

Phase 1 Archaeological and Heritage Impact Assessment on the Farm Groenfontein 331JS in respect of the proposed realignment of a water pipeline connecting the Khanyisa Power Station with the eMalahleni Water Reclamation Plant, Witbank, Mpumalanga Province.

Compiled by:



**For Aurecon South Africa (Pty) Ltd**

Surveyor: Mr JP Celliers

16 July, 2015



# environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA


## DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

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Application for integrated environmental authorisation and waste management licence in terms of the-

- (1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and
- (2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

## PROJECT TITLE

KHANYISA POWER PROJECT.
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Specialist:	Kudzala Antiquity CC		
Contact person:	Jean-Pierre Celliers		
Postal address:	PO Box 5209, Lydenburg		
Postal code:	1120	Cell:	0827793748
Telephone:		Fax:	
E-mail:	kudzala@lantic.net		
Professional affiliation(s) (if any)	ASAPA (Association of South African Professional Archaeologists)		

Project Consultant:			
Contact person:			
Postal address:			
Postal code:		Cell:	
Telephone:		Fax:	
E-mail:			

4.2 The specialist appointed in terms of the Regulations

I, JEAN-PIERRE CELLIER, declare that --

General declaration:

I act as the independent specialist in this application;  
I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;  
I declare that there are no circumstances that may compromise my objectivity in performing such work;  
I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;  
I will comply with the Act, Regulations and all other applicable legislation;  
I have no, and will not engage in, conflicting interests in the undertaking of the activity;  
I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;  
all the particulars furnished by me in this form are true and correct; and  
I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

J.P. Cellier  
Signature of the specialist:

Kidzala Antiquity CC  
Name of company (if applicable):

01/09/2015  
Date:

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## Executive summary

**Site name and location:** The Farm Groenfontein 331 JS near eMalahleni (Witbank), Mpumalanga Province.

**Purpose of the study:** An archaeological and heritage study in order to identify heritage resources in respect of the proposed realignment of a water pipeline connecting the proposed Khanyisa Power Station with the eMalahleni Water Reclamation Plant (EWRP).

**1:50 000 Topographical Map:** 2629 AA (1995)

**EIA Consultant:** Aurecon South Africa (Pty) Ltd

**Client:** Paverstar Trading 32

**Heritage Consultant:** Kudzala Antiquity CC.

Contact person: Jean-Pierre (JP) Celliers

Tel: +27 82 779 3748

E-mail: [kudzala@lantic.net](mailto:kudzala@lantic.net)

**Report date:** 16 July 2015

### **Description and findings:**

Kudzala Antiquity CC undertook an archaeological resource survey in respect of the proposed realignment of a water pipeline located on the Farm Groenfontein 331 JS near eMalahleni (Witbank) in Mpumalanga Province. The pipeline is located on the property of Anglo American Coal and will connect the proposed ACWA Power Khanyisa IPP Project with the EWRP. The study was done with the aim of identifying sites of heritage significance in the vicinity of the new proposed pipeline route as well as the existing pipeline and assessing their current preservation condition, significance and possible impact of the proposed action. This forms part of legal requirements as appear in section 38 of the National Heritage Resources Act (NHRA) (Act No. 25 of 1999) and the National Environmental Management Act (NEMA), Act No. 107 of 1998). Current land use on the proposed area is industrial & mining activity. The pipeline runs parallel to an existing conveyor belt system which transports coal to a distribution facility. The survey was conducted on foot and with the aid of a motor vehicle in an effort to locate archaeological remains and historic sites, structures and features. A desktop archival study in combination with scrutiny of previous heritage surveys of the area formed the background against which the survey was conducted.

No sites or features of heritage significance were identified during the survey. From a heritage perspective it is recommended that the proposed activity can commence.

**Disclaimer:** *Although all possible care is taken to identify all sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be*

*overlooked during the study. Kudzala Antiquity CC will not be held liable for such oversights or for costs incurred as a result of such oversights.*

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- The results of the project;
- The technology described in any report; and
- Recommendations delivered to the client.

# 1. Introduction

## 1.1. Terms of reference

Kudzala Antiquity CC was commissioned to conduct an archaeological and heritage resources survey on affected portions of the Farm Groenfontein 331 JS near eMalahleni (Witbank) in Mpumalanga Province. The survey was conducted in respect of the potential impact on archaeological and heritage resources that may be affected by the realignment of a water pipeline which will connect the ACWA Power Khanyisa IPP Project to the EWRP. The survey was conducted for Aurecon South Africa (Pty) Ltd.

## 1.2. Legislative Framework

The National Heritage Resources Act (NHRA) (Act No. 25 of 1999) and the National Environmental Management Act (NEMA) (Act No. 107 of 1998) require of individuals (engineers, farmers, mines and industry) or institutions to have specialist heritage impact assessment studies undertaken whenever any development activities are planned. This report is the result of an archaeological and heritage scoping study in accordance with the requirements as set out in Section 38 (3) of the NHRA in an effort to ensure that heritage features or sites that qualify as part of the national estate are properly managed and not damaged or destroyed.

The study aims to address the following objectives:

- Analysis of heritage issues;
- Assess the cultural significance of identified places including archaeological sites and features, buildings and structures, graves and burial grounds within a specific historic context;
- Identifying the need for more research;
- Surveying and mapping of identified places including archaeological sites and features, buildings and structures, graves and burial grounds;
- A preliminary assessment of the feasibility of the proposed development or construction from a heritage perspective;
- Identifying the need for alternatives when necessary; and
- Recommending mitigation measures to address any negative impacts on archaeological and heritage resources.

Heritage resources considered to be part of the national estate include those that are of archaeological, cultural or historical significance or have other special value to the present community or future generations.

The national estate may include:

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and paleontological sites;
- graves and burial grounds including:
  - (i) ancestral graves;
  - (ii) royal graves and graves of traditional leaders;
  - (iii) graves of victims of conflict;
  - (iv) graves of individuals designated by the Minister by notice in the *Gazette*;
  - (v) historical graves and cemeteries; and other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- sites of significance relating to slavery in South Africa;
- movable objects including:
  - (i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects and material, meteorites and rare geological specimens;
  - (ii) objects to which oral traditions are attached or which are associated with living heritage
  - (iii) ethnographic art and objects;
  - (iv) military objects
  - (v) objects of decorative or fine art;
  - (vi) objects of scientific or technological interest; and
  - (vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).

Cultural resources are unique and non-renewable physical phenomena (of natural occurrence or made by humans) that can be associated with human (cultural) activities (Van Vollenhoven 1995:3).

These would be any man-made structure, tool, object of art or waste that was left behind on or beneath the soil surface by historic or pre-historic communities. These remains, when studied in their original context by archaeologists, are interpreted in an attempt to understand, identify and reconstruct the activities and lifestyles of past communities. When these items are disturbed from their original context, any meaningful information they possess is lost, therefore it is important to locate and identify such remains before construction or development activities commence.



