

# PHASE ONE HERITAGE IMPACT ASSESSMENT OF THE PROPOSED TUGELA FERRY IRRIGATION SCHEME UPGRADE, MSINGA LOCAL AND MZINYATHI REGIONAL MUNICIPALITIES, KZN



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Frans received his MA (Archaeology) from the University of Stellenbosch and is presently a PhD candidate on social anthropology at Rhodes University. His PhD research topic deals with indigenous San perceptions and interactions with the rock art heritage of the Drakensberg.

Frans was employed as a junior research associate at the then University of Transkei, Botany Department in 1988-1990. Although attached to a Botany Department he conducted a palaeoecological study on the Iron Age of northern Transkei - this study formed the basis for his MA thesis in Archaeology. Frans left the University of Transkei to accept a junior lecturing position at the University of Stellenbosch in 1990. He taught mostly undergraduate courses on World Archaeology and research methodology during this period.

From 1991 – 2001 Frans was appointed as the head of the department of Historical Anthropology at the Natal Museum, Pietermaritzburg. His tasks included academic research and publication, display conceptualization, and curating the African ethnology collections of the Museum. He developed various displays at the Natal Museum on topics ranging from Zulu material culture, traditional healing, and indigenous classificatory systems. During this period Frans also developed a close association with the Departments of Fine Art, Psychology, and Cultural and Media Studies at the then University of Natal. He assisted many post-graduate students with projects relating to the cultural heritage of South Africa. He also taught post-graduate courses on qualitative research methodology to honours students at the Psychology Department, University of Natal. During this period he served on the editorial boards of the *South African Journal of Field Archaeology* and *Natalia*.

Frans left the Natal Museum in 2001 when approached by a Swiss funding agency to assist an international NGO (Working Group for Indigenous Minorities) with the conceptualization of a San or Bushman museum near Cape Town. During this period he consulted extensively with various San groupings in South Africa, Namibia and Botswana. During this period he also made major research and conceptual contributions to the Kamberg and Didima Rock Art Centres in the Ukhahlamba Drakensberg World Heritage Site.

Between 2003 and 2007 Frans was employed as the Cultural Resource Specialist for the Maloti Drakensberg Transfrontier Project – a bilateral conservation project funded through the World Bank. This project involved the facilitation with various stakeholders in order to produce a cultural heritage conservation and development strategy for the adjacent parts of Lesotho and South Africa. Frans was the facilitator for numerous heritage surveys and assessments during this project. This vast area included more than 2000 heritage sites. Many of these sites had to be assessed and heritage management plans designed for them. He had a major input in the drafting of the new Cultural Resource Management Plan for the Ukhahlamba Drakensberg World Heritage site in 2007/2008. A highpoint of his career was the inclusion of Drakensberg San indigenous knowledge systems, with San collaboration, into the management plans of various rock art sites in this world heritage site. He also liaised with the tourism specialist with the drafting of a tourism business plan for the area.

During April 2008 Frans accepted employment at the environmental agency called Strategic Environmental Focus (SEF). His main task was to set-up and run the cultural heritage unit of this national company. During this period he also became an accredited heritage impact assessor and he is rated by both Amafa and the South African Heritage Resources Agency (SAHRA). He completed almost 50 heritage impact assessment reports nation-wide during an 18<sup>th</sup> month period.

Frans left SEF and started his own heritage consultancy called “Active Heritage cc” in July 2009. Although mostly active along the eastern seaboard his clients also include international companies such as Royal Dutch Shell through Golder Associates, and UNESCO. He has now completed almost 1000 heritage conservation and management reports for various clients since the inception of “Active Heritage cc”. Amongst these was a heritage study of the controversial fracking gas exploration of the Karoo Basin and various proposed mining developments in South Africa and proposed developments adjacent to various World Heritage sites. Apart from heritage impact assessments (HIA's) Frans also assist the National Heritage Council (NHC) through Haley Sharpe Southern Africa', with heritage site data capturing and analysis for the proposed National Liberation Route World Heritage Site and the national intangible heritage audit. In addition, he is has done background research and conceptualization of the proposed Dinosaur Interpretative Centre at Golden Gate National Park and the proposed Khoi and San Interpretive Centre at Camdeboo, Eastern Cape Province. During 2009 he also produced the first draft dossier for the nomination of the Sehlabathebe National Park, Lesotho as a UNESCO inscribed World Heritage Site.

Frans was appointed as temporary lecturer in the department of Heritage and Tourism, UKZN in 2011. He is also a research affiliate at the School of Cultural and Media Studies in the same institution.

Frans's research interests include African Iron Age, paleoecology, rock art research, San ethnography, traditional healers in South Africa, and heritage conservation. Frans has produced more than forty publications on these topics in both popular and academic publications. He is frequently approached by local and international video and film productions in order to assist with research and conceptualization for programmes on African heritage and culture. He has also acted as presenter and specialist for local and international film productions on the rock art of southern Africa. Frans has a wide experience in the fields of museum and interpretive centre display and made a significant contribution to the conceptual planning of displays at the Natal Museum, Golden Horse Casino, Didima Rock Art Centre and !Khwa tu San Heritage Centre. Frans is also the co-founder and active member of "African Antiqua" a small tour company who conducts archaeological and cultural tours world-wide. He is a Thetha accredited cultural tour guide and he has conducted more than 50 tours to heritage sites since 1992.

