

# ARCHAEOLOGICAL IMPACT ASSESSMENT

FOR THE PROPOSED DEVELOPMENT OF A WATERPARK,  
RIETFontein, MOGALE CITY

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**General**

The possibility of unmarked or informal graves and subsurface finds cannot be excluded. If any possible finds are made during construction, the operations must be stopped and a qualified archaeologist contacted for an assessment of the find/s.

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**SIGNATURE:**



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## EXECUTIVE SUMMARY

**Site name and location:** The proposed South Africa Happy Island Water World development (study site) is situated on Portions 169, 170, 173 and 174 of the farm Rietfontein 189 IQ in the Muldersdrift area. The study area measures approximately 25,858 hectares in extent and is currently developed with residential units and some outbuildings.

**1: 50 000 Topographic Map:** 2627 BB.

**EIA Consultant:** Prism EMS

**Developer:** South Africa Happy Island Water World (Pty) Ltd

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

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**Date of Report:** 27 October 2016.

### Findings of the Assessment:

HCAC was appointed to assess the study area in terms of the archaeological component of Section 35 of the NHRA as part of the basic assessment for the project. No raw material suitable for stone tool manufacture occurs in the study area and no ceramics or stone walls attributed to the Iron Age were recorded. No further mitigation prior to construction is recommended in terms of Section 35 for the proposed development to proceed.

In terms of the built environment of the area (Section 34), several structures occur in the study area consisting of residential dwelling and associated outbuildings like garages and servants quarters. Based on information obtained from topographical maps of the study area these structures are all younger than 60 years and not protected by legislation and of no heritage significance, apart from structure 8, 10 and 11 that could be just over 60 years old as they were constructed between 1954 and 1977. As the exact age of these three structures is unknown, it is recommended that if these three structures are impacted on by the development their age should be confirmed. If the structures are confirmed to be older than 60 years, a conservation architect should be appointed to assess the structures and apply for a demolition/alteration permit.

In terms of Section 36 of the Act no burial sites were recorded in the study area. However if any graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation. Due to the subsurface nature of archaeological remains and the fact that graves can occur anywhere on the landscape, it is recommended that a chance find procedure is implemented for the project as part of the EMP (described in Section 7).

The study area is surrounded by agricultural holdings and residential developments and no significant cultural landscapes or viewsapes were noted during the fieldwork.

Due to the lack of significant heritage features in the study area there is from an archaeological point of view no reason why the development cannot commence if the recommendations made in this report are adhered to and based on approval from SAHRA.

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**ABBREVIATIONS**

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

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

**GLOSSARY**

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

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

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

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

The Iron Age (~ AD 400 to 1840)

Historic (~ AD 1840 to 1950)

Historic building (over 60 years old)

## 1 BACKGROUND INFORMATION

Heritage Contracts and Archaeological Consulting CC (**HCAC**) was appointed to conduct an Archaeological Impact Assessment for the proposed Waterpark project as part of the Basic Assessment process.

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

The report outlines the approach and methodology utilized before and during the survey, which includes: Phase 1, a desktop study that includes collection from various sources and consultations; Phase 2, the physical surveying of the study area on foot and by vehicle; Phase 3, reporting the outcome of the study.

General site conditions were recorded by means of photographs, GPS locations, and site descriptions. Possible impacts were identified and mitigation measures are proposed in the following report.

This report must also be submitted to the SAHRA for review.

## 1.1. Terms of Reference

### Desktop study

Conduct a brief desktop study where information on the area is collected to provide a background setting of the archaeology that can be expected in the area.

### Field study

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

### Reporting

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

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

## 1.2. Archaeological Legislation and Best Practice

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

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

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

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

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

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

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

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

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

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

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

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

Human remains that are less than 60 years old are protected under Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925), as well as the Human Tissues Act (Act 65 of 1983), and are the jurisdiction of the National Department of Health and the relevant Provincial Department of Health and must be submitted for final approval to the office of the relevant Provincial Premier. This function is usually delegated to the Provincial MEC for Local Government and Planning; or in some cases, the MEC for Housing and Welfare. Authorisation for exhumation and reinternment must also be obtained from the relevant local or regional council where the grave is situated, as well as the relevant local or regional council to where the grave is being relocated. All local and regional provisions, laws and by-laws must also be adhered to. To handle and transport human remains, the institution conducting the relocation should be authorised under Section 24 of Act 65 of 1983 (Human Tissues Act).

