

**CULTURAL HERITAGE IMPACT ASSESSMENT  
OF THE PROPOSED NGCEBO WATER  
TREATMENT WORKS, LOCATED WITHIN THE  
MAPHUMULO LOCAL MUNICIPALITY.**



**ACTIVE HERITAGE cc.**

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## TABLE OF CONTENTS

<b>1</b>	<b>BACKGROUND INFORMATION ON THE PROJECT</b> .....	<b>2</b>
1.1.	Details of the area surveyed: .....	2
<b>2</b>	<b>BACKGROUND TO ARCHAEOLOGICAL HISTORY OF AREA</b> .....	<b>3</b>
<b>3</b>	<b>BACKGROUND INFORMATION OF THE SURVEY</b> .....	<b>8</b>
3.1	Methodology .....	8
3.2	Restrictions encountered during the survey .....	8
3.2.1	<i>Visibility</i> .....	8
3.2.2	<i>Disturbance</i> .....	8
3.3	Details of equipment used in the survey.....	9
<b>4</b>	<b>DESCRIPTION OF SITES AND MATERIAL OBSERVED</b> .....	<b>9</b>
4.1	Locational data .....	9
4.2	Description of the general area surveyed.....	9
<b>5</b>	<b>STATEMENT OF SIGNIFICANCE (HERITAGE VALUE)</b> .....	<b>12</b>
5.1.1	<i>Ndondondwane, Early Iron Age Site</i> .....	13
5.2	Field Rating.....	16
<b>6</b>	<b>RECOMMENDATIONS</b> .....	<b>17</b>
<b>7</b>	<b>RISK PREVENTATIVE MEASURES ASSOCIATED WITH CONSTRUCTION</b> .....	<b>17</b>
<b>8</b>	<b>REFERENCES</b> .....	<b>18</b>

## LIST OF TABLES

Table 1.	Background information.....	2
Table 2.	Heritage sites and co-coordinates.....	11
Table 3.	Field rating and recommended grading of sites (SAHRA 2005).....	12

## MAPS

Figure 1.	Map showing the location of the proposed Ngcebo Water Scheme.....	10
Figure 2.	Google aerial photograph showing the location of the Ndondondwane Early Iron Age Site relative to the proposed Ngcebo Water Treatment Scheme .....	11

**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 cultural heritage survey of the proposed Ngcebo Water Treatment Works identified no heritage sites or features on the footprint. However, an important Early Iron Age site occurs on the opposite side of the Thukela River Bank approximately 500m from the footprint. This site should not be disturbed under any circumstances. A buffer zone of at least 100m must be maintained around this site. Apart from this concern there is no known archaeological reason why the proposed development may not proceed on the remainder of the study area as planned. However, 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 should cease immediately, pending evaluation by the provincial heritage agency.

## 1 BACKGROUND INFORMATION ON THE PROJECT

**Table 1. Background information**

Consultant:	Frans Prins (Active Heritage cc) for Green Door Environmental
Type of development:	<p>Umgeni Water is working to implement its proposed KwaZulu-Natal Bulk Water Supply Plan in its operational area to provide sustainable solutions for the provision of potable water regionally. Areas of backlog have been identified for prioritisation of potable water based on the need for water supply and availability of water resources. It has been established that the existing plant at Ngcebo cannot service the water requirements of the surrounding area. Therefore, there is a need to upgrade the capacity of the existing Water Treatment Works plant to be able to service the water needs of the area.</p> <p>The existing abstraction is from Madunguela River. The proposed water abstraction will be from the Department of Water Affairs Hydro-Cyclone scheme on the uThukela River, which is situated in the Nkandla Municipality. It is proposed that the existing Ngcebo Water Treatment Works plant will be upgraded from a capacity of 0.5L p/day to 4L p/day in two project phases. The first phase, which is the subject of this public participation process, will raise the capacity of the plant to 2L p/day.</p>
Rezoning or subdivision:	Rezoning
Terms of reference	To carry out a 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:

Access to the footprint can be gained off the R74 towards Kranskop, proceed to Ntunjambili, then turn towards the Thukela River Valley along the D1640 and travel for approximately 10 km towards a bridge that crosses the river. The proposed Ngcebo Water Treatment Works is located before the bridge on the eastern bank of the uThukela River (Fig 1). The GPS coordinates for the footprint is: S 28° 53' 51.39" E 31° 01' 28.81". The proposed development site is bordered by tribal communal areas and the entire area is located within the catchment area of the Thukela River.

## **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. Although not identified on the footprint, ESA tools occurrence have been reported in other sites in KZN. Apart from stone artefacts, the

ESA sites in this Province 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 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).

