

# **Heritage Impact Assessment**

Heritage Impact Assessment for the Proposed Tikwana  
Solar Park near Hoopstad, Free State Province.

## **Compiled for:**

Africa Geo-Environmental Services (AGES)

## **Survey conducted & Report compiled by:**

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**October 2011**

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## Executive Summary

**Site name and location:** Proposed development of the Tikwana Solar Park on erven 807, 808, 809, 810, 811, 812, 822, 823, 824, 827, 828, 829, 830, 832, 833 and a portion of the street between the mentioned erven and a part of erf 835 in Hoopstad Extension 14 in the Free State Province.

**Local Authority:** Lejweleputswa District Municipality.

**Developer:** Firefly Investments 227 (Pty) Ltd.

**Date of field work:** 27 September 2011.

**Date of report:** October 2011.

**Findings:** No site-specific actions or any further heritage mitigation measures are recommended as no heritage resource sites or finds of any value or significance were identified in the indicated study area. The proposed development of the Tikwana Solar Park at the indicated area can continue from a heritage point of view

**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 and/or graves could be overlooked during the study. Hutten Heritage Consultants and its personnel will not be held liable for such oversights or for costs incurred as a result of such oversights.*

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Photo 2: View of the Hoopstad substation.

Photo 3: View of the power lines on the southern side.

Photo 4: View of the plough ridge across the site.

### **ADDENDUM B    Location Maps**

## **1. Introduction**

Hutten Heritage Consultants was contracted by Africa Geo-Environmental Services (AGES) to conduct a Heritage Impact Assessment (HIA) on the proposed development of the Tikwana Solar Park on erven 807, 808, 809, 810, 811, 812, 822, 823, 824, 827, 828, 829, 830, 832, 833 and a portion of the street between the mentioned erven and a part of erf 835 in Hoopstad Extension 14 in the Free State Province.

The aim of the study was to identify all heritage sites, to document and to assess their significance within Local, Provincial and National context. The report outlines the approach and methodology implemented before and during the survey, which includes in Phase 1: Information collection from various sources and social consultations; Phase 2: Physical surveying of the area on foot and by vehicle; and Phase 3: Reporting the outcome of the study.

This HIA forms part of the Environmental Impact Assessment (EIA) as required by various Acts and Laws as described under the next heading and is intended for submission to the provincial South African Heritage Resources Agency (SAHRA) for peer review.

Minimum standards for reports, site documentation and descriptions are set by the Association of Southern African Professional Archaeologists (ASAPA) in collaboration with SAHRA. ASAPA is a legal body representing professional archaeology in the Southern African Development Community (SADC) region. As a member of ASAPA, these standards are tried to be adhered to.

The extent of the proposed development sites were determined as well as the extent of the areas to be affected by secondary activities (access routes, construction camps, etc.) during the development.

## **2. Legislative Requirements**

The identification, evaluation and assessment of any cultural heritage site, artefact or find in the South African context is required and governed by the following legislation:

National Environmental Management Act (NEMA) Act 107 of 1998

National Heritage Resources Act (NHRA) Act 25 of 1999

Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002

Development Facilitation Act (DFA) Act 67 of 1995

The following sections in each Act refer directly to the identification, evaluation and assessment of cultural heritage resources.

National Environmental Management Act (NEMA) Act 107 of 1998

Basic Environmental Assessment (BEA) – Section (23)(2)(d)

Environmental Scoping Report (ESR) – Section (29)(1)(d)

Environmental Impacts Assessment (EIA) – Section (32)(2)(d)

Environmental Management Plan (EMP) – Section (34)(b)

National Heritage Resources Act (NHRA) Act 25 of 1999

Protection of Heritage resources – Sections 34 to 36; and

Heritage Resources Management – Section 38  
Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002  
Section 39(3)  
Development Facilitation Act (DFA) Act 67 of 1995  
The GNR.1 of 7 January 2000: Regulations and rules in terms of the Development Facilitation Act, 1995. Section 31.