### 1.3. Description of Study Area

#### 1.3.1 Location Data

The proposed Waterpark development (study area) is situated in the Gauteng Province of South Africa. The site is situated east and adjacent to Lake View Drive and west and adjacent to Valley Drive, in the Muldersdrift area. The developer is planning to construct a waterpark on Portions 169, 170, 173 and 174 of the farm Rietfontein 189 IQ (Figure 1). Access is easiest gained for Muldersdrift Road, *via* Valley Drive. The total proposed area measures approximately 25,858 hectares in extent and is currently developed with residential units and outbuildings.

#### **Coordinates of the Property Access Road:**

Latitude: 26° 2'23.98"S

Longitude: 27°53'38.35"E

1.3.2. Location Map

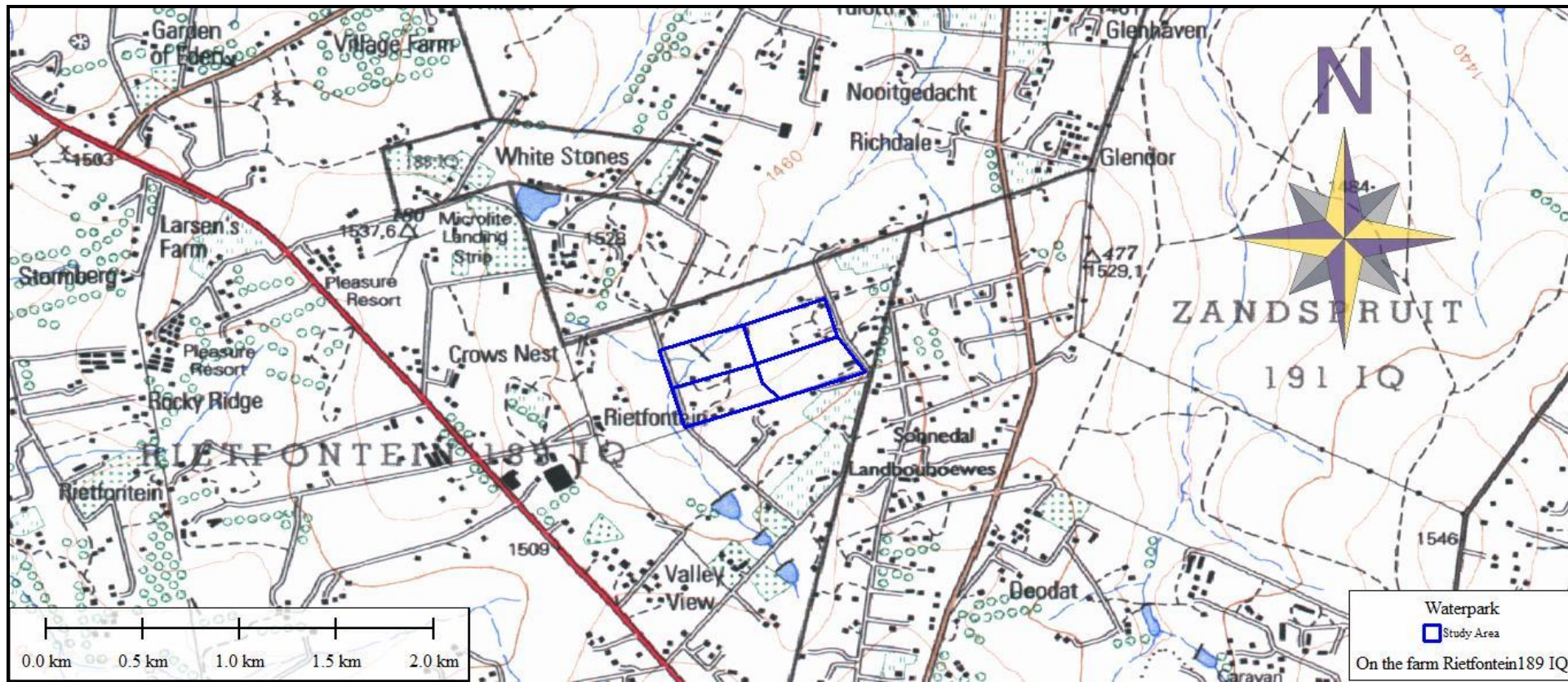


Figure 1. Location map

## **2. APPROACH AND METHODOLOGY**

The aim of the study is to cover archaeological databases to compile a background of the archaeology that can be expected in the study area followed by field verification; this was accomplished by means of the following phases.

### **2.1 Phase 1 - Desktop Study**

The first phase comprised desktop, scanning existing records for archaeological sites, historical sites, graves, architecture (structures older than 60 years) of the area. The following approach was followed:

#### **2.1.1 Literature Search**

This was conducted by utilising data stored in the national archives and published reports relevant to the area. The aim of this is to extract data and information on the area in question.

