

# Archaeological Impact Assessment

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FOR THE SEKURUWE SECONDARY BULK WATER SUPPLY, MOKOPANE, LIMPOPO PROVINCE

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Prepared For

**TEKPLAN ENVIRONMENTAL**

By



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**VERSION 1.0**

**6 September 2015**

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## EXECUTIVE SUMMARY

**Site name and location:** The Sekuruwe cluster secondary bulk water supply project is located about 15 km north of Mokopane in the Mogalakwena Local Municipality area, Waterberg District.

**Purpose of the study:** Archaeological Impact Assessment of the proposed water supply pipelines to determine the presence of cultural heritage sites and the impact of the proposed infrastructure on these non-renewable resources.

**1:50 000 Topographic Map:** 2328 DD.

**EIA Consultant:** Tekplan Environmental

**Developer:** Mogalakwena Local Municipality

**Heritage Consultant:** Heritage Contracts and Archaeological Consulting CC (HCAC).

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**Date of Report:** 6 September 2015

### Findings of the Assessment:

During the survey of the proposed water pipeline a cemetery was recorded located **outside** of the impact area of the pipeline and no further action is necessary for this site. The partial remains of an ill-defined stone wall were also recorded in the road reserve and will be impacted on by the proposed pipeline. The site is of low heritage significance as the site is totally destroyed by the tar road from the N11 past the settlement of Ga-Sekhaolelo. This area is densely inhabited and the walling could be a result of recent settlements in the area. No cultural material was recorded in this area (e.g. ceramics or middens) but it is recommended that this area is monitored by an archaeologist during the construction period.

No cultural landscape elements or structures older than 60 were noted in the proposed impact area. Visual impacts to scenic routes and sense of place are also considered to be low as the line follows existing infrastructure and large parts of the study area have been modified in the recent past by human activities including but not limited to roads, residential development, water supply pipelines and cultivation. There are no fatal flaws in terms of the archaeological component to the project; however recommendations as made in section 8 of this report would need to be implemented to avoid damage to the local heritage. If these recommendations are implemented, subject to approval from SAHRA we are of the opinion that this project can proceed.

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- Recommendations delivered to the Client.

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## ABBREVIATIONS

AIA: Archaeological Impact Assessment
ASAPA: Association of South African Professional Archaeologists
BIA: Basic Impact Assessment
CRM: Cultural Resource Management
ECO: Environmental Control Officer
EIA: Environmental Impact Assessment*
EIA: Early Iron Age*
EIA Practitioner: Environmental Impact Assessment Practitioner
EMPR: Environmental Management Programme
ESA: Early Stone Age
GPS: Global Positioning System
HIA: Heritage Impact Assessment
LIA: Late Iron Age
LSA: Late Stone Age
MEC: Member of the Executive Council
MIA: Middle Iron Age
MPRDA: Mineral and Petroleum Resources Development Act
MSA: Middle Stone Age
NEMA: National Environmental Management Act
PRHA: Provincial Heritage Resource Agency
SADC: Southern African Development Community
SAHRA: South African Heritage Resources Agency
SAHRIS: South African Heritage Resources Information System

*\*Although EIA refers to both Environmental Impact Assessment and the Early Iron Age both are internationally accepted abbreviations and must be read and interpreted in the context it is used.*

**GLOSSARY**

Archaeological site (remains of human activity over 100 years old)

Early Stone Age (~ 2.6 million to 250 000 years ago)

Middle Stone Age (~ 250 000 to 40-25 000 years ago)

Later Stone Age (~ 40-25 000, to recently, 100 years ago)

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)



## **1 BACKGROUND INFORMATION**

Heritage Contracts and Archaeological Consulting CC has been contracted by Tekplan Environmental to conduct an Archaeological Impact Assessment for the proposed infrastructure for the proposed water supply pipeline. The report forms part of the Basic Assessment Report (BAR) and Environmental Management Programme Report (EMPR) for the Sekuruwe cluster secondary bulk water supply project.

The aim of the study is to survey the proposed water supply pipeline alignment to identify cultural heritage sites, document, and assess their importance within local, provincial and national context. It serves to assess the impact of the proposed project on non-renewable heritage resources, and to submit appropriate recommendations with regard to the responsible cultural resources management measures that might be required to assist the developer in managing the discovered heritage resources in a responsible manner. It is also conducted to protect, preserve, and develop such resources within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

The report outlines the approach and methodology utilized before and during the survey, which includes: Phase 1, review of the HIA for the proposed project; Phase 2, the physical surveying of the area on foot and by vehicle; Phase 3, reporting the outcome of the study.

During the survey a cemetery and the partial remains of a stone wall were identified close to the proposed pipeline corridor. General site conditions and features on sites were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report.

This report must also be submitted to SAHRA for review.

### **1.1 Terms of Reference**

#### **Field study**

Conduct a field study to: (a) locate, identify, record, photograph and describe sites of archaeological, historical or cultural interest; b) record GPS points of identified as significant areas; c) determine the levels of significance of the various types of heritage resources affected by the proposed towers.

#### **Reporting**

Report on the identification of anticipated and cumulative impacts the operational units of the proposed project activity may have on the identified heritage resources for all 3 phases of the project; i.e., construction, operation and decommissioning phases. Consider alternatives, should any significant sites be impacted adversely by the proposed project. Ensure that all studies and results comply with the relevant legislation and the code of ethics and guidelines of ASAPA.

To assist the developer in managing the discovered heritage resources in a responsible manner, and to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act of 1999 (Act 25 of 1999).