### **1.3. Approach**

An Archaeological Impact Assessment (AIA) could consist of three phases. This document deals with the first phase. This (phase 1) investigation is aimed at getting an overview of cultural resources in a given area, thereby assessing the possible impact a proposed development may have on these resources.

When the archaeologist encounters a situation where the planned project will lead to the destruction or alteration of an archaeological site, a second phase in the survey is normally recommended. During a Phase 2 investigation mitigation measures are put in place and detailed investigation into the nature and origin of the cultural material is undertaken. Often at this stage, archaeological excavation is carried out in order to document and preserve the cultural heritage.

Phase 3 consists of the compiling of a management plan for the safeguarding, conservation, interpretation and utilization of cultural resources (Van Vollenhoven, 2002).

Continuous communication between the developer and surveyor after the initial assessment has been carried out may result in the modification of a planned route or development to incorporate or protect existing archaeological and heritage sites.

## 2. Description of surveyed area

The study area falls within the eMalahleni Local Municipality, Mpumalanga Province. The survey was carried out in an area where the Eastern Highveld Grassland veld type predominates but this vegetation type is extensively affected and altered by previous and ongoing agricultural and mining activities.

**Veld type:** The vegetation forms part of the Grassland Biome and classed in the Mesic Highveld Grasslands as Eastern Highveld Grassland. The landscape is characterised by slightly to moderately undulating plains including low hills and pan depressions. The vegetation is made up of short dense grassland dominated by the usual Highveld grass composition with scattered small rocky outcrops and wiry sour grasses with some woody species (Mucina and Rutherford, 2009).

**Geology and soils:** Red to yellow sandy soils of the Ba to Bb land types found on shales and sandstones of the Madzaringwe Formation (Mucina and Rutherford, 2009).

## 3. Methodology

The study is built up of a desktop archival study in order to understand the study area in a historical timeframe, an archaeological background study which include scrutiny of previous archaeological reports of the area, obtained through the SAHRIS database, and published as well as unpublished written sources on the archaeology of the area, and a lastly a physical survey of the affected and immediate area.

The South African Heritage Resources Agency (SAHRA) and the relevant legislation NHRA require that the following components be included in an archaeological impact assessment:

- Archaeology;
- Shipwrecks;
- Battlefields;
- Graves;
- Structures older than 60 years;
- Living heritage;
- Historical settlements;
- Landscapes;
- Geological sites; and
- Paleontological sites and objects.

All the above-mentioned heritage components are addressed in this report, except shipwrecks, geological sites and paleontological sites and objects.

The **purpose** of the archaeological and heritage study is to establish the whereabouts and nature of cultural heritage sites should they occur on the surveyed area. This includes settlements, structures and artefacts which have value for an individual or group of people in terms of historical, archaeological, architectural and human (cultural) development.

The **aim** of this study is to locate and identify such objects or places in order to assess whether they are of significance and warrant further investigation or should be protected. Mitigation measures can then be put in place when necessary.

Limiting factors: Some areas were un-accessible as a result of existing mining infrastructure & safety regulations as well as physical barriers in the form of fences, buildings and plant equipment and infrastructure.

### **3.1. Desktop study**

The purpose of the desktop study is to compile as much information as possible on the heritage resources of the area. This helps to provide an historical context for located sites. Sources used for this study include published and unpublished documents, archival material and maps. Information obtained from the following institutions or individuals were consulted:

- Lydenburg Museum, Lydenburg;
- Published and unpublished archaeological reports and articles;
- Published and unpublished historical reports and articles;
- Archival documents from the National Archives in Pretoria;
- Historical maps; and
- South African Heritage Resource Information System (SAHRIS) database.

#### **3.1.1. Previous archaeological studies in the area**

A number of AIA and heritage impact assessments have been done in the vicinity of the proposed development area.

A number of studies by Dr Udo Küsel in the year 2006 (Küsel, 2006) in nearby areas such as Dixon Agricultural Holdings, on the Farm Klipfontein 322 JS as well as portion 1 of the Farm Klippoort 334 JS revealed no heritage resources of significance.

In 2010 a survey entitled “Phase 1 Archaeological Impact Assessment for Aurecon Environmental Consultants concerning the proposed Khanyisa Power Station on portions of the Farms Klippan 332 JS, Groenfontein 331 JS and Klipfontein 322 JS near Witbank, Mpumalanga Province” conducted by JP Celliers (Celliers, 2010) revealed a large cemetery with approximately 147 graves on the farm Klippan 332 JS. This site is located some distance south west of the proposed servitude area of the new Power Line and Substation.

McEdward Muribika conducted a study in 2008 entitled “Phase 1 Cultural and Archaeological Heritage Assessment Specialist Study for the proposed construction of a new 132 kV deviation power line to link Wilge Substation to a new Bravo Substation in eMalahleni Municipality, Mpumalanga Province”. He recorded no sites of archaeological or heritage significance.

### **3.1.2. Historical maps**

Historical maps obtained during the archival study were scrutinized and features that were regarded as important in terms of heritage value were identified and if they were located within the boundaries of the project area they were physically visited in an effort to determine:

- (i) Whether they still exist;
- (ii) their current condition; and
- (iii) their significance.

### **3.2. Heritage site significance**

The South African Heritage Resources Agency (SAHRA) formulated guidelines for the conservation of all cultural resources and therefore also divided such sites into three main categories. These categories might be seen as guidelines that suggest the extent of protection a given site might receive. They include sites or features of local (Grade 3) provincial (Grade 2) national (Grade 1) significance, grades of local significance and generally protected sites with a number of degrees of significance.

For practical purposes the surveyor uses his own classification for sites or features and divides them into three groups, those of low or no significance, those of medium significance, those of high significance (*Also see table 5.2. Significance rating guidelines for sites*).

Values used to assign significance and impact characteristics to a site include:

- **Types of significance**

The site’s scientific, aesthetic and historic significance or a combination of these is established.

- **Degrees of significance**

The archaeological or historic site’s rarity and representative value is considered. The condition of the site is also an important consideration.

- **Spheres of significance**

Sites are categorized as being significant in the international, national, provincial, regional or local context. Significance of a site for a specific community is also taken into consideration.

It should be noted that to arrive at the specific allocation of significance of a site or feature, the specialist considers the following:

- Historic context;
- Archaeological context or scientific value;
- Social value;
- Aesthetic value; and
- Research value.

More specific criteria used by the specialist in order to allocate value or significance to a site include:

- The unique nature of a site;
- The integrity of the archaeological deposit;
- 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 or is known);
- The preservation condition of the site;
- Quality of the archaeological or historic material of the site; and
- Quantity of sites and site features.

