CHC013

Official Name:

Local Name:

Map Sheet:

GPS reading: S: 32 08" 01.7" E: 27 36" 08.9" Alt: 1064m

**DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.**

See GPS. The site is located along the ridge of a hill.

SITE DESCRIPTION:

Type of Site: Settlements

Merits conservation: No

Threats: Yes

What threats: Chris Hani Water Project

RECORDING:

Graphic record: Yes

Digital pictures: x

Tracings :

Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 16 April 2009

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

The site consists of six – seven settlements. The main kraal is made from bushes and/or aloes. No graves were observed, and if they did occur they would be further away from the road that goes through the site. The site appears to date to the recent past.

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY: (X where applicable)

Stone Age:
Early Iron Age:
Late Iron Age
Historical Period: x

Recorder's Site No.: CHC014

Official Name:

Local Name:

Map Sheet:

GPS reading: S: 32 09" 04.8" E: 27 34" 49.6 Alt: 1037m Start
S: 32 10" 36.8" E: 27 34" 53.4" Alt: 1046m End



DIRECTIONS TO SITE: SKETCH OR DESCRIPTION.

See GPS.

The site is located on the top of a hill overlooking the Tsomo and Kei Rivers.

SITE DESCRIPTION:

Type of Site: Settlements

Merits conservation: No

Threats: Yes

What threats: Chris Hani Water Project

RECORDING:

Graphic record: No

Digital pictures: Tracings : Re-drawings:

Recorder/Informant: Name: Gavin Anderson and Kevin Cole

Address: PO Box 102532, Meerensee, 3901

Date: 16 April 2009

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

The site consists of approx. twenty settlements, of which seven are currently occupied. These span ~1.5km of the pipeline. The other thirteen settlements conform to the standard settlement pattern of the area. The site appears to date to the recent past.

APPENDIX B

PALAEONTOLOGICAL REPORT



Clarens Dinosaur Hunting Expeditions CC

Dr Gideon Groenewald (PhD; Nat Dip Nat Con; Pr Sci Nat Earth Scientist)

Private Bag X62
Suite 91
Bethlehem
9700, RSA

Cell: +27 828294978
Fax: +27 58 3038412
E-mail: gideon@bhm.dorea.co.za

30 April 2009

Mr Gavin Anderson

POTENTIAL PALAEOLOGY OF THE PROPOSED CHRIS HANI MUNICIPALITY WATER RETICULATION PROJECT

From this information a desktop study indicates the following regarding possible palaeontological finds at the site.

1. Geology

The desk top study indicates that the development of the dam falls in an area underlain by geology ranging from Ecca Age sedimentary rocks to possibly lower Beaufort Group sediments in the higher areas. The site of the dam wall will probably be associated with a prominent Dolerite sill or dyke structure that is very prominently visible on the remote images of this region. From the information on the borrow pits provided it is also clear that extensive dolerite sill and dolerite dyke igneous rocks are abundantly present in the area. This geological setting is well-known for this part of South Africa.

It is also a known fact that several very important “trap-door” faults as well as some “horst and graben” fault structures are present in this part of the Eastern Cape. These faults can lead to displacement of younger geology to very low altitudes in the region, making it essential for any responsible developer, Public or Private, to ensure that the specific geological formation that occurs at a site is properly recorded and examined for Palaeontological content.

2. Palaeontology and its potential importance in the this area

- 2.1 Ecca Group – it is known that this group of rocks represent a deep water deposit and that the most important palaeontological information is present as “trace fossils” or the remains of the tracks of animals and plants that lived in relatively deep water environments, with an important transition to shallow water environments where the resulting rocks reveal information about the shallow water living creatures of the time.
- 2.2 Beaufort Group – it is well known that this group of rocks presents us with a unique opportunity to discover some of the oldest terrestrial (land-living) animals on earth. Fossils from the Lower Beaufort or Adelaide Subgroup include the formidable Gorgonopsian predators and the large plant eaters (Dicynodonts) that

- lived with them, albeit being their food. The site of the development falls in an area with rugged topography and might dissect all the important Lower Beaufort (Adelaide Subgroup) strata and it is possible that severe faulting in the region could have resulted in the down-faulting of younger geology such as the Triassic aged Middle Beaufort (Tarkastad Subgroup) rocks. The Tarkastad Subgroup is well-known for the Lystosaurus and related animals with the important discovery of casts of vertebrate burrows, possibly made by the Lystosaurus animals.
- 2.3 Younger travertine and other geological formations – due to the uplift of this part of South Africa in more recent times, the present river systems show clear indications of very fast incision into the old flows of the river channels. In situations like this it is possible to find small remnants of more recent geological deposits with remains of related aged animals (and possibly humans) in these small outcrops of very young rock on the sides of mountains and even on the top of some of the hills in the area.
- 2.4 Older rocks predating the Karoo Age - It is known that much older rock formations, dating to the same age as the rocks building Table Mountain near Cape Town, occur in the area as a result of Gondwana Faulting. These rocks do contain fossils of marine animals that lived about 450 million years ago and it is always good practise to be on the lookout for these important remains of life in the rocks of South Africa.
- 2.5 Dolerite Intrusions - dolerite sills and dykes are obviously not important for palaeontology and will not contain any fossils.

I trust that this information is useful for the initial phase of the study. It will obviously be necessary for a trained palaeontologist to inspect the site of the development to confirm (ground proof) these desktop survey results. It is important to ensure that the developer of this project obtains a permit from SAHRA for the disturbance of palaeontological remains during the construction phase of this project.

Thank you very much for your request.

GIDEON GROENEWALD (PhD; Pr Sci Nat Earth Scientist)
Geologist