

**PROPOSED CONSTRUCTION OF OFF TAKE 6B
POTABLE WATER PIPELINE AS PART OF THE
LOWER THUKELA BULK WATER SUPPLY AT NEW
GUELDERLAND TO NEW GUELDERLAND RESERVOIR
ILEMBE DISTRICT MUNICIPALITY, KZN**

FOR TRIPLO4 SUSTAINABLE SOLUTIONS

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INTRODUCTION

“The site is situated approximately 60 km to the north of Durban in the Stanger areas of Northern KwaZulu-Natal. The Off-Take 6-B Bulk water pipeline project falls within the KwaDukuza Local and iLembe District Municipality

The proposed construction for Off Take 6B forms part of the Lower Thukela Bulk Water Supply Scheme which is a project of the iLembe District Municipality and co-funded by the Department of Water Affairs. The construction of Off Take 6B is part of the sections of the potable water pipeline that forms part of the broader Bulk Water Supply Scheme in the lower Thukela Region.

The proposed pipeline is located outside the Railway line reserve and continues into Sugar Cane plantations” (Tripl4 BID 2014)

Figures 1 – 4 show the location of the project

The projects consist of building a new reservoir at the top of the hill and a bulk water pipeline to the existing pipeline near the railway.

FIG. 1 GENERAL LOCATION OF THE STUDY AREA

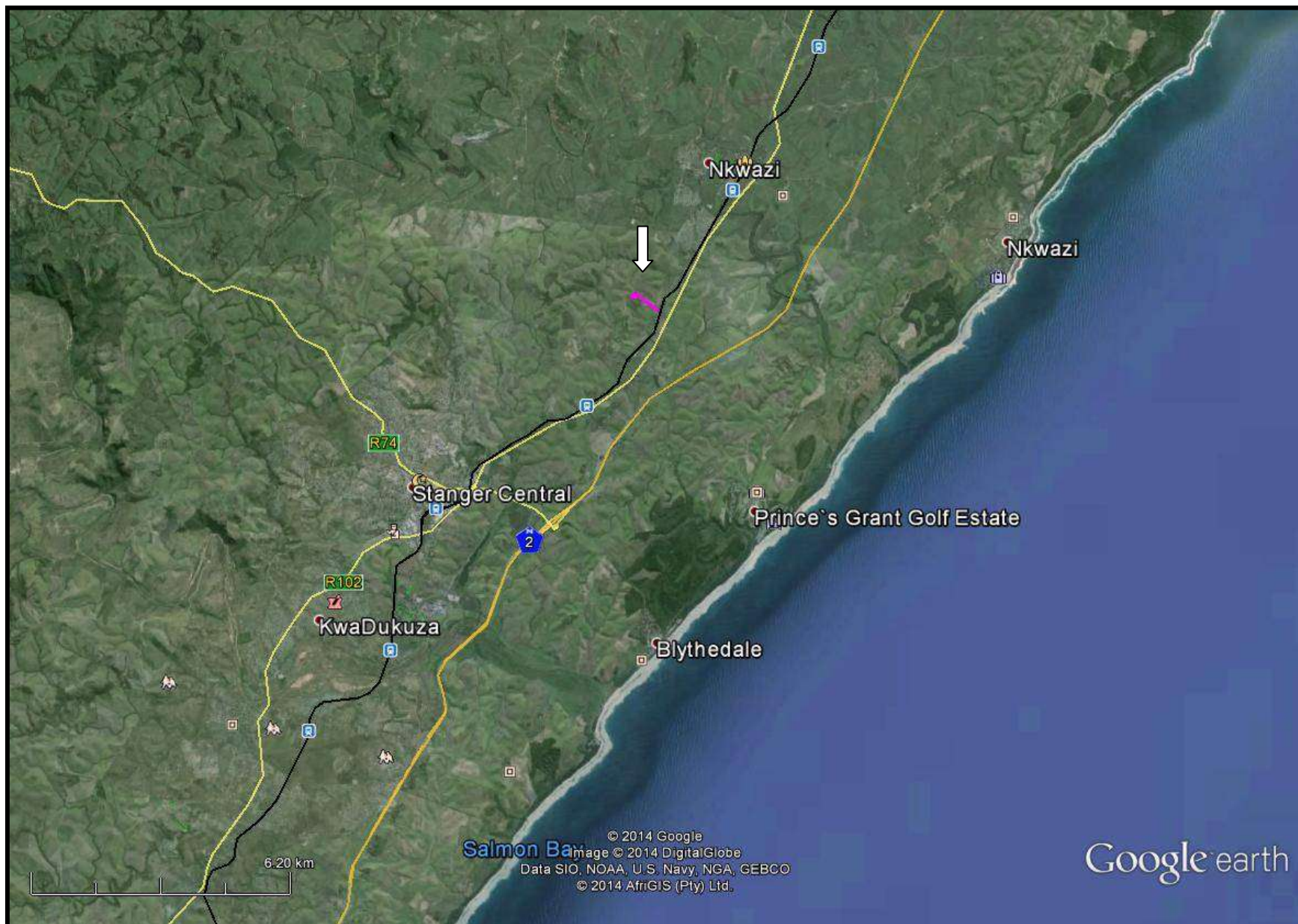


FIG. 2: AERIAL OVERVIEW OF THE STUDY AREA



FIG. 3: TOPOGRAPHICAL MAP OF THE STUDY AREA

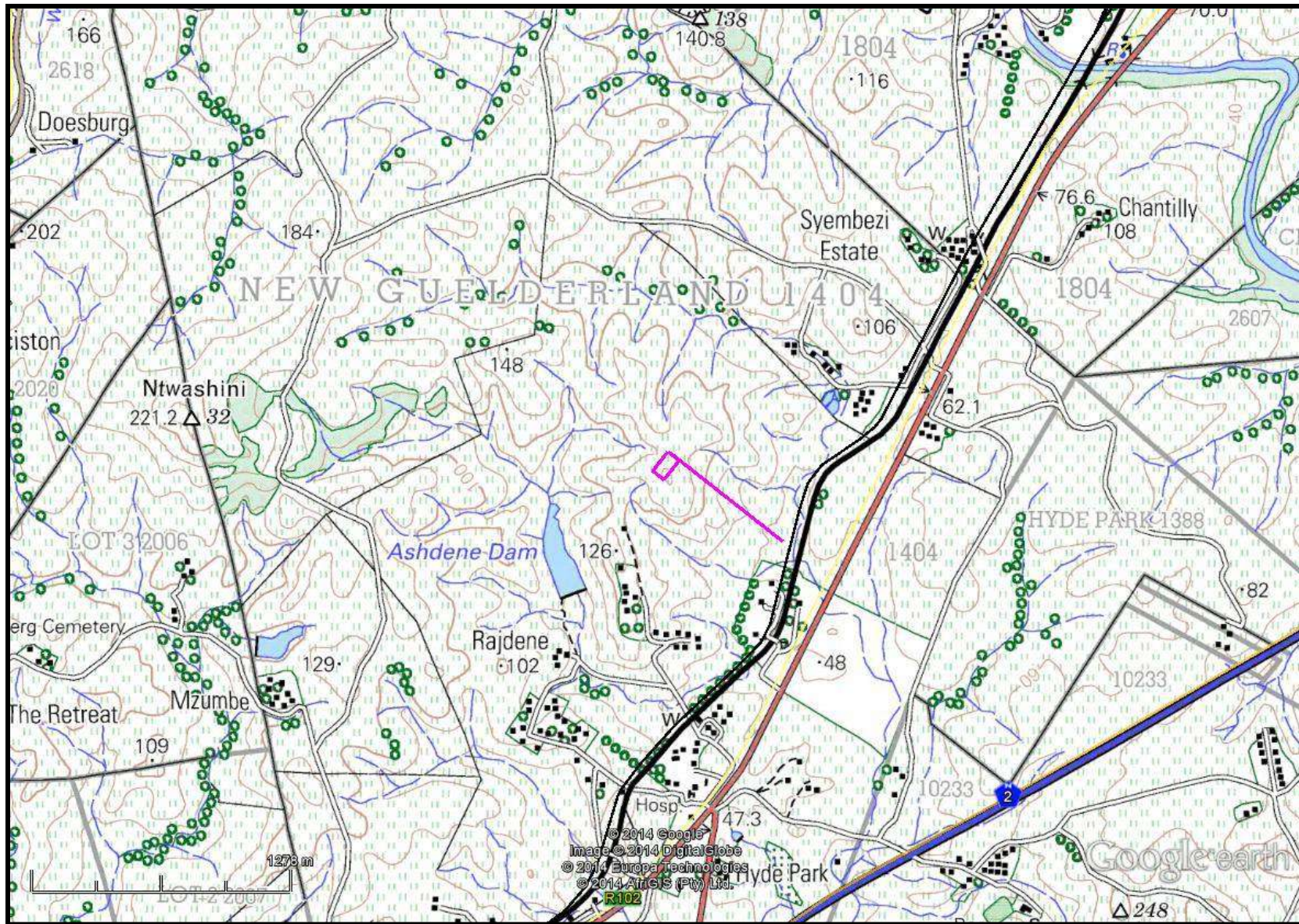
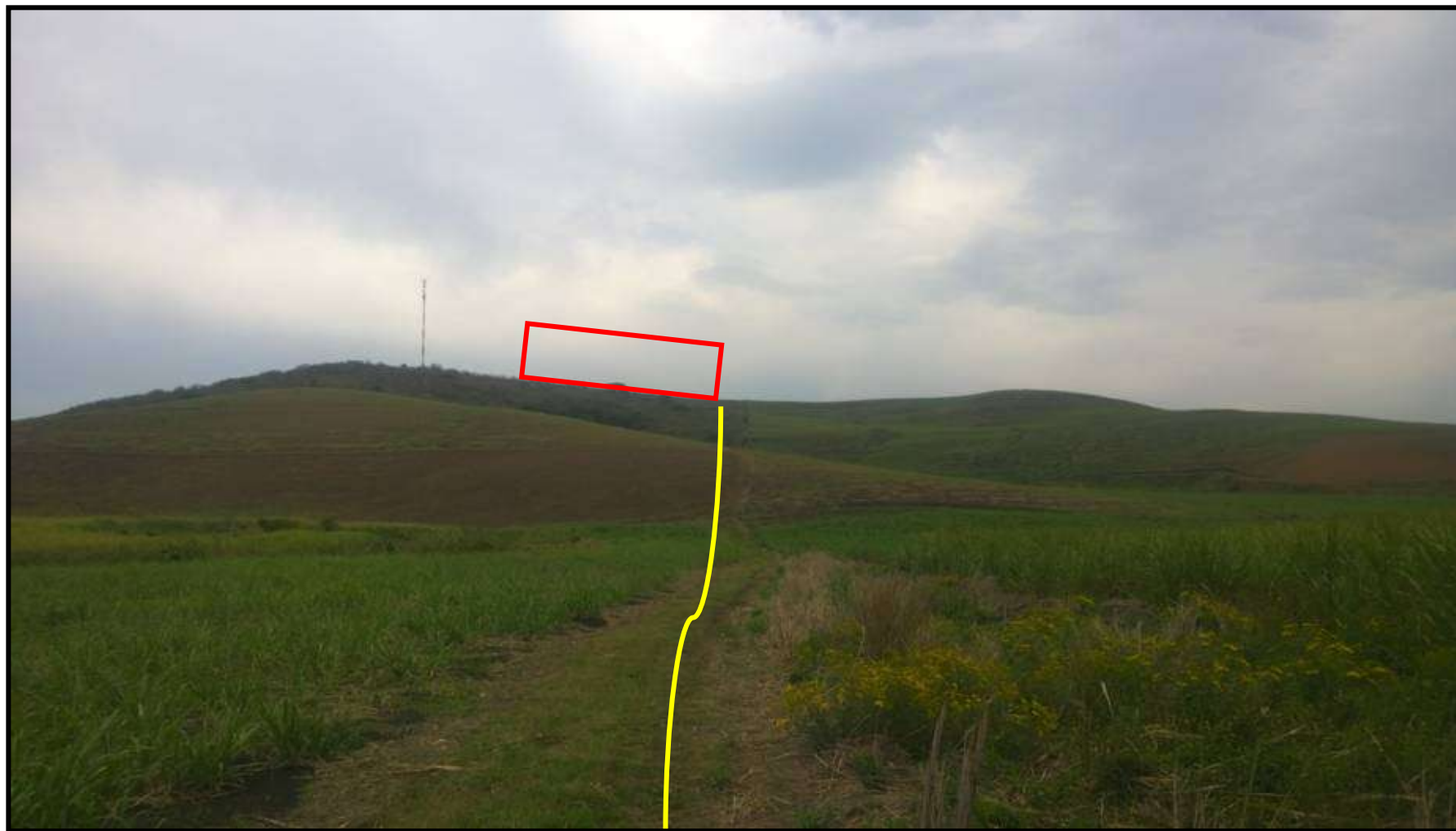