In short, archaeological and historic sites containing data, which may significantly enhance the knowledge that archaeologists currently have about our cultural heritage, should be considered highly valuable. In all instances these sites should be preserved and not damaged during construction activities. However, when development activities jeopardize the future of such a site, a second and third phase in the Cultural Resource Management (CRM) process is normally advised. This entails the excavation or rescue excavation of cultural material, along with a management plan to be drafted for the preservation of the site or sites.

Graves are considered very sensitive sites and should never under any circumstances be jeopardized by development activities. Graves and burial grounds are incorporated in the NHRA under section 36 and in all instances where graves are found by the surveyor, the recommendation would be to steer clear of these areas. If this is not possible or if construction activities have for some reason damaged graves, specialized consultants are normally contacted to aid in the process of exhumation and re-interment of the human remains.

## 4. History and Archaeology

### 4.1. Historic period

#### 4.1.1. Early History

In Southern Africa the domestication of the environment began only a couple of thousands of years ago, when agriculture and herding were introduced. At some time during the last half of the first millennium BC, people living in the region where Botswana, Zambia and Angola are today, started moving southward, until they reached the Highveld and the Cape in the area of modern South Africa. As time passed and the sub-continent became fully settled, these agro-pastoralists, who spoke Bantu languages, started dominating all those areas which were ecologically suitable for their way of life. This included roughly the eastern half of modern South Africa, the eastern fringe of Botswana and the north of Namibia. Historians agree that the earliest Africans to inhabit in the Lowveld in Mpumalanga were of Sotho, or more particularly Koni-origin.

When writing about Mpumalanga Province, it is perhaps best to briefly glance back to prehistoric times, when coals formed in vast swamps from rotting forests between 200 and 300 million years ago. Massive seams of vast coal fields have been discovered and extracted in the southern areas in the province. The areas surrounding the towns of Witbank, Middelburg, Bethal, Hendrina, Ermelo and Carolina had long provided South Africa with an abundant source of cheap energy. This discovery has also had unfortunate effects on these areas, since the toxic by-products of burning coal in such quantities had severely polluted the soil and atmosphere in this area (Delius, 2007: 36-37).

J. S. Bergh's historical atlas of the four northern provinces of South Africa is a very useful source for the writing of local and regional histories. According to this source no signs of major Stone Age or Iron Age sites are present in the vicinity of the Witbank area. The area was vacant of any settlement until the advent of the nineteenth century, when the Phuthing Tribe was prominent (Bergh, 1999: 4-5, 7, 10).

In a few decades, the course of history in the old Transvaal province would change forever. The Difaqane (Sotho), or Mfekane ("the crushing" in Nguni) was a time of bloody upheavals in Natal and on the Highveld, which occurred around the early 1820s until the late 1830s. It came about in response to heightened competition for land and trade, and caused population groups like gun-carrying Griquas and Shaka's Zulus to attack other tribes.

Mzilikazi and his raiders had moved from the Northern Nguni area to the area north of the Vaal River by 1821. It has been recorded that the Ndebeles first attacked the Phuthing tribe, which in turn migrated to the south of the Vaal River and joined groups of Southern Sotho speakers. The Phuthing and Southern Sotho tribes moved westward and northward and started raiding Tswana communities in the surrounding area. The Phuthing were commanded first by Chief Tshane, and

later Ratsebe. As the Phuthing under Ratsebe moved eastwards along the Vaal River, they collided with Mzilikazi's Ndebele once more. The Phuthing and other raiding groups were finally taken captive in 1823 by Mzilikazi's men (Bergh, 1999: 14; 109-119).

During the time of the Difaqane, a northwards migration of white settlers from the Cape was also taking place. Some white travellers, missionaries and adventurers had gone on expeditions to the northern areas in South Africa – some as early as in the 1720's. One such an adventurer was Robert Schoon, who formed part of a group of Scottish travellers and traders who had travelled the northern provinces of South Africa in the late 1820s and early 1830s. Schoon had gone on two long expeditions in the late 1820s and once again ventured eastward and northward of Pretoria in 1836. During the latter journey, he passed by the area where Ogies is located today (Bergh, 1999: 13, 116-121).

By the late 1820s, a mass-movement of Dutch speaking people in the Cape Colony started advancing into the northern areas. This was due to feelings of mounting dissatisfaction caused by economical and other circumstances in the Cape. This movement later became known as the Great Trek. This migration resulted in a massive increase in the numbers of people of European descent. As can be expected, the movement of whites into the Northern provinces would have a significant impact on the black farmer - herders who populated the land.

By 1860, the population of Europeans in the central Transvaal was already very dense and the administrative machinery of their leaders was firmly in place. Many of the policies that would later be entrenched as legislation during the period of apartheid had already been developed (Ross 2002: 39; Bergh, 1999: 170).

Much can be said about the systematic oppression of black people in South Africa. In 1904 about half of the black population in the Transvaal was living on private land, owned by Europeans or companies. According to the Squatters' Law of 1895, no more than five families of "natives" could live on any farm or divided portion of a farm, without special permission of the Government in the Transvaal (Massie 1905: 97).

However black and white relations were at times also interdependent in nature. After the Great Trek, when white farmers had settled at various areas in the northern provinces, wealthier individuals were often willing to lodge needy white families on their property in exchange for odd jobs and commando service. These "bywoners" often arrived with a family and a few cows. He would till the soil and pay a minimal rent to the farmer from the crops he grew. The farmer did not consider him a labourer, but mostly kept black workers for hard labour on the farm.

#### **4.1.2. History of the Anglo Boer War (1899-1902) in the area**

The discovery of diamonds and gold in the northern provinces had very important consequences for South Africa. After the discovery of these resources, the British, who at the time had colonised

the Cape and Natal, had intentions of expanding their territory into the northern Boer republics. This eventually led to the Anglo-Boer War, which took place between 1899 and 1902 in South Africa, and which was one of the most turbulent times in South Africa's history.

Even before the outbreak of war in October 1899 British politicians, including Sir Alfred Milner and Mr. Chamberlain, had declared that should Britain's differences with the Z.A.R. result in violence, it would mean the end of republican independence. This decision was not immediately publicised, and as a consequence republican leaders based their assessment of British intentions on the more moderate public utterances of British leaders. Consequently, in March 1900, they asked Lord Salisbury to agree to peace on the basis of the status quo ante bellum. Salisbury's reply was, however, a clear statement of British war aims (Du Preez, 1977).

During the British march into the Transvaal between February and September 1900, several troops passed by the area where eMalahleni (Witbank) is situated today. The battalions of Lieutenant Generals J. French, R. Pole-Carew and F. Roberts all travelled close by the eMalahleni area and through Middelburg. A railway line ran along this route at the time (Bergh, 1999: 51).

At the time of the War, two railway stations were located in the vicinity of the Witbank/Ogies area, and close to each a black concentration camp had been established. At Middelburg, about 20 km to the east of eMalahleni, one white and one black concentration camp was also set up.