## 1.2. Archaeological Legislation and Best Practice

Phase 1, an AIA or a HIA is a pre-requisite for development in South Africa as prescribed by SAHRA and stipulated by legislation. The overall purpose of a heritage specialist input is to:

- » Identify any heritage resources, which may be affected;
- » Assess the nature and degree of significance of such resources;
- » Establish heritage informants/constraints to guide the development process through establishing thresholds of impact significance;
- » Assess the negative and positive impact of the development on these resources;
- » Make recommendations for the appropriate heritage management of these impacts.

The AIA or HIA, as a specialist sub-section of the EIA, is required under the National Heritage Resources Act NHRA of 1999 (Act 25 of 1999), Section 23(2)(b) of the NEMA and Sections 39(3)(b)(iii) of the MPRDA.

The AIA should be submitted, as part of the EIA, BIA or EMP, to the PHRA if established in the province or to SAHRA. SAHRA will be ultimately responsible for the professional evaluation of Phase 1 AIA reports upon which review comments will be issued. 'Best practice' requires Phase 1 AIA reports and additional development information, as per the EIA, BIA/EMP, to be submitted in duplicate to SAHRA after completion of the study. SAHRA accepts Phase 1 AIA reports authored by professional archaeologists, accredited with ASAPA or with a proven ability to do archaeological work.

Minimum accreditation requirements include an Honours degree in archaeology or related discipline and 3 years post-university CRM experience (field supervisor level).

Minimum standards for reports, site documentation and descriptions are set by ASAPA in collaboration with SAHRA. ASAPA is a legal body, based in South Africa, representing professional archaeology in the SADC region. ASAPA is primarily involved in the overseeing of ethical practice and standards regarding the archaeological profession. Membership is based on proposal and secondment by other professional members.

Phase 1 AIAs are primarily concerned with the location and identification of sites situated within a proposed development area. Identified sites should be assessed according to their significance. Relevant conservation or Phase 2 mitigation recommendations should be made. Recommendations are subject to evaluation by SAHRA.

Conservation or Phase 2 mitigation recommendations, as approved by SAHRA, are to be used as guidelines in the developer's decision making process.

Phase 2 archaeological projects are primarily based on salvage/mitigation excavations preceding development destruction or impact on a site. Phase 2 excavations can only be conducted with a permit, issued by SAHRA to the appointed archaeologist. Permit conditions are prescribed by SAHRA and includes (as minimum requirements) reporting back strategies to SAHRA and deposition of excavated material at an accredited repository.

In the event of a site conservation option being preferred by the developer, a site management plan, prepared by a professional archaeologist and approved by SAHRA, will suffice as minimum requirement.

After mitigation of a site, a destruction permit must be applied for from SAHRA by the client before development may proceed.

Human remains older than 60 years are protected by the National Heritage Resources Act, with reference to Section 36. Graves older than 60 years, but younger than 100 years fall under Section 36 of Act 25 of 1999 (National Heritage Resources Act), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of SAHRA. The procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5]) of Act 25 of 1999) is applicable to graves older than 60 years that are situated outside a formal cemetery administrated by a local authority. Graves in this age category, located inside a formal cemetery administrated by a local authority, require the same authorisation as set out for graves younger than 60 years, in addition to SAHRA authorisation. If the grave is not situated inside a formal cemetery, but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws, set by the cemetery authority, must be adhered to.

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare.

Authorisation for exhumation and reinterment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. To handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

### **1.3 Description of Study Area**

#### **1.3.1 Location Data**

The project is located in the Mogalakwena Local Municipality area, Waterberg District, about 15 km north of Mokopane in the Limpopo Province in the area of Sekuruwe (Figure 1). The proposed route measures less than 17km traversing the farms Armoede 823 LR, Rooibokfontein 821 LR, Blinkwater 820 LR, Tweefontein 238 KR and Bultongfontein 239 KR. The majority of the supply pipeline is located on the edge of the tar road from the N11, gravel roads in the village(s). There is however some areas where the pipelines will pass through previously used agricultural fields. The pipeline connects into an existing pipeline next to the N11 going in a easterly direction through the settlement of Ga-Sekhaolelo turning northwards through the next village before turning north west to end in a new reservoir next to the N11 national road at 23° 56' 06.5568" S, 28° 56' 12.0683" E .

The study area falls within the bioregion described by Mucina *et al* (2006) as the Central Bushveld Bioregion with the vegetation described as Makhado Sweet Bushveld. Land use in the general area is characterized by settlements, subsistence farming and in the wider region by platinum mining.