FIG. 4: SCENIC VIEWS OF THE PIPELINE AND RESERVOIR¹



¹ Yellow line = pipeline; red rectangle = reservoir

KWAZULU-NATAL HERITAGE ACT NO. 4 OF 2008

“General protection: Structures.—

- No structure which is, or which may reasonably be expected to be older than 60 years, may be demolished, altered or added to without the prior written approval of the Council having been obtained on written application to the Council.
- Where the Council does not grant approval, the Council must consider special protection in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.
- The Council may, by notice in the *Gazette*, exempt—
- A defined geographical area; or
- defined categories of sites within a defined geographical area, from the provisions of subsection where the Council is satisfied that heritage resources falling in the defined geographical area or category have been identified and are adequately protected in terms of sections 38, 39, 40, 41 and 43 of Chapter 9.
- A notice referred to in subsection (2) may, by notice in the *Gazette*, be amended or withdrawn by the Council.

General protection: Graves of victims of conflict.—No person may damage, alter, exhume, or remove from its original position—

- the grave of a victim of conflict;
- a cemetery made up of such graves; or
- any part of a cemetery containing such graves, without the prior written approval of the Council having been obtained on written application to the Council.
- General protection: Traditional burial places.—
- No grave—
- not otherwise protected by this Act; and
- not located in a formal cemetery managed or administered by a local authority, may be damaged, altered, exhumed, removed from its original position, or otherwise disturbed without the prior written approval of the Council having been obtained on written application to the Council.

