

Phase 1 Archaeological and Heritage Impact Assessment on the farm Jobarne 489 JR and Witblits 613 JR, Sasol Ekandustria in respect of the proposed construction of five 100 ton and one 50 ton storage Magazines including a new Shooting Bay, Bronkhorstspuit, Gauteng Province.

Compiled for:



For Sasol Ekandustria Operations

Surveyor: Mr JP Celliers

24 April, 2023

I, Jean-Pierre Celliers as authorized representative of Kudzala Antiquity CC, hereby confirm my independence as a specialist and declare that neither I or the Kudzala Antiquity CC have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which I was appointed as Heritage Consultant, other than fair remuneration for work performed on this project.

SIGNATURE: 

# Table of Contents

- Introduction ..... 4
  - 1.1. Terms of reference ..... 4
    - 1.1.1 Project overview ..... 4
    - 1.1.2. Constraints and limitations..... 4
  - 1.2. Legislative Framework ..... 4
  - 1.3. Approach and statutory requirements..... 6
- 2. Description of surveyed area ..... 7
- 3. Methodology ..... 7
  - 3.1. Archaeological and Archival background studies ..... 8
    - 3.1.1. Previous archaeological studies in the area..... 9
    - 3.1.2. Historic maps..... 9
    - 3.1.3. Physical survey ..... 9
  - 3.2. Heritage site significance ..... 10
- 4. History and Archaeology ..... 12
  - 4.1. Historic period ..... 12
    - 4.1.1. Early History ..... 12
    - 4.1.2. History of the Boer Wars (1880-1881; 1899-1902) in the area ..... 13
    - 4.1.3. Historic maps of the study area ..... 15
    - 4.1.4. Historical overview and development of the farm Jobarne 489 JR ..... 21
  - 4.2. Archaeology ..... 24
    - 4.2.1. Stone Age ..... 24
    - 4.2.2. Early Iron Age..... 26
    - 4.2.3. Late Iron Age..... 27
- 5. Site descriptions, locations and impact significance assessment..... 29
  - 5.1. Description of located sites ..... 30
  - 5.2. Cumulative impacts on the heritage landscape ..... 48
- 6. Summary of findings and recommendations ..... 49
  - 6.1. Recommended management measures and chance find protocol ..... 50
- 7. References ..... 51
- Appendix A ..... 55
- Appendix B ..... 59
- Appendix C ..... 61
- Appendix D ..... 72

## Executive summary

**Site name and location:** An area of approximately hectares on the farms Jobarne 489 JR (previously Rietfontein 486 JR) and Witblits 613 JR located at Sasol Ekandustria, Gauteng Province.

**Purpose of the study:** An archaeological and heritage study in order to identify cultural heritage resources located in the identified project footprint area earmarked for the proposed construction of five 100 ton and one 50 ton magazines as well as a new Shooting Bay.

**Topographical Maps:** 1:50 000 2528 DA (1944, 1969, 1984, 1995, 2001).

**Client/ EIA Consultant:** Sasol Ekandustria

**Heritage Consultant:** Kudzala Antiquity CC.

Contact person: JP Celliers Tel: +27 82 779 3748

E-mail: [jp@kudzala.co.za](mailto:jp@kudzala.co.za)

**Report date:** 24 April 2023

### **Description and findings:**

An Archaeological and Heritage Impact Assessment was undertaken by Kudzala Antiquity CC in respect of the proposed construction of five 100 ton and one 50 ton magazines as well as a new Shooting Bay at the Sasol Ekandustria plant near Bronkhorstspuit, Gauteng Province. A physical survey and report was completed for this project in 2013 and an updated report and survey was commissioned in April 2023. The study was done with the aim of identifying sites which are of heritage significance on the identified project area and assess their current preservation condition, significance and possible impact of the proposed action. This forms part of legislative requirements as appears in section 38 of the National Heritage Resources Act (Act 25 of 1999). This report can be submitted in support of the National Environmental Management Act (Act 25 of 1998).

The survey was conducted on foot in an effort to locate archaeological remains and historic sites, structures and features. Archival information including scrutiny of previous heritage surveys of the area formed the baseline information against which the survey was conducted. A follow-up site visit and survey was conducted on 20 April 2023 during which sites which were recorded in 2013 were re-visited and confirmed and some new sites identified. These were all mapped in order to create a consolidated database of heritage sites and features within the proposed project area.

This report serves to compliment and also serve as supplementary information to the 2013 report and therefore sites discussed in the 2013 report is not repeated except for those located in close proximity to the proposed project area; they include sites BS4-BS8.

Management recommendations for the 2013 report in terms of the identified sites should be considered still valid and applicable unless stated otherwise in this report. Sites BS 4-8 were for example re-assessed with the aid of additional historical maps.

Newly recorded sites include a graveyard with at least 5 unmarked graves (Sites BSE 2 and BSE 2B) rated high significance; an existing shooting bay facility (Site BSE 1) rated low significance, and two sites where the ruined remains of rectangular and circular stone-built farmstead dwellings are located (Sites BSE 3 and BSE 4) also with a low significance rating (See sites discussions and recommendations in section 5 of this report). Some sites recorded in

Management recommendations regarding *all* the identified grave sites require fencing them and include at least a 30 meter buffer zone in order to avoid any physical impact as a result of the proposed construction activities. If impact due to construction is unavoidable, a process of social consultation should be followed with the families or relatives of the deceased to discuss further options. This is in accordance with section 36 of the National Heritage Resources Act (25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

The newly identified sites as well as some of the previously identified sites are all located outside of the proposed footprint area of the planned new shooting bay (See mapping in Appendix C).

A total of four survey orientation locations were documented, sites SO 1-4 which includes a GPS location and photographs of the landscape at that particular location.

In terms of section 34 of the National Heritage Resources Act (NHRA, 25 of 1999), two new structures were located and five confirmed from the 2013 report. They are of low significance.

In terms of section 35 of the NHRA, no significant archaeological sites or features were located.

In terms of section 36 of the NHRA, two gravesites and burial grounds were located. They are of high significance and no physical impact should be allowed. Management measures are discussed in section 5 of this report.

It is not within the expertise of this report or the surveyor to comment on possible palaeontological remains which may be located in the study area. An additional palaeontology desktop study will accompany this report in order to address paleontological concerns.

**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.*

**Copyright:** Copyright in all documents, drawings and records whether manually or electronically produced, which form part of the submission and any subsequent report or project document

shall vest in Kudzala Antiquity CC. None of the documents, drawings or records may be used or applied in any manner, nor may they be reproduced or transmitted in any form or by any means whatsoever for or to any other person, without the prior written consent of Kudzala Antiquity CC. The client, on acceptance of any submission by Kudzala Antiquity CC and on condition that the client pays to Kudzala Antiquity CC the full price for the work as agreed, shall be entitled to use for its own benefit and for the specified project only:

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

# Introduction

## 1.1. Terms of reference

Kudzala Antiquity CC was commissioned to conduct an archaeological and heritage resources survey in respect of the proposed construction of five new 100 ton and one 50 ton capacity magazines as well as a new Shooting Bay for Sasol Ekandustria Operations located on the farms Jobarne 489 JR and Witblits 613 JR near the town of Bronkhorstspuit, Gauteng Province. The survey was conducted in order to assess the potential impact that the proposed activity may have on archaeological and heritage resources. The survey was conducted for Sasol Ekandustria.

### 1.1.1 Project overview

The client is in the process of obtaining environmental authorization to construct new magazine facilities and a shooting bays an extension of existing infrastructure at Sasol Ekandustria Operations. Suitable areas within this identified area are earmarked for this activity pending environmental authorization.

### 1.1.2. Constraints and limitations

The physical archaeological and heritage survey consisted of non-intrusive methods which exclusively rely on surface observations. Most of the project footprint area was relatively easy of access but certain areas were difficult to access due to dense vegetation growth which resulted in archaeological visibility being low.

## 1.2. Legislative Framework

The National Heritage Resources Act (NHRA) (Act No. 25, 1999) and the National Environmental Management Act (NEMA) (Act 25 of 1998) require that individuals or institutions have specialist heritage impact assessment studies undertaken whenever development activities are planned and such activities trigger activities listed in the legislation. This report is the result of an archaeological and heritage 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;
- 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 removed 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 and statutory requirements**

The SAHRA Minimum standards of 2007 and 2016 guideline documents, forms the background against which the survey was planned and the report compiled. An Archaeological Impact Assessment (AIA) consists of three phases. This document deals with the first phase. This (phase 1) investigation is aimed at getting an overview of cultural resources in the project area, assigning significance to these resources, assessing the possible impact that the proposed activity may have on these resources, making recommendations pertaining to the management of heritage resources and putting forward mitigation measures where applicable.

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

Phase three 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 heritage specialist 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 Kungwini Local Municipality, Gauteng Province. The survey was carried out on approximately 26 ha of mixed use land located near Bronkhorstspuit.

**Landscape:** Natural and wetland vegetation and soils.

**Visibility:** Good-Poor in certain areas due to dense vegetation cover.

**Veld type:** This is a highly variable landscape with extensive sloping plains and a series of ridges which are elevated over undulating plains. Vegetation comprises of species-rich sour grassland alternating with low sour shrub land on rocky outcrops and steeper slopes (Mucina and Rutherford, 2009).

**Geology and soils:** The geology is characterized by Quartzite ridges of the Witwatersrand Supergroup and the Pretoria Group as well as the Selons River Formation of the Rooiberg Group (Mucina and Rutherford, 2009).

## 3. Methodology

This study consists of a detailed 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, social consultation with people who live or work nearby and a physical survey of the affected and immediate area.

**Social Consultation:** During the survey, employees on the property were consulted to establish whether any graves and other sites of possible heritage significance are located in the area. The informant consulted in this regard was Mr Bongani Mkhwane and Mr Goodman Mahlangu, both employees at Sasol Ekandustria.

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, archival and heritage study is to establish the whereabouts and nature of cultural heritage sites should they occur on project 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 and rate their significance and establish if further investigation is needed. Mitigation measures can then be suggested and put in place when necessary.

### **3.1. Archaeological and Archival background studies**

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:

- 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**

Some archaeological impact assessments (AIA's) and heritage impact assessments have been done in the vicinity of the proposed development area.

An archaeological impact study by J van der Walt entitled: Archaeological Impact Assessment on Holding 38 Lewzeni Estate AH, Cullinan, Gauteng Province (2008), listed no sites of archaeological significance in the area.

### **3.1.2. Historic maps**

Historical maps 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) Significance.

### **3.1.3. Physical survey**

- The survey of the proposed project area was conducted on 20 April 2023
- The survey took one day to complete.
- The documented sites were numbered sequentially.
- Sites were recorded by using a handheld Garmin Etrex 22x GPS unit and the unit was given time to reach an accuracy of at least 5 meters.
- Sites were plotted on 1:50 000 topographical maps which are geo-referenced (WGS 84) and also on Google Earth.
- Two gravesites were documented as well as two built-environment sites. Four survey orientation locations were mapped for survey purposes.

## 3.2. Heritage site significance

The South African Heritage Resources Agency (SAHRA) formulated guidelines for the conservation of all cultural resources (sections 6 and 7 of the NHRA, 1999) 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 variety 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 and 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.

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.

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 used 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

The historic atlas of Bergh (1999) mentions no signs of Stone Age, Early Iron Age or Later Iron Age activity in the area where Jobarne 489 JR (previously Rietfontein 470 JR) is located. It also seems that there was no prominent presence of any Bantu tribes in the area by the beginning of the 19<sup>th</sup> century.

According to Bergh (1999) there was neither a real danger of Malaria infection or Tsetse flies in the area. This possibly meant that the area was favorable for human settlement and livestock farming.

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 1820’s until the late 1830’s. 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. It seems that the area in which Jobarne 489 JR is located today was not directly affected by any of the prominent movements caused by the Difaqane (Bergh, 1999: 10-11; 14; 116-119).

During the time of the Difaqane, a northwards migration of white settlers from the Cape was also taking place. Some travellers, missionaries and adventurers had gone on expeditions to the northern areas in South Africa, some already as early as the 1720’s. The traveller Robert Scoon travelled through the area of the present-day Bronkhorstspuit in 1836. This journey is shrouded in ambiguity, as it is unknown from where Scoon departed or what his exact route was. It is also not known whether he returned to the Cape after his journey or travelled into a different direction. After the end of his travels he however wrote an article for The *Graham’s Town Journal*, which appeared on 28 July 1836. It is from this article that it could be deduced that Scoon had travelled through the Bronkhorstspuit area. Among other things, Scoon reported that he had come across a party of Boers who were some of the early Voortrekkers making their way into the northern provinces (Bergh, 1999: 12-13; 121-122).

It was only by the late 1820’s that 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 under British rule in the Cape. This movement later became known as the Great Trek. This migration resulted in a massive

increase in the extent of that proportion of modern South Africa dominated by people of European descent (Ross 2002: 39).

As can be expected, the movement of European settlers into the Northern provinces would have a significant impact on the local people who populated the land. This was also the case in the Gauteng Province. Farms were surveyed in a large area, which included the present-day Bronkhorstspuit area, between 1839 and 1840. By 1860, the population of people of European descent 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.

Since the development of Bronkhorstspuit undoubtedly had an influence on the properties surrounding its establishment history is important. Bronkhorstspuit is a small town 50 kilometers east of Tshwane in Gauteng, South Africa and located along the N4 national highway. It lies on the border between the Gauteng and Mpumalanga Provinces. Before the establishment of the town, in 1858, a group of Voortrekkers settled in the Bronkhorstspuit creek, which was originally called Kalkoenkransrivier. A railway station was established on the present-day site of Bronkhorstspuit in 1894. In June 1897, the South African Republic gave its approval for the establishment of the town, by that time already named Bronkhorstspuit by locals. It was however only in 1905 that Bronkhorstspuit was officially proclaimed as a town. There is disagreement about how the town originally got its name. Some say that it was named after the farmer J. G. Bronkhorst, whereas others believe that it was named after the plant *bronkors* (the Afrikaans name for watercress), that grew in the region of the creek (Internet Archive N/A; Routes 2013).