#### **Declaration of Consultants independence**

Frans Prins is an independent consultant to EnviroPro and has no business, financial, personal or other interest in the activity, application or appeal in respect of which he was appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances whatsoever that compromise the objectivity of this specialist performing such work.



**Frans Prins**

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## LIST OF ABBREVIATIONS AND ACRONYMS

EIA	Early Iron Age
ESA	Early Stone Age
HISTORIC PERIOD	Since the arrival of the white settlers - c. AD 1820 in this part of the country
IRON AGE	Early Iron Age AD 200 - AD 1000 Late Iron Age AD 1000 - AD 1830
LIA	Late Iron Age
LSA	Late Stone Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998 and associated regulations (2006)).
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999) and associated regulations (2000))
SAHRA	South African Heritage Resources Agency
STONE AGE	Early Stone Age 2 000 000 - 250 000 BP Middle Stone Age 250 000 - 25 000 BP Late Stone Age 30 000 - until c. AD 200

## **EXECUTIVE SUMMARY**

A phase one heritage survey of the proposed upgrade of the Tugela Ferry Irrigation Scheme near Msinga, KZN identified no archaeological or heritage sites on the footprint. The area is also not part of any known cultural landscape. However, the area has a moderate fossil sensitivity. A qualified palaeontologist will need to conduct a desktop survey of the footprint before development may proceed. Attention is drawn to the South African Heritage Resources Act, 1999 (Act No. 25 of 1999) and the KwaZulu-Natal Heritage Act (Act No. 4 of 2008), which requires that operations that expose archaeological or historical remains as well as graves and fossil material should cease immediately, pending evaluation by the provincial heritage agency. It is important to note that all graves in KwaZulu-Natal, including those younger than 60 years, are protected by provincial heritage legislation.

## 1 BACKGROUND INFORMATION ON THE PROJECT

**Table 1. Background information**

Consultant:	Frans Prins (Active Heritage cc) for EnviroPro
Type of development:	Proposed Limestone Quarry
Rezoning or subdivision:	Rezoning
Terms of reference	To carry out a Phase One Heritage Impact Assessment
Legislative requirements:	The Heritage Impact Assessment was carried out in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and following the requirements of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) and the KwaZulu-Natal Heritage Act, 1997 (Act No. 4 of 2008)

### 1.1. Details of the area surveyed:

The project area is located adjacent to the Thukela River in the Msinga Local Municipality (Figs 1 & 2). It is situated in a predominantly rural area dotted by rural homesteads. The Tugela Ferry Waterworks covers the cultivated lands directly adjacent to the River (south bank) (Figs 6 & 11) However, only two features are considered for upgrade and these were investigated in this study. The features investigated includes a) Pump Station (Fig 3) and b) Siphon (Fig 4). The proposed Pump Station is situated on the northern bank of the Thukela River directly adjacent to an old cultivated field (Figs 6 & 7). The old Siphon, that is situated on the southern bank of the Thukela River in a dry stream bed (8 & 9), is severely damaged and needs to be replaced. The GPS coordinates for these features are:

Pump Station: S 28° 45' 16.14" E 30° 24' 21.15".

Siphon: S 28° 45' 08.65" E 30° 21' 05.32"



## **2 BACKGROUND TO ARCHAEOLOGICAL HISTORY OF AREA**

The archaeological history of the Province of KwaZulu-Natal (KZN) dates back to about 2 million years and possibly older, which marks the beginning of the Stone Age. The Stone Age in KZN was extensively researched by Professor Oliver Davies formerly of the Natal Museum. The Stone Age period has been divided into three periods namely: Early Stone Age (ESA) dating between 2 million years ago to about 200 000 years ago, Middle Stone Age (MSA) dating between 200 000 years ago to about 30 000 years ago, and the Later Stone Age (LSA) which dates from 30 000 to about 2 000 year ago. The Stone Age period ends around approximately 2 000 years ago when Bantu speaking Age farmers from the north arrived in southern Africa. The Iron Age is also divided into three periods, namely: Early Iron Age (EIA) dating between AD 200 and AD 900, Middle Iron Age (MIA) dating between AD 900 and AD 1300, Late Iron Age (LIA) dating between AD 1 300 and 1 820.

### **2.1 Stone Age**

#### **2.1.1 Early Stone Age (ESA)**

The ESA is considered as the beginning of the stone tool technology. It dates back to over 2 million years ago until 200 000 years ago. This period is characterised by Oldowan and Acheulean industries. The Oldowan Industry, dating to approximately between over 2 million years and 1.7 million years predates the later Acheulean. The Oldowan Industry consists of very simple, crudely made core tools from which flakes are struck a couple of times. To date, there is no consensus amongst archaeologists as to which hominid species manufactured these artefacts. The Acheulean Industry lasted from about 1.7 million years until 200 thousand years ago. Acheulean tools were more specialized tools than those of the earlier industry. They were shaped intentionally to carry out specific tasks such as hacking and bashing to remove limbs from animals and marrow from bone. These duties were performed using the large sharp pointed artefacts known as handaxes. Cleavers, with their sharp, flat cutting edges were used to carry out more heavy duty butchering activities (Esterhuysen, 2007). The ESA technology lasted for a very long time, from early to middle Pleistocene and thus seems to have been sufficient to meet the needs of early hominids and their ancestors. ESA tool occurrence has been reported in open air context on seven sites in the greater Weenen area. None of these sites occur on the actual footprint. Apart from stone artefacts, the ESA sites have produced very little as regards other archaeological remains. This has made it difficult to make inferences pointing to economical dynamics of the ESA people in this part of the world. The diet of ESA peoples has therefore had to be reconstructed on the

basis of evidence from elsewhere that it comprised primarily of animal and plant foods (Mazel 1989).