The Council may only issue written approval once the Council is satisfied that—

- the applicant has made a concerted effort to consult with communities and individuals who by tradition may have an interest in the grave; and
- the applicant and the relevant communities or individuals have reached agreement regarding the grave.

General protection: Battlefield sites, archaeological sites, rock art sites, palaeontological sites, historic fortifications, meteorite or meteorite impact sites.—

- No person may destroy, damage, excavate, alter, write or draw upon, or otherwise disturb any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Council having been obtained on written application to the Council.
- Upon discovery of archaeological or palaeontological material or a meteorite by any person, all activity or operations in the general vicinity of such material or meteorite must cease forthwith and a person who made the discovery must submit a written report to the Council without delay.
- The Council may, after consultation with an owner or controlling authority, by way of written notice served on the owner or controlling authority, prohibit any activity considered by the Council to be inappropriate within 50 metres of a rock art site.
- No person may exhume, remove from its original position or otherwise disturb, damage, destroy, own or collect any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site without the prior written approval of the Council having been obtained on written application to the Council.
- No person may bring any equipment which assists in the detection of metals and archaeological and palaeontological objects and material, or excavation equipment onto any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, or meteorite impact site, or

- use similar detection or excavation equipment for the recovery of meteorites, without the prior written approval of the Council having been obtained on written application to the Council.
- The ownership of any object or material associated with any battlefield site, archaeological site, rock art site, palaeontological site, historic fortification, meteorite or meteorite impact site, on discovery, vest in the Provincial Government and the Council is regarded as the custodian on behalf of the Provincial Government.” (KZN Heritage Act of 2008)

METHOD

The method for Heritage assessment consists of several steps.

The first step forms part of the desktop assessment. Here we would consult the database that has been collated by Umlando. These databases contains archaeological site locations and basic information from several provinces (information from Umlando surveys and some colleagues), most of the national and provincial monuments and battlefields in Southern Africa (<http://www.vuvuzela.com/googleearth/monuments.html>) and cemeteries in southern Africa (information supplied by the Genealogical Society of Southern Africa). We use 1st and 2nd edition 1:50 000 topographical and 1937 aerial photographs where available, to assist in general location and dating of buildings and/or graves. The database is in Google Earth format and thus used as a quick reference when undertaking desktop studies. Where required we would consult with a local data recording centre, however these tend to be fragmented between different institutions and areas and thus difficult to access at times. We also consult with an historical architect, palaeontologist, and an historian where necessary.

The survey results will define the significance of each recorded site, as well as a management plan.

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 or features. Sites of medium significance have diagnostic artefacts or features and these sites tend to be 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.

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. Archaeological 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.

RESULTS

DESKTOP STUDY

The desktop study consisted of analysing various maps for evidence of prior habitation in the study area, as well as for previous archaeological surveys. The archaeological database indicates that there are archaeological sites, national monuments, battlefields, and historical cemeteries in the general area (fig. 5). These sites include all types of Stone Age and Iron Age sites. No sites occur in the study area.

The area is classified as 'Grey zone' on SAHIS in terms of palaeontological sensitivity. The 1968 topographical map indicates that there are no settlements in the study area (fig. 6). The 1937 aerial photograph indicates that there is one settlement in the proposed reservoir area, and one to the east (fig. 7).