After the Anglo-Boer War, many families were left destitute. Post war years of severe droughts and locust plagues did not ameliorate this state of affairs. All of these factors resulted in what became known as the 'poor white problem'. On the advent of commercial farming in South Africa, white landowners soon found bywoners to be a financial burden, and many were evicted from farms. In many cases, wealthier landlords found it far more profitable to rent their land to blacks than to bywoners. This enabled them to create reservoirs of black labour (for which mine recruiting agencies were prepared to pay handsome commissions), while it was also possible to draw more rent from their black tenants. This was outlawed by the 1913 Natives Land Act, which forbade more than five black families from living on white farms as peasant squatters (Readers Digest 1992: 329-332).

The town Witbank was officially proclaimed in January 1909 and the Witbank district was established on 1 April 1925 (Bergh, 1999). To gain a greater understanding of the development of both the town Witbank and the formation of the Witbank district a brief overview of European settlement in the Eastern Transvaal should be given. The white settlement of the eastern areas of the Transvaal can be traced back to a commission under the leadership of A.H. (Hendrik) Potgieter who negotiated for land with the Portuguese Governor at Delagoa Bay (Maputo Bay) in 1844. It was agreed that these settlers could settle in an area that was four days journey from the east coast of Africa between the 10° and 26° south latitudes. Boers started migrating into the area in 1845. Andries-Ohrigstad was the first town established in this area in July 1845 after the Boers successfully negotiated for land with the Pedi Chief Sekwati. Farms were given out as far west as the Olifants River. The western boundary was not officially defined but at a Volksraad meeting in



1849 it was decided that the Elands River would be the boundary between the districts of Potchefstroom and Lydenburg as this eastern portion of the Transvaal was known.

Due to internal strife and differences between the various Boer groups settled in the broader Transvaal region, the settlers in the Ohrigstad area now governed from the town of Lydenburg decided to secede from the Transvaal Republic in 1856. The Republic of Lydenburg thus formed, laid claim to a large area that included not only the land originally obtained from the Pedi Chief Sekwati in 1849 but also other areas of land negotiated for from the Swazis. This area included the present day town of eMalahleni.

In 1858 the Zuid-Afrikaansche Republiek (ZAR) was officially established, and mainly consisted of all the other territories settled by the Boers in the Transvaal region. This development led to a boundary dispute between the ZAR and the Republic of Lydenburg regarding the western boundary of the latter. The Republic of Lydenburg defended its claim by referring to the 1849 Volksraad resolution in which the Elands River was confirmed as that republic's western boundary. However, the ZAR made claims of an eastern boundary that stretched to the Olifants River. Nevertheless in 1860 the Republic of Lydenburg united with the ZAR as the District of Lydenburg and seceded the land west of the Olifants River as part of the unification agreement to the District of Pretoria.

However, in 1872 the District of Middelburg was established from merging sections of the Lydenburg and Pretoria Districts and consisted of the following wards: Olifantsrivier, Vaalrivier and Blesbokspruit. In 1902, after the end of the Anglo-Boer War, the Middelburg District was divided into five wards: Secocoeni, Selonsrivier, Mapoch, Olifantsrivier and Steenkoolspruit. In 1925 the Steenkoolspruit ward of the Middelburg District was proclaimed as the Witbank District.

#### **4.1.3. Historic maps of the study area**

Since the mid 1800's up until the present, South Africa had been subdivided into various districts. As of 1872, the farm area was located within the Middelburg district. The Witbank district was however proclaimed in 1925, and the farms were located in this area. As of 1977 the property fell under the jurisdiction of the Witbank Magisterial Area. This was still the case by 1994 (Bergh, 1999: 17, 20-27).

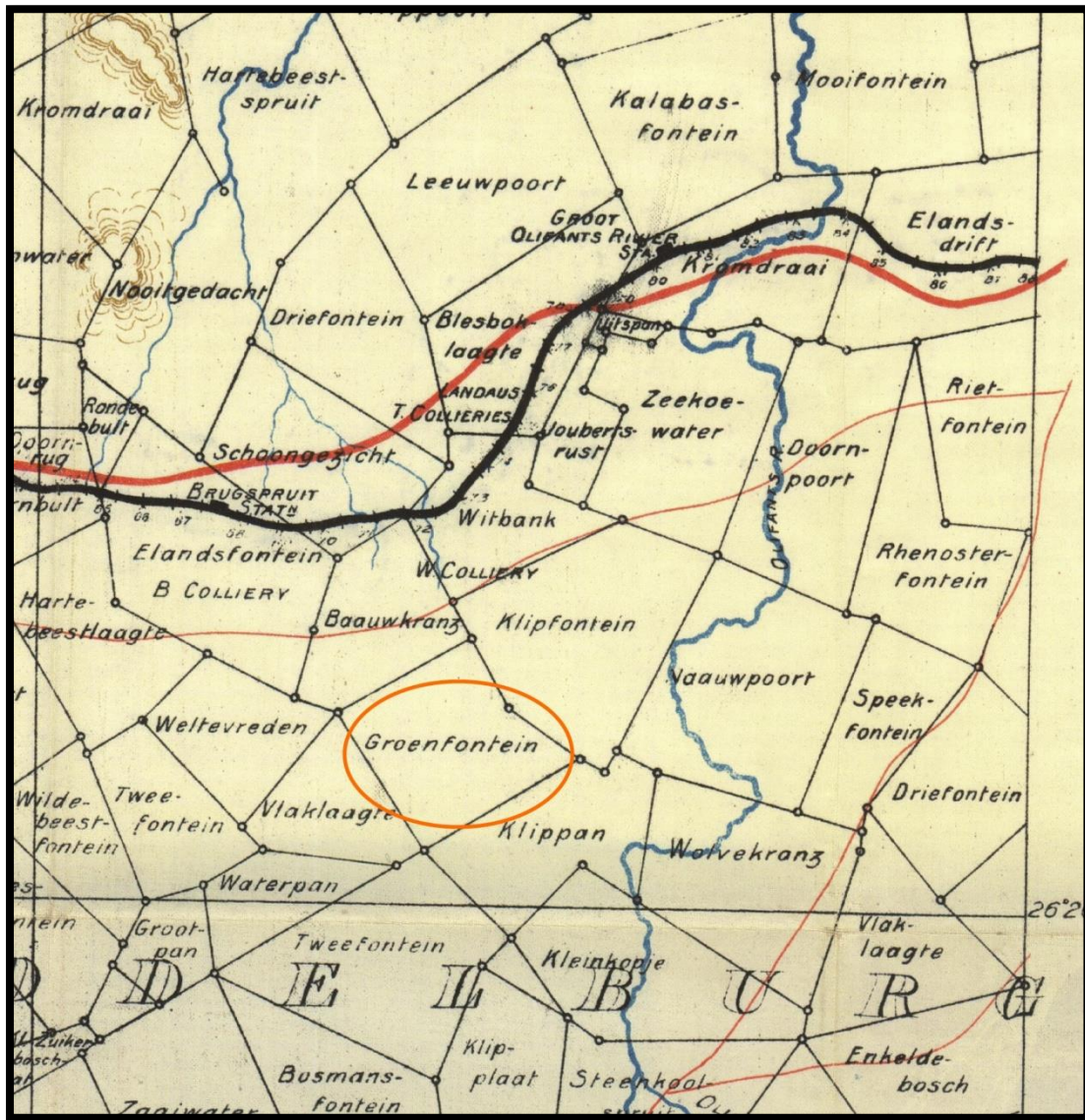


Fig. 4.1. Extract from the “Heidelberg District” map sheet of 1900, The Imperial Map of South Africa. Encircled in orange is the farm Groenfontein on which the survey was carried out.