#### **4.1.2. History of the Boer Wars (1880-1881; 1899-1902) in the area**

An important conflict took place at Bronkhorstspuit during the First Anglo-Boer War (also known as the Transvaal First War of Independence) in December 1880. The troops of Colonel Anstruther were led into an unnecessary and poorly-planned conflict with the Boers. Many British lives were lost when Anstruther ignored warnings that British relations with the Boers were rapidly deteriorating and that he had to make haste to Pretoria. An insufficiently armed British garrison came up against an unaccountable number of Boers on horses at a farm stopover at Bronkhorstspuit and failed to realize their significance. He then allowed a heavily armed troop of Boers to approach his wagons after the Boer messenger rode up to the column under the white flag of truce. The Boers consequently disregarded the flag and opened fire on the defenseless column. The roadway where Anstruther's column was ambushed had apparently disappeared, like many of the battlefields of the Zulu War. Some British gravestones are apparently to be found in an area that they have been moved to, but are difficult to find (Greaves, 2012: 145-151; Duxbury, 1980).



The Anglo-Boer War, which took place between 1899 and 1902 in South Africa, 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 publicized, 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).

A concentration camp for black individuals was located next to the railway station at Bronkhorstspuit during the Anglo-Boer War (1899-1902). One of the conflicts of the war also took place a small distance to the southeast of the town. The battalion of B. Viljoen attacked a British Garrison on 18 November 1900 (Bergh, 1999: 15).

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

Since the mid 1800's up until the present, South Africa has been divided and re-divided into various different districts. Since 1887, the study area formed part of the Pretoria (Tshwane) district. This remained the case up until 1977, when South Africa was divided into various smaller magisterial districts and since then, the study area then formed part of the Bronkhorstspruit Magisterial District. (Bergh,1999:17; 25-27).

From 1887, the study area formed part of the farm Rietfontein 114, Pretoria District. In 1944 the farm on which the study area was located, was known as Rietfontein 486 JR and from 1984, the study area was known as Jobarne 489 JR.



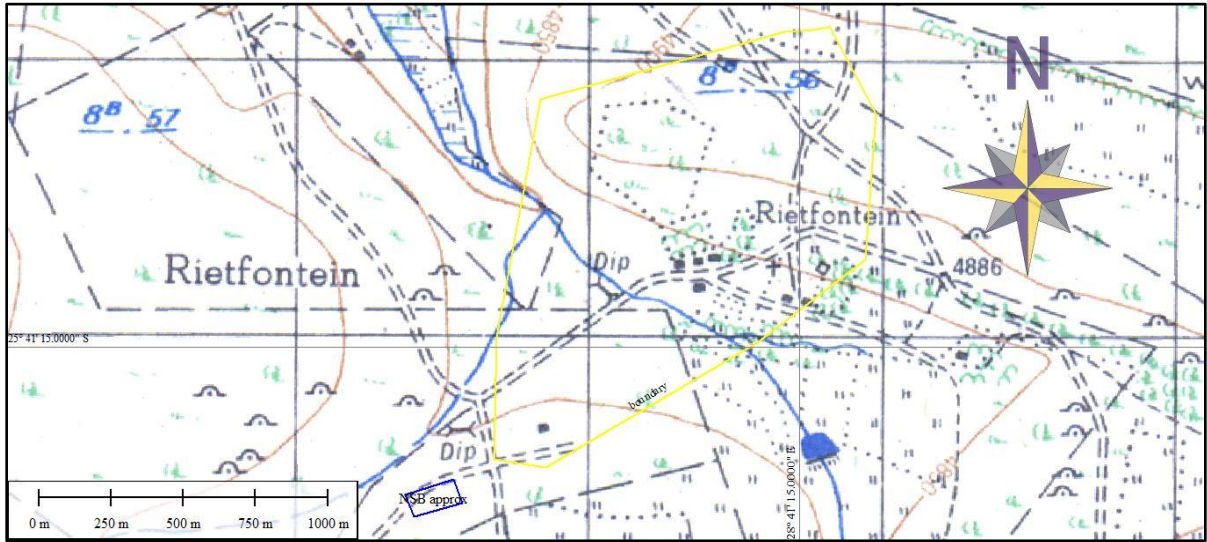
**Figure 4.1.** A Map of the Pretoria and Heidelberg Goldfields in the year 1887. At the time, the study area formed part of the eastern half of the farm Rietfontein 114. Several buildings are visible just north of the river (Surveyor General, 1887).



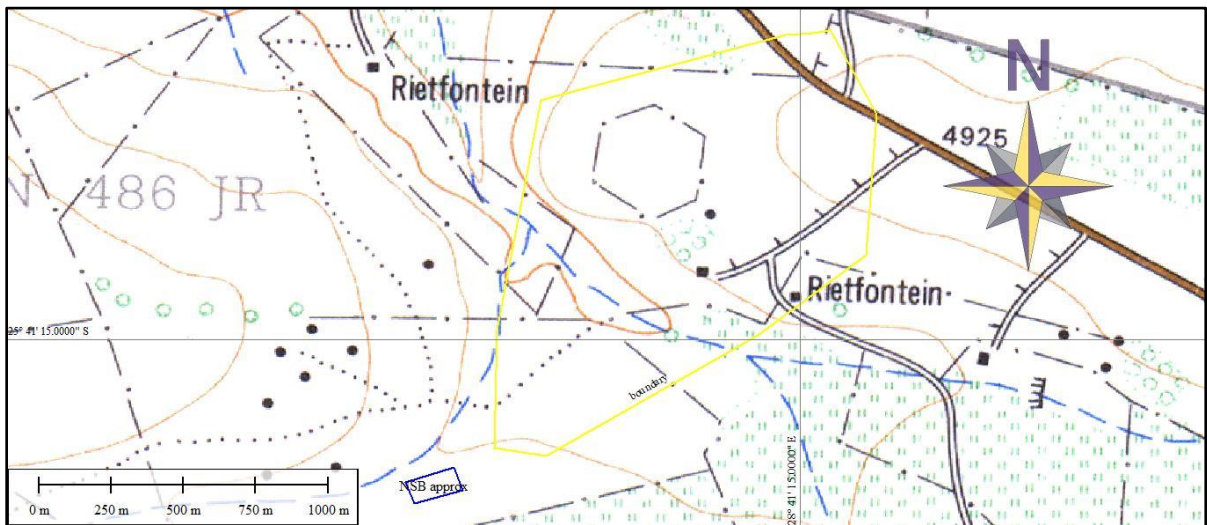
**Figure 4.2.** The Major Jackson map of Pretoria-Middelburg dated 1902. At the time, the study area formed part of the eastern half of the farm Rietfontein 114. Some buildings are visible just north of the river. Several roads traverse the farm and most converge at, or near, the buildings. (Surveyor General, 1902).



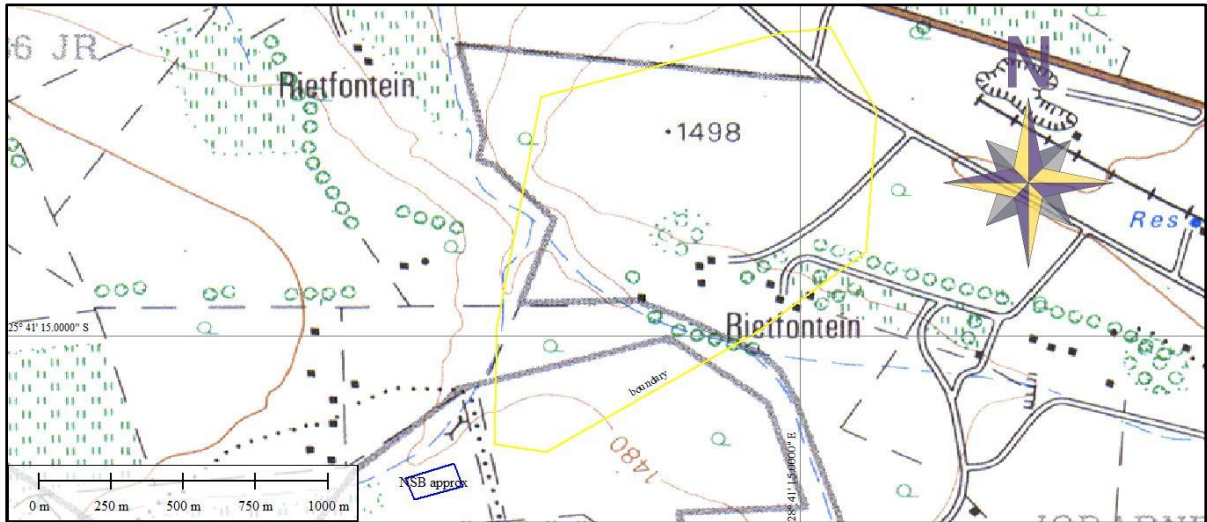
**Figure 4.3.** A Map of Pretoria area dated 1905. At the time, the study area formed part of the eastern half of the farm Rietfontein 114. Several buildings can be seen within the study area just north of the river and south of a hill. Several roads traverse the study area and most converge at, or near, the buildings. (Surveyor General, 1905).



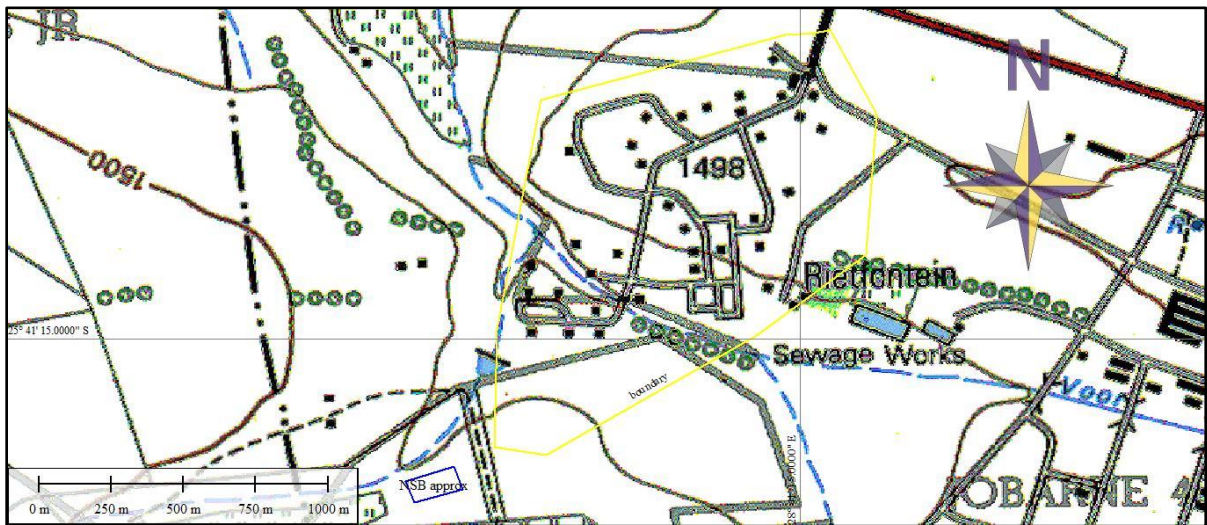
**Figure 4.4.** A Topographical map of the study areas dated 1944. By this time the farm on which the study area was located was known as Rietfontein 486 JR. The location of the original study area is shown with a yellow border and the proposed new shooting bay a blue border. Several roads are visible as well as numerous huts and buildings (Topographical Map, 1944).



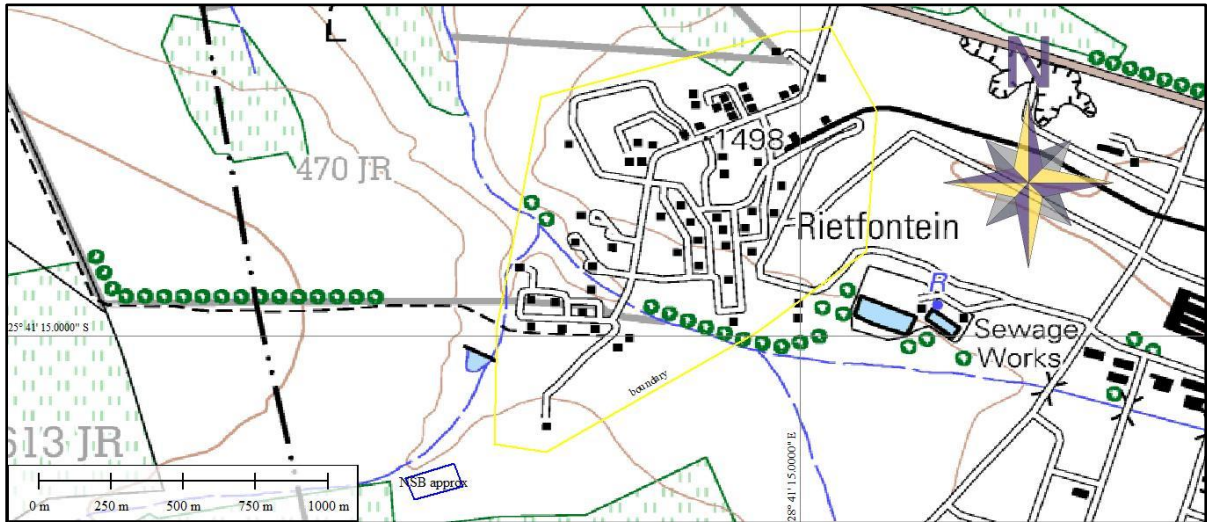
**Figure 4.5.** A Topographical map of the study areas dated 1969. The location of the original study area is shown with a yellow border and the proposed new shooting bay a blue border. Several developments can be seen on the property, and it includes roads, telephone lines, buildings and huts as well as a dam (Topographical Map, 1969).



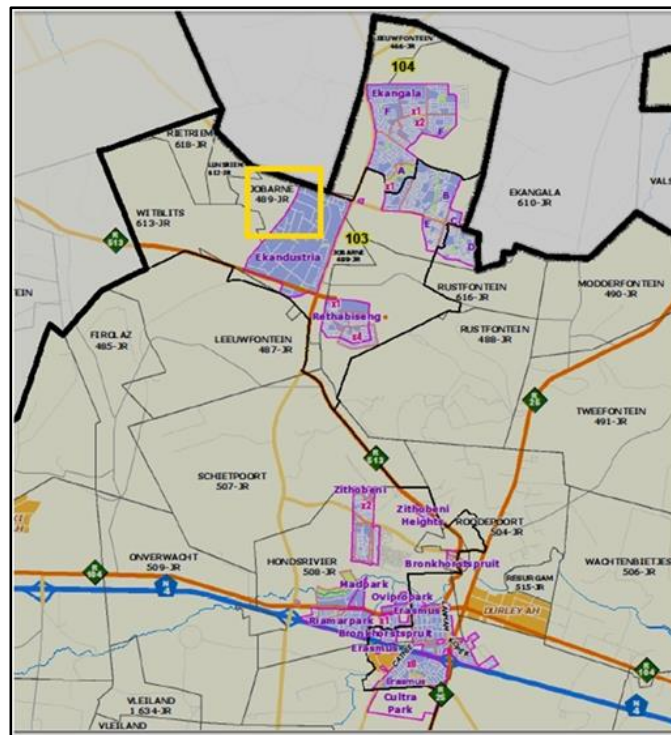
**Figure 4.6.** A Topographical map of the study areas dated 1984. The location of the original study area is shown with a yellow border and the proposed new shooting bay a blue border. The area is well developed with, *inter alia*, roads, power lines, railway lines and numerous buildings which are visible (Topographical Map, 1984).