FIG. 5: LOCATION OF KNOWN HERITAGE SITES NEAR THE STUDY AREA

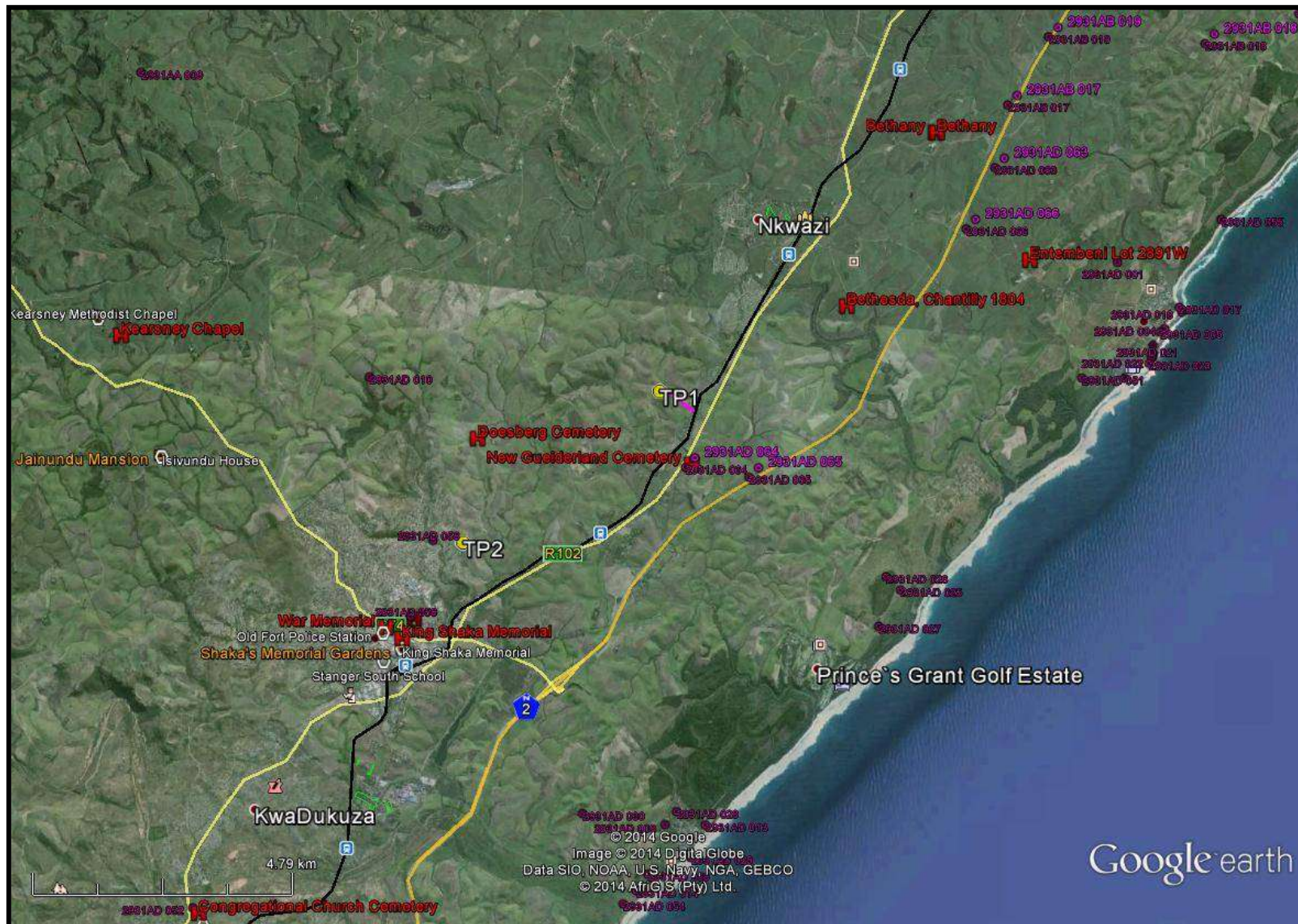