### **2.1.2 Middle Stone Age (MSA)**

The MSA dates to between 200 000 and 30 000 years ago, coinciding with the emergence of modern humans. The MSA technology is therefore believed to have been manufactured by fully modern humans known as *Homo sapiens* who emerged around 250 000 years ago. While some of the sites belonging to this time period occur in similar contexts as those of ESA, most of the MSA sites are located in rock shelters. Palaeoenvironmental data suggest that the distribution of MSA sites in the high lying Drakensberg and surrounding areas was influenced by the climate conditions, specifically the amount and duration of snow (Carter, 1976). In general, the MSA stone tools are smaller than those of the ESA. Although some MSA tools are made from prepared cores, the majority of MSA flakes are rather irregular and are probably waste material from knapping exercises. A variety of MSA tools include blades, flakes, scrapers and pointed tools that may have been hafted onto shafts or handles and used as spearheads. Between 70 000 and 60 000 years ago new tool types appear known as segments and trapezoids. These tool types are referred to as backed tools from the method of preparation. Residue analyses on the backed tools from South African MSA sites including those in KZN indicate that these tools were certainly used as spear heads and perhaps even arrow points (Wadley, 2007). A few sites with impressive MSA deposits have been excavated in KZN. Perhaps the best known ones are Sibudu Cave and Umhlatuzana Cave to the south east of the study area, and Border Cave to the north of the study area. All these sites provided impressive evidence for fine resolution data and detailed stratigraphy (Wadley & Jacobs, 2006). Fourteen Middle Stone Age sites have been recorded in the greater Msinga area. These, like the Early Stone Age sites, are mostly restricted on open air sites with little archaeological context remaining. None of the known Middle Stone Age sites occur on the footprint.

### **2.1.3 Late Stone Age (LSA)**

Compared to the earlier MSA and ESA, more is known about the LSA which dates from around 30 000 to 2 000 (possibly later) years ago. This is because LSA sites are more recent than ESA and MSA sites and therefore achieve better preservation of a greater variety of organic archaeological material. The Later Stone Age is usually associated with the San (Bushmen) or their direct ancestors. The tools during this period were even smaller and more diverse than those of the preceding Middle Stone Age period. LSA

tool technology is observed to display rapid stylistic change compared to the slower pace in the MSA. The rapidity is more evident during the last 10 000 years. The LSA tool sequence includes informal small blade tradition from about 22 000 – 12 000 years ago, a scraper and adze-rich industry between 12 000 – 8 000 years ago, a backed tool and small scraper industry between 8 000 – 4 000 years and ending with a variable set of other industries thereafter (Wadley, 2007). Adzes are thought to be wood working tools and may have also been used to make digging sticks and handles for tools. Scrapers are tools that are thought to have been used to prepare hides for clothing and manufacture of other leather items. Backed tools may have been used for cutting as well as tips for arrows. It was also during Later Stone Age times that the bow and arrow was introduced into southern Africa – perhaps around 20 000 years ago. Because of the bow and arrow and the use of traps and snares, Later Stone Age people were far more efficient in exploiting their natural environment than Middle Stone Age people. Up until 2 000 years ago Later Stone Age people dominated the southern African landscape. However, shortly after 2 000 years ago the first Khoi herders and Bantu-speaking agro pastoralists immigrated into southern Africa from the north. This led to major demographic changes in the population distribution of the subcontinent. San hunter-gatherers were either assimilated or moved off to more marginal environments such as the Kalahari Desert or some mountain ranges unsuitable for small-scale subsistence farming and herding. The San in the coastal areas of KZN were the first to have been displaced by incoming African agro pastoralists. However, some independent groups continue to practice their hunter gatherer lifestyle in the foothills of the Drakensberg until the period of white colonisation around the 1840's (Wright & Mazel, 2007). According to the KwaZulu- Natal Museum archaeological database there are fourteen Later Stone Age sites in the greater Muden area. Although ten of these are surface scatters the remaining four are cave deposits in archaeological context. Also dating to the LSA period is the impressive Rock Art found on cave walls and rock faces. Rock Art can be in the form of rock paintings or rock engravings. The province of KZN is renowned for the prolific San rock painting sites concentrated in the Drakensberg. Rock art sites do occur outside the Drakensberg including the Msinga area, however, these sites have not been afforded similar research attention as those sites occurring in the Drakensberg. Four rock art sites occur within 3km from the footprint.

## **2.2 Iron Age**

### **2.2.1 Early Iron Age (EIA)**

Unlike the Stone Age people whose life styles were arguably egalitarian, Iron Age people led quite complex life styles. Their way of life of greater dependence on agriculture

necessitated more sedentary settlements. They cultivated crops and kept domestic animals such as cattle, sheep, goats and dogs. Pottery production is also an important feature of Iron Age communities. Iron smelting was practised quite significantly by Iron Age society as they had to produce iron implements for agricultural use. However no smelting sites were discovered in the study area as it is the northern KZN that is rich in abandoned iron smelting sites (Maggs, 1989). Although Iron Age people occasionally hunted and gathered wild plants and shellfish, the bulk of their diet consisted of the crops they cultivated as well as the meat of the animals they kept. EIA villages were relatively large settlements strategically located in valleys beside rivers to take advantage of the fertile alluvial soils for growing crops (Maggs, 1989). The EIA sites in KZN date to around AD 500 to AD 900. Extensive research in the province, in the greater Weenen and Muden areas, of this period led to it being divided in the following time lines according to ceramic styles (Maggs, 1989; Huffman 2007):

- \_ Msuluzi (AD 500);
- \_ Ndongondwane (AD 700 – 800);
- \_ Ntshekane (AD 800 – 900).