#### **2.1.2 Information Collection**

SAHRIS was consulted to collect data from previously conducted CRM projects in the region to provide a comprehensive account of the history of the study area.

#### **2.1.3 Consultation**

No public consultation was done by the author as this was done independently as part of the BA.

#### **2.1.4 Google Earth and Mapping Survey**

Google Earth and 1:50 000 maps of the area were utilised to identify possible places where sites of heritage significance might be located.

#### **2.1.5 Genealogical Society of South Africa**

The database of the Genealogical Society was consulted to collect data on any known graves in the area.

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

Due to the nature of cultural remains, the majority of which occurs below surface, a field survey of the proposed development was conducted. The study area was surveyed by means of vehicle and extensive pedestrian surveys on the 16<sup>th</sup> of March and 18<sup>th</sup> of August 2016.

The survey was aimed at covering the proposed development footprint, focussing on specific areas on the landscape that would be more likely to contain archaeological and/or other heritage remains like drainage lines, rocky outcrops as well as slight elevations in the natural topography. These areas were searched more intensively, but many other areas were walked in order to confirm expectations in those areas. Track logs of the areas covered were taken (Figure 2).



Figure 2. Track logs of the areas surveyed indicated in black with the development footprint indicated in blue.



### **2.3. Restrictions**

Due to the subsurface nature of archaeological artefacts, the possibility exists that some features or artefacts may not have been discovered/ recorded during the survey and the possible occurrence of unmarked graves and other cultural material cannot be excluded. This report only deals with the footprint area of the proposed development as indicated in the location map. It is assumed that the information obtained from archival maps is accurate.

Although HCAC surveyed the area as thoroughly as possible, it is incumbent upon the developer to stop operations and inform the relevant heritage agency should further cultural remains, such as graves, stone tool scatters, artefacts, bones or fossils, be exposed during the process of development.

### **3. NATURE OF THE DEVELOPMENT**

South Africa Happy Island Water World (Pty) Ltd proposes to apply for environmental authorisation for the construction and development of a waterpark for the purpose of recreational activities.

## 4. HISTORICAL AND ARCHAEOLOGICAL BACKGROUND OF THE STUDY AREA

### 4.1 Databases Consulted

32 Previously recorded sites are on record for the 2627 BB 1: 50 000 sheet at the Wits database. These sites consist of Stone Age (ESA & LSA), Late Iron Age, Anglo Boer War remains and Historic mining remains. None of these sites are located within the project area but provide a background of to the sites that can be expected.

CRM reports in the area include the following studies that were consulted for this report:

Author	Year	Finds
Fourie, W	2001	249 Graves, Ndebele initiation site, possible LIA and Anglo Boer War Sites.
Pelser, A.J.	2012	Burial Report on the relocation of numerous graves.
Fourie, W.	2014	Burial grounds and graves. A farm werf was identified within the transmission line footprint, but is not an historical area.
Van der Walt, J.	2015a	No sites were recorded.
Van der Walt, J.	2015b	No sites were recorded.

### *Genealogical Society and Google Earth Monuments*

No cemeteries are indicated for the area under investigation.

### 4.2. Brief background to the study area

J. S. Bergh's historical atlas of the four northern provinces of South Africa is a very useful source for the writing of local and regional history. Interestingly, the study is located not too far from the vicinity of the Melville Koppies, which is a Middle Stone-Age site. (Bergh 1999: 4) This area was also important to Iron Age communities, since these people had smelted and worked iron ore at the Melville Koppies site since the year 1060, by approximation. (Bergh 1999: 7, 87)

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. (Bergh 1999: 10) 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. (Bergh 1999: 14; 116-119) It seems that, in 1827, Mzilikazi's Ndebele started moving through the area where Johannesburg is located today. This group went on raids to various other areas in order to expand their area of influence. (Bergh 1999: 11)

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. One Bain travelled through, or close by the area where the study area was located in 1831. One Harris also travelled through this area in 1836. (Bergh 1999: 13)

It was however 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 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) By 1939 to 1940, farm boundaries were drawn up in an area that includes the present-day Johannesburg and Krugersdorp (Bergh 1999: 15).

The study area is located in close proximity to the towns of Roodepoort and Krugersdorp and therefore a short discussion on the origins of these towns are applicable.