### 1.3.2. Location Map

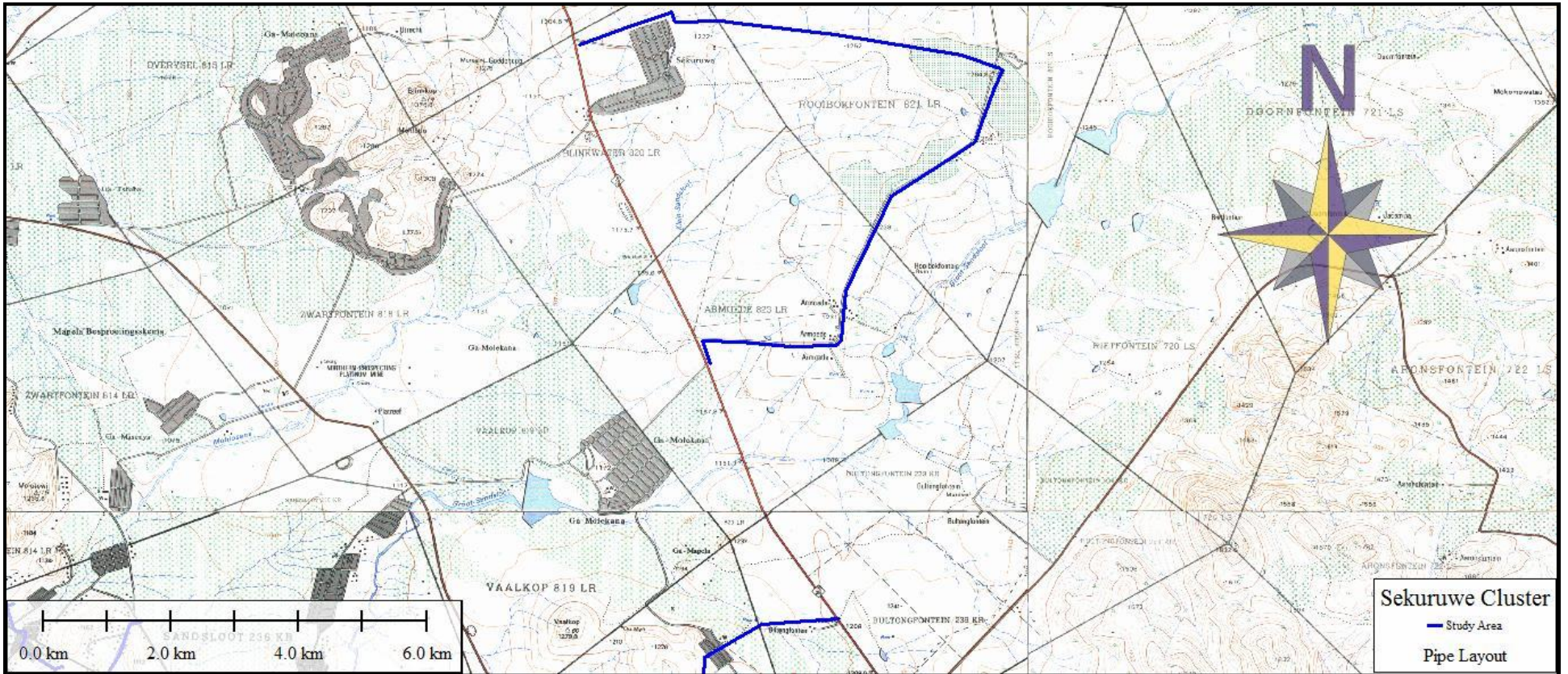


Figure 1: Locality map.

## **2. APPROACH AND METHODOLOGY**

The methodology used for walk through of linear developments is different to the methodology for projects where AIA's or HIA's are needed. To understand the heritage context of the study area the following phased approach was utilised for this project.

### **2.1 Phase 1**

Phase 1 included a study of published literature and CRM reports for the general study area. CRM reports consulted include Pistorius (2012); Hutten (2013) as well as Karodia *et al* (2013) as well as Gaigher (2011). Sites identified included numerous grave sites as well as historical buildings and insignia. Very few Iron Age sites were recorded totalling 3 sites and a scatter of low significance of MSA artefacts.

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located; these locations were marked and visited during the field work phase. The database of the Genealogical Society was consulted to collect data on any known graves in the area.

### **2.2 Phase 2 - Physical Surveying**

A field survey (Figure 2) of the linear development was conducted by a professional archaeologist. Fieldwork focussed on the proposed pipeline servitude while giving special attention to drainage lines, outcrops, high lying areas and disturbances in the topography. The proposed alignment was surveyed on foot and by vehicle on 31 August 2015. Sites recorded were plotted on 1:50 000 maps and their GPS co-ordinates noted. Digital photographs were taken at all the sites.

### **2.3. Restrictions**

Due to the fact that most cultural remains may occur below surface, the possibility exists that some features or artefacts may not have been discovered/ recorded during the survey. Vegetation and sand cover reduced archaeological visibility. Only the proposed pipe line alignment was surveyed as indicated in the location maps. Although Heritage Contracts and Archaeological Consulting CC surveyed the area as thoroughly as possible, it is incumbent upon the developer to stop operations and inform the relevant heritage agency should further cultural remains, such as stone tool scatters, artefacts, bones or fossils, be exposed during the process of development.

Any changes or deviations of the water supply line will have to be assessed separately.

## **3 NATURE OF THE DEVELOPMENT**

The Mogalakwena Municipality is implementing the Olifants River Water Resources Development Project, which is driven by the Department of Water Affairs. Bulk water pipelines (which are currently being installed) will provide potable water to the villages North and North West of Mokopane. Smaller supply pipelines need to be installed to disperse the water to the different sections of the villages. The pipeline will mainly be constructed on the edge of the gravel roads in the village(s). There are however some areas where the pipelines will pass through old lands and open fields. The pipes measure between 355mm diameter and 110mm diameter. The trench will be approximately 0.5m wide and approximately 1.5m deep.