The archaeological data base of the KwaZulu-Natal Museum indicates that ten Early Iron Age sites occur in the Tugela Valley catchment area. Here they are situated at altitudes below 1000m adjacent to the Mooi, Mhlopheni and Msuluzi Rivers. The well-known and researched sites of Mhlopheni and Magogo (Maggs & Ward 1984) occurs approximately 40km to the west of the project area.

### **2.2.2 Late Iron Age (LIA)**

The LIA is not only distinguished from the EIA by greater regional diversity of pottery styles but is also marked by extensive stone wall settlements. However, in this part of the world, stone walls were not common as the Nguni people used thatch and wood to build their houses. This explains the failure to obtain sites from the aerial photograph investigation of the study area. Trade played a major role in the economy of LIA societies. Goods were traded locally and over long distances. The main trade goods included metal, salt, grain, cattle and thatch. This led to the establishment of economically driven centres and the growth of trade wealth. Keeping of domestic animals, metal work and the cultivation of crops continued with a change in the organisation of economic activities. Evidence for this stems from the fact that iron smelting evidence was not found in almost every settlement (Maggs, 1989; Huffman 2007). Later Iron Age sites have been recorded in the greater Tugela Valley catchment area. The majority of these were most probably inhabited by early Nguni-speaking agropastoralists before the Shakan era in the beginning of the 19<sup>th</sup> century. However,

despite the occurrence of numerous sites in this area they, in contrast with the Early Iron Age sites, have not been well researched. Two known Later Iron Age sites occur within 1km from the project area.

### **2.3 Historic Period**

Oral tradition is the basis of the evidence of historical events that took place before history could be recorded. This kind of evidence becomes even more reliable in cases where archaeology could be utilised to back up the oral records. Sources of evidence for socio political organization during the mid-eighteenth to early nineteenth century in the study area and the larger former Natal Province suggest that the people here existed in numerous small-scale political units of different sizes, population numbers and political structures (Wright & Hamilton, 1989). This period was largely characterised by rage and instability as political skirmishes broke due to the thirst for power and resources between chiefdoms. During the 2nd half of the eighteenth century, stronger chiefdoms and paramuncies emerged. However, these were not fully grown states as there was no proper formal central political body established. This changed in the 1780's when a shift towards a more centralized political state occurred. This shift was mainly characterized by population growth and geographical expansion of states. The most important and largest and strongest states at the time were the Mabhudu, Ndwandwe and Mthethwa. However, other smaller states, also established themselves in the area. These included in the south the Qwabe, Bhaca, Mbo, Hlubi, Bhele, Ngwane and many others (Wright & Hamilton, 1989). The greater Msnga area was inhabited by the Thembu and Mccunu clans. The Zulu kingdom, established by King Shaka however remained the most powerful in the region in the early years of the 19th century. Shaka fought ruthlessly and often defeated his rivals and conquered their cattle, wives and even burnt their villages. These wars are often referred to as Difaqane and this period was characterised by rage and blood shedding. Shaka was assassinated in 1828 at which time he had transformed the nature of the society in the Natal and Zululand regions. He was succeeded by Dingaan (Wright & Hamilton, 1989). The location of the Tembu and Mccunu in the greater project area is a direct result of the expansionistic policies of the King Shaka. Colonial and Apartheid-era policies in more recent years contributed tremendously to the high incidence of faction fighting and interpersonal violence that his area has been experiencing (Clegg 1979).

Dutch farmers unhappy with the British rule in Cape Town decided to explore into the interior of the country, away from British rule. Some groups remained in the Eastern

Cape, others kept going and a few settled in the Orange Free State and the Transvaal. A great number, led by Piet Retief and Gerrit Maritz, crossed the Drakensberg into Natal.

Here they encountered the Zulus who lured them into a trap and brutally massacred many of them. This was only one of the many failures of the white settler expeditions in the frontier areas and when the shocking news reached the Cape, more groups were sent to the interior to revenge. A series of battles were fought but the most notable was the Battle of Blood River in 1838 where the Boers defeated the Zulus. This ended the Zulu threat to the white settlers and a permanent and formal settlement in Natal was established. However the Zulu kingdom remained independent for a couple of decades. The Republic of Natalia was annexed by the British in 1845 and in 1879 the Zulu kingdom was also invaded (Wright & Hamilton, 1989). The Anglo-Zulu War has been well recorded and an important occurrence took place at Keates Drift and Jamesons Drift, near the project area, when a few British soldiers attempted to cross the Tugela River after their defeat at the battle of Isandlwana. Although no relicts or artefacts survive from this encounter the surrounding landscape is still imbued with the meaning of this important period in the colonial history of KwaZulu-Natal. The Bambata Rebellion of 1906 saw various incidents in the close vicinity of the project area. The most significant is perhaps the Bambata Rock Ambush that occurs approximately 30km to the south of the project area.