Roodepoort is a residential area which gets its name from the red soil that characterise the area. Roodepoort was established as a mine camp during the pioneering days of gold mining and dates back to 1884, when Fred Struben discovered the first payable gold in the area at what he called the Confidence Reef, a large rocky outcrop in the centre of Roodepoort. After the Great Trek of 1834-1840, some of the farmers who had left the Cape Colony settled in the interior of the country and the first farms in the vicinity of Roodepoort/Krugersdorp were already measured out in 1839/40. By the 1880's the area was settled by scattered Boer farmers on nine farms. This means that it is one of the first areas where white farmers settled. Four of the farms - Roodepoort, Vogelstruisfontein, Paardekraal and Wilgespruit were soon declared public diggings. The farm Paardekraal is also well known as the place where the Transvaal Boers placed a heap of stones in what is today known as the Paardekraal Monument. This was an act of unity between the Boers to fight for their freedom against Great Britain who annexed the Transvaal in April 1877.

The prospecting rights on the farm Roodepoort were secured by Jan Bantjies and the next year, gold was discovered. The farm was opened for public diggings. The diggers needed a place to pitch their tents and so the farm Roodepoort opened up its land and a shantytown sprang up. In 1857 the area formed part of the district of Pretoria as few other towns were established however four mining towns, Roodepoort, Florida, Hamberg and Maraisburg, were proclaimed between 1886 and 1888. In 1886 the main reef at Langlaagte in Johannesburg was discovered. The gold at Confidence Reef, mostly surface gold in quartz rock, soon ran out, but by then a settled community was established in Roodepoort. In 1963 the Roodepoort-Maraisburg municipality was changed to Roodepoort and city status was granted in 1977 (at which time Maraisburg was dropped from the name).

The area has a rich mining history with several large mining companies like the Klein Paardekraal Estate Gold Mining Co. Ltd, Main Reef Gold Mining Co. Ltd. and Consolidated Main Reef Mines Estate Ltd who obtained property in the area from the late 19<sup>th</sup> century. The mines used to have their own hospitals and cemeteries, especially relating to the so called native workers.

In 1934 permission was granted to Crown Mines Ltd. to establish a 'native burial ground' on the farm Vierfontein (and in 1942 permission was granted for the establishment of native cemeteries at Paardekraal to name a few examples). An unmarked cemetery associated with mine workers was exposed during development on the farm Paardekraal that stopped development in that area. During the Second World War some of the mine property was converted to be used by the Union Defence Force that included the Crown Mines hospital. It is therefore even possible that some graves in these cemeteries may belong to people who died during the war, although most probably not in active service.

The Roodepoort area has several monuments. One of these is monument that commemorates the Jameson Raid of 1895. The old municipal offices in Berlandina Street, a plaster and stone building that is now used as the Roodepoort branch library was declared a national monument in 1985. Another national monument is the old Roodepoort Town School in Rex Street, on the site of the original building erected in 1894 to name but a few.

Krugersdorp was proclaimed a town in 1887 and owes its origin to two important events in the history of South Africa, namely The Transvaal War of independence (1881) and the discovery of the Witwatersrand Goldfields (1886). These two occurrences with their far-reaching political and economic consequences, were mainly instrumental in causing the establishment of two townships, originally apart, but subsequently united under the name of Krugersdorp. The one

township became the business centre of the West Rand Goldfields, while the other sprang into existence by reason of the position and significance of the Paardekraal Monument.

Gold, manganese, iron, asbestos and lime are all mined in and around Krugersdorp and the area is characterised by a long mining history, which began when gold was discovered on the farm Paardekraal. Recently Krugersdorp Local Council was re-named after Chief Mogale, the young heir to the Po Chieftom of the Batswana. The Po tribe, one of the original tribes, occupied the territory now known as Mogale City. They occupied an area that stretched from the Magaliesberg in the west to the present day Northcliff Ridge in the east, to the Vaal River in the southwest and Hartebeespoort Dam in the northwest.

Toward the end of the 1820s, the stability of the area was disrupted by the invasion of Mzilikazi ka Mashobane. Mzilikazi warriors easily overwhelmed the Po, killed their chief and took the young heir, Mogale wa Mogale, captive. Around 1830 the Voortrekkers, dissatisfied with life under British administration in the Cape Colony, began to migrate from the Cape. Mzilikazi was driven out of the area by the Voortrekkers under Paul Kruger, who named the area after himself.

The area has several significant historical sites. One of the most attractive buildings is the civic centre. The Earl of Selbourne, High Commissioner of the Transvaal and Orange Free State, unveiled the foundation stone of the original building in 1907. The JG Strijdom arch bust, designed by JH Labuschagne, was unveiled on 16 December 1966 by Susan Strijdom. It stands on gold-bearing rock. The arch was designed by T Pitout. Another interesting feature is the first stone of the cenotaph that was laid on 20 May 1922. It was unveiled by Sir Abe Bailey on 15 July 1922. The names of those who died in action during the World Wars were added in 1975.