### **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 Natal Museum archaeological database Later Stone Age sites have been located in the Tugela River in the past but these are mostly restricted to surface scatters. 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 Zululand, however, these sites have not been afforded similar research attention as those sites occurring in the Drakensberg. However, there are no rock art sites found within the immediate vicinity of study area, which may be due to the lack of the suitable geology.



## **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 of this period led to it being divided in the following time lines according to ceramic styles (Maggs, 1989; Huffman 2007):

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

The archaeological data base of the Natal Museum indicates that ten Early Iron Age sites occur in the immediate vicinity of the study area. Some well known excavated sites such as Mamba, Whosi and Ndondondwane (Huffman 2007) occurs in the immediate vicinity of the project area on the banks of the Thukela River.

### **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).

### **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 paramoucies 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 greater Tugela Region. These included in the south the Qwabe, Bhaca, Mbo, Hlubi, Bhele, Ngwane and many others (Wright & Hamilton, 1989). 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). 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 Jamesons Drift, in the project area, when a few British soldiers attempted to cross the Thukela 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.

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

#### **3.1 Methodology**

A desktop study was conducted of the archaeological databases housed in the KwaZulu-Natal Museum. In addition, the available archaeological and historical literature covering the Thukela River catchment area was also consulted. The SAHRIS website was consulted to assess previous heritage surveys done in the area.

A ground survey, following standard and accepted archaeological procedures, was conducted.

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

##### **3.2.1 Visibility**

Visibility is good.

##### **3.2.2 Disturbance**

No disturbance of any potential heritage features was noted. Overgrazing and removal of trees for fire wood led to the better archaeological visibility of the footprint.