The more recent history of the people of the greater Msinga area is the history of the Natal transport routes established in the 1890's by the British in their quest to gain territory during the Anglo-Zulu and Anglo-Boer Wars. The main railway line from Pietermaritzburg reached Greytown where supplies had to be transported to outlying areas by wagon or cart. The wagon route through Msinga crossed the Tugela by pont or ferry (where the town Tugela Ferry is situated) and over the Msinga Mountain, on route to the project area, to the towns of Pomeroy and Dundee. A few permanent structures were built along these routes to serve the troops and travellers, these structures were very different from the vernacular buildings in material and construction, as they were commissioned by the British and in some cases built by foreign prisoners of war. The stores were used by the local people and store-owners began to stock wares for the local market. They became known as Trading Stores and they played an important part in the lives of travellers and the local people alike. They were often the only connection to the nearest town and the only supplier of certain products (Napier 2018).

### **3 BACKGROUND INFORMATION OF THE SURVEY**

#### **3.1 Methodology**

A desktop study was conducted of the archaeological databases housed in the KwaZulu-Natal Museum. The SAHRIS website was consulted for previous heritage surveys and heritage site data covering the project area. Various CRM surveys have been conducted in the greater Msinga area in recent years. The most pertinent of these, in terms of the present study, are those conducted by Anderson (2014) and Prins (2015). However, none of them covered the actual footprint. In addition, the available archaeological and heritage literature covering the greater Msinga area was also consulted. Aerial photographs covering the area were scrutinised for potential Iron Age and historical period structures and grave sites. A ground survey, following standard and accepted archaeological procedures, was conducted on 10 April 2019. Particular attention was focused on the occurrence of potential grave sites and other heritage resources on the footprint.

##### **3.1.1 Assumptions and limitations**

- The desktop study suggests that Stone Age Sites of all periods and traditions may occur in the greater project area.
- Middle Stone Age tools have been found in dongas and erosion gullies at various locales in southern Kwa-Zulu Natal, including the greater Msinga area. These sites are usually out of context and of little research value.
- Later Stone Age sites are more prolific in the coastal areas of KwaZulu-Natal and the foothills of the Drakensberg to the west of the study area. However, some do occur in the greater Msinga area as well. These may be either surface scatters as well as cave deposits with archaeological material.
- Early Iron Age Sites typically occur along major river valleys below the 700 m contour in KwaZulu-Natal. It is possible that Early Iron Age sites may be located adjacent to the uThukela River in the immediate vicinity of the project area. Some prominent early Iron Age Sites have been investigated and excavated by archaeologists in the uThukela River Basin to the immediate west of the study area.

- Later Iron Age sites do occur at various localities in southern KwaZulu-Natal. Some of these have been investigated by archaeologists attached to the KwaZulu-Natal Museum (Huffman 2007; Maggs 1989). These sites were occupied by the ancestors of the first Nguni-speaking agriculturists as well as their descendants who settled in these areas (Bryant 1965). Some Later Iron Age sites do occur in the near vicinity of the project area.
- Historical buildings, structures and farmsteads as well as mission stations do occur throughout KwaZulu-Natal including the greater Msinga area. Historical era buildings and structures could occur at or near the project area.
- The project area is situated in a rural locale and it is also possible that 'living heritage sites' may occur in the area.

### **3.2 Restrictions encountered during the survey**

#### **3.2.1 Visibility**

Visibility was good.

#### **3.2.2 Disturbance**

No disturbance of any potential heritage features was noted.

### **3.3 Details of equipment used in the survey**

GPS: Garmin Etrek

Digital cameras: Canon Powershot A460

All readings were taken using the GPS. Accuracy was to a level of 5 m.

## **4 DESCRIPTION OF SITES AND MATERIAL OBSERVED**

### **4.1 Locational data**

Province: KwaZulu-Natal

Closest Towns: Tugela Ferry, Msinga

Municipality: Msinga Local Municipality, Mzinyathi Regional Municipality



## **4.2 Description of the general area surveyed**

### **4.2.1 Background**

The desktop study could not find any heritage sites or features on any of the two features (i.e. Pump Station and Siphon) surveyed. This conclusion is supported by the ground survey of the project area. No heritage features or sites occur on the footprint. The footprint is not part of any known cultural landscape. The consultant could not find evidence for any 'living heritage site' on the footprint.

### **4.2.2 Stakeholder Consultation**

The consultant asked local community members encountered during the survey if they had knowledge of graves or other heritage features associated with either the Pump Station and/or the Siphon. None had knowledge of any associated heritage sites.

### **4.2.3 Desktop Paleontology Assessment**

A preliminary investigation suggests that the project area will need a desktop paleontological assessment by an Amafa registered palaeontologist. According to the SAHRIS fossil sensitivity map the footprint falls within a green coloured zone (Fig 5). This indicates that the area has a moderate fossil sensitivity. According to SAHRA guidelines a minimum of a desktop paleontological assessment, by a qualified palaeontologist, will be required before development may proceed.

## 5 STATEMENT OF SIGNIFICANCE (HERITAGE VALUE)

### 5.1 Field Rating

Not applicable as no heritage sites are known to occur on the footprint.

**Table 2. Field rating and recommended grading of sites (SAHRA 2005)**

Level	Details	Action
National (Grade I)	The site is considered to be of National Significance	Nominated to be declared by SAHRA
Provincial (Grade II)	This site is considered to be of Provincial significance	Nominated to be declared by Provincial Heritage Authority
Local Grade IIIA	This site is considered to be of HIGH significance locally	The site should be retained as a heritage site
Local Grade IIIB	This site is considered to be of HIGH significance locally	The site should be mitigated, and part retained as a heritage site
Generally Protected A	High to medium significance	Mitigation necessary before destruction
Generally Protected B	Medium significance	The site needs to be recorded before destruction
Generally Protected C	Low significance	No further recording is required before destruction

No heritage sites occur on or adjacent (within 50m) from the project area including both structures. The footprint has no heritage value (Table 3).