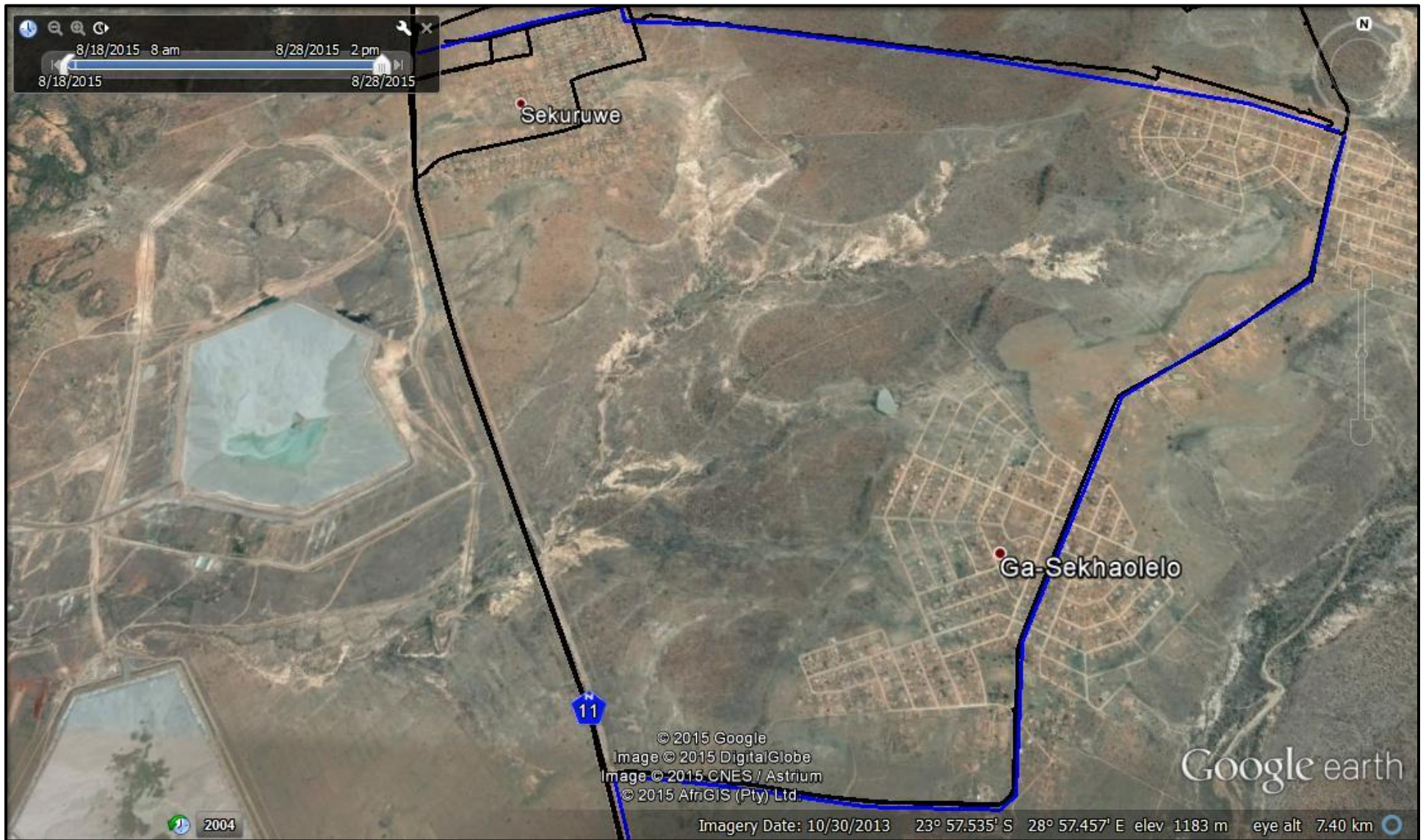


Figure 2: Study area in blue with track logs of areas covered in black.

## 4. ARCHAEOLOGICAL AND CULTURAL HISTORIC BACKGROUND

### 4.1. General History of the area

By the 19th century, several local Ndebele communities occupied the region, one of the most prominent being the Kekana.

“Swart” Barend Vorster and some other families settled to the north of the present town of Polokwane during the winter of 1847 in anticipation to the arrival of Potgieter. Potgieter moved to the Zoutpansberg but many Voortrekkers chose farmland on the plateau. Amongst those were ancestors of present day community leaders, including the Vorster, Duvenhage, Snyman, Vercueil and Grobler-families.

The Volksraad, acting on a request from Potgieter, founded a town in Makapanspoort called Vredenburg. Later renamed Potgietersrus, it became the neighbor of Pietersburg, a town of similar size some 60km to the south, and part of the ZAR. Potgieter died in December 1852, and his son Piet Potgieter succeeded him in 1854.

There was tension between the Boers in and the local populations in the 1850's due to competition for land and the local trade (Tobias, 1945; Bonner, 1983; Delius & Trapido, 1983; Hofmeyr, 1988; Esterhuysen, et al., 2009; Esterhuysen, 2010; Morton, 2005). The clashes between the two groups culminated in the Mugombane siege of 1854 at Historic Cave in the Makapans Valley (Tobias, 1945). Hermanus Potgieter, brother of Piet, was killed during clashes with Chief Makapaan. Piet mobilized a command and drove Makapaan into hiding in a cave, where he was besieged. Both Makapaan and Piet Potgieter were killed in this battle, and Vredenburg was renamed Pietpotgietersrus in honour of the leader ([www.sahistory.co.za](http://www.sahistory.co.za)).

After this siege in 1858 a second group of Ndebele, the Langa of Hlubi (Nguni) origin under the Chief Mankopane, were attacked by a Boer expedition. Around 800 Langa Ndebele were killed. After their defeat, Chief Mankopane settled on Thutlwane Hill which is today located on the farm Kromkloof 744 LR (Jackson, 1969; Jackson, 1982). After this the Ndebele wanted nothing to do with Boers or Europeans. Malaria in this area was a problem and many people left the area ([www.sahistory.co.za](http://www.sahistory.co.za)).