FIG. 6: STUDY AREA IN 1968

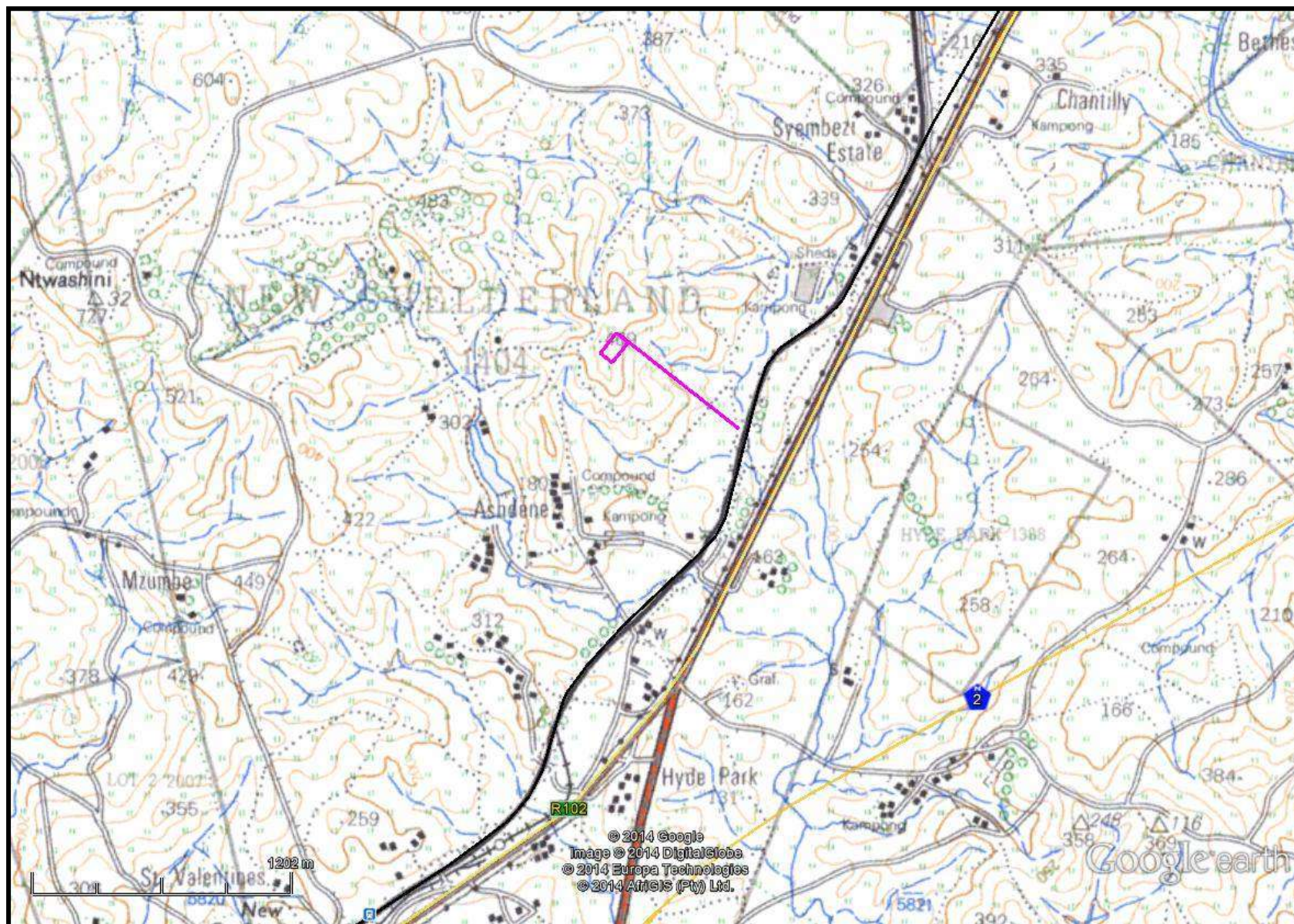
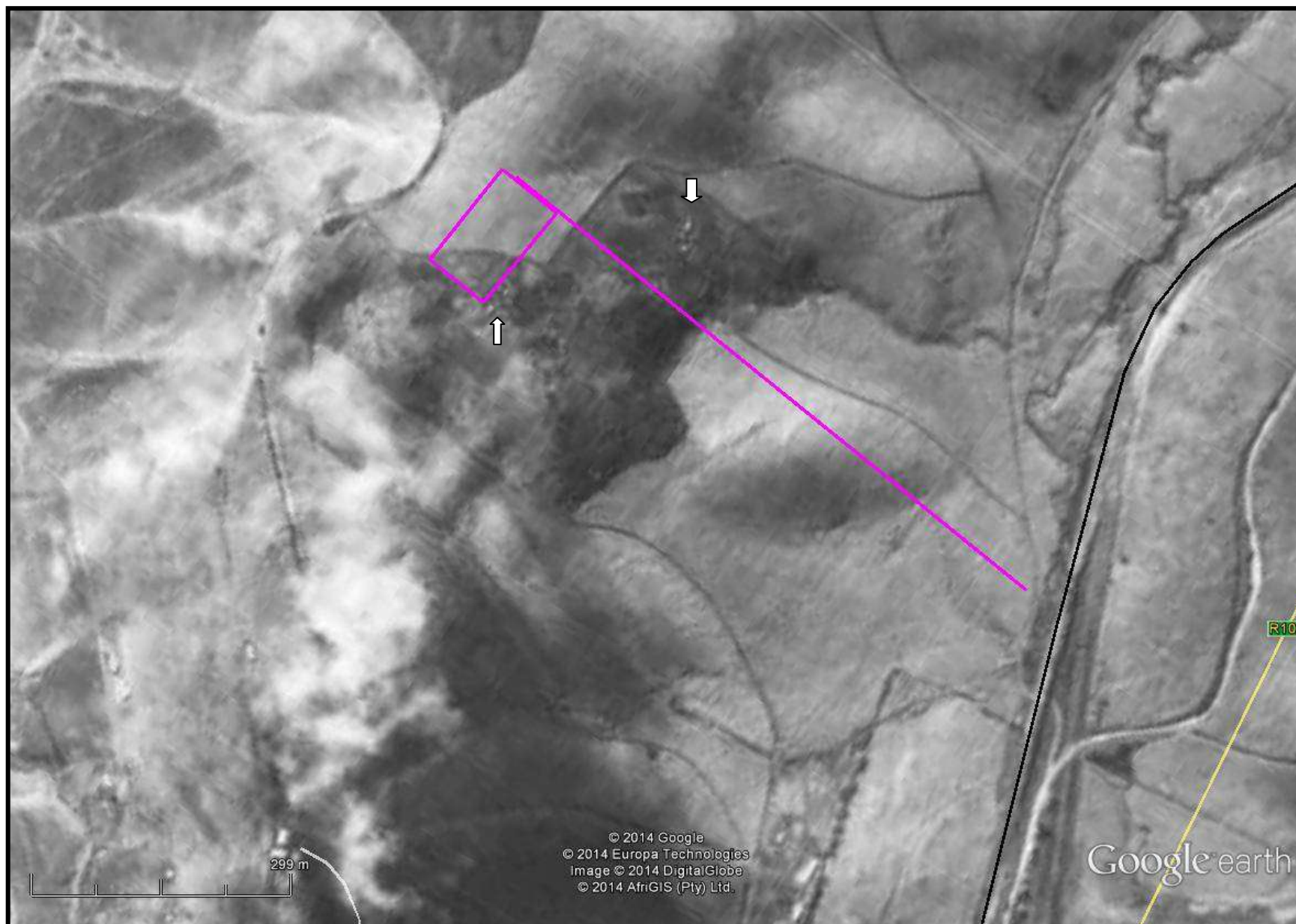