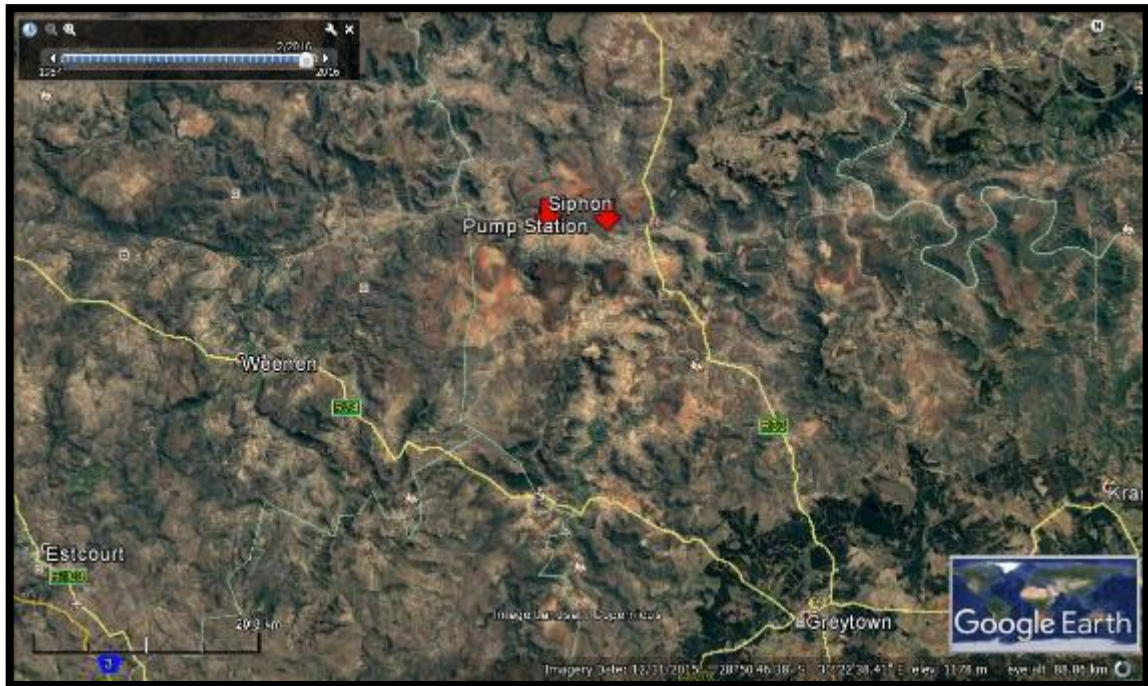
**Table 3. Evaluation and statement of significance.**

Significance criteria in terms of Section 3(3) of the NHRA		
	<b>Significance</b>	<b>Rating</b>
1.	<b>Historic and political significance</b> - The importance of the cultural heritage in the community or pattern of South Africa's history.	None.
2.	<b>Scientific significance</b> – Possession of uncommon, rare or endangered aspects of South Africa's cultural heritage.	None.
3.	<b>Research/scientific significance</b> – Potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage.	None.
4.	<b>Scientific significance</b> – Importance in demonstrating the principal characteristics of a particular class of South Africa's cultural places/objects.	None.
5.	<b>Aesthetic significance</b> – Importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.	None.
6.	<b>Scientific significance</b> – Importance in demonstrating a high degree of creative or technical achievement at a particular period.	None.
7.	<b>Social significance</b> – Strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.	None.
8.	<b>Historic significance</b> – Strong or special association with the life and work of a person, group or organization of importance in the history of South Africa.	None.
9.	The significance of the site relating to the history of slavery in South Africa.	None.