In 1865 the Berlin Mission Station was given permission to establish a mission under W. Moschutz at the foot of Sefakaola Hill (Macalacaskop). Tensions between the Boers and Ndebele caused the mission stations abandonment and it was later used by the Boers as a garrison where they could fire upon Mokopane's chieftom, this resulted in the destruction of the mission station.

The mission was reoccupied in 1868 but in 1877, Mokopane exercised his authority and ousted the missionaries as he decided that it was a good vantage point for his enemies to spy on him. The chief erected an iron structure from the remains of the station as a symbol of his resistance to European interference.

Many colonial people living in Pietpotgietersrus died of malaria, and by April 1870 the town was abandoned. They returned in 1890 and Marabastad became the northernmost point of the ZAR. It was also the seat of the landdrost ([www.sahistory.co.za](http://www.sahistory.co.za)).

In 1890, Mokopane died and his successor was Lekgobo Valtyn. Valtyn's view of literacy was different to that of Mokopane, who regarded writing as Boer Business and refused to adopt it (Hofmeyr, 1991). Valtyn regarded literature as a resource that could be exploited (Hofmeyr, 1991) and therefore he allowed the mission station to be rebuilt. In 1890, a township was unofficially established named after Chief Valtyn. By the early 20th century the Berlin Mission Society began to fence off portions of land which caused tension between local inhabitants and Europeans resulting in what was called 'The Fence War' (Hofmeyr, 1990).

Plans for the official establishment and expansion of a location are evident in a letter dated 6 January 1937 between the Controller of Native Settlements and the Deputy Director of Native Agriculture. It was discussed that the establishment of the Valtyn Location on the edge of Potgietersrus was intended to provide the town with a large cheap labour supply (National Archives and Record Service, 1996). Chief Kutter Seleka tried to mitigate this increased control over the land in the area in the early 1930's (Karodia et al 2013)

### **4.3. Earlier Stone Age**

Hominids began to make stone tools about 2.6 million years ago. Known as the Oldowan industry, most of the earliest tools were rough cobble cores and simple flakes. The flakes were used for such activities as skinning and cutting meat from scavenged animals. These early artefacts are difficult to recognize and have so far only been found in rock shelters such as the Sterkfontein Caves (Kuman, 1998) and also in Makapan Valley in the caves in this area.

At about 1.4 million years ago hominids started producing more recognizable stone artefacts such as hand axes, cleavers and core tools (Deacon & Deacon, 1999). Among other things these Acheulian tools were probably used to butcher large animals such as elephants, rhinoceros and hippopotamus that had died from natural causes. Acheulian artefacts are usually found near the raw material from where they were quarried, at butchering sites, or as isolated finds. However, isolated finds have little value. Therefore, the project is unlikely to disturb a significant site.

Evidence suggests that the region surrounding the project area has been inhabited during all periods of the Stone Age, including the Early Stone Age (ESA), Middle Stone Age (MSA) and Later Stone Age (LSA). This is most evident and extensively documented at the Cave of Hearths in the Makapans Valley some 30 km to the east (McNabb & Binyon, 2004; Phillipson, 2005). Fourie (2002) reported on a possible ESA core found on the surface to the south west of the study area.

Makapans Valley was declared a World Heritage Site in 2005. The UNESCO website states the following: "Fossils found in the many archaeological caves of the Makapan Valley have enabled the identification of several specimens of early hominids, more particularly of *Paranthropus*, dating back between 4.5 million and 2.5 million years, as well as evidence of the domestication of fire 1.8 million to 1 million years ago." (UNESCO, 2013).

The proposed development is located outside of the buffer zone of the World Heritage Site and no impact is foreseen on the site.

### **4.4. Middle Stone Age**

By the beginning of the Middle Stone Age (MSA), tool kits included prepared cores, parallel-sided blades and triangular points hafted to make spears (Volman, 1984). MSA people had become accomplished hunters by this time, especially of large grazing animals such as wildebeest, hartebeest and eland.

These hunters are classified as early humans, but by 100,000 years ago, they were anatomically fully modern. The oldest evidence for this change has been found in South Africa, and it is an important point



in debates about the origins of modern humanity. In particular, the degree to which behaviour was fully modern is still a matter of debate. The repeated use of caves indicates that MSA people had developed the concept of a home base and that they could make fire. These were two important steps in cultural evolution (Deacon & Deacon, 1999). MSA artefacts occur widely over the Limpopo province and isolated artefacts of low significance have been recorded in the general area (Kordia *et al* 2013).

#### **4.5. Later Stone Age**

By the beginning of the Later Stone Age (LSA), human behaviour was undoubtedly modern. Uniquely human traits, such as rock art and purposeful burials with ornaments, became a regular practice. These people were the ancestors of the San (or Bushmen).

San rock art has a well-earned reputation for aesthetic appeal and symbolic complexity (Lewis-Williams, 1981). In addition to art, LSA sites contain diagnostic artefacts, including microlithic scrapers and segments made from very fine-grained rock (Wadley, 1987). Spear hunting probably continued, but LSA people also hunted small game with bows and poisoned arrows. Important LSA deposits have been excavated in Oliboompoort Cave (Mason, 1962) and other sites in the Waterberg to the West (Van der Ryst, 1998). According to Bergh (1999) some rock paintings, are known 20 to 30 km north east of Mokopane and the Archaeological database at Wits also have paintings on record to the east of the study area on the Planknek Mountain range. Scatters of Stone Age artefacts in the open are usually poorly preserved and therefore have less value than sites in caves or rock shelters. As there are no caves in the study area, there is a low possibility of finding sites of high significance in the area.