### **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

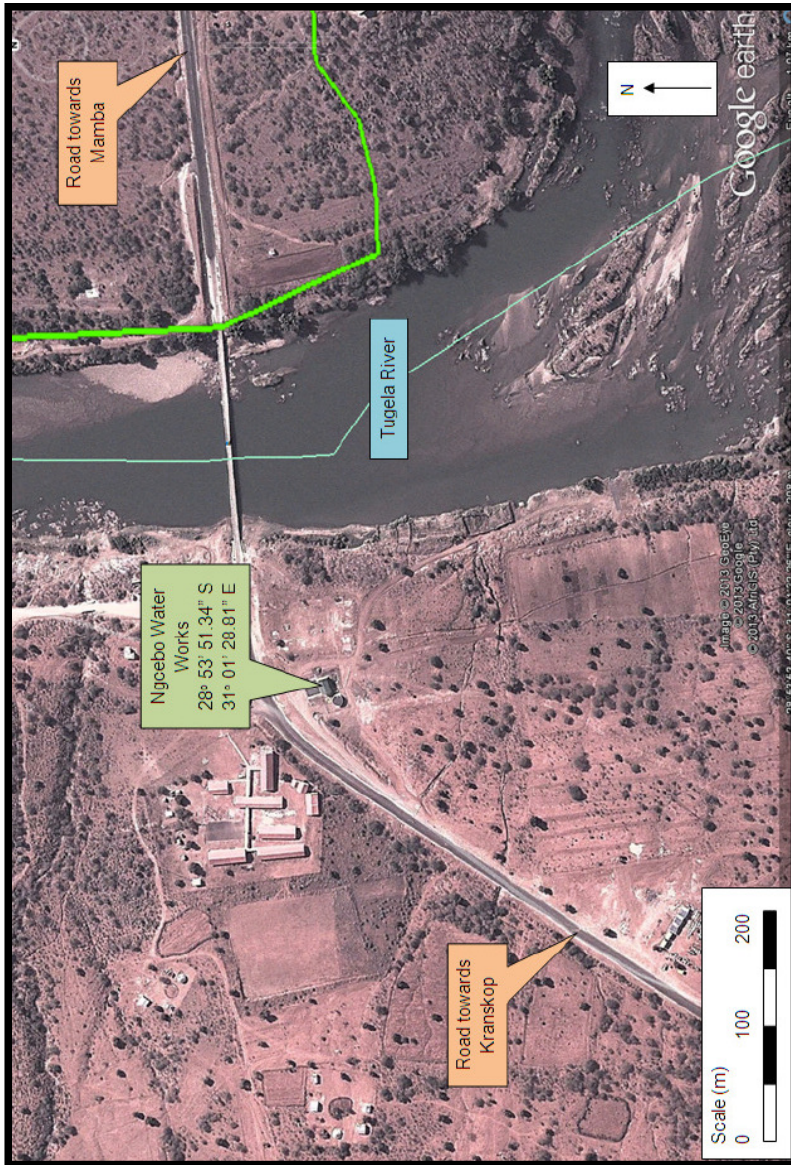
Towns: Nkandla and Kranskop

Municipality: Maphumulo Local Municipality

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

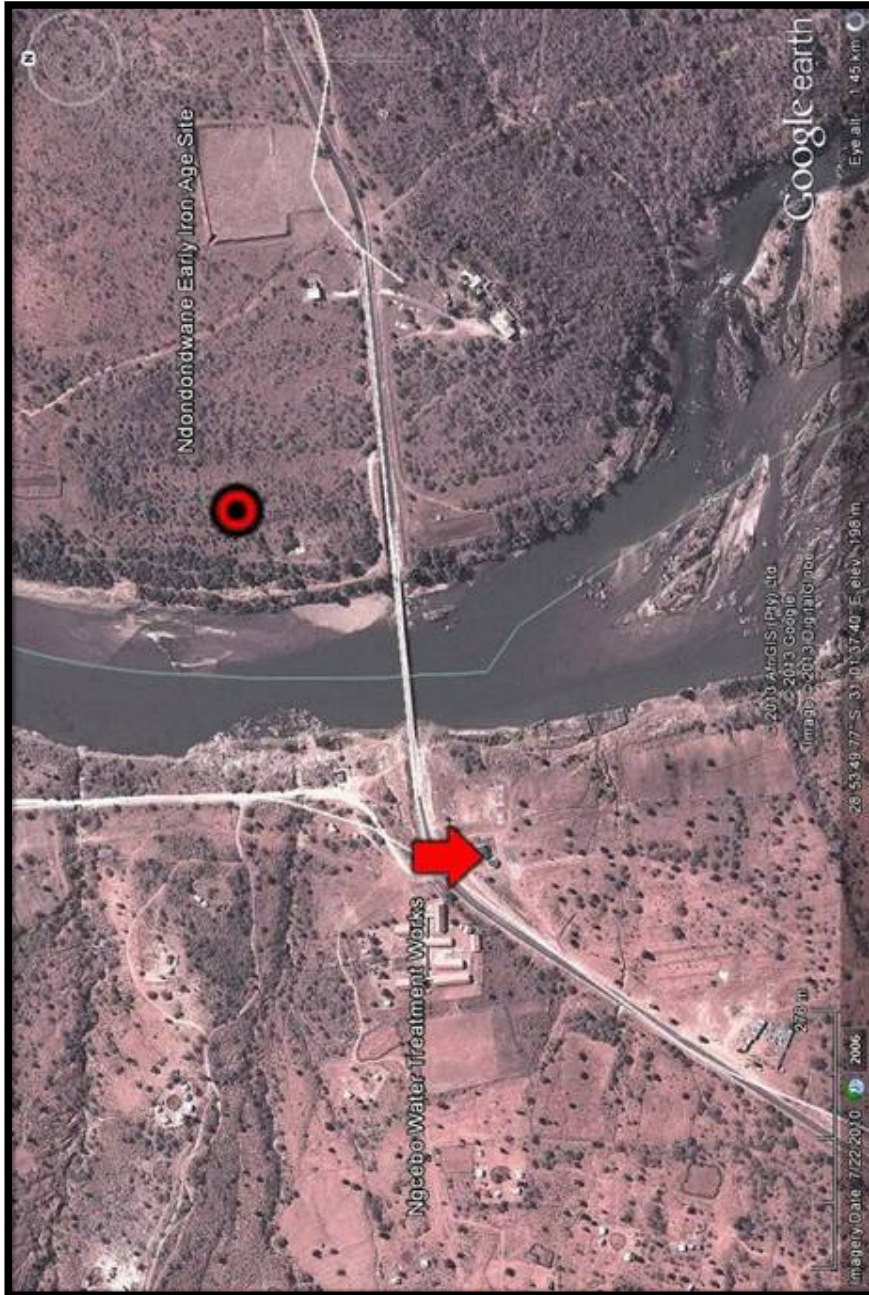
The middle reaches of the Thukela River catchment is classified as a rural area. The land use surrounding the study area is flanked by Valley Bushveld and thornveld vegetation in the river valleys and grasslands, mostly disturbed, in the higher altitude areas. The footprint is situated in a communal area with a large percentage of rural homesteads occupied by Zulu-speaking small-scale subsistence farmers. Most of these are spatially ordered in the traditional Nguni dispersed settlement pattern or more modern variations thereof. The majority of homesteads appear to have been built in the last 30 years or so. The proposed water treatment works (including the existing structures) are situated directly adjacent to the Thukela River on its western bank.