More than 800 women and children were buried in the Concentration Camp Cemetery during the Boer War. The Memorial Avenue, which runs from Paardekraal to the hospital, commemorates those who died during the First World War. Several monuments are found in the area and include amongst others the Old Station Building, Voortrekkerpad Monument, Town Hall, Old Magistrate's Court Building, Paardekraal Monument, JG Strijdom Bust, Paul Kruger Statue, The Blockhouse, and The Concentration Camp.

## 5. HERITAGE SITE SIGNIFICANCE AND MITIGATION MEASURES

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

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

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

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

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

### 5.1. Field Rating of Sites

Site significance classification standards prescribed by SAHRA (2006), and acknowledged by ASAPA for the SADC region, were used for the purpose of this report. The recommendations for each site should be read in conjunction with section 7 of this report.

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

## 6. BASELINE STUDY-DESCRIPTION OF SITES

It is important to note that the entire farm was not surveyed but only the development footprint. The study area is characterised by manicured lawns, walkways, tree lined avenues, dams and numerous residential houses. The area has been extensively developed and surface indicators of heritage resources would have been obliterated during development and construction of the houses, access roads and clearing of vegetation (Figure 3 – 6).

The study area was assessed in terms of the archaeological component of Section 35 of the NHRA and no surface indicators of archaeological (Stone or Iron Age) sites were identified in the study area. In terms of the built environment no structures occurred in the study area in 1943 (Figure 7), in 1954 the only structure indicated on the topographical map of the study area (Figure 8) is a hut in the north eastern corner. During the survey of the study area it was confirmed that this structure was totally demolished and no evidence relating to this structure could be found. The next edition of topographic maps of the study area date to 1977. From this map (Figure 9) it appears that structure 8, 10 and 11 occurred at the time and it is therefore deduced that these three structures were constructed between 1954 and 1977. From this map it is also clear that the tree lined avenues were only planted after 1977. Today several buildings (approximately sixteen) occur in the study area (Figure 12 and Table 1). These are all residential dwellings with associated outbuildings like garages and service quarters (Figure 9 - 12). Based on the information obtained from topographical maps of the area these structures are all younger than 60 years and not protected by legislation and of no heritage significance, apart from structure 8, 10 and 11 that could be just over 60 years old but is unknown at this point.

**Table 1: Recorded Features**

Field No	Description	Longitude	Latitude
16	Structure younger than 60	27° 53' 39.2839" E	26° 02' 21.3810" S
15	Structure younger than 60	27° 53' 42.8353" E	26° 02' 23.0793" S
14	Structure younger than 60	27° 53' 43.8230" E	26° 02' 22.0034" S
13	Structure younger than 60	27° 53' 46.5745" E	26° 02' 22.0916" S
1	Structure younger than 60	27° 53' 39.4665" E	26° 02' 16.9766" S
2	Structure younger than 60	27° 53' 41.6359" E	26° 02' 16.9414" S
12	Structure younger than 60	27° 53' 45.2693" E	26° 02' 18.3700" S
3	Structure younger than 60	27° 53' 45.1106" E	26° 02' 15.1599" S
4	Structure younger than 60	27° 53' 48.8145" E	26° 02' 13.9253" S
9	Structure younger than 60	27° 54' 03.9133" E	26° 02' 09.8487" S
8	Structure possibly younger than 60	27° 54' 01.4785" E	26° 02' 10.2654" S
6	Structure younger than 60	27° 54' 01.3021" E	26° 02' 09.1190" S
7	Structure younger than 60	27° 54' 00.1557" E	26° 02' 10.0185" S
5	Structure younger than 60	27° 53' 57.1749" E	26° 02' 10.4594" S
10	Structure possibly younger than 60	27° 54' 06.4700" E	26° 02' 16.1917" S
11	Structure possibly younger than 60	27° 54' 04.3336" E	26° 02' 17.2562" S



Figure 3. Dams in the study area.



Figure 4. Manicured lawns in the study area.



Figure 5. Landscaped gardens with swimming pools occur in the study area.



Figure 6. Manicured lawns.