FIG. 7: STUDY AREA IN 1937



FIELD SURVEY

The survey was undertaken in October 2014. The survey followed the 700m of pipeline to the top of the hill, and then covered the entire hill. The hill has a steep slope and has been cultivated for sugar cane for over 90 years. The lower half of the hill has shallow soils, while the top of the hill has deeper rich soils. The top of the hill has an extensive scatter of artefacts.

NG01

NGO01 is located at the top of the hill and extends over the entire hill. It would have been disturbed by the construction of the cell phone tower in the southern corner. The site consists of an extensive scatter of various pottery sherds, (recent and older) glass bottles, upper grinding stones, burnt and unburnt faunal remains, and one piece of iron ore. These artefacts are shown in figure 8.

The pottery is undecorated and of different thickness, colours and temper. Several rims and lips were noted and these tend to be straight rims with flat or rounded lips. The pottery occurs across the entire hill and appears to be in several concentrations. The thinner pottery with a red burnish could date to Blackburn pottery, i.e. *circa* 1200ACE, while the some appears to be more recent, i.e. last 200 years, and then recent past, i.e. 20th century. The one glass bottle appears to be a late 19th century to early 20th century brewery bottle. The 1937 aerial map indicates that there is a settlement on the hill, and thus some of the artefacts will relate to this period as well.

While the sugar cane activity has extensively damaged the stratigraphy of the site, there is a strong possibility of human remains occurring at the site. These would be subsurface, with the cairns no longer visible. Other features could occur at the site; however, it would not justify a full excavation.

FIG. 9: ARTEFACTS AND VIEW OF HILL AT NG01



Significance: The possible occurrence of human remains within the footprint of the reservoir makes the highly significant. Without the human remains, the site would be of low significance, as the pottery is undecorated and generic LIA and Historical Period pottery.

Mitigation: I do not believe a systematic excavation would likely find the human remains if they existed within the study area. The expenses related to such an excavation would not justify the excavations, as one would need to excavate the site in a checkerboard fashion until the remains were located. This could take 2 – 3 weeks. Rather I suggest that the area is monitored during earth moving activity, by a qualified archaeologist. Moreover, only one earth moving machine will be allowed on site until the monitoring is completed. If human remains, or any other features that are deemed important, are found during earth moving, then the construction activity will need to stop until archaeological excavations are completed. The archaeologist will need to determine if the skeleton is older than 60 and 100 years in age. This might result in a social impact process for the human remains.

SAHRA Rating: 3A

MANAGEMENT PLAN

The footprint for the new water reservoir will need to be monitored by a qualified archaeologist for possible (archaeological) human remains and archaeological features. The monitoring will need to adjust the earth moving program activities, as one archaeologist will need to work with one machine. Given the confines of the small area, more than one person could result in safety issues. The archaeologist may stop construction at any time to recover artefacts, features, and/or human remains, and the construction company must add in delays to their program.

If human remains are observed, they will need to be exhumed. The process of grave removals is a complex one that requires community consultation, advertisements, several permits, and finally reburial. Moreover, those graves older than 60 years require a qualified archaeologist to undertake the entire process. This process is summarised as follows². If the graves are over 100 years in age, with no definite claimant, then they may be removed by an archaeologist, without the consultation.

In terms of the National Heritage Resources Act (No. 25 of 1999), and KZN Heritage Act of 1997 and 2008, graves older than 60 years (not in a municipal graveyard) are protected. Human remains younger than 60 years should be handled only by a registered undertaker or an institution declared under the Human Tissues Act. Anyone who wishes to develop an area where there are graves older than 60 years is required to follow the process described in the legislation (section 36 and associated regulations). The specialist will require a permit from the heritage resources authority:

- Determine/ confirm the presence of the graves on the property. Normally the quickest way to proceed is to obtain the service of a professional archaeologist accredited to undertake burial relocations. The archaeologist will provide an estimate of the age of the graves. There may be a need for archival research and possibly test excavations (permit required).
- The preferred decision is to move the development so that the graves may remain undisturbed. If this is done, the developer must satisfy SAHRA/KZN Heritage that adequate arrangements have been made to protect the graves on site from the impact of the development. This usually involves fencing the grave(yard) and setting up a small site management plan indicating who will be responsible for

² Information supplied by SAHRA, and it applies to KZN, although falling under the KZN Heritage Act.

maintaining the graves and how this is legally tied into the development. It is recommended that a distance of 10-20 m is left undisturbed between the grave and the fence around the graves.