The middle reaches of the Thukela River Valley has been thoroughly surveyed by archaeologists during the last 30 years or so. This area was the focus of various research projects by archaeologists associated with the then Natal and Ondini Museums respectively (Huffman 2007). Three Early Iron Age sites have also been excavated in the recent past notably by archaeologist Len van Schalkwyk who has been working in this area for many years (ibid). The records of the KwaZulu-Natal Museum indicate the presence of 2 Early Stone Age sites, 3 Middle Stone Age sites, 6 Intermediate Stone Age sites, 8 Early Iron Age sites, 3 Later Iron Age sites, and 2 Historical sites in this area. Seven Early Iron Age Sites occur in the near vicinity of the footprint (Fig 2). However, none of these occur on the actual footprint. Only one of these identified sites may be threatened by the proposed development. Three of these Early Iron Age sites are of high importance from a heritage rating point of view.



**Figure 1. Map showing the location of the proposed Ngcebo Water Treatment Works, Maphumulo Local Municipality.**





**Figure 2.** Google aerial photograph showing the location of the Ndondondwane Early Iron Age Site relative to the Ngcebo Water Treatment Works on opposite sides of the Thukela River.

## 5 STATEMENT OF SIGNIFICANCE (HERITAGE VALUE)

One heritage site occurs in the near environs of the footprint (Fig 2). This particular site is the well-known and researched Ndongondwane Early Iron Age Site (see below). Early Iron Age sites are typically located on the alluvial and colluvial soils adjacent to the large east flowing rivers of the eastern seaboard – below 1000m altitude (Huffman 2007). The GPS coordinates and heritage rating of this particular heritage site is provided in Table 2. Ndongondwane is by provincial heritage legislation and may not be damaged or altered.

**Table 2. Heritage sites and co-ordinates**

No	Heritage Site	GPS Latitude and Longitude	Heritage Rating (after Table 3)
1	Ndongondwane Early Iron Age Site (Figs 6, 7, 8, 9)	S28° 53' 40" E31° 01' 42"	Provincial (Grade 11)

**Table 3. 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

### **5.1.1 Ndongondwane, Early Iron Age Site**

Ndongondwane is a very well known Early Iron Age Site in the academic literature (Huffman 2007). The provincial heritage site number is 2608. Ndongondwane is situated on the eastern bank of the Thukela River approximately 500m from the footprint that is situated on the western bank of the Thukela River (Figs 2 & 3). It is situated adjacent to the road D1640 near the bridge over the Thukela (Figs 3 – 7). The site is situated in a disturbed field, of approximately 100m x 100m, that is presently used for firewood collecting and cattle grazing by the local community. Ndongondwane has been systematically excavated by archaeologists over three decades. Many of the typical Iron Age features, such as refuse pits and hut floors, have been covered by soil. However, systematic excavation of this site has led to new academic insights relating to the spatial use of Early Iron Age settlement. The site is also the type site for Ndongondwane style pottery that occurs on various Early Iron Age sites in KwaZulu-Natal and the Eastern Cape. It is arguable the most important Early Iron Age site in KwaZulu-Natal. It has been researched by archaeologists Jannie Loubser in the early 1980's, by Len Van Schalkwyk in the late 1980's (as part of his MA thesis) and more recently by a Canadian team under the directorship of J Greenfield (ibid). Although the site is not directly threatened by the proposed Ngcebo Water Treatment Works it is nevertheless suggested that developers take note of the site location and strictly maintain a buffer zone of at least 100m around this site.





***Figure 3. Photograph of the footprint situated on the western bank on the Thukela River taken from the Ndongondwane Early Iron Age Site.***



***Figure 4. View over the Ndongondwane Site. Most of the archaeological features are buried and not visible to the ordinary person.***





**Figure 5. Some Early Iron Age potsherds are visible on the surface at Ndondondwane**



**Figure 6. The remains of an Early Iron Age refuge pit.**



**Figure 7. Broken Early Iron Age lower grinder.**

## **5.2 Field Rating**

The field rating criteria for the Ndongondwane Early Iron Age site as formulated by SAHRA (Table 3) is given as Provincial (Grade 11) (Table 2). In other words this site is regarded as provincially significant. It has been excavated and researched in the past and have contributed significantly to our understanding of Early Iron Age life ways in southern Africa and KwaZulu-Natal in particular. It also forms part of a unique Early Iron Age Cultural Landscape. This site may not be altered or destroyed under any circumstances.

## **6 RECOMMENDATIONS**

The proposed development may proceed but under the following conditions:

- A buffer zone of 100m must be maintained around the Ndondondwane Early Iron Age Site. Any disturbance of this site would be illegal and punishable by law.
- It should also be pointed out that the KwaZulu-Natal Heritage Act requires that operations exposing archaeological and historical residues should cease immediately pending an evaluation by the heritage authorities.

## **7 RISK PREVENTATIVE MEASURES ASSOCIATED WITH CONSTRUCTION**

Strictly maintain a 100m buffer zone around the identified heritage site. Only use established roads. No access roads may be constructed unless a second phase heritage impact assessment is initiated.



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