**Figure 4.7.** A Topographical map of the study areas dated 1995. The location of the original study area is shown with a yellow border and the proposed new shooting bay a blue border. The area is well developed with roads, power lines, railway lines and numerous buildings (Topographical Map, 1995).



**Figure 4.8.** A Topographical map of the study areas dated 2001. The location of the original study area is shown with a yellow border and the proposed new shooting bay a blue border. The study area is highly developed, but at the time, the southwestern portion consisted of cultivated land (Topographical Map, 2001).



**Figure. 4.9.** Map of Region 7 of the Tshwane area dated 2013. The yellow border shows the study area. Ekandustria is located on the property that used to be known as Rietfontein 470 JR but now known as Jobarne 489 JR (Tshwane, 2013).

#### 4.1.4. Historical overview and development of the farm Jobarne 489 JR

Online sources and information found at the National Archives Repository of South Africa were used in this section. A record of historical landowners is provided and thereafter follows a discussion of how the study area and surrounds was historically used and developed.

##### Record of historical landowners

Rietfontein 114, Pretoria District, was first inspected by P. J. Muller on 15 November 1867 and he measured the property at 3123 morgen, 280 roods. The title deed to Rietfontein 114 was first granted to Johannes Marthinus van der Merwe on 10 April 1869. The following details could be found regarding subsequent historical landowners of this farm:

Entry number	Date of transfer	Portion	Transported from	Transported to	Purchase amount
2	10/4/69	Farm	J.M. van der Merwe	Gerrit Johannes Lindeque van der Merwe	£37.10
3	6/7/74	Farm	G.J.L. van der Merwe	Frederick Christiaan van Niekerk	£142.10
4	30/12/82	Farm	F.A. Johnstone	Daniel Jacobus Elandrus Opperman Philippus Albertus Opperman Petrus Lafras Uys Daniel Jacobus Prinsloo	£900
5	1/6/15	¼ share farm	D.J.E. Opperman	Louis Joel Hack	£1776.9.6
6	1/6/18	Portion A	Joint Owers	Petrus Lafras Uys	-
7	1/6/18	Portion B	Joint Owners	Daniel Jacobus Prinsloo	-
8	1/6/18	Portion C	Joint Owners	Lewis Joel Hack	-
9	1/6/18	Remaining extent	Joint Owners	Philippus Albertus Opperman	-
10	16/11/18	Portion B	Estate Late D.J. Prinsloo	Maria Margaretha Elizabeth Maritz Petrus Guysbertus Prinsloo Daniel Jacobus Prinsloo Anna Sophia Prinsloo Jacobus Gerhardus Prinsloo Christiaan Johannes Prinsloo Johanna Catharina Prinsloo	Bequest
11	23/9/22	½ share in Portion A	P.L. Uys & Estate late M.M. Uys	Dirk Corelis Uys	Bequest
12	23/9/22	½ share in Portion A	P.L. Uys & Estate late M.M. Uys	Johannes Christiaan Uys	Bequest
13	11/6/27	Portion C	L.J. Hack	Stephanus Johannes Jansen van Vuuren Geldenhuys	£2400
14	2/10/29	1/7 share in portion B	Estate late G.M. Maritz	Petrus Gysbertus Prinsloo	£400
15	28/2/39	½ share in Portion A	J.C. Uys	Hendrik Albertus Johannes Viljoen	£725
16	4/1/42	Remaining extent from Ent. 9	P.A. Opperman & Estate late J.L. Opperman	Stephanus Johannes Jansen van Vuuren Geldenhuys	Bequest
17	16/10/44	Ptn. 9 (Ptn. of Ptn. A)	Joint Owners	Hendrik Albertus Johannes Viljoen	[?]
18	16/10/44	RE. of Ptn. A	Joint Owners	Dirk Cornelius Uys	[?]



19	25/1/49	Ptn. 9 (Ptn. of Ptn. A)	Estate late H.A.J. Viloen & another	Sussana Christina Viljoen (1/2 share) Petrus Gysbertus Roos (1/18 share) Daniel Andries Kleynhans (1/18 share) Petrus Jacobus Viljoen (1/18 share) Johannes Petrus Gerhardus Steyn (1/18 share) Cornelius Johannes Fourie (1/18 share) Cornelius Jacobus Venter Viljoen (1/18 share) Cristina Susanna Viljoen (1/18 share) Hendrik Albertus Johannes Viljoen (1/18 share) Hendrik Albertus Johannes Viljoen (1/18 share)	-
----	---------	-------------------------------	--	---	---

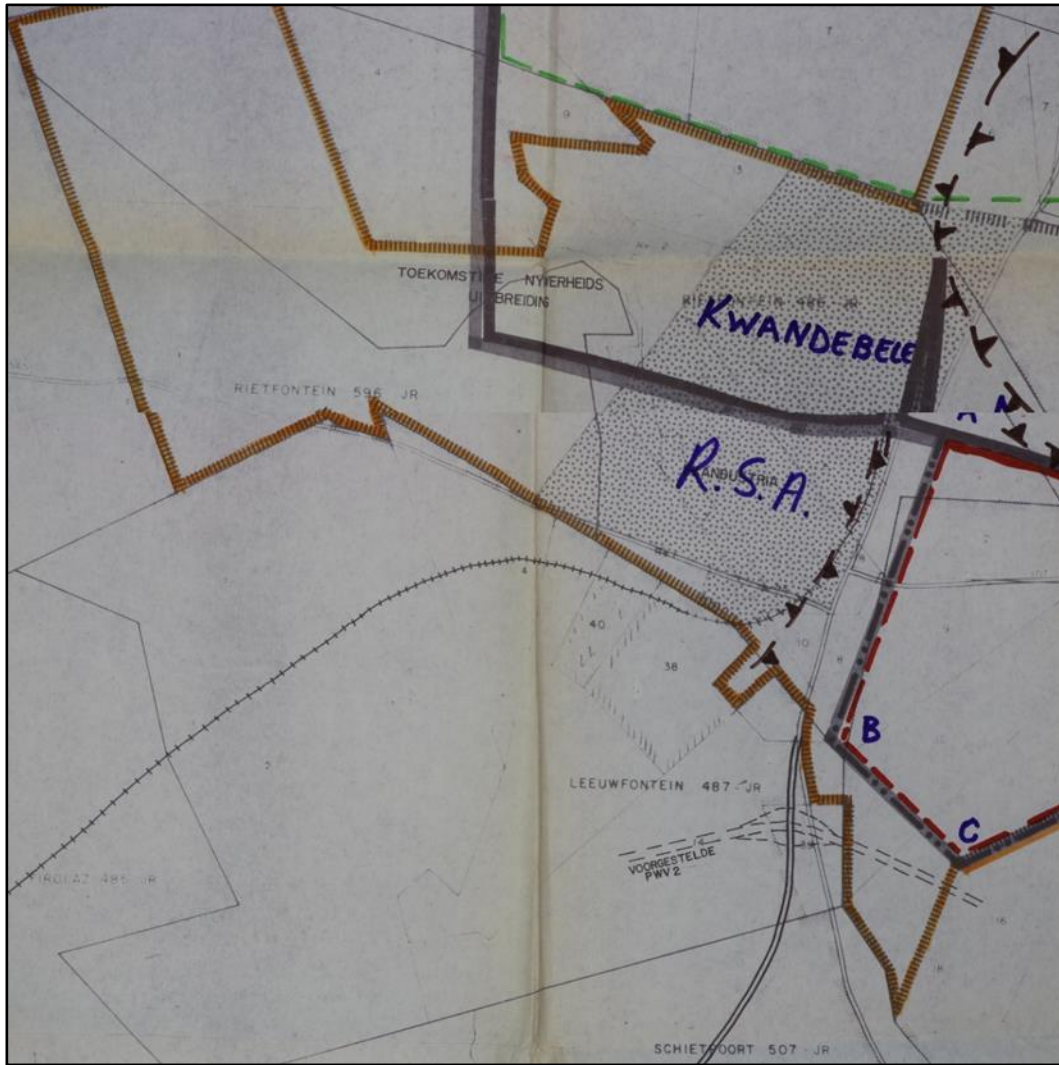
(NARSSA TAB, RAK: 2989; NARSSA TAB, RAK: 2990; NARSSA TAB, RAK: 3000)

The farm Rietfontein 486 was subdivided somewhere during the early 1980s, and roughly the eastern half of this farm became Jobarne 486 JR. No records relating to more recent landowners of Jobarne 486 JR could be traced (Topographical Map, 1984).

#### History of land use

Little information could be found that specifically deals with the early settlement and development of the farm Rietfontein 114 of which, roughly the eastern half, later became Jobarne 489 JR. However, between 1937 and 1939, Dirk Cornelis Uys had a store named Uyswinkel on the farm Rietfontein 114. A half share in Portion A of Rietfontein 114 previously belonging to Petrus Lafras Uys was transferred to Dirk Cornelis Uys on 23 September 1922. There appears to have been an outspan on this portion as his use was encumbered with an outspan (NARSSA TAB, RAK: 3000; NARSSA SAB, LEM: 304 2494).

On 16 July 1937, Dirk Cornelis Uys wrote to the Secretary for Agriculture and Forestry in which he states that he obtained a general trader's licence in this year and that he opened a small shop in which he bartered maize for goods for the store. Unfortunately, no further information could be found regarding the exact location or the building which housed this store (NARSSA SAB, LEM: 304 2494). In the early 1980s, the de concentration point at Ekundustria was created on Jobarne 489 JR to encourage industrial decentralization from the major urban centres. Initially, only the northern portion was transferred to KwaNdebele, but the intention was to eventually transfer the entire Ekundustria (Taylor & Francis Oline 2023; NARSSA SAB, BAO: 9/109 GA6/1/1/2/17/E50; NARSSA SAB, BAO: 9/110 GA6/1/1/2/17/E50).



**Figure 4.10.** A Sketch map of the Ekundustria area in the year 1981 indicating the incorporation of the northern portion into KwaNdebele (NARSSA SAB, BAO: 9/109 GA6/1/1/2/17/E50).

## 4.2. Archaeology

### 4.2.1. Stone Age

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 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).

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.

In the greater Pretoria area an Early Stone Age site, known as Wonderboompoort has been identified. This area was also important to Iron Age communities, as it was located within an area where many Late Iron Age terrains were found (Bergh 1999: 4, 7).

### **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*.

### **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.

There is a recorded Late Stone Age site named Fort Troje near Cullinan, a town to the north-west of Bronkhorstspuit. This site belongs to sites associated with the Late Holocene period associated with some pottery and microlith stone tools particular to the Smithfield industry (6000 BC approx.).

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

The period referred to as the Early Iron Age (AD 200-1500 approx.) 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 the famous Lydenburg Heads.

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 a context similar to this pottery sequence.

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.

Another well-known Iron Age site is the early Iron Age Site of Derdepoort where a small collection of ceramics was uncovered dating back to the 4<sup>th</sup> to 7<sup>th</sup> century AD (Nienaber et al 1997).

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 and BaKoni. In the Pretoria area it is the Ndebele who were more prominent. Under leadership of the well-known Mzilikazi, the Ndebele kingdom arose during the Zulu wars of the early 1820's and this assisted in the spreading of these people among the predominantly Sotho-speaking inhabitants of the South African interior (Rasmussen, 1978).

Late Iron Age sites are also associated with Southern Ndebele sites and occur the area between Wallmannsthal and Roodeplaat Dam and also along the Pienaars River to the south of the N4 Highway (Birkholtz, 2009).

The Southern Ndebele is classified under the Nguni nation and divided into three tribes namely the Manala, Ndzundza and Hwaduba. The Manala represents the majority of the Southern Ndebele of KwaNdebele (Jansen van Vuuren, 1983: 9-10). According to Birkholtz (2009) the Manala Ndebele moved from Ezotshaneni to a place known as Embilaneni (place of dassies) in 1717. The new settlement spread over the Bronberg mountains east of Pretoria and included an area that can be defined by a number of present-day farms including Tiegerpoort 371-JR. The Embilaneni settlement was occupied over a period of 30 years between 1717 and 1747.

The name Ndebele is an Anglicized form of the Nguni word *Amandebele*, which in turn comes from the Sotho word *Matebele*. This Sotho word presumably means "strangers from the east" (Rasmussen, 1978: 161). The Sotho, residing in the central regions of South Africa generally applied this name to Nguni-speaking peoples from the eastern coast. The best-known part of Ndebele history must surely be that of the chief Nyabela (Mapoch) who gave refuge to the murderer of the Pedi king Sekhukune. Providing Mampuru, the half-brother of Sekhukune with protection put Nyabela in a difficult position with the ZAR (Zuid Afrikaansche Republiek). His kraal, situated near Roosenekal is commonly known as Mapoch's Caves and is a popular tourist attraction in modern times.

This kraal was besieged by ZAR forces and a battle raged for several months after which the Nyabela surrendered and Mampuru was delivered on July 7, 1883. The war ended with the

commando burning down Nyabela's capital. His people were once again scattered over the Transvaal as indentured labourers (Bulpin 1969; Jansen van Vuuren 1983).

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

Some recently recorded sites include a graveyard with at least 5 unmarked graves (Sites BSE 2 and BSE 2B) rated high significance; an existing shooting bay facility (Site BSE 1) rated low significance, and two sites where the ruined remains of rectangular and circular stone-built farmstead dwellings are located (Sites BSE 3 and BSE 4) also with a low significance rating.

Management recommendations regarding *all* the identified grave sites require fencing them to include at least a 30 meter buffer zone in order to avoid any physical impact as a result of the proposed construction activities. If impact due to construction is unavoidable, a process of social consultation should be followed with the families or relatives of the deceased to discuss further options. This is in accordance with section 36 of the National Heritage Resources Act (25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

The newly identified sites as well as some of the previously identified sites are all located outside of the proposed footprint area of the planned new shooting bay (See mapping in Appendix C). However some cumulative impacts may apply (see section 5.2). A total of four survey orientation locations were documented, sites SO 1-4 which includes a GPS location and photographs of the landscape at that particular location.