#### 4.1.4. Historical overview of the establishment of the railway lines and the coal industry in the eMalahleni district

Coal was first discovered in 1879 by G.W. Stowe at Vereeniging and systematically mined since 1889. Due to the fact that the coal had to be transported by ox wagon between the coalmines and the diamond mines at Kimberley, the coal mining industry remained relatively small in this period. However, the discovery of gold at the Witwatersrand in 1886 and the subsequent socio-economic development this brought to this region saw the commencement of commercial coal mining in the Witbank District. In 1889 four collieries were established:

- Brugspruit Colliery (Schoongezicht No. 508);
- Steenkoolspruit (No. 304);
- Maggie’s Mine (Vaalkranz No. 24) and

- Doulas Colliery (Goedevertouw No. 526)

The coal from these mines was also transported by ox wagon and sold for 50 shillings per ton in the Johannesburg area. However, the opening of small coal mines in the Springs, Brakpan and Boksburg areas led to closure of the collieries at Witbank. Nevertheless, the opening of the Delagoa Bay railway line between Pretoria and Lourenco Marques was to be the main catalyst in the development of the Witbank Coal Field (Graham, 1931).

The building of the railway line between Pretoria and Delagoa Bay commenced after the Kruger Government gave the concession for the building of the line to the Nederlandsche Zuid-Afrikaansche Spoorweg-Maatschappij (NZASM). The railway line was completed in 1895. The map above (fig. 4.1.) from *The Imperial Maps of South Africa 1900* gives an indication of the proximity of the original railway line north of the farms Blaauwkrans 323 JS, Klippan 332 JS, Groenfontein 331 JS and Klipfontein 322 JS in the year 1900 when the map was published. The map (fig. 4.1.) places the railway line and the farms in perspective to the then already established town of Middelburg. Note that the town Witbank had not yet been established although, reference is made to a colliery situated on the farm Witbank 141. Brugspruit Station was located on the farm Elandsfontein 512. This station is of historical importance. The eastern railway line was built conjointly from the direction of Pretoria and Delagoa Bay and President Paul Kruger ceremoniously joined the two sections at Brugspruit Station on 2 November 1894 (de Jongh, 1988).

## **4.2. Archaeology**

### **4.2.1. Stone Age**

In Mpumalanga Province the Drakensberg separates the interior plateau also known as the Highveld from the low-lying subtropical Lowveld which stretches to the Indian Ocean. A number of rivers amalgamate into two main river systems, the Olifants River and the Komati River. This fertile landscape has provided resources for humans and their predecessors for more than 1.7 million years (Esterhuizen & Smith in Delius, 2007).

The initial attraction of abundant foods in the form of animals and plants eventually also led to the discovery of and utilisation of various minerals including ochre, iron and copper. People also obtained foreign resources by means of trade from the coast. From 900 AD this included objects brought across the ocean from foreign shores.

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

In South Africa the ESA dates from about 2 million to 250 000 years ago, in other words from the early to middle Pleistocene. The archaeological record shows that as the early ancestors progressed physically, mentally and socially, bone and stone tools were developed. One of the most influential advances was their control of fire and diversifying their diet by exploitation of the natural environment (Esterhuizen & Smith in Delius, 2007).

The earliest tools used by hominids date to around 2.5 million years ago from the site of Gona in Ethiopia. Stone tools from this site shows that early hominids had to cognitive ability to select raw material and shape it for a specific application. Many bones found in association with stone tools like these have cut marks which lead scientists to believe that early hominids purposefully chipped cobblestones to produce flakes with a sharp edge capable of cutting and butchering animal carcasses. This supplementary diet of higher protein quantities ensured that brain development of hominids took place more rapidly.

Mary Leaky discovered stone tools like these in the Olduvai Gorge in Tanzania during the 1960s. The stone tools are named after this gorge and are known as relics from the Oldowan industry. These tools, only found in Africa, are mainly simple flakes, which were struck from cobbles. This method of manufacture remained for about 1.5 million years. Although there is continuing debate about who made these tools, two hominids may have been responsible. The first of these was an early form of *Homo* and the second was *Paranthropus robustus*, which became extinct about 1 million years ago (Esterhuizen & Smith in Delius, 2007).

Some time later, around 1.7 million years ago, more specialised tools known as Acheulean tools, appeared. These are named after tools from a site in France by the name of Saint Acheul, where they were first discovered in the 1800s. It is argued that these tools had their origin in Africa and then spread towards Europe and Asia with the movement of hominids out of Africa. These tools had longer and sharper edges and shapes, which suggest that they could be used for a larger range of activities including the butchering of animals, chopping of wood, digging roots and cracking bone. *Homo ergaster* was probably responsible for the manufacture of Acheulean tools in South Africa. This physical type was arguably physically similar to modern humans, had a larger brain and modern face, body height and proportion very similar to modern humans. *Homo ergaster* was able to flourish in a variety of habitats in part because they were dependent on tools. They adapted to drier, more open grassland settings. Because these early people were often associated with water sources such as rivers and lakes, sites where they left evidence of their occupation are very rare. Most tools of these people have been washed into caves, eroded out of riverbanks and washed downriver. An example in Mpumalanga is Maleoskop on the farm Rietkloof where Early Stone Age (ESA) tools have been found. This is one of only a handful such sites in Mpumalanga.

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

A greater variety of tools with diverse sizes and shapes appeared by 250 000 before present (BP). These replaced the large hand axes and cleavers of the ESA. This technological advancement introduces the Middle Stone Age (MSA). This period is characterised by tools that are smaller in size but different in manufacturing technique (Esterhuizen & Smith in Delius, 2007).

In contrast to the ESA technology of removing flakes from a core, MSA tools were flakes to start with. They were of a predetermined size and shape and were made by preparing a core of suitable material and striking off the flake so that it was flaked according to a shape which the toolmaker desired. Elongated, parallel-sided blades, as well as triangular flakes are common finds in these assemblages. Mounting of stone tools onto wood or bone to produce spears, knives and axes

became popular during the MSA. These early humans not only settled close to water sources but also occupied caves and shelters. The MSA represents the transition of more archaic physical type (*Homo*) to anatomically modern humans, *Homo sapiens*.