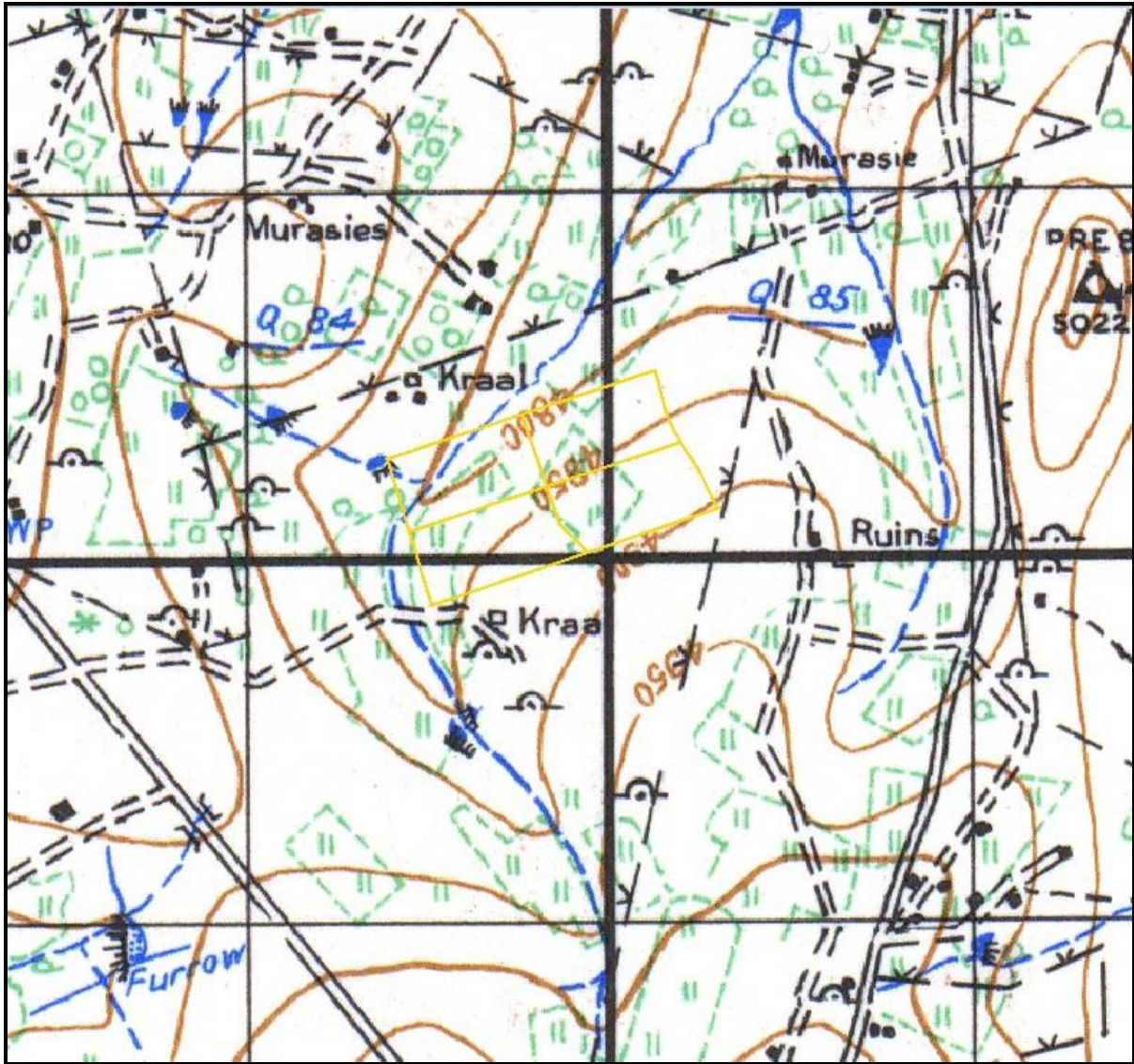


Figure 7. Extract of the 1943 Topographical map indicating no features in the study area.