The located and recorded sites are tabled in Appendix B and their photos in Appendix D. A map of their location is also provided in Appendix C.

Tables indicate the *site significance rating scales and status* in terms of possible impacts of the proposed actions on any located or identified heritage sites (**Table 5.5 & 5.6**).

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

Type of site	Newly Identified sites	Significance
Graves and graveyards	Three, BSE 2, BSE 2B, BS 6	High
Late Iron Age	None	N/A
Early Iron Age	None	N/A
Historical buildings or structures	None	N/A
Historical features and ruins	Two, BSE 3 and BSE 4	Low
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

## 5.1. Description of located sites

### Located sites

#### 5.1.1. Site BSE 1

**Location:** See Appendix B and D (fig. 1)

**Description:** An existing shooting bay facility. Historic maps show that the structure was built between 1995 and 2001. Significance Low **GPC**, table 5.2.

**Impact of the proposed development/ activity:** It will have to be demolished in order to build the new magazines.

**Recommendation:** No mitigation recommendations needed historic maps show that the structure is not older than 60 years, therefore not protected by the Act.



Photo taken south east

### 5.1.2. Site BSE 2

**Location:** See Appendix B and D (fig. 2, 3)

**Description:** The location of at least four graves all with stone dressings. Only one has a marked slate headstone, the others are unmarked. All are oriented in an east-west alignment and much overgrown in thick grass therefore difficult to see detail. Significance High **GPA**, table 5.2. The following is inscribed on the headstone:

“NDuka” MOGOTSI. O HUIZE

MARCH 27. 1919

**Impact of the proposed development/ activity:** The graves are not located near the site of the proposed magazine development or the proposed shooting bay. There is however current impact in the form of a jeep track which passes over some of the graves.

**Recommendation:** Current impact should be stopped. The marked grave is older than 100 years (1919) therefore of archaeological significance (Section 35 & 36 NHRA). It is probable that the other graves are of similar age. The graves should be fenced off in order to protect them from any further impact caused by either planned construction activities or current land use. Any relatives should be allowed access. A buffer zone of 30 meters should be implemented. If impact due to construction is unavoidable, a process of social consultation should be followed with the families or relatives of the deceased to discuss further options. This is in accordance with section 36 of the National Heritage Resources Act (25 of 1999) and the National Environmental Management Act (Act 107 of 1998). It is also recommended that a management plan then be compiled for this feature.



Photo taken east

### 5.1.3. Site BSE 2B

**Location:** See Appendix B and D (fig. 3)

**Description:** The location of at least one grave with a stone dressing but no headstone. The grave is overgrown with thick grass therefore difficult to see detail. It is oriented in an east-west alignment. This grave locality is very close and south of those at site BSE 2 and probably forms part of the small burial ground. The marked grave at BSE 2 is older than 100 years (1919) therefore of archaeological significance (Section 35 & 36 NHRA). It is probable that the other surrounding graves are of similar age. A jeep track passes close-by and south of the grave. Significance High **GPA**, table 5.2

**Impact of the proposed development/ activity:** The grave is not located near the site of the proposed magazine development or the proposed shooting bay. There is however current impact in the form of a jeep track which passes close-by.

**Recommendation:** Current impact should be stopped. The grave should be fenced off together with those of site BSE 2 as it is located very close to that site. A buffer zone of 30 meters should be implemented. This should be done in order to protect it from any further impact caused by either planned construction activities or current land use. Any relatives should be allowed access. If impact due to construction is unavoidable, a process of social consultation should be followed with the families or relatives of the deceased to discuss further options. This is in accordance with section 36 of the National Heritage Resources Act (25 of 1999) and the National Environmental Management Act (Act 107 of 1998). It is also recommended that a management plan then be compiled for this feature.



Photo taken north. Arrows show grave in thick grass cover

#### 5.1.4. Site BSE 3

**Location:** See Appendix B and D (fig. 4)

**Description:** The ruined remains of a rectangular structure. A mixture of bricks and stone rubble indicate mixed material use. It is covered in dense grass and scrub therefore details are difficult to see. It measures approximately 3m east-west by 13m north-south. It is not indicated on any historical map. On a topographical map of 1944 a livestock dip facility and a farm road is located close-by, and homestead further north-east. On a 1984 map footpaths and a dip facility are indicated close-by as well as cultivated fields to the south. On a map of 1995 footpaths are indicated. This all supports the likelihood of these structures being associated with farm residents sometime in the past. The fact that they were not recorded on any of the maps either indicate that it was of low significance at the time or date of a time after 2001 which is the date of the last available topographic map. It is therefore difficult to determine possible age. Significance is Low **GPC**, table 5.2.

**Impact of the proposed development/ activity:** It will have to be demolished in order to build the new magazines.

**Recommendation:** No mitigation recommendations needed. The structure is not visible on historic maps and has no current architectural or heritage value.



Photo taken north

### 5.1.5. Site BSE 4

**Location:** See Appendix B and D (fig. 5)

**Description:** The ruined remains of a circular stone structure. It is highly altered due to possible earth-moving activity in the past. It is covered in dense grass and scrub therefore details difficult to see. It measures approximately 3m diameter. It is not indicated on any historical map. On a topographical map of 1944 a livestock dip facility and a farm road is located close-by, and homestead further north-east. On a 1984 map footpaths and a dip facility are indicated close-by as well as cultivated fields to the south. On a map of 1995 footpaths are indicated. This all supports the likelihood of these structures being associated with farm residents sometime in the past. The fact that they were not recorded on any of the maps either indicate that it was of low significance at the time or date of a time after 2001 which is the date of the last available topographic map. It is therefore difficult to determine possible age. Significance is Low **GPC**, table 5.2.

**Impact of the proposed development/ activity:** Not certain how the proposed development will impact on this structure as it is located between the area for the proposed magazines and shooting bay further south-west.

**Recommendation:** No mitigation recommendations needed. The structure is not visible on historic maps and has no current architectural or heritage value.



Photo taken north east. Arrows show remains of collapsed walling in the undergrowth.

## **Confirmed sites (first recorded in 2013)**

### **5.1.6. Site BS 4**

**Location:** See Appendix B and D (fig. 6)

**Description:** This is a rectangular stone-walled structure in a highly weathered condition. The feature is poorly visible in thick grass cover. The structure measures approximately 11m x 6m and the walls collapsed. It possibly served as a farm workers dwelling during the mid-20<sup>th</sup> century. On a topographical map of 1944 a livestock dip facility and a farm road is located close-by, and homestead further north-east. On a 1984 map footpaths and a dip facility are indicated close-by as well as cultivated fields to the south. On a map of 1995 footpaths are indicated. This all supports the likelihood of these structures being associated with farm residents sometime in the past. The fact that they were not recorded on any of the maps either indicate that it was of low significance at the time or date of a time after 2001 which is the date of the last available topographic map. It is therefore difficult to determine possible age. Re-assessment of the significance is Low significance (**GPC**, table 5.2).

**Impact of the proposed development/ activity:** Not certain how the proposed development will impact on this structure as it is located between the area for the proposed magazines and shooting bay further south-west.

**Recommendation:** No mitigation recommendations needed. The structure is not visible on historic maps and has no current architectural or heritage value.



Photo view north-east

### 5.1.7. Site BS 5

**Location:** See Appendix B and D (fig. 6)

**Description:** This is another rectangular stone-walled structure in a highly weathered condition. The feature is poorly visible in the thick grass cover. The structure walls are approximately 600mm thick and the feature is associated and in close proximity to site BS 4. It possibly served as a farm workers dwelling during the mid-20<sup>th</sup> century. On a topographical map of 1944 a livestock dip facility and a farm road is located close-by, and homestead further north-east. On a 1984 map footpaths and a dip facility are indicated close-by as well as cultivated fields to the south. On a map of 1995 footpaths are indicated. This all supports the likelihood of these structures being associated with farm residents sometime in the past. The fact that they were not recorded on any of the maps either indicate that it was of low significance at the time or date of a time after 2001 which is the date of the last available topographic map. It is therefore difficult to determine possible age. Re-assessment of the significance is Low significance (**GPC**, table 5.2).

**Impact of the proposed development/ activity:** Not certain how the proposed development will impact on this structure as it is located between the area for the proposed magazines and shooting bay further south-west.

**Recommendation:** No mitigation recommendations needed. The structure is not visible on historic maps and has no current architectural or heritage value.



Photo taken north east. Arrows show collapsed walls.

### 5.1.8. Site BS 6

**Location:** See Appendix B and D (fig. 7)

**Description:** A single unmarked grave which is probably associated with sites BS 4, 5, 7 and 8. High significance (**Grade GPA, table 5.2**).

**Impact of the proposed development/ activity:** Not certain how the proposed development will impact on this structure as it is located between the area for the proposed magazines and shooting bay further south-west.

**Recommendation:** The grave should be fenced off in order to protect it from any further impact caused by either planned construction activities or current land use. A buffer zone of 30 meters must be implemented. Any relatives should be allowed access. If impact due to construction is unavoidable, a process of social consultation should be followed with the families or relatives of the deceased to discuss further options. This is in accordance with section 36 of the National Heritage Resources Act (25 of 1999) and the National Environmental Management Act (Act 107 of 1998). It is also recommended that a management plan then be compiled for this feature.



Photo taken north west



### 5.1.9. Site BS 7

**Location:** See Appendix B and D (fig. 7, 8)

**Description:** The ruined remains of a circular kraal of dry-packed stone. It has a diameter of approximately 8 m. It is currently poorly defined and detail is hardly visible due to the collapsed walls. The feature is associated and in close proximity to site BS 6. It possibly served as a farm workers livestock facility during the mid-20<sup>th</sup> century. On a topographical map of 1944 a livestock dip facility and a farm road is located close-by, and homestead further north-east. On a 1984 map footpaths and a dip facility are indicated close-by as well as cultivated fields to the south. On a map of 1995 footpaths are indicated. This all supports the likelihood of these structures being associated with farm residents sometime in the past. The fact that they were not recorded on any of the maps either indicate that it was of low significance at the time or date of a time after 2001 which is the date of the last available topographic map. It is therefore difficult to determine possible age. Re-assessment of the significance is Low significance (**GPC**, table 5.2).

**Impact of the proposed development/ activity:** Not certain how the proposed development will impact on this structure as it is located between the area for the proposed magazines and shooting bay further south-west.

**Recommendation:** No mitigation recommendations needed. The structure is not visible on historic maps and has no current architectural or heritage value.



Photo taken west. Arrows show collapsed walls.

### 5.1.10. Site BS 8

**Location:** See Appendix B and D (fig. 7-9)

**Description:** The ruined remains of a circular kraal of dry-packed stone. The walls are collapsed and seem to have been interrupted or broken at various points. It is currently poorly defined and detail is hardly visible due to the collapsed walls. The feature is associated and in close proximity to site BS 6 and BS 7. It possibly served as a farm workers livestock facility during the mid-20<sup>th</sup> century. On a topographical map of 1944 a livestock dip facility and a farm road is located close-by, and homestead further north-east. On a 1984 map footpaths and a dip facility are indicated close-by as well as cultivated fields to the south. On a map of 1995 footpaths are indicated. This all supports the likelihood of these structures being associated with farm residents sometime in the past. The fact that they were not recorded on any of the maps either indicate that it was of low significance at the time or date of a time after 2001 which is the date of the last available topographic map. It is therefore difficult to determine possible age. Re-assessment of the significance is Low significance (**GPC**, table 5.2).

**Impact of the proposed development/ activity:** Not certain how the proposed development will impact on this structure as it is located between the area for the proposed magazines and shooting bay further south-west.

**Recommendation:** No mitigation recommendations needed. The structure is not visible on historic maps and has no current architectural or heritage value.



Photo taken north east

**Survey orientations:**

**5.1.11. Site SO 1.**

**Location:** See Appendix B and D (fig. 10)

**Description:** Survey orientation location.

**Impact of the proposed development/ activity:** N/A

**Recommendation:** N/A



Photo view south

**5.1.12. Site SO 2.**

**Location:** See Appendix B and D (fig. 11)

**Description:** Survey orientation location.

**Impact of the proposed development/ activity:** N/A

**Recommendation:** N/A



Photo view east

**5.1.13. Site SO 3.**

**Location:** See Appendix B and D (fig. 12)

**Description:** Survey orientation location and the location of the current shooting bay.

**Impact of the proposed development/ activity:** N/A

**Recommendation:** N/A



Photo view north west

**5.1.14. Site SO 4.**

**Location:** See Appendix B and D (fig. 13)

**Description:** Survey orientation location and the proposed location of the new shooting bay (NSB)

**Impact of the proposed development/ activity:** N/A

**Recommendation:** N/A



Photo view east

**TABLE 5.3. General description of located sites and field rating.**

<b>Site No.</b>	<b>Description</b>	<b>Type of significance</b>	<b>Degree of significance</b>	<b>NHRA heritage resource &amp; rating</b>
BSE 1	Current shooting bay	Heritage structures	Archaeological: N/A Historic: Low	Section 34 structures. Low GPC
BSE 2	Graves	Graves & burial grounds	Archaeological: High Historic: High	Section 36 Graves & Burial grounds. High GPA
BSE 2B	Graves	Graves & burial grounds	Archaeological: High Historic: High	Section 36 Graves & Burial grounds. High GPA
BSE 3	Ruin	Heritage structures	Archaeological: Low Historic: Low	Section 34 structures. Low GPC
BSE 4	Ruin	Heritage structures	Archaeological: Low Historic: Low	Section 34 structures. Low GPC
BS 4	Ruin	Heritage structures	Archaeological: Low Historic: Low	Section 34 structures. Low GPC
BS 5	Ruin	Heritage structures	Archaeological: Low Historic: Low	Section 34 structures. Low GPC
BS 6	Graves	Graves & burial grounds	Archaeological: N/A Historic: N/A	Section 36 Graves & Burial grounds. High GPA
BS 7	Ruin	Heritage structures	Archaeological: Low Historic: Low	Section 34 structures. Low GPC
BS 8	Ruin	Heritage structures	Archaeological: Low Historic: Low	Section 34 structures. Low GPC
SO1	Survey orientation location	N/A	Archaeological: N/A Historic: N/A	None
SO2	Survey orientation location	N/A	Archaeological: N/A Historic: N/A	None
SO3	Survey orientation location	N/A	Archaeological: N/A Historic: Low	Section 34 structures. Low GPC
SO4	Survey orientation location	N/A	Archaeological: N/A Historic: N/A	None