#### **4.6 The Iron Age (AD 400 to 1840)**

Bantu-speaking people moved into Eastern and Southern Africa about 2,000 years ago (Mitchell, 2002). These people cultivated sorghum and millets, herded cattle and small stock and manufactured iron tools and copper ornaments. Because metalworking represents a new technology, archaeologists call this period the Iron Age. Characteristic ceramic styles help archaeologists to separate the sites into different groups and time periods. The first 1,000 years is called the Early Iron Age followed by the Middle and Late Iron Age.

As mixed farmers, Iron Age people usually lived in semi-permanent settlements consisting of pole-and-daga (mud mixed with dung) houses and grain bins arranged around a central area for cattle (Huffman, 1982). Usually, these settlements with the 'Central Cattle Pattern' (CCP) were sited near water and good soils that could be cultivated with an iron hoe. For the project area, archaeological sites such as these may occur.

According to the most recent archaeological cultural distribution sequences by Huffman (2007), the study area falls within the distribution area of various cultural groupings originating out of both the Urewe Tradition (eastern stream of migration) and the Kalundu Tradition (western stream of migration). The facies that may be present are:

**Urewe Tradition:** Kwale branch- Mzonjani facies AD 450 – 750 (Early Iron Age).

Moloko branch- Icon facies AD 1300 - 1500 (Late Iron Age)

**Kalundu Tradition:** Happy Rest sub-branch - Doornkop facies AD 750 - 1000 (Early Iron Age)

Eiland facies AD 1000 – 1300 (Middle Iron Age)

Klingbeil facies AD 1000 - 1200 (Middle Iron Age)

Letaba facies AD 1600 - 1840 (Late Iron Age)

## 5. HERITAGE SITE SIGNIFICANCE AND MITIGATION MEASURES

The presence and distribution of heritage resources define a 'heritage landscape'. In this landscape, every site is relevant. In addition, because heritage resources are non-renewable, heritage surveys need to investigate an entire project area, or a representative sample, depending on the nature of the project. In the case of the proposed power line the local extent of its impact necessitates a representative sample and special attention was given to the proposed tower positions. In all initial investigations, however, the specialists are responsible only for the identification of resources visible on the surface.

This section describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The following criteria were used to establish site significance:

- » The unique nature of a site;
- » The integrity of the archaeological/cultural heritage deposits;
- » The wider historic, archaeological and geographic context of the site;
- » The location of the site in relation to other similar sites or features;
- » The depth of the archaeological deposit (when it can be determined/is known);
- » The preservation condition of the sites;
- » Potential to answer present research questions.

Furthermore, The National Heritage Resources Act (Act No 25 of 1999, Sec 3) distinguishes nine criteria for places and objects to qualify as 'part of the national estate' if they have cultural significance or other special value. These criteria are:

- » Its importance in/to the community, or pattern of South Africa's history;
- » Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- » Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- » Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- » Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- » Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- » Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- » Its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- » Sites of significance relating to the history of slavery in South Africa.

### 5.1. Field Rating of Sites

Site significance classification standards prescribed by SAHRA (2006), and approved by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 8 of this report.

<b>FIELD RATING</b>	<b>GRADE</b>	<b>SIGNIFICANCE</b>	<b>RECOMMENDED MITIGATION</b>
National Significance (NS)	Grade 1	-	Conservation; national site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; provincial site nomination
Local Significance (LS)	Grade 3A	High significance	Conservation; mitigation not advised
Local Significance (LS)	Grade 3B	High significance	Mitigation (part of site should be retained)
Generally Protected A (GP.A)	-	High/medium significance	Mitigation before destruction
Generally Protected B (GP.B)	-	Medium significance	Recording before destruction
Generally Protected C (GP.C)	-	Low significance	Destruction

## 6. WALK THROUGH FINDINGS-DESCRIPTION OF SITES

This report focuses on the proposed water pipeline project known as the Sekuruwe cluster secondary bulk water supply project. Portions of the proposed route (mainly river crossings) were surveyed previously by Hutten (2013) who did not record any archaeological sites within the current study area. Another survey by Gaigher (2011) also did not record any archaeological sites but did record grave sites and a historical mill.

The proposed route largely follows existing infrastructure like tar and dirt roads on the edges of the villages but also traverse areas that were previously ploughed (Figure 5 - 7). Most of the area is fairly flat with a small ridge to the south-east of Sekuruwe village. The Groot Sandsloot stream crosses the larger study area to the east of Ga-Molekana village from north east to south west. To the east of Sekuruwe village the pipeline traverses a Greenfield area. This area is used for the grazing of the local livestock and is fairly undisturbed.

Two heritage features were recorded within or close to the proposed pipe line alignment (Figure 3) consisting of an ill-defined stone wall and a cemetery. These features were given field numbers (Table 1). GPS points were taken at such places and digital photographs were taken at these features. A short description of recorded finds follows:

Table 1: **Features with Coordinates**

<b>Feature Number</b>	<b>Type Site</b>	<b>Cultural Markers</b>	<b>Co ordinate</b>
<b>629</b>	Possibly Recent	Stone wall foundation	23° 56' 56.2164" S 28° 59' 32.5247" E
<b>630</b>	Cemetery	Marked Graves	23° 56' 13.0163" S 28° 59' 39.2676" E