The MSA has not been extensively studied in Mpumalanga but evidence of this period has been excavated at Bushman Rock Shelter, a well-known site on the farm Klipfonteinhoek in the Ohrigstad district. This cave was excavated twice in the 1960s by Louw and later by Eloff. The MSA layers show that the cave was repeatedly visited over a long period. Lower layers have been dated to over 40 000 BP while the top layers date to approximately 27 000 BP (Esterhuizen & Smith in Delius, 2007; Bergh, 1998).

### **Later Stone Age (LSA)**

Early hunter gatherer societies were responsible for a number of technological innovations and social transformations during this period starting at around 20 000 years BP. Hunting of animals proved more successful with the innovation of the bow and link-shaft arrow. These arrows were made up of a bone tip which was poisoned and loosely linked to the main shaft of the arrow. Upon impact, the tip and shaft separated leaving the poisoned arrow-tip imbedded in the prey animal. Additional innovations include bored stones used as digging stick weights to uproot tubers and roots; small stone tools, mostly less than 25mm long, used for cutting of meat and scraping of hides; polished bone tools such as needles; twine made from plant fibres and leather; tortoiseshell bowls; ostrich eggshell beads; as well as other ornaments and artwork (Esterhuizen & Smith in Delius, 2007).

At Bushman Rock Shelter the MSA is also represented and starts at around 12 000 BP but only lasted for some 3 000 years. The LSA is of importance in geological terms as it marks the transition from the Pleistocene to the Holocene, which was accompanied by a gradual shift from cooler to warmer temperatures. This change had its greatest influence on the higher-lying areas of South Africa. Both Bushman Rock Shelter and a nearby site, Heuningneskrans, have revealed a greater use in plant foods and fruit during this period (Esterhuizen & Smith in Delius, 2007; Bergh, 1998).

Faunal evidence suggests that LSA hunter-gatherers trapped and hunted zebra, warthog and bovids of various sizes. They also diversified their protein diet by gathering tortoises and land snails (*Achatina*) in large quantities.

Ostrich eggshell beads were found in most of the levels at these two sites. It appears that there is a gap of approximately 4 000 years in the Mpumalanga LSA record between 9 000 BP and 5 000 BP. This may be a result of generally little Stone Age research being conducted in the province. It is, however, also a period known for rapid warming and major climate fluctuation, which may have led people to seek out protected environments in this area. The Mpumalanga Stone Age sequence is visible again during the mid-Holocene at the farm Honingklip near Badplaas in the Carolina district (Esterhuizen & Smith in Delius, 2007; Bergh, 1998).

At this location, two LSA sites were located on opposite sides of the Nhlazatshe River, about one kilometre west of its confluence with the Teespruit. These two sites are located on the foothills of Kudzala Antiquity cc | Khanyisa Power Station Water Pipeline | eMalahleni

the Drakensberg, where the climate is warmer than the Highveld but also cooler than the Lowveld (Esterhuizen & Smith in Delius, 2007; Bergh, 1998).

Nearby the sites, dated to between 4 870 BP and 200 BP are four panels, which contain rock art. Colouring material is present in all the excavated layers of the site, which makes it difficult to determine whether the rock art was painted during the mid- or later Holocene. Stone walls at both sites date from the last 250 years of hunter gatherer occupation and they may have served as protection from predators and intruders (Esterhuizen & Smith in Delius, 2007; Bergh, 1998).

#### **4.2.2. Early Iron Age**

The period referred to as the Early Iron Age (approx. AD 200-1500) started when presumably Karanga (north-east African) herder groups moved into the north eastern parts of South Africa. It is believed that these people may have been responsible for making of the famous Lydenburg Heads, ceramic masks dating to approximately 600AD.

Ludwig von Bezing was a boy of more or less 10 years of age when he first saw pieces of the now famous Lydenburg heads in 1957 while playing in the veld on his father's farm near Lydenburg. Five years later von Bezing developed an interest in archaeology and went back to where he first saw the shards. Between 1962 and 1966 he frequently visited the Sterkspruit valley to collect pieces of the seven clay heads. Von Bezing joined the archaeological club of the University of Cape Town when he studied medicine at this institution.

He took his finds to the university at the insistence of the club. He had not only found the heads, but potsherds, iron beads, copper beads, ostrich eggshell beads, pieces of bones and millstones. Archaeologists of the University of Cape Town and WITS Prof. Ray Innskeep and Dr Mike Evers excavated the site where von Bezing found the remains. This site and in particular its unique finds (heads, clay masks) instantly became internationally famous and was henceforth known as the Lydenburg Heads site.

Two of the clay masks are large enough to probably fit over the head of a child, the other five are approximately half that size. The masks have both human and animal features, a characteristic that may explain that they had symbolic use during initiation- and other religious ceremonies. Carbon dating proved that the heads date to approximately 600 AD and was made by Early Iron Age people. These people were Bantu herders and agriculturists and probably populated Southern Africa from areas north-east of the Limpopo river. Similar ceramics were later found in the Gustav Klingbiel Nature Reserve and researchers believe that they are related to the ceramic wares (pottery) of the Lydenburg Heads site in form, function and decorative motive. This sequence of pottery is formally known as the Klingbiel type pottery. No clay masks were found in context similar to this pottery sequence.

Two larger heads and five smaller ones make up the Lydenburg find. The Lydenburg heads are made of the same clay used in making household pottery. It is also made with the same technique used in the manufacture of household pottery. The smaller heads display the modeling of a curved

forehead and the back neck as it curves into the skull. Around the neck of each of the heads, two or three rings are engraved horizontally and are filled in with hatching marks to form a pattern. A ridge of clay over the forehead and above the ears indicates the hairline. On the two larger heads a few rows of small clay balls indicate hair decorations. The mouth consists of lips – the smaller heads also have teeth. The seventh head has the snout of an animal and is the only head that represents an animal.

Some archaeological research was done during the 1970's at sites belonging to the Early Iron Age (EIA), location Plaston, a settlement close to White River (Evers, 1977). This site is located on a spur between the White River and a small tributary. It is situated on holding 119 at Plaston.

The site was discovered during house building operations when a collection of pottery sherds was excavated. The finds consisted of pottery shards both on the surface and excavated.

Some of the pottery vessels were decorated with a red ochre wash. Two major decoration motifs occurred on the pots:

- Punctuation, using a single stylus and
- Broad line incision, the more common motif

A number of EIA pottery collections from Mpumalanga and Limpopo may be compared to the Plaston sample. They include Silver Leaves, Eiland, Matola, Klingbiel and the Lydenburg Heads site. The Plaston sample is distinguished from samples of these sites in terms of rim morphology, the majority of rims from Plaston are rounded and very few bevelled. Rims from the other sites show more bevelled rims (Evers, 1977:176).