**TABLE 5.4. Site condition assessment and management recommendations.**

Site no.	Type of Heritage resource	Integrity of cultural material	Preservation condition of site	Relative location	Quality of archaeological/historic material	Quantity of site features	Recommended conservation management
BSE1	Built environment	Poor	Poor	Jobarne 489 JR Sasol Ekandustria	Poor	1	None
BSE2	Graves	Not known	Poor	Jobarne 489 JR Sasol Ekandustria	Not known	4	Fence, monitoring or mitigation
BSE 2B	Graves	Not known	Poor	Jobarne 489 JR Sasol Ekandustria	Not known	1	Fence, monitoring or mitigation
BSE3	Built environment	Poor	Poor	Jobarne 489 JR Sasol Ekandustria	Poor	1	None
BSE4	Built environment	Poor	Poor	Jobarne 489 JR Sasol Ekandustria	Poor	1	None
BS4	Built environment	Poor	Poor	Jobarne 489 JR Sasol Ekandustria	Poor	1	None
BS5	Built environment	Poor	Poor	Jobarne 489 JR Sasol Ekandustria	Poor	1	None
BS6	Graves	Not known	Fair	Jobarne 489 JR Sasol Ekandustria	Not known	1	Fence, monitoring or mitigation
BS7	Built environment	Poor	Poor	Jobarne 489 JR Sasol Ekandustria	Poor	1	None
BS8	Built environment	Poor	Poor	Jobarne 489 JR Sasol Ekandustria	Poor	1	None

SO 1	N/A		N/A	Jobarne 489 JR Sasol Ekandustria	N/A	-	N/A
SO 2	N/A	N/A	N/A	Jobarne 489 JR Sasol Ekandustria	N/A	-	N/A
SO 3	Built environment	N/A	Fair	Jobarne 489 JR Sasol Ekandustria	N/A	1	None
SO 4	N/A	N/A	N/A	Witblits 613 JR Sasol Ekandustria	N/A	-	N/

**TABLE 5.5. Significance Rating Scales of Impact**

Site No.	Nature of impact	Type of site	Extent of impact	Duration	Intensity	Probability	Score total
BSE1	Magazine construction	Structure	Project area	Short term	Moderate (2)	Definite (4)	6
BSE2	Magazine construction	Graves	Project area	Short term	Moderate (2)	Probable (2)	4
BSE 2B	Magazine construction	Graves	Project area	Short term	Moderate (2)	Probable (2)	4
BSE3	Magazine construction	Structure	Project area	Short term	Moderate (2)	Probable (2)	4
BSE4	Magazine construction	Structure	Project area	Short term	Moderate (2)	Probable (2)	4
BS4	Magazine construction	Structure	Project area	Short term	Moderate (2)	Probable (2)	4
BS5	Magazine construction	Structure	Project area	Short term	Moderate (2)	Probable (2)	4
BS6	Magazine construction	Graves	Project area	Short term	Moderate (2)	Probable (2)	4
BS7	Magazine construction	Structure	Project area	Short term	Moderate (2)	Probable (2)	4
BS8	Magazine construction	Structure	Project area	Short term	Moderate (2)	Probable (2)	4
SO 1	Magazine construction	N/A	Project area	Short term	Moderate (2)	Probable (2)	4
SO 2	Magazine construction	N/A	Project area	Short term	Moderate (2)	Probable (2)	4
SO 3	Magazine construction	N/A	Project area	Short term	Moderate (2)	Probable (2)	4
SO 4	Magazine construction	N/A	Project area	Short term	Moderate (2)	Definite (4)	6

**\*Notes:** Short term ≥ 5 years, Medium term 5-15 years, Long term 15-30 years, Permanent 30+ years

Intensity: Very High (4), High (3), Moderate (2), Low (1)

Probability: Improbable (1), Probable (2), Highly probable (3), Definite (4)



**TABLE 5.6. Site current status and projected future impact scores**

Site No.	Current Status	Low impact (0-2 points)	Medium impact (3-5 points)	High impact (6-8 points)	Very high impact (9-10 points)	Score Total
BSE 1	Neutral	-		-	9	9
BSE 2	Neutral	-	5	-	-	5
BSE 2B	Neutral	-	5	-	-	5
BSE 3	Neutral	-	5	-	-	5
BSE 4	Neutral	-	5	-	-	5
BS4	Neutral	-	5	-	-	5
BS5	Neutral	-	5	-	-	5
BS6	Neutral	-	5	-	-	5
BS7	Neutral	-	5	-	-	5
BS 8	Neutral	-	5	-	-	5
SO 1	Neutral	-	-	-	9	9
SO 2	Neutral	-	-	-	9	9
SO 3	Neutral	-	-	-	9	9
SO 4	Neutral	-	-	-	9	9

**TABLE 5.7. Potential Impacts on Heritage Resources, mitigating factors and recommendations**

Site Number	Potential Impact	Mitigating Factors	High Significance Y/N	Recommendations	Map marker
BS1	Construction	None. Not significant	N	None	●
BS2	None	Far from new construction	Y	None	●
BS3	None	Far from new construction	N	None	●
BS4	Indirect Construction	None. Not significant	N	None	▲
BS5	Construction	None. Not significant	N	None	▲
BS6	Indirect Construction	Fencing recommended	Y	<ul style="list-style-type: none"> <li>• Fence</li> <li>• Adhere to 30m buffer</li> <li>• Continued monitoring during construction by ECO</li> </ul>	▲
BS7	Indirect Construction	None. Not significant	N	None	▲
BS8	Indirect Construction	None. Not significant	N	None	▲
BS9	None	Far from new construction	N	None	●
BSE1	Indirect Construction	None. Not significant	N	None	●
BSE2	Indirect Construction	<ul style="list-style-type: none"> <li>• Fencing recommended</li> <li>• Construction design allows for upwards blast instead of sideways to prevent damage to adjacent buildings or installations</li> <li>• Only electrical infrastructure installed are lighting no circuit without personnel</li> <li>• No history of accidents on record</li> </ul>	Y	<ul style="list-style-type: none"> <li>• Fence</li> <li>• Adhere to 30m buffer</li> <li>• Continued monitoring during construction by ECO</li> </ul>	●
BSE2 B	Indirect Construction	<ul style="list-style-type: none"> <li>• Fencing recommended</li> <li>• Construction design allows for upwards blast instead of sideways to prevent damage to adjacent buildings or installations</li> <li>• Only electrical infrastructure installed are lighting no circuit without personnel</li> <li>• No history of accidents on record</li> </ul>	Y	<ul style="list-style-type: none"> <li>• Fence</li> <li>• Adhere to 30m buffer</li> <li>• Continued monitoring during construction by ECO</li> </ul>	●
BSE3	Construction	None. Not significant	N	None	●
BSE4	Indirect Construction	None. Not significant	N	None	●

## 5.2. Cumulative impacts on the heritage landscape

Cumulative impacts can occur when a range of impacts which result from several concurrent processes have impact on heritage resources. The importance of addressing cumulative impacts is that the total impact of several factors together is often greater than one single process or activity that may impact on heritage resources. In terms of cumulative impact on the sites described those which are located within or close-by the proposed project footprint area will probably be most affected by the proposed activity. Those which are further from these areas will have less impact. Site BSE 1 and BS 1 will be directly affected by the proposed construction of the new magazines but they are of low significance. Sites BSE 2, BSE 2B, BSE 3-4 and BS 4-8 are all located relatively close to the proposed new magazines (see maps Appendix C) and they may be affected by indirect construction activities such as vehicle traffic, access road construction, waste material dumping etc. Therefore all indirect construction impacts should be carefully considered before they occur, especially with regards to the grave sites BSE2 and 2B as well as BS6. An additional unforeseen impact on the grave sites BSE 2 and BSE 2B is in the event of an accidental explosion in one of the proposed and nearby storage magazines as they are designed to store explosives. According to Sasol Ekandustria Management there is however some mitigating factors which will minimize impact should such an event occur. They include the design of the storage magazines which are built in such a way as to direct any blast upwards instead of laterally in order to prevent damage to adjacent and nearby storage facilities or installations. The only electric infrastructure inside the Magazines is lighting. It only operates when motion sensors detect movement of personnel and switches off all current when not occupied by people. This minimizes ignition as a result of electrical faults. There is also no historic record of any accidental blasts at existing storage Magazines at Ekandustria. Also see recommendations for the grave sites in section 5.1. and table 5.7. where impacts, mitigating factors and recommendations is presented. Also see section 6.1. Recommended management measures.

## 6. Summary of findings and recommendations

Newly recorded sites include a graveyard with at least 5 unmarked graves (Sites BSE 2 and BSE 2B) rated high significance; an existing shooting bay facility (Site BSE 1) rated low significance, and two sites where the ruined remains of rectangular and circular stone-built farmstead dwellings are located (Sites BSE 3 and BSE 4) also with a low significance rating (See sites discussions and recommendations in section 5 of this report).

Management recommendations regarding *all* the identified grave sites require fencing them and include at least a 30 meter buffer zone in order to avoid any physical impact as a result of the proposed construction activities. If impact due to construction is unavoidable, a process of social consultation should be followed with the families or relatives of the deceased to discuss further options. This is in accordance with section 36 of the National Heritage Resources Act (25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

A total of four survey orientation locations were documented, sites SO 1-4 which includes a GPS location and photographs of the landscape at that particular location.

In terms of the archaeological component of the Act (25 of 1999, section 35) no significant sites or features were documented.

In terms of the built environment in the project area (section 34 of the Act) seven sites were identified, significance assessment done and recommendations made.

In terms of burial grounds and graves (section 36 of the Act) three sites were identified, significance assessment done and recommendations made.

It is not within the expertise of this report or the surveyor to comment on possible paleontological remains which may be located in the study area.

The bulk of archaeological remains are normally located beneath the soil surface. It is therefore possible that some significant cultural material or remains were not located during this survey and will only be revealed when the soil is disturbed. Monitoring during construction activities is recommended as part of the proposed implementation of a chance find protocol in the EMP (Also see section 6.1).

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.

## 6.1. Recommended management measures and chance find protocol

The possibility of the occurrence of sub surface artefacts cannot be excluded. Therefore if finds such as stone tool concentrations, pieces or concentrations of pottery or bone and fossils are found, a chance find protocol is recommended. This is done by including a chance find protocol in the EMP which may consist of the following:

- The contractors and workers should be notified that archaeological sites might be exposed during the construction work.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage institution such as a museum or SAHRA, preferably one at which an archaeologist is available, in order to evaluate finds. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999).

## 7. References

- Amery, L.S. (ed), 1909. *The times history of the war in South Africa 1899-1902*, Vol VI. London,
- Barnard, C. 1975. *Die Transvaalse Laeveld. Komee van 'n Kontrei*.
- Bergh, J.S. (ed.) 1998. *Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies*. (J.L. van Schaik, Pretoria).
- Bornman, H. 1995. *Pioneers of the Lowveld*.
- Birkholtz, P. 2009. Archaeological Impact Assessment Ext 9 Kameeldrift, Kameeldrift 298 JR. Gauteng Province.
- Breutz, P.L. 1985. *Pre-Colonial Africa: The South-Eastern Bantu Cultural Province*.
- Cartwright, A. P. 1961. Valley of gold. 1872-1961. Cape Town.
- Delius, P. 2007. *Mpumalanga History and Heritage*. University of KwaZulu-Natal Press.
- Evers, T.M. in Voight, E.A. 1981. *Guide to Archaeological Sites in the Northern and Eastern Transvaal*. Transvaal Museum, Pretoria.
- Giliomee, H. 2003. *The Afrikaners, a biography of a people*. Tafelberg: Cape Town & Charlottesville.
- Greaves, A. 2012. *Forgotten battles of the Zulu War*. Yorkshire: Pen & Sword Military.
- Huffman, T.N. 1980. Ceramics, classification and Iron Age entities. *African Studies*. 39(2): 123-174.
- Huffman, T. N. 2007. *Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa*. Kwa-Zulu Natal Press.
- Huyser, J. D. *Die Naturelle-Politiek van die Suid-Afrikaanse Republiek*. D. LITT. Verhandeling, Universiteit van Pretoria.
- Jones, H. M. & Jones G. M. 1999. *A Gazetteer of the Second Anglo-Boer War. 1899-1902*. Buckinghamshire: The Military Press.
- Mason, R. 1962. *Prehistory of the Transvaal: a record of human activity*. Witwatersrand University Press, Johannesburg.
- Massie, R.H. 1905. *The Native tribes of Transvaal. Prepared for the general staff war office*. London.

Myburgh, A.C. 1956. **Die Stamme van die Distrik Carolina**. Staatsdrukker. Pretoria.

Packard, P. 2001. **“Malaria blocks development” revisited: the role of disease in the history of agricultural development in the Eastern and Northern Transvaal Lowveld. 1890-1960.** *Journal of Southern African Studies* 27 (3), September 2001.

Raper, P. E. 2014. A dictionary of Southern African place names. Johannesburg: Jonathan Ball Publishers.

Ross, R. 1999. **A concise history of South Africa**. Cambridge University Press. Cambridge.

Schutte, T & Coetzee, P. 2019. *Treinvernielers. Boere aanvalle op en vernietiging van treine. stasies en spoorlyne in the ZAR tydens die Anglo-Boereoorlog 1899 – 1902*. Shanghai: Shanghai Kangshi Printing Co.

Van der Walt, J. 2008. Archaeological Impact Assessment on Holding 38 Lewzeni Estate AH, Cullinan, Gauteng Province.

Van Vollenhoven, A.C. 2002. **Die Metodiek van Kultuurhulpbronbestuur (KHB)**. S.A. Tydskrif vir Kultuurgeskiedenis 16(2).

Van Vollenhoven, A.C. 1995. **Die bydrae van Argeologie tot Kultuurhulpbronbestuur**. Referaat gelewer voor die Suid-Afrikaanse Vereniging vir Kultuurgeskiedenis, Transvaal Streektak, Sunnyside.

Wilkins, D. 2004. *Op Pad in Suid-Afrika. 'n Streek-vir-Streek-Gids*. Singapore: Tien Wah Press.

## ELECTRONIC SOURCES:

Chief Surveyor-General Property Search. 2023. Jobarne 489 JR Available:  
<https://csggis.drdir.gov.za/psv/> [Accessed: 7 April 2023]

Google Earth. 2023. 25°42'06.02" S 28°41'52.59" E elev 1500 m. [Online]. [Cited 15 April 2023].