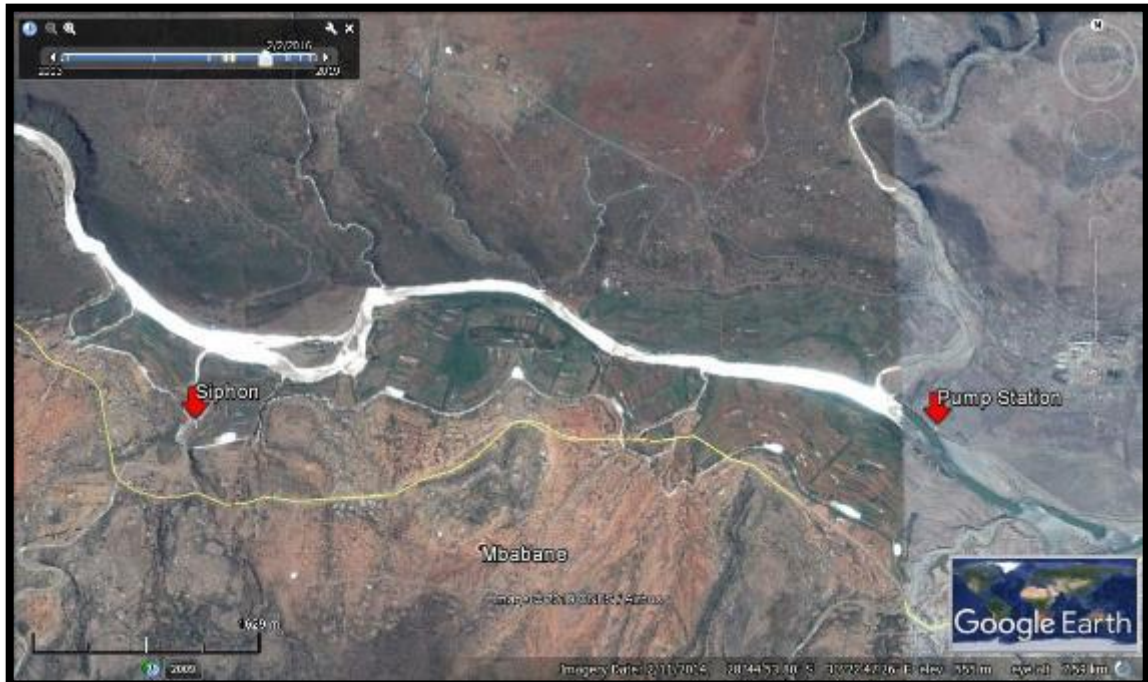
## **6 RECOMMENDATIONS**

As no heritage sites, features or graves occur on the footprint, there is no reason why the proposed development may not proceed from a general heritage perspective. Both proposed structures (i.e. Pump Station and Siphon) are equally suitable for development from a general heritage perspective. The area is also not part of any known cultural landscape. However, the phase 1 desktop paleontological assessment indicates that both structures will require a desktop paleontological assessment by a qualified paleontologist before any development may proceed. It is important to take note of the KwaZulu-Natal Heritage Act that requires that any exposing of fossils, graves and archaeological and historical residues should cease immediately pending an evaluation by the heritage authorities.

## 7 MAPS AND FIGURES



**Figure 1. Google Earth Imagery showing the location of the project area (Pump Station and Siphon) at Tugela Ferry, KZN**



**Figure 2. Google Earth Imagery showing the location of the proposed Pump Station and Siphon adjacent to the Thukela River.**

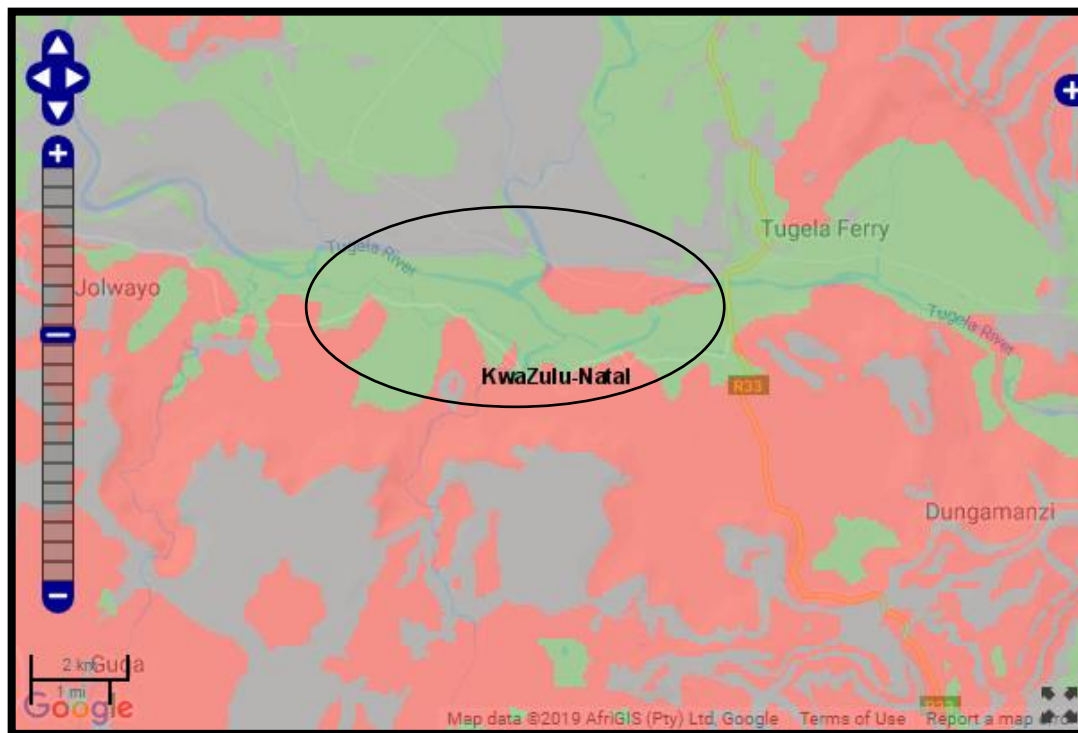




**Figure 3. Google Earth Imagery showing a close-up of the proposed Pump Station.**



**Figure 4. Google Earth Imagery showing a close-up of the proposed Siphon.**



1 in 250 000 geological formation layers are courtesy of the Council for GeoScience  
 For more information, go to [How to Use the Palaeontological \(fossil\) Sensitivity Map](#)