Early Iron Age pottery was also excavated by archaeologist, Prof. Tom Huffman during 1997 on location where the Riverside Government complex is currently situated (Huffman, 1998). This site known as the Riverside site is situated a few km north of Nelspruit next to the confluence of the Nelspruit and Crocodile River. It was discovered during the course of an environmental impact assessment for the new Mpumalanga Government complex offices. A bulldozer cutting exposed storage pits, cattle byres, a burial and midden on the crest of a gentle slope. Salvage excavations conducted during December 1997 and March 1998 recovered the burial and contents of several pits.

One of the pits contained among other items, pottery dating to the eleventh century (AD 1070 ± 40 BP). This relates the pottery to the Mzonjani and Broederstroom phases. The early assemblage belongs to the Kwale branch of the Urewe tradition.

During the early 1970's Dr Mike Evers of the University of the Witwatersrand conducted fieldwork and excavations in the Eastern Transvaal. Two areas were studied, the first area was the Letaba area south of the Groot Letaba River, west of the Lebombo Mountains, east of the great escarpment and north of the Olifants River. The second area was the Eastern Transvaal escarpment area between Lydenburg and Machadodorp.

These two areas are referred to as the Lowveld and escarpment respectively. The earliest work on Iron Age archaeology was conducted by Trevor and Hall in 1912. This revealed prehistoric copper-, gold- and iron mines. Schwelinus (1937) reported smelting furnaces, a salt factory and terraces near Phalaborwa. In the same year D.S. van der Merwe located ruins, graves, furnaces, terraces and soapstone objects in the Letaba area.

Mason (1964, 1965, 1967, 1968) started the first scientific excavation in the Lowveld followed by N.J. van der Merwe and Scully. M. Klapwijk (1973, 1974) also excavated an EIA site at Silverleaves and Evers and van den Berg (1974) excavated at Harmony and Eiland, both EIA sites.

Recent research by the National Cultural History Museum resulted in the excavation of an EIA site in Sekhukuneland, known as Mototolong (Van Schalkwyk, 2007). The site is characterized by four large cattle kraals containing ceramics which may be attributed to the Mzonjani and Doornkop occupational phases.

### **4.2.3. Late Iron Age**

The later phases of the Iron Age (AD 1600-1800's) are represented by various tribes including Ndebele, Swazi, BaKoni and Pedi marked by extensive stonewalled settlements found throughout the escarpment and particularly around Lydenburg, Badfontein, Sekhukuneland, Roosenekal and Steelpoort. The BaKoni were the architects of the stone-walled enclosures found throughout the escarpment area of Eastern Mpumalanga. These settlement complexes may be divided into three basic features: homesteads, terraces and cattle tracks. Researchers such as Mike Evers (1975) and Collett (1982) identified three basic settlement layouts in this area. Basically these sites can be divided into simple and complex ruins. Simple ruins are normally small in relation to more complex sites and have smaller central cattle byres and fewer huts. Complex ruins consist of a central cattle byre, which has two opposing entrances and a number of semi-circular enclosures surrounding it. The perimeter wall of these sites is sometimes poorly visible. Huts are built between the central enclosure and the perimeter wall. These are all connected by track-ways referred to as cattle tracks. These tracks are made by building stone walls, which forms a walkway for cattle to the centrally located cattle byres.



## 5. Site descriptions, locations and impact significance assessment

No sites or features were documented. A number of observation or orientation survey points were marked for survey purposes. They total four in number and are allocated “KSO” with a following number as identity. The initials “KSO” represent “Khanyisa Survey Orientation”. These orientation sites are tabled in Appendix B and their photos in Appendix D. A map of their location is also provided in Appendix C.

**Table 5.1.** Summary of located sites and their heritage significance

Type of site	Identified sites	Significance
Graves and graveyards	None	N/A
Late Iron Age	None	N/A
Early Iron Age	None	N/A
Historical buildings	None	N/A
Historical features	None	N/A
Stone Age sites	None	N/A

**Table 5.2.** Significance rating guidelines for sites

Field Rating	Grade	Significance	Recommended Mitigation
National Significance (NS)	Grade 1	High Significance	Conservation, nomination as national site
Provincial Significance (PS)	Grade 2	High Significance	Conservation; Provincial site nomination
Local significance (LS 3A)	Grade 3A	High Significance	Conservation, No mitigation advised
Local Significance (LS 3B)	Grade 3B	High Significance	Mitigation but at least part of site should be retained
Generally Protected A (GPA)	GPA	High/ Medium Significance	Mitigation before destruction
Generally Protected B (GPB)	GPB	Medium Significance	Recording before destruction
Generally Protected C (GPC)	GPC	Low Significance	Destruction

## **6. Summary of findings and recommendations**

No archaeological or related heritage sites or features were encountered during the survey. From a heritage perspective the proposed activity is supported.

The bulk of archaeological remains are normally located beneath the soil surface. Therefore, it is possible that some significant cultural material or remains were not located during this survey and will only be revealed when the soil is disturbed. Should excavation or large scale earth moving activities reveal any human skeletal remains, broken pieces of ceramic pottery, large quantities of sub-surface charcoal or any material that can be associated with previous occupation, a qualified archaeologist should be notified immediately. This will also temporarily halt such activities until an archaeologist has assessed the situation. It should be noted that if such a situation occurs it may have further financial implications.

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## MAPS:

1. Imperial Map of South Africa. 1900-1919. *Compiled for the Field Intelligence Department. Cape Town. April, 1900.*
2. Topographical Map. 2003. *South Africa. 1:50 000 Sheet.2529CC Witbank. Fourth Edition.* Pretoria: Government Printer.

## **Appendix A: Terminology**

**“Alter”** means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or other decoration or any other means.

**“Archaeological”** means –

- Material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artifacts, human and hominid remains and artificial features or structures;
- Rock Art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
- Wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artifacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation; and
- Features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found;

**“Conservation”**, in relation to heritage resources, includes protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance;

**“Cultural significance”** means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance;

**“Development”** means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including –

- construction, alteration, demolition, removal or change of use of a place or a structure at a place;
- carrying out any works on or over or under a place;
- subdivision or consolidation of land comprising, a place, including the structures or airspace of a place;
- constructing or putting up for display signs or hoardings;
- any change to the natural or existing condition or topography of land; and
- any removal or destruction of trees, or removal of vegetation or topsoil;

**“Expropriate”** means the process as determined by the terms of and according to procedures described in the Expropriation Act, 1975 (Act No. 63 of 1975);

**“Foreign cultural property”**, in relation to a reciprocating state, means any object that is specifically designated by that state as being of importance for archaeology, history, literature, art or science;

**“Grave”** means a place of internment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place;

**“Heritage resource”** means any place or object of cultural significance;

**“Heritage register”** means a list of heritage resources in a province;

**“Heritage resources authority”** means the South African Heritage Resources Agency, established in terms of section 11, or, insofar as this Act (25 of 1999) is applicable in or in respect of a province, a provincial heritage resources authority (PHRA);