Taylor & Francis Oline. 2023. Apartheid in South Africa and industrial deconcentration in the PWV area. Available:  
<https://www.tandfonline.com/doi/abs/10.1080/02665438908725683?journalCode=rppe20#:~:text=deconcentration%20in%20the%20PWV%20area,-HERMANUS%20S.&text=The%20intention%20with%20these%20designated,discourage%20blacks%20to%20leave%20Bantustans>. [Accessed: 21 April 2023]

Wikipedia. 2023. *KwaNdebele*. Available: <https://en.wikipedia.org/wiki/KwaNdebele> [Accessed: 21 April 2023]

## ARCHIVAL SOURCES (National Archive Pretoria)

National Archives and Records Service of South Africa. 1873-1895. *TAB, RAK: 2989. Pretoria.*

National Archives and Records Service of South Africa. 1864-1932. *TAB, RAK: 2990. Pretoria.*

National Archives and Records Service of South Africa. 1874-1943. *TAB, RAK: 3000. Pretoria.*

National Archives and Records Service of South Africa. 1893. Maps. S3/966. *Map of the town Erasmus on the farm Honderivier, District Pretoria. J.W.J. Zerniks.*

National Archives and Records Service of South Africa. 1937-1939. *SAB, LEM: 304 2494. Uyswinkel (DC Uys) Rietfontein 114, Cullinan Pretoria.*

National Archives and Records Service of South Africa. 1985-1986. *SAB, BAO: 9/109 GA6/1/1/2/17/E50. Trust en Nasionale staat dorpe. Dorpsontwikkeling. Dorpstigting. Kwandebele Ekangala.*

National Archives and Records Service of South Africa. 1986-1987. *SAB, BAO: 9/110 GA6/1/1/2/17/E50, Part II. Trust en Nasionale staat dorpe. Dorpsontwikkeling. Dorpstigting. Kwandebele Ekangala.*



## MAPS

Surveyor General. 1887. *Map of the Pretoria and Heidelberg Goldfields*. Edward Weller lith, Red Lion Square, London

Surveyor General. 1902. *Transvaal (Major Jackson Series). Sheet No. 2. Pretoria-Middelburg*. Pretoria: Mapping Section Field Intelligence Division.

Surveyor General. 1905. *Pretoria*. Pretoria: Government Printing Works.

Topographical Map. 1944. *South Africa. 1:50 000 Sheet. 2528DA Cullinan. First Edition*. Pretoria: Government Printer.

Topographical Map. 1969. *South Africa. 1:50 000 Sheet. 2528DA Cullinan. Second Edition*. Pretoria: Government Printer.

Topographical Map. 1984. *South Africa. 1:50 000 Sheet. 2528DA Cullinan. Third Edition*. Pretoria: Government Printer.

Topographical Map. 1995. *South Africa. 1:50 000 Sheet. 2528DA Cullinan. Fourth Edition*. Pretoria: Government Printer.

Topographical Map. 2001. *South Africa. 1:50 000 Sheet. 2528DA Cullinan. Fifth 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 interment 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

Five new sites were recorded and mapped. A total of four survey orientation sites were recorded. The sites were named SO 1-4.

**Table A. New Located sites**

Site Name	Date of compilation	GPS Coordinates		Photo figure No.
BSE 1	20/04/2023	S25°41,3975'	E028°40,7251'	1
BSE 2	20/04/2023	S25°41,4952'	E028°40,7715'	2, 3
BSE 2B	20/04/2023	S25°41,4915'	E028°40,7723'	3
BSE 3	20/04/2023	S25°41,4644'	E028°40,7515'	4
BSE 4	20/04/2023	S25°41,4808'	E028°40,7173'	5

**Table B. Survey Orientation Locations.**

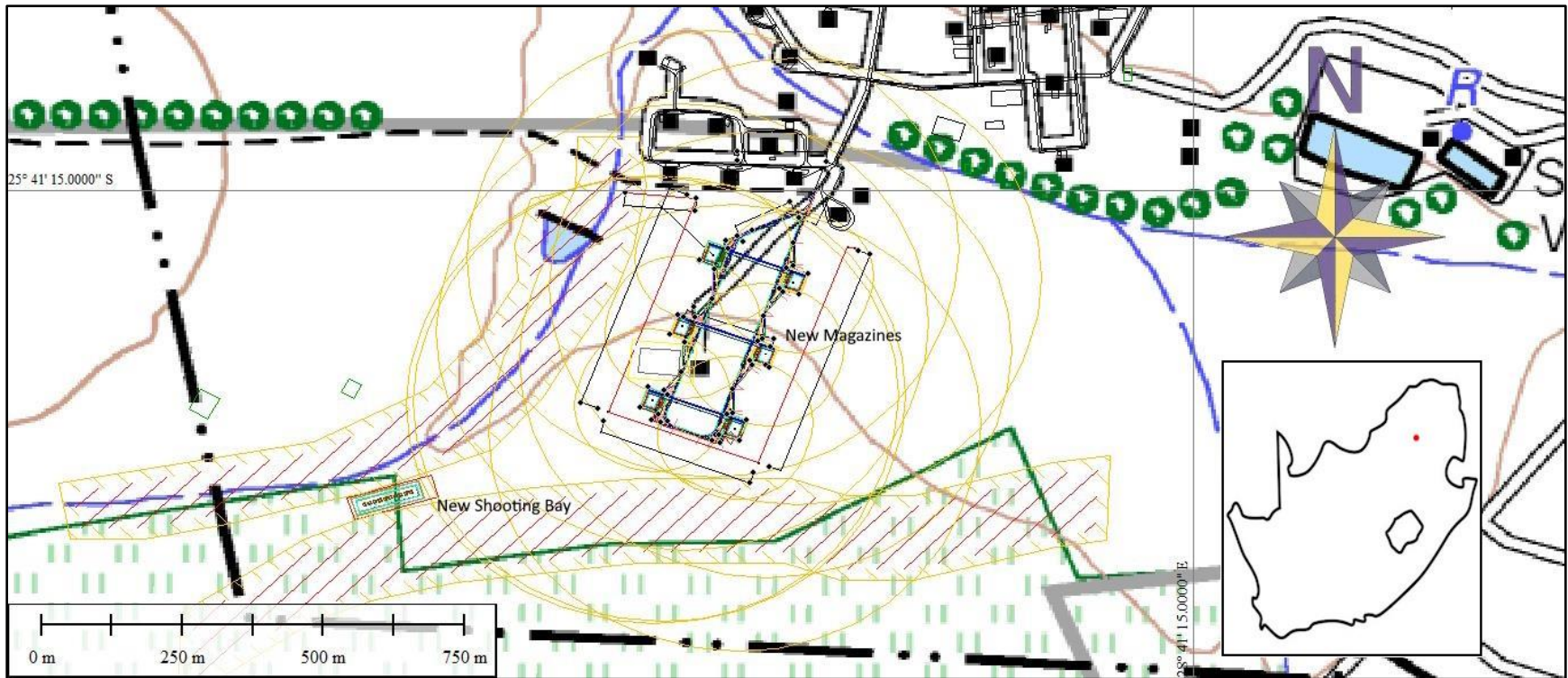
Site Name	Date of compilation	GPS Coordinates		Photo figure No.
SO 1	20/04/2023	S25°41,3102'	E028°40,8922'	10
SO 2	20/04/2023	S25°41,3030'	E028°40,7534'	11
SO 3	20/04/2023	S25°41,4250'	E028°40,7824'	12
SO 4	20/04/2023	S25°41,5202'	E028°40,6058'	13

## Appendix C

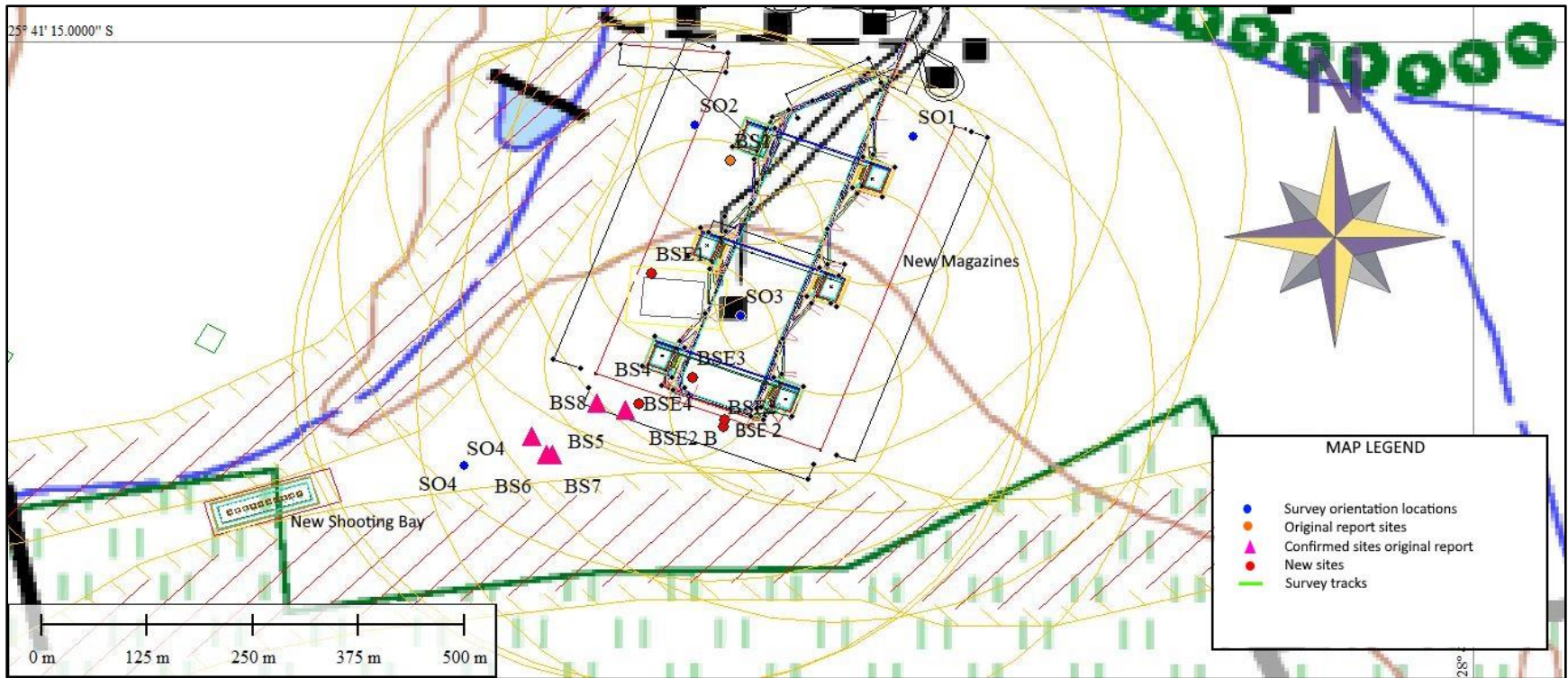


**Table 1.** Consolidated table of located and recorded sites Sasol Ekandustria 2023

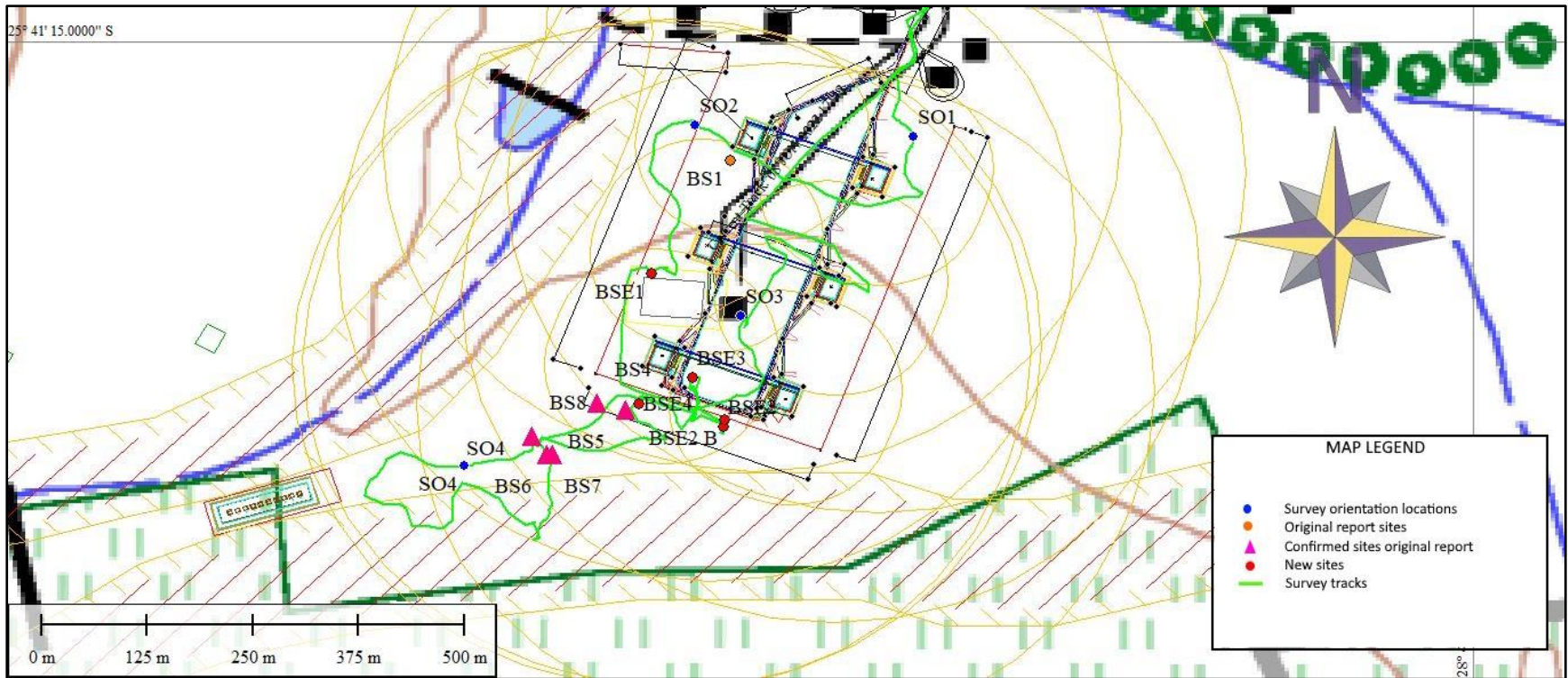
Site Number	Date recorded	Sites in the 2013 report	Confirmed recording during April 2023 survey	New Sites	Survey orientation locations	High Significance Y/N	Envisaged Impact Y/N – Not known N/K	Map marker
BS1	14/03/2013	✓				N	N	●
BS2	14/03/2013	✓				Y	N	●
BS3	14/03/2013	✓				N	N	●
BS4	14/03/2013	✓	✓			N	N/K	▲
BS5	14/03/2013	✓	✓			N	N/K	▲
BS6	14/03/2013	✓	✓			Y	N/K	▲
BS7	14/03/2013	✓	✓			N	N/K	▲
BS8	14/03/2013	✓	✓			N	N/K	▲
BS9	14/03/2013	✓				N	N	●
BSE1	20/04/2023			✓		N	Y	●
BSE2	20/04/2023			✓		Y	N. Current Y	●
BSE2 B	20/04/2023			✓		Y	N. Current Y	●
BSE3	20/04/2023			✓		N	Y	●
BSE4	20/04/2023			✓		N	Y	●
SO1	20/04/2023				✓	N	Y	●
SO2	20/04/2023				✓	N	Y	●
SO3	20/04/2023				✓	N	Y	●