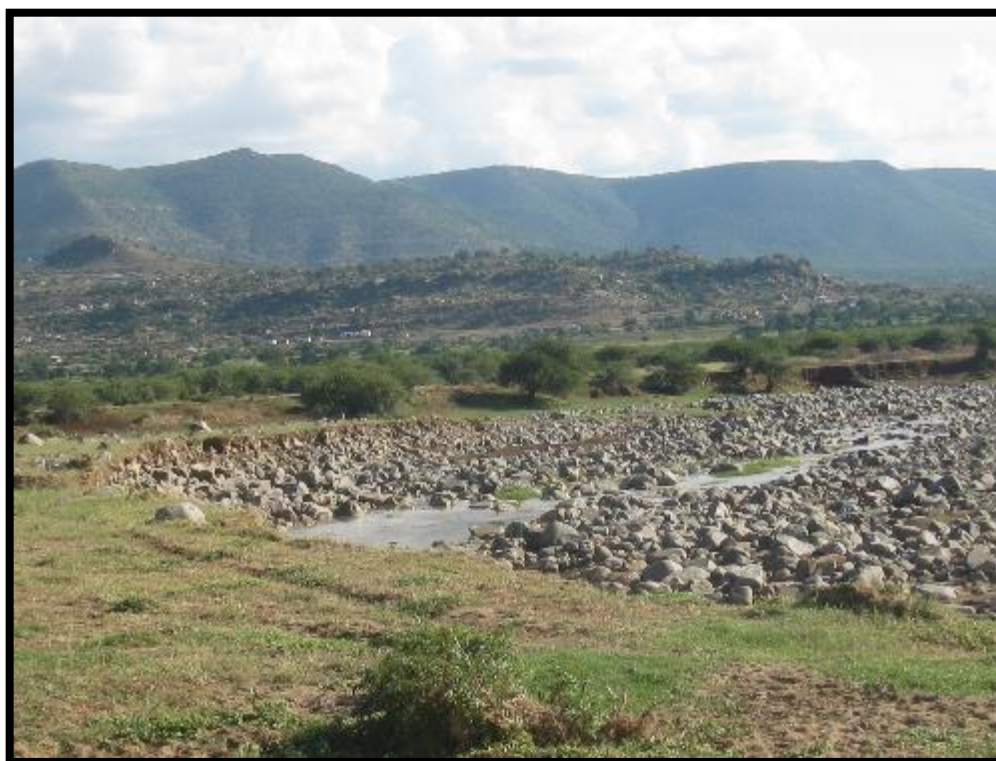
Colour	Sensitivity	Required Action
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

**Figure 5. SAHRIS Fossil Sensitivity Map of the project area (indicated by the black polygon). The two structures investigated are situated within the green colour zone. These areas will require a minimum of a desktop study by a qualified palaeontologist.**





**Figure 6. View over the Tugela Ferry Irrigation Scheme. Cultivated fields adjacent to the Thukela River.**



**Figure 7. Area surveyed for potential location of the proposed Pump Station. No heritage sites occur on this area.**

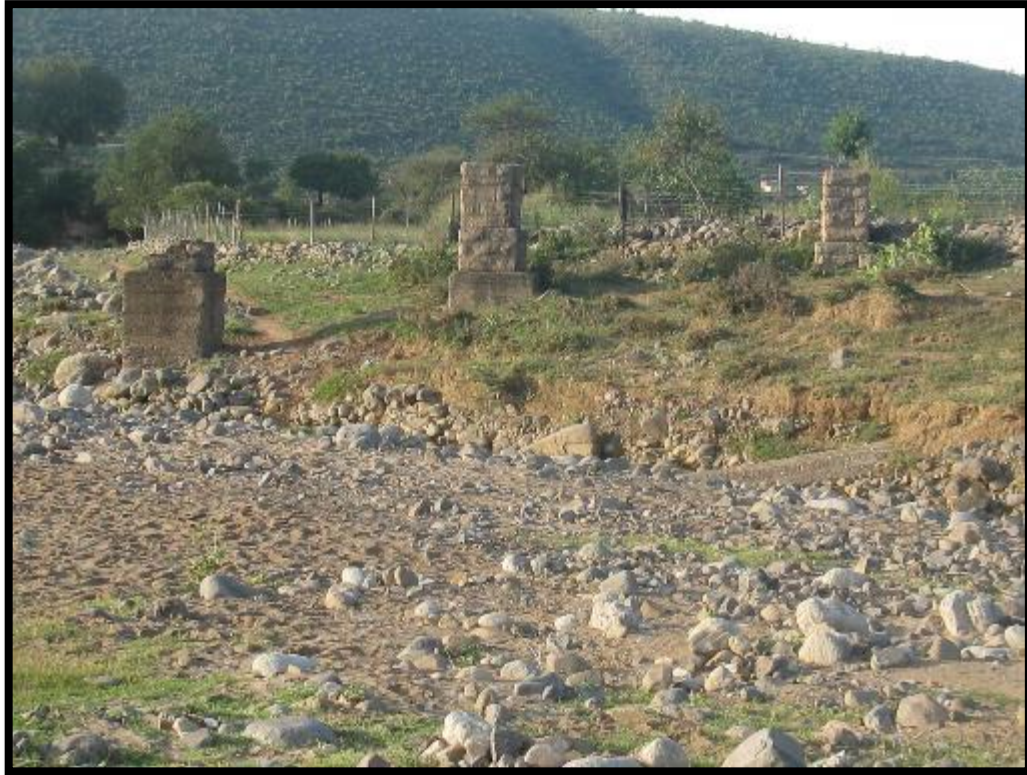




**Figure 8. Thukela River. The blue arrow points to the location of the proposed Pump Station.**



**Figure 9. Photograph of old and damaged Siphon. It is situated in a dry stream bed that feeds into the Thukela River.**



**Figure 10. Three damaged pillars of the old Siphon scheduled for an upgrade.**



**Figure 11. Cultivated fields in the near vicinity to the Siphon. No heritage sites or graves occur at this locale.**

## 8 REFERENCES

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