**“Heritage site”** means a place declared to be a national heritage site by SAHRA or a place declared to be a provincial heritage site by a provincial heritage resources authority;

**“Improvement”** in relation to heritage resources, includes the repair, restoration and rehabilitation of a place protected in terms of this Act (25 of 1999);

**“Land”** includes land covered by water and the air space above the land;

**“Living heritage”** means the intangible aspects of inherited culture, and may include –

- cultural tradition;
- oral history;
- performance;
- ritual;
- popular memory;
- skills and techniques;
- indigenous knowledge systems; and
- the holistic approach to nature, society and social relationships;

**“Management”** in relation to heritage resources, includes the conservation, presentation and improvement of a place protected in terms of the Act;

**“Object”** means any moveable property of cultural significance which may be protected in terms of any provisions of the Act, including –

- any archaeological artifact;
- palaeontological and rare geological specimens;
- meteorites;



- other objects referred to in section 3 of the Act;

**“Owner”** includes the owner’s authorized agent and any person with a real interest in the property and –

- in the case of a place owned by the State or State-aided institutions, the Minister or any other person or body of persons responsible for the care, management or control of that place;
- in the case of tribal trust land, the recognized traditional authority;

**“Place”** includes –

- a site, area or region;
- a building or other structure which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure;
- a group of buildings or other structures which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures;
- an open space, including a public square, street or park; and
- in relation to the management of a place, includes the immediate surroundings of a place;

**“Site”** means any area of land, including land covered by water, and including any structures or objects thereon;

**“Structure”** means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

## **Appendix B: List of sites**

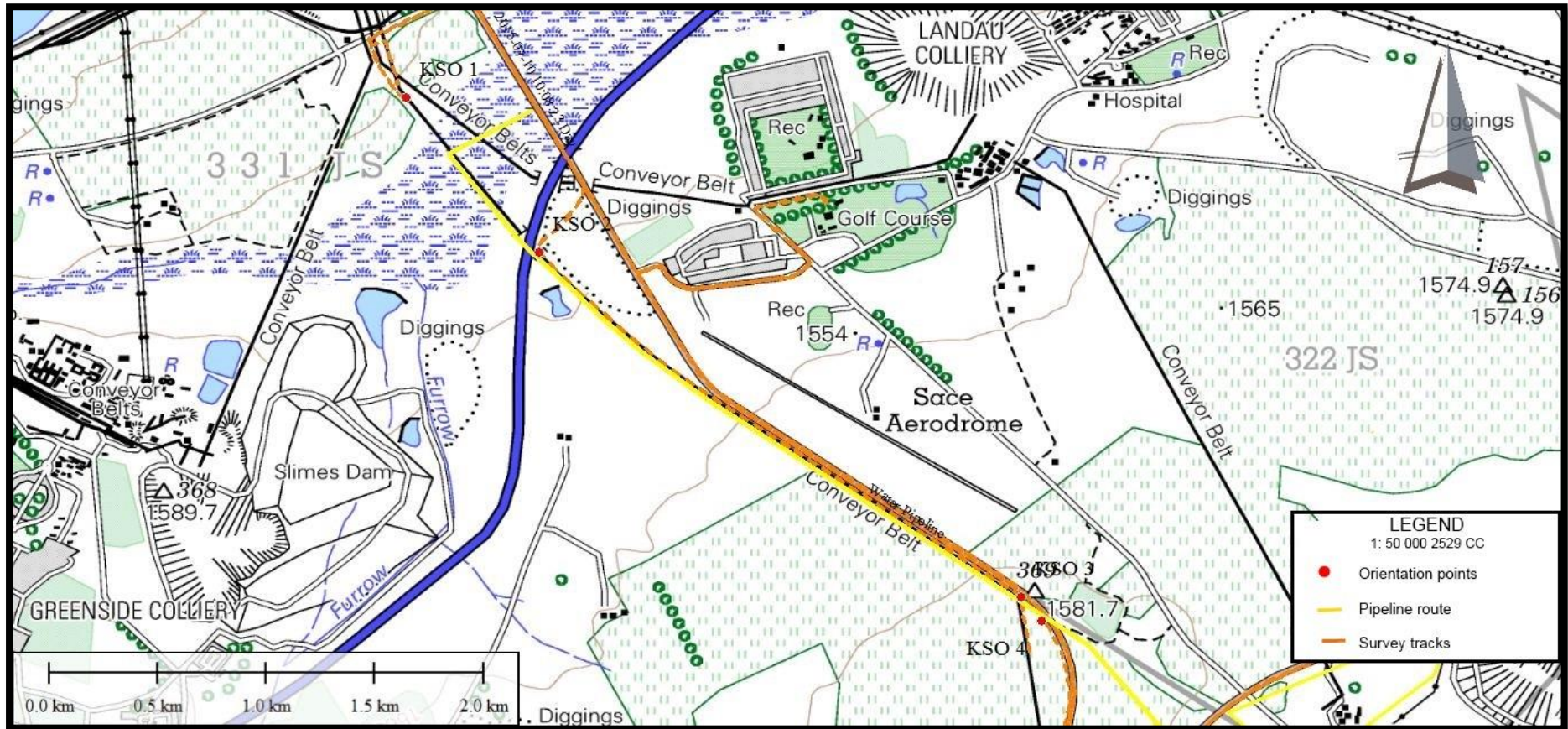
## List of sites

A total of four (4) observation or orientation survey points were marked for survey purposes, they were labelled "KSO" with a following number as identity. The initials "KSO" represent "Khanyisa Survey Orientation".

**Table A. Survey Orientation Locations.**

Site Name	Date of compilation	GPS Coordinates	Photo figure No.
KSO 1	10/07/2015	S25°56'37.32" E029°11'32.19"	1, 2
KSO 2	10/07/2015	S25°57'00.33" E029°11'52.09"	3, 4
KSO 3	10/07/2015	S25°57'51.83" E029°13'04.25"	5, 6
KSO 4	10/07/2015	S25°57'55.39" E029°13'07.25"	7, 8

## **Appendix C: Locality maps**







## **Appendix D: Photographs**



**Fig. 1.** Site KSO 1. Looking in a south-eastern direction, the pipeline will run parallel to the conveyor belt system.



**Fig. 2.** Site KSO 1. Looking east. The pipe will come from this direction and then turn south.





**Fig. 3.** Site KSO 2. Looking towards the north-west. The pipe will go underneath the N12 and proceed further south from here.



**Fig. 4.** Site KSO 2. Looking south-east. The pipe will run parallel to the conveyor belt system.



**Fig. 5.** Site KSO 3. The pipe will arrive at this loading station from the north-west.



**Fig. 6.** Site KSO 3. Looking towards the south.



**Fig. 7.** Site KSO 4. Looking towards the south-east. The pipe changes direction here into a south-easten direction.



**Fig. 8.** Site KSO 4. Looking in a north-western direction towards the planned water pipeline route.