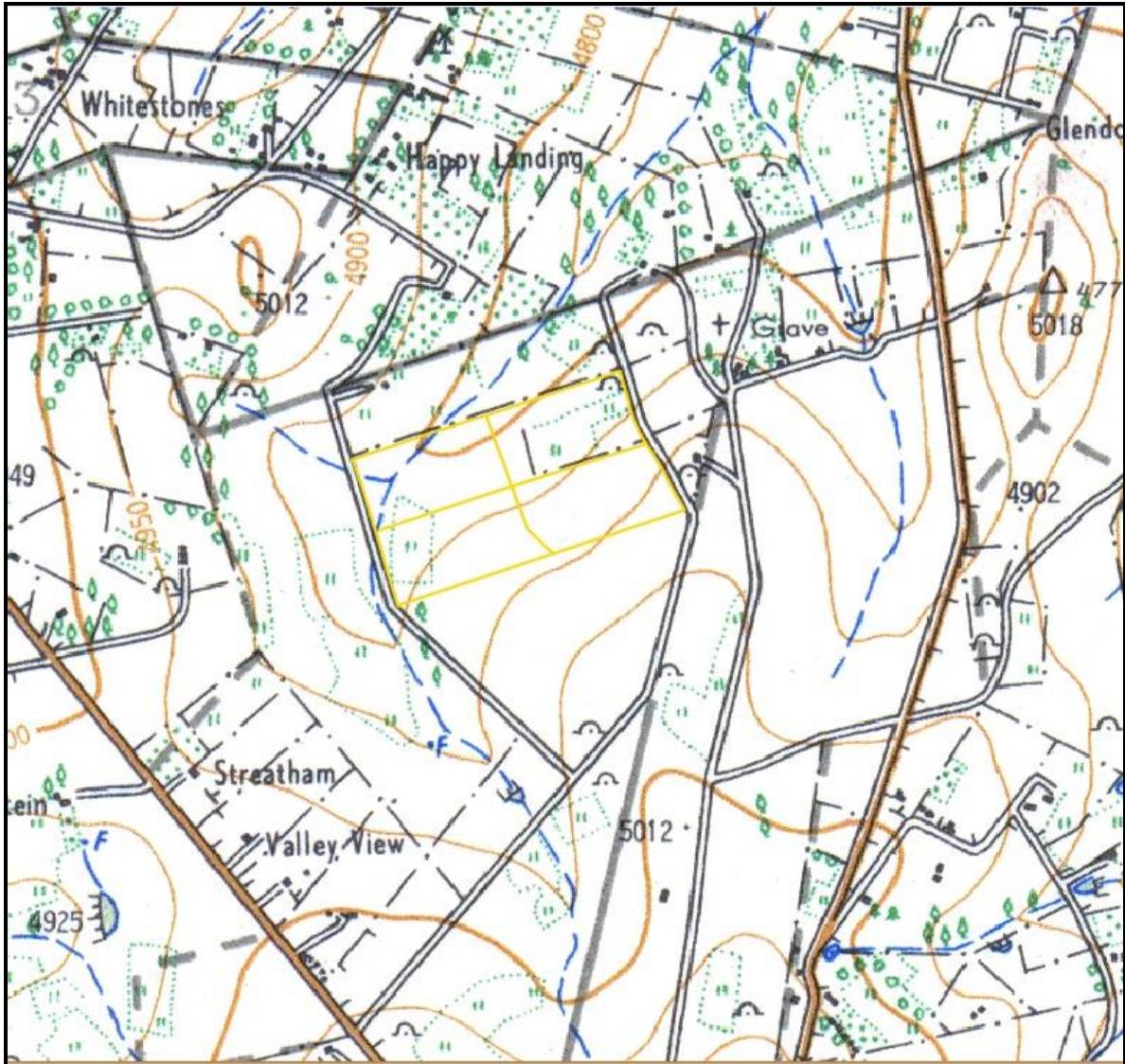


Figure 8. Extract of the 1954 Topographical map indicating a hut in the north eastern corner of the study area. .