- If the developer wishes to relocate or disturb the graves:
 - A 60-day public participation (social consultation) process as required by section 36 (and regulations - see attachment), must be undertaken to identify any direct descendants of those buried on the property. This allows for a period of consultation with any family members or community to ascertain what their wishes are for the burials. It involves notices to the public on site and through representative media. This may be done by the archaeologist, who can explain the process, but for large or sensitive sites, a social consultant should be employed. Archaeologists often work with undertakers, who rebury the human remains.
 - If as a result of the public participation, the family (where descendants are identified) or the community agree to the relocation process then the graves may be relocated.
 - The archaeologist must submit a permit application to SAHRA/KZN Heritage for the disinterment of the burials. This must include written approval of the descendants or, if there has not been success in identifying direct descendants, written documentation of the social consultation process, which must indicate to SAHRA's satisfaction, the efforts that have been made to locate them. It must also include details of the exhumation process and the place to which the burials are to be relocated. (There are regulations regarding creating new cemeteries and so this usually means that relocation must be to an established communal rural or formal municipal cemetery.)
 - Permission must be obtained before exhumation takes place from the landowner where the graves are located, and from the owners/managers of the graveyard to which the remains will be relocated.

○Other relevant legislation must be complied with, including the Human Tissues Act (National Department of Health) and any ordinances of the Provincial Department of Health). The archaeologist can usually advise about this.

If human remains are found, and require a social impact assessment, the developer can expect up to, and more, 6 months delay. The developer may apply for a permit whereby the human remains are exhumed and stored in a designated place, whilst construction and the social consultation process continues.

A permit for the destruction of the site, including possible human remains will be required by the developer. The archaeologist undertaking the monitoring should apply for a permit to sample and excavate the site, as well as to remove potential human remain(s). This should be undertaken well in advance of the beginning of the construction activity.

CONCLUSION

An HIA was undertaken for the Off Take 6b bulk water supply line. The project includes a 700m bulk water pipeline and a new reservoir. The HIA noted an extensive scatter of Late Iron Age, Historical Period, and 20th century pottery and glass sherds, and related artefacts on the hill. The last settlement on the hill occurred c. 1940 ACE as seen on the aerial photographs. This suggests that human remains could still occur on the hill, and thus in the reservoir footprint.

The site will need to be monitored during construction activity, and excavations may occur to retrieve human remains and/or archaeological features. Delays may result if human remains are noted and need to be removed.

APPENDIX A
SITE RECORD FORM

UMLANDO ARCHAEOLOGICAL SITE RECORD FORM

SITE CATEGORY:

Stone Age	ESA:		MSA		ESA		ISA	
Rock Art	Paintings		Engravings		Other			
Iron Age	EIA:		LIA	x	IAI			
Historical	Historical Period:	x	Recent Past (last 60 yrs):	?				

Recorder's Site No.: NG01

Official Name: New Guelderland 1404

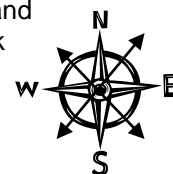
Local Name:

Map Sheet: 2931AD Stanger

GPS reading: S 29.296660 E31.344166 Altitude:134

DIRECTIONS TO SITE: SKETCH OR DESCRIPTION

From Stanger drive north along R102, from R74 intersection, for 6km. Turn left onto dirt road, and go through culvert for ~100m. After culvert turn right along track for 100m, and then follow track up the hill for 700m. Site is on left, or western side of the hill.



SITE DESCRIPTION:

Type of Site: Open

Merits conservation: No

Threats: Yes

What threats: Water reservoir

RECORDING:

Digital pictures #: Yes

Tracings :

Drawings:

Recorder/Informant: Name: Gavin Anderson

Address: PO Box 102532, Meerensee, 3901

Date: 10 October 2014

Owner:

References:

DESCRIPTION OF SITE AND ARTEFACTUAL CONTENT.

Diameter: Length: 200m Width: 80m Depth Height

Pottery sherds from LIA and HP, and some modern sherds. All undecorated. One has thin wall and red burnish. Rims are rounded and flat. Upper grinding stone, and iron ore, bone is (un)burnt. 19th and 20th century glass. Has deposit but damaged by sugar cane farming. There is a settlement up to 1937 here.