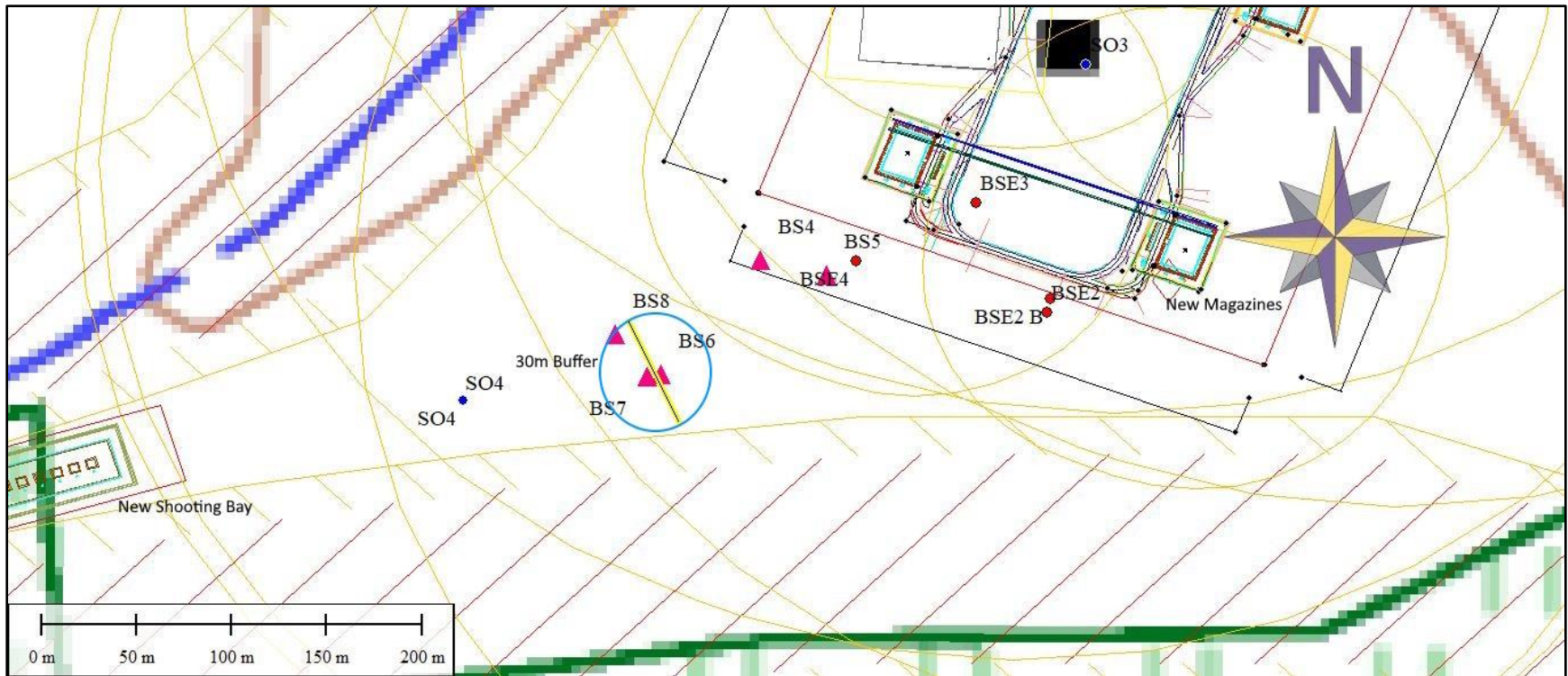
Regional Map 1:50 000 Topographical Map 2528 DA (2001).



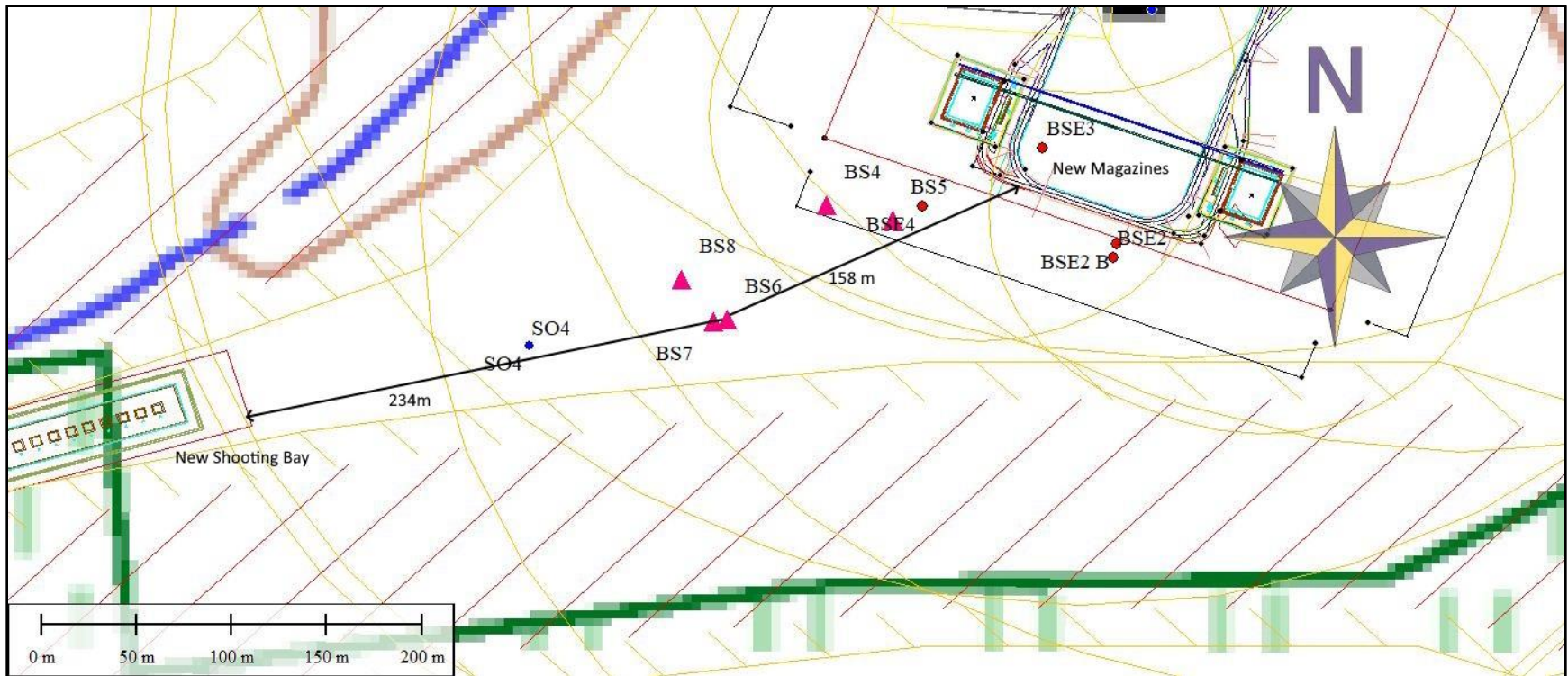
Topographical Map 1:50 000 2528 DA (2001)



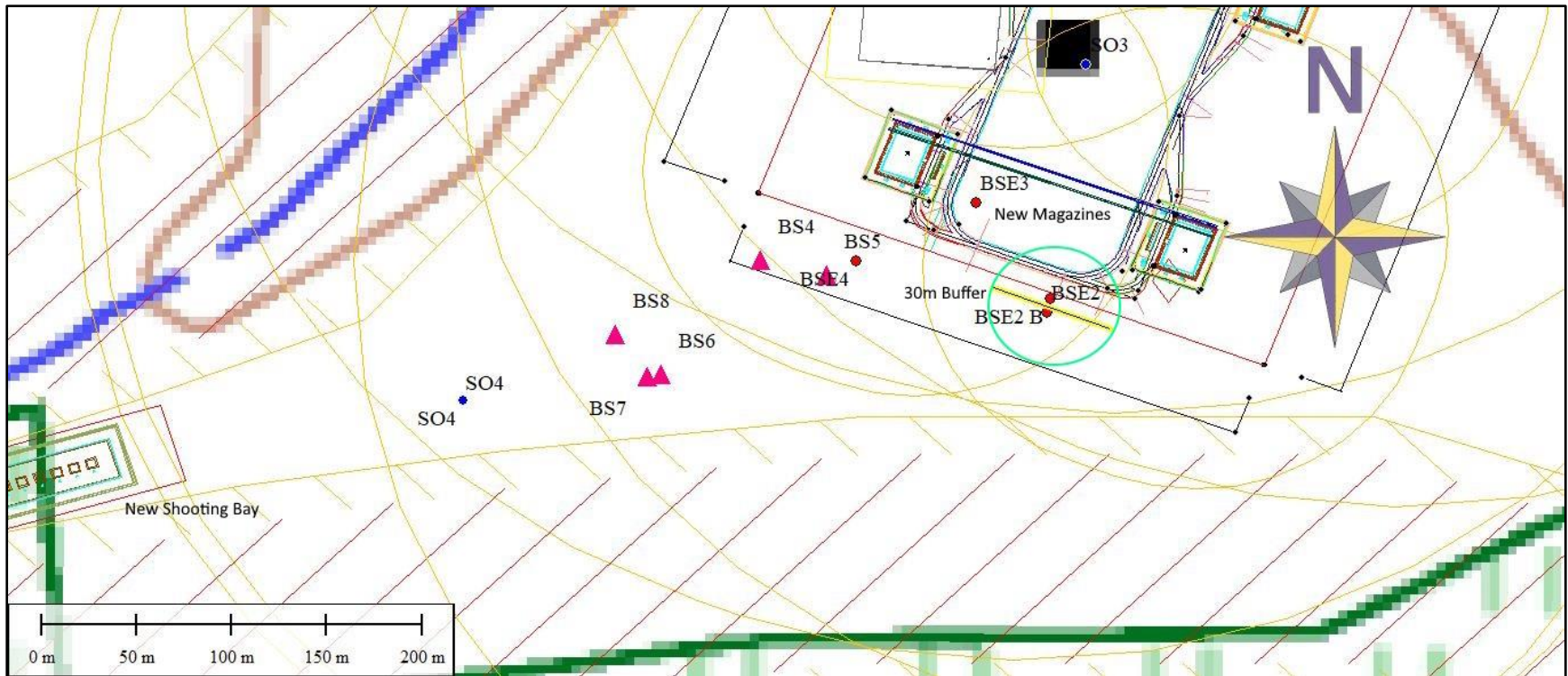
Topographical Map 1:50 000 2528 DA (2001)



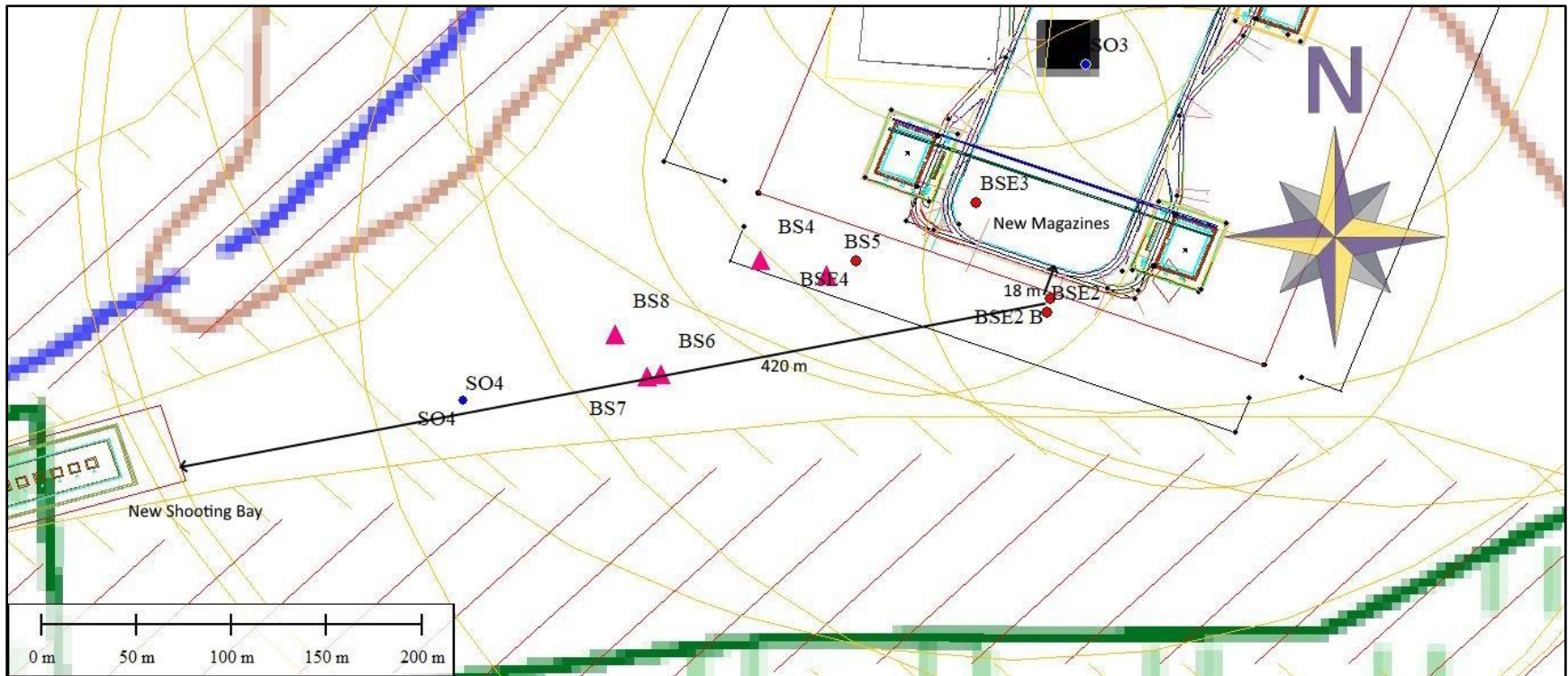
Topographical Map 1:50 000 2528 DA (2001) Grave site BS 6 indicating a 30m buffer with a blue circle.