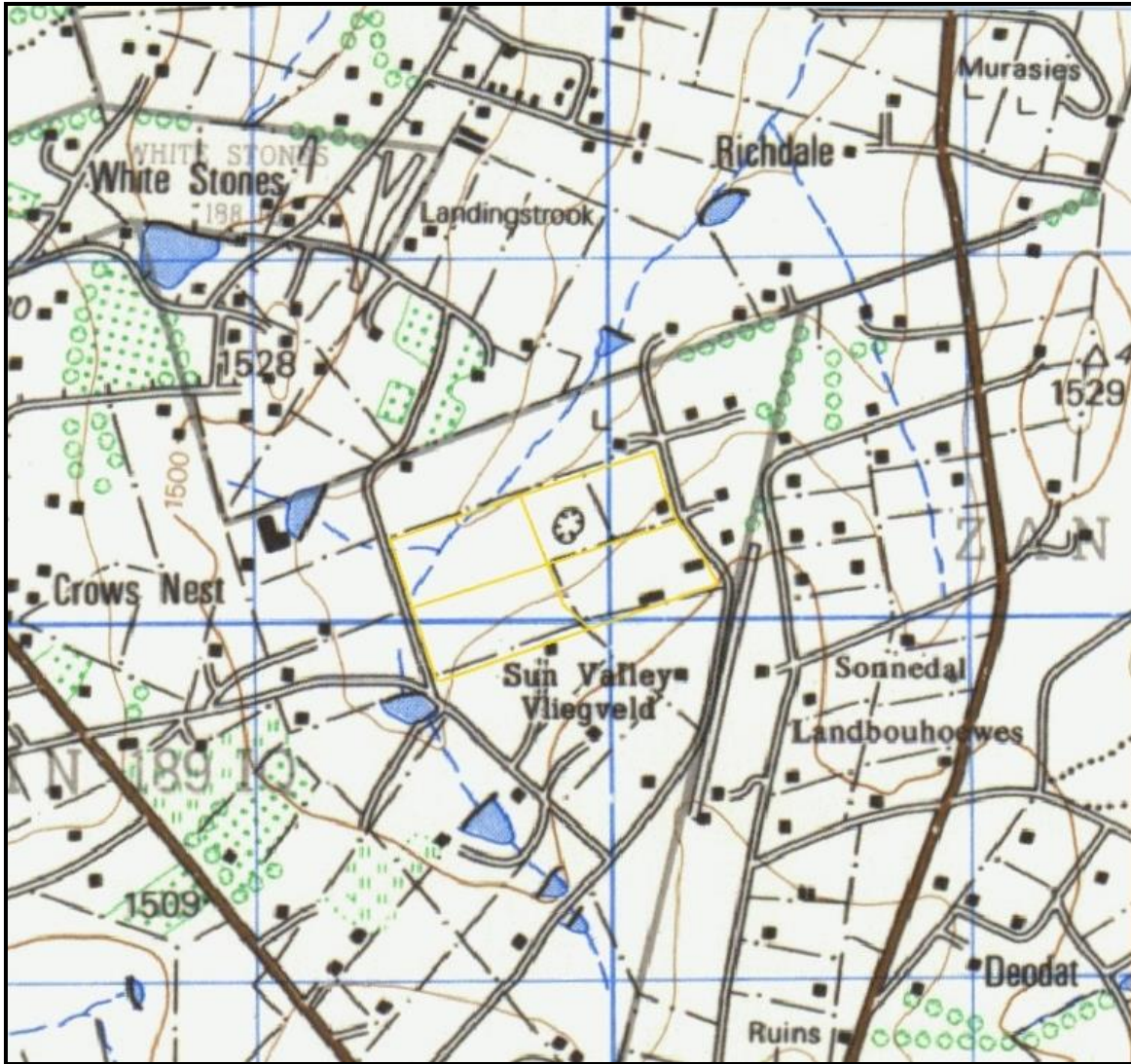


Figure 9. Extract of the 1977 Topographic map of the study area indicating buildings in area of structure 8, 10 and 11.



Figure 10: Distribution of buildings in the study area.



Figure 11: Structures in the study area.

## 7. CONCLUSIONS AND RECOMMENDATIONS

HCAC was appointed to assess the study area in terms of the archaeological component of Section 35 of the NHRA. No raw material suitable for stone tool manufacture occurs in the study area and no ceramics or stone walls attributed to the Iron Age were recorded within the study area. No further mitigation is recommended in terms of Section 35 for the proposed development to proceed.

In terms of the built environment of the area (Section 34), several structures occur in the study area consisting of residential dwelling and associated outbuildings like garages and servants quarters. Based on information obtained from topographical maps of the study area these structures are all younger than 60 years and not protected by legislation and of no heritage significance, apart from structure 8, 10 and 11 that could be just over 60 years old as they were constructed between 1954 and 1977. As the exact age of these three structures are unknown it is recommended that if these three structures are impacted on by the development their age should be confirmed. If the structures are confirmed to be older than 60 years, a conservation architect should be appointed to assess the structures and apply for a demolition/ alteration permit.

In terms of Section 36 of the Act no burial sites were recorded. However if any graves are located in future they should ideally be preserved *in-situ* or alternatively relocated according to existing legislation. Due to the subsurface nature of archaeological remains and the fact that graves can occur anywhere on the landscape, it is recommended that a chance find procedure is implemented for the project as part of the EMP:

### Chance find procedure

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

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

The study area is surrounded by residential developments and no significant cultural landscapes or viewsapes were noted during the fieldwork.

### 7.1 Reasoned Opinion

From a heritage perspective the proposed project is acceptable from a heritage point of view. If the above recommendations are adhered to and based on approval from SAHRA, HCAC is of the opinion that the development can continue as the development will not impact negatively on the archaeological record of the area. If during the pre-construction phase or during construction, any archaeological finds are made (e.g. graves, stone tools, and skeletal material), the operations must be stopped, and the archaeologist must be contacted for an assessment of the finds. Due to the subsurface nature of archaeological material and graves the possibility of the occurrence of unmarked or informal graves and subsurface finds cannot be excluded, but can be easily mitigated by preserving the sites *in-situ* within the development.

### 8. PROJECT TEAM

Jaco van der Walt, Project Manager

### 9. STATEMENT OF COMPETENCY

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

I have been involved in research and contract work in South Africa, Botswana, Zimbabwe, Mozambique, Tanzania and the DRC; having conducted more than 300 AIA's since 2000.

## 10. REFERENCES

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