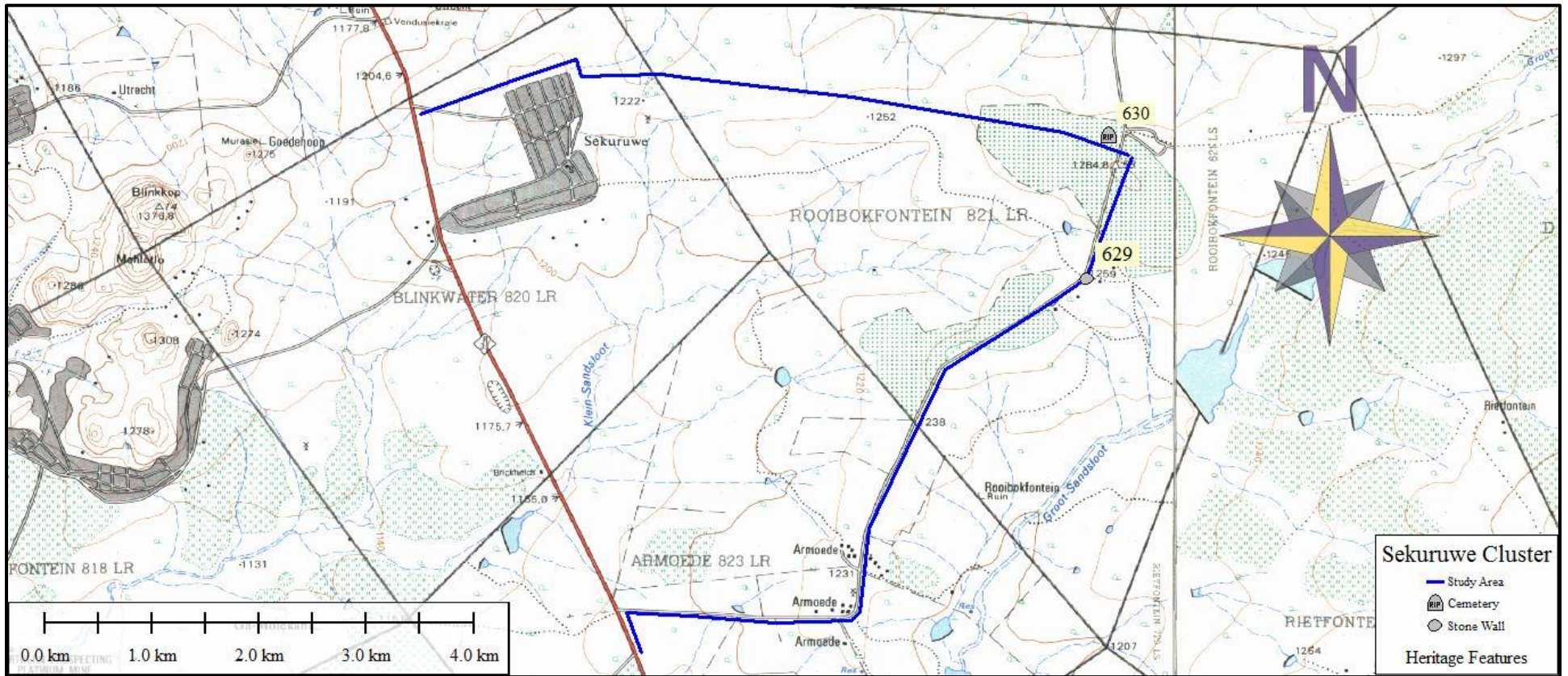


Figure 3: Recorded heritage features.



Figure 4. General site conditions to the east of Sekuruwe.



Figure 5. Site conditions in the central portion of the study area.

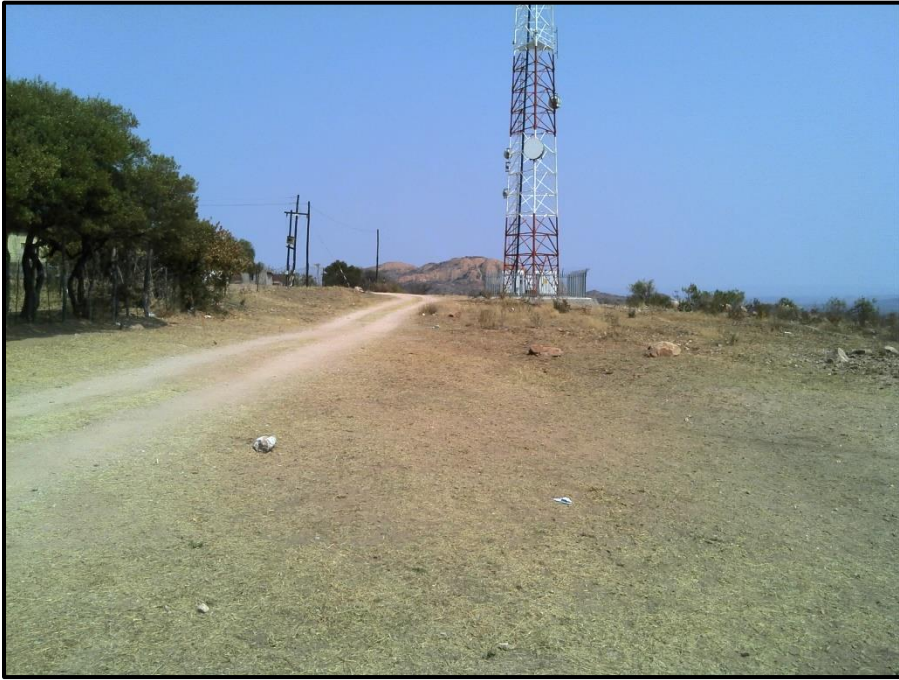


Figure 6. Site conditions in Sekuruwe village.