Topographical Map 1:50 000 2528 DA (2001) Grave site BS 6 indicating distances from the New Shooting Bay and New Magazines.

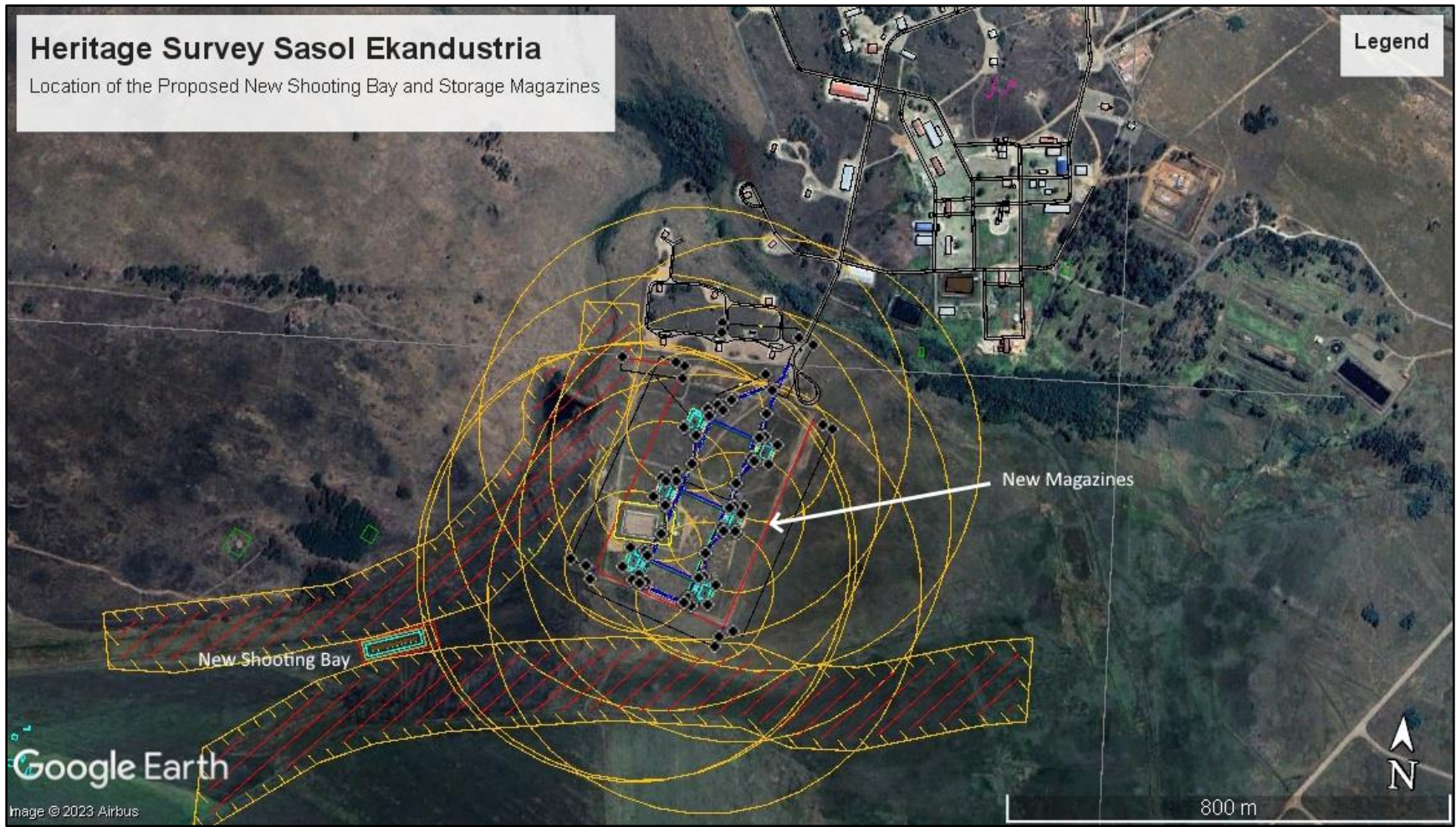


Topographical Map 1:50 000 2528 DA (2001) Grave sites BSE 2 and BSE 2B indicating a 30m buffer with a blue circle.

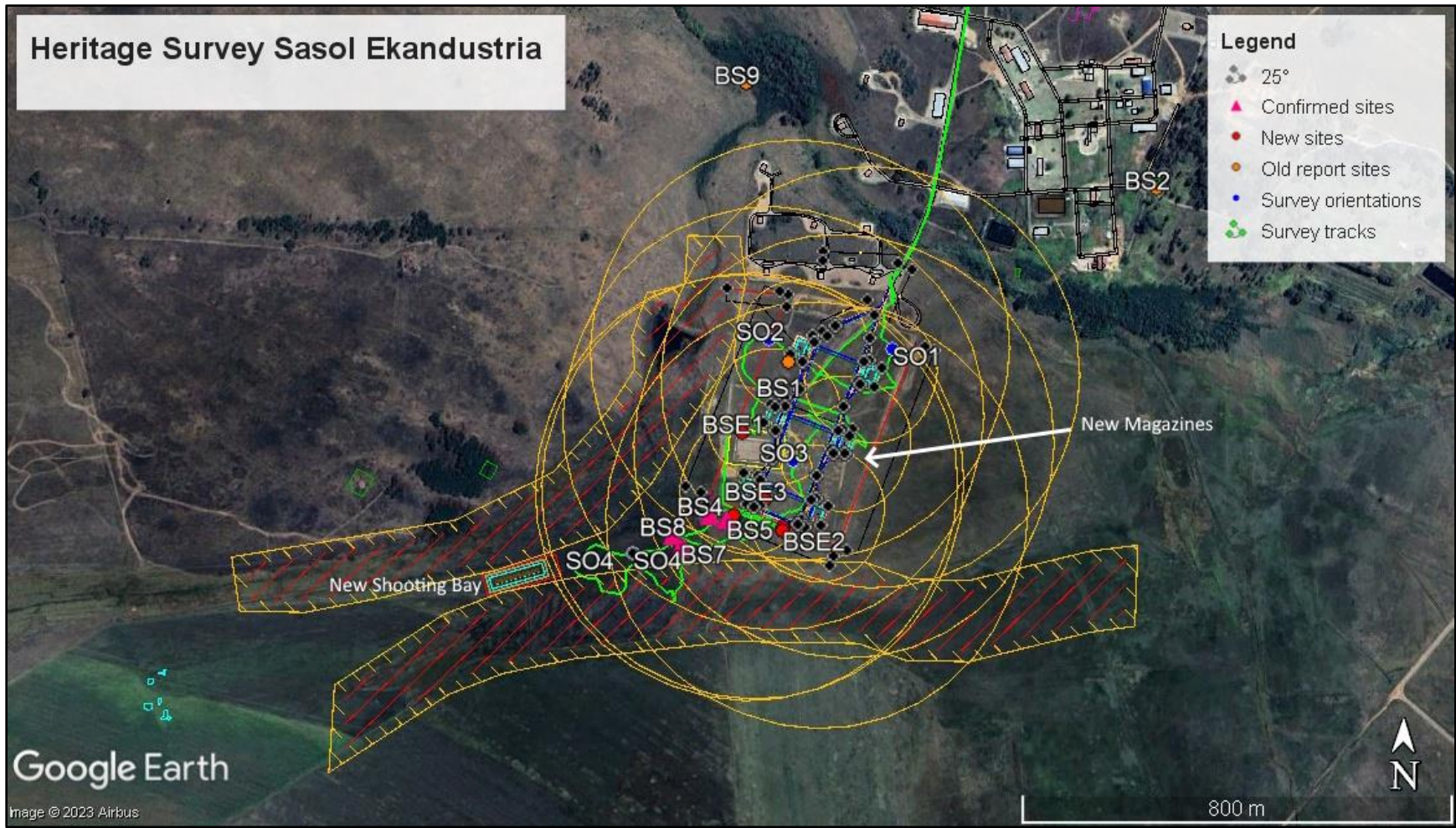


Topographical Map 1:50 000 2528 DA (2001) Grave sites BSE 2 and BSE 2B indicating distances from the New Shooting Bay and New Magazines.





Aerial view: Google Earth 2023.



Aerial view: Google Earth 2023.

## Appendix D

## New Site Photographs



**Fig. 1.** Site BSE 1. Photos taken in an eastern and south eastern direction.



**Fig. 2.** Site BSE 2. Photos taken in northern and eastern directions. Yellow arrows show the location of graves. White arrows indicate current impact of jeep tracks near the graves.



**Fig. 3.** Sites BSE 2B and BSE 2. Photos taken north and north west. Yellow arrows show where graves lie in the thick grass cover. Mr Goodman Mahlangu shows the headstone at Site BSE 2.



**Fig. 4.** Site BSE 3. Photos taken west and north west.

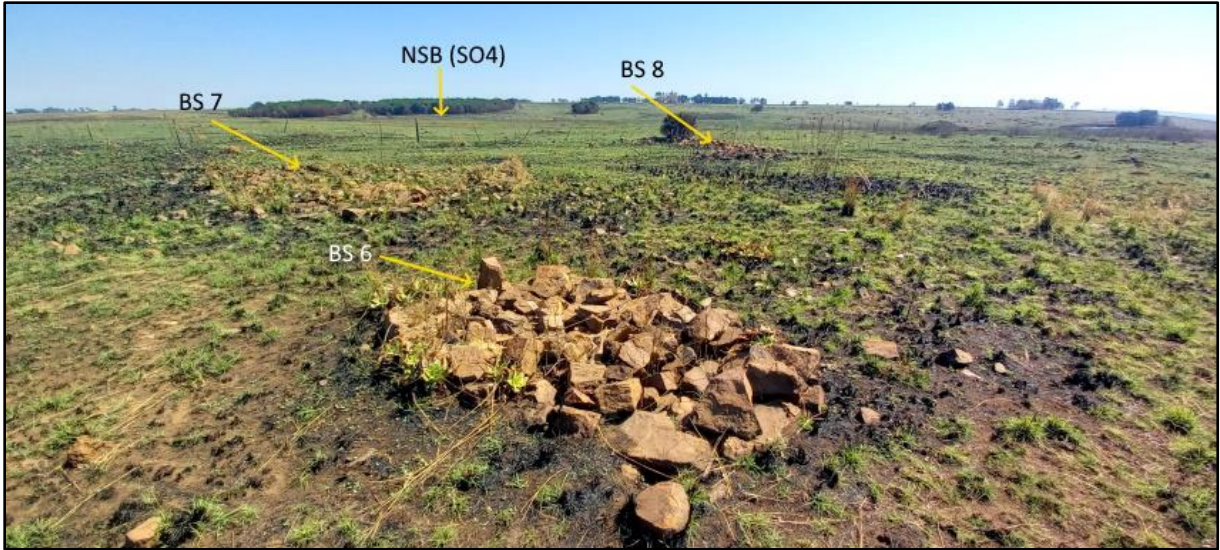


**Fig. 5.** Site BSE 4. Photos taken south and north east.

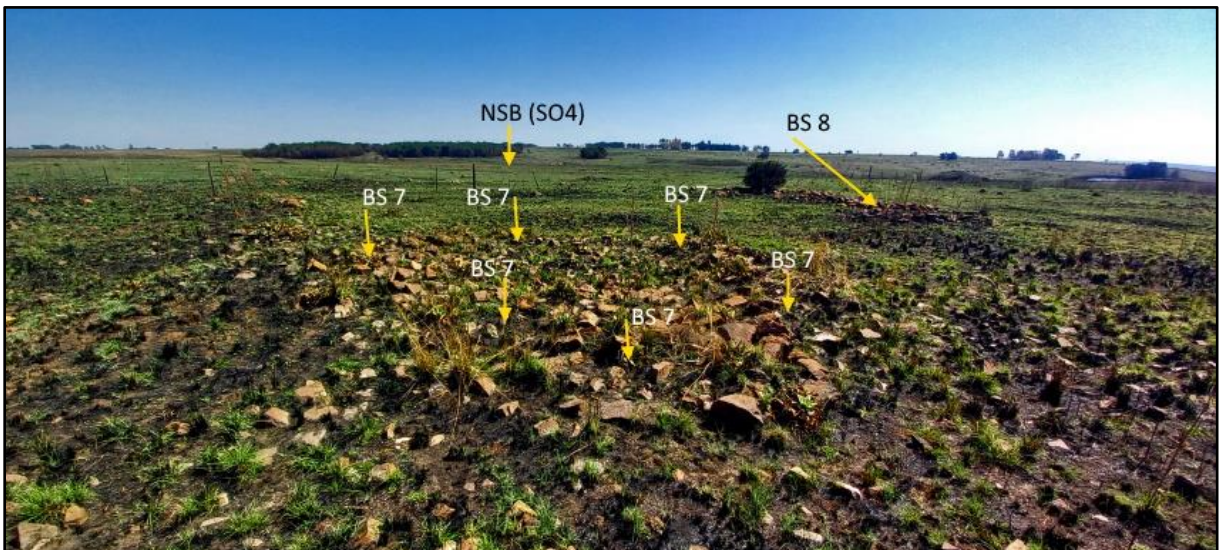
### **Confirmed Site Photographs (Sites in the 2013 report)**



**Fig. 6.** Sites BS 4 and BS 5. Photos taken in an eastern and south eastern direction



**Fig. 7.** Site BS 6 and also showing BS 7 and 8. Also visible is the proposed site of the new shooting bay (NSB) shown as site SO 4. Photo taken in north western direction.



**Fig. 8.** Site BS 7 and also showing BS 8 and the proposed new shooting bay site SO4. Photo taken in a western direction.



**Fig. 9.** Site BS 8. Photo taken in a north eastern direction.

### Survey Orientation Photos



**Fig. 10.** Site SO1. Photos taken in a south western and western direction.



**Fig. 11.** Site SO2. Photos taken in a northern and southern direction.



**Fig. 12.** Site SO3. Photo taken in a north western direction.



**Fig. 13.** Site SO 4. Photos taken in a northern and southern direction. This is the site of the proposed new shooting bay.