Figure 7: Existing tar road that the line follows.



**Stone Wall** (Field Nr 629)

The recorded feature consists of the partially demolished remains of stone wall foundation (Figure 9) and is located within the road reserve of the tar road from the N11 through the settlement of Ga-Sekhaolelo. The area is highly disturbed mostly from earth works for the existing road evident by the marks on the exposed bedrock (Figure 10). The recorded wall measures approximately 5 meters and consists of a single row of medium sized boulders. This is not consistent with the construction methods of Iron Age communities that make use of double packed walls with boulders filled in with smaller gravel and stones. This area is densely inhabited and the walling could be a result of recent settlements in the area. No cultural material was recorded in this area (e.g. ceramics or middens)

**Heritage significance:** Generally Protected C (GP.C)



Figure 8: Remains of Stone Wall foundation.



Figure 9: Marks evident of earth moving.

**Cemetery** (Field Nr 630)

This site consists of a large cemetery located to the east of the proposed pipeline route. The site is located more than 100 meters **outside** of the impact area of the proposed pipeline. The cemetery is fenced and no impact is foreseen on the site by the proposed development. T

**Heritage significance:** The site is of high social significance.

**Field Rating:** Generally Protected A (GP.A)



Figure 10: Fenced cemetery outside of impact area.

## 7. Potential Impact

### 7.1. Pre-Construction phase:

It is assumed that the pre-construction phase involves the removal of topsoil and vegetation as well as the establishment of road infrastructure needed for the construction phase. These activities can have a negative and irreversible impact on all of the recorded heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

### 7.2. Construction Phase

During this phase the impacts and effects are similar in nature but more extensive than the pre-construction phase. These activities can have a negative and irreversible impact on all of the recorded heritage sites. Impacts include destruction or partial destruction of non-renewable heritage resources.

### 7.3. Operation Phase:

No impact is envisaged for the recorded heritage resources during this phase.

## 8. CONCLUSIONS AND RECOMMENDATIONS

The Mogalakwena Municipality is implementing the Olifants River Water Resources Development Project, which is driven by the Department of Water Affairs. Bulk water pipelines (which are currently being installed) will provide potable water to the villages North and North West of Mokopane. Smaller supply pipelines need to be installed to disperse the water to the different sections of the villages. Tekplan Environmental has been appointed to undertake the necessary environmental authorization work for the project. This report forms a specialist study within this wider process, as part of this process the river crossings and infrastructure was previously assessed (Hutten 2013) and a section of the line next to N11 by Gaigher (2011) but no sites were recorded within the current area of impact.

During the current study one cemetery was recorded locate **outside** of the impact area as well as the foundations of stone wall.

The recorded cemetery (**Field nr 630**) is located outside of the impact area (more than 20 meters) and is fenced. No impact is foreseen on the site and no further mitigation is necessary for this aspect. The stone wall foundations are located in the road reserve and a direct impact is foreseen on the site. The Stone packed wall must be monitored during the construction phases.

No cultural landscape elements or structures older than 60 were noted in the proposed corridor. Visual impacts to scenic routes and sense of place are also considered to be low as the line follows existing infrastructure and large parts of the study area have been modified in the recent past by human activities including but not limited to roads, residential development, water supply pipelines, borrow pits and cultivation.

If during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find and therefor chance find procedures should be put in place as part of the EMP. A short summary of chance find producers is discussed below.

## **Chance finds procedure**

This procedure applies to the developer's permanent employees, its subsidiaries, contractors and subcontractors, and service providers. The aim of this procedure is to establish monitoring and reporting procedures to ensure compliance with this policy and its associated procedures. Construction crews must be properly inducted to ensure they are fully aware of the procedures regarding chance finds as discussed below.

- If during the construction, operations or closure phases of this project, any person employed by the developer, one of its subsidiaries, contractors and subcontractors, or service provider, finds any artefact of cultural significance or skeletal material, this person must cease work at the site of the find and report this find to their immediate supervisor, and through their supervisor to the senior on-site manager.
- It is the responsibility of the senior on-site Manager to make an initial assessment of the extent of the find, and confirm the extent of the work stoppage in that area.
- The senior on-site Manager will inform the ECO of the chance find and its immediate impact on operations. The ECO will then contact a professional archaeologist for an assessment of the finds who will notify the SAHRA.

### **8.1. Reasoned Opinion**

From a heritage perspective the demarcated alignment of the water pipeline is acceptable from a heritage point of view. If the above recommendations are adhered to, and based on approval from SAHRA, HCAC is of the opinion that the development can continue as the impact of the development on heritage will not impact negatively on the archaeological record of the greater Mokopane area.

Due to the subsurface nature of archaeological material and graves the possibility of the occurrence of unmarked or informal graves and subsurface finds cannot be excluded. If during construction any possible finds such as stone tool scatters, artefacts or bone and fossil remains are made, the operations must be stopped and a qualified archaeologist must be contacted for an assessment of the find.

## **9. PROJECT TEAM**

Jaco van der Walt, Project Manager and Archaeologist

## **10. STATEMENT OF COMPETENCY**

I (Jaco van der Walt) am a member of ASAPA (no 159), and accredited in the following fields of the CRM Section of the association: Iron Age Archaeology, Colonial Period Archaeology, Stone Age Archaeology and Grave Relocation. This accreditation is also valid for/acknowledged by SAHRA and AMAFA.

I have been involved in research and contract work in South Africa, Botswana, Zimbabwe, Mozambique, DRC and Tanzania; having conducted more than 400 AIAs since 2000.

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