### **3. Proposed Project**

Firefly Investments 227 (Pty) Ltd has proposed the development of the Tikwana Solar Park on erven 807, 808, 809, 810, 811, 812, 822, 823, 824, 827, 828, 829, 830, 832, 833 and a portion of the street between the mentioned erven and a part of erf 835 in Hoopstad Extension 14 in the Free State Province. This development will mainly be the establishment of a renewable energy generation facility (Photovoltaic Solar Facility). The generated energy (electricity) will be supplied to the existing Eskom or municipal grid. After bush clearing, construction will concentrate on the erection of Photovoltaic panels which will be mounted on constructed foundations. The proposed facility shall make use of this photovoltaic technology with a total generating capacity of up to 19.9 MW. The generated energy will be connected to the Eskom or municipal grid through an adjacent Eskom Substation. Associated engineering infrastructure such as service roads, water and sewerage lines for administrative and accommodation areas and electrical lines will also be installed. The facility will be located on erven 807, 808, 809, 810, 811, 812, 822, 823, 824, 827, 828, 829, 830, 832, 833 and a portion of the street between the mentioned erven and a part of erf 835 in Hoopstad Extension 14 in the Free State Province, which measured approximately 47ha in size. The purpose of the study was to determine if the proposed area was suitable for the development of the Solar Park from a heritage point of view.

The project was tabled during August 2011 and the developer intends to commence as soon as possible after receipt of the ROD from the Department of Environmental Affairs.

### **4. Project Area Description**

The proposed development of the Tikwana Solar Park on erven 807, 808, 809, 810, 811, 812, 822, 823, 824, 827, 828, 829, 830, 832, 833 and a portion of the street between the mentioned erven and a part of erf 835 in Hoopstad Extension 14 in the Free State Province. The proposed properties were approximately 47ha in size of which most of the area was earmarked for development (photo 1).

The properties were situated in Hoopstad Extension 14 which was situated next to the Tikwana township next to the town of Hoopstad. Existing houses and infra-structure from the Tikwana township were situated on the eastern side of the proposed properties. The R34 tar road from Hoopstad to Wesselsbron bordered the properties to the north. Farm lands with ploughed fields were situated on the eastern and southern sides. The Eskom Hoopstad substation was situated on the eastern side of the development (photo 2). The

study included the areas around the substation. An Eskom power line crossed the southern parts of the properties (photo 3).

The properties were previously exposed to intensive agricultural activities and most of it was bush cleared in order to open fields for ploughing (photo 1 and topographical maps). Large plough ridges were still present (photo 4). Currently the properties are not being farmed and were being earmarked to be developed as part of the township district. Most of the properties were relatively flat and consisted of red/gray sandy soils.

The proposed development will be situated on the Hoopstad 2725 DD 1:50 000 topographical map (See Appendix B: Location Maps).

## 5. Archaeological History of the Area

As heritage surveys deal with the locating of heritage resources in a prescribed cartographic landscape, the study of archival and historical data and cartographic information can represent a very valuable supporting tool in finding and identifying such heritage resources.

After researching the National Archive records as well as the SAHRA records it was determined that previous archaeological or historical studies have been performed in the demarcated study area or nearby areas.

A report by Mr. J.J.B. Dreyer:

- Dreyer, C. 2008. **First Phase Archaeological and Historical Investigation of the Proposed Township Developments at Tikwana (Hoopstad), Free State.** (Unpublished report),

was consulted during this study. This report commented on cultural heritage finds and sites identified during the Heritage Impact Assessments performed for the proposed nearby township development.

The geographical area surrounding Hoopstad represents archaeological sites dating to the Stone Age, Iron Age and Historical Age. These sites will be discussed briefly in order to provide the reader with background knowledge of the archaeological history of the immediate area surrounding Hoopstad. The historical background and timeframe of the study area and other areas in Southern Africa can be divided into the Stone Age, Iron Age and Historical period. These can be divided as follows:

### Stone Age

The Stone Age is divided into the Early; Middle and Late Stone Age and refers to the earliest people of Southern Africa who mainly relied on stone for their tools.

*Early Stone Age:* The period from  $\pm 2.5$  million years to  $\pm 250\ 000$  years ago. This period is associated with Australopithecines and other early *Homo* species. (e.g. Oldowan and Acheullian stone tool industries).

*Middle Stone Age:* Various lithic industries in SA dating from  $\pm$  250 000 yrs – 25 000 yrs before present. This period is first associated with archaic *Homo sapiens* and later *Homo sapiens sapiens*. (e.g. Howiesons Poort stone tool industry).

*Late Stone Age:* The period from  $\pm$  25 000-yrs before present to the period of contact with either Iron Age farmers or European colonists. This period is associated with *Homo sapiens sapiens*. (e.g. Smithfield, Wilton, Robberg stone tool industries).

The only Stone Age sites that could be identified in the area surrounding Hoopstad was sites dating to the Later Stone Age (Mason, 1969). These sites presented with low density scatter of Later Stone Age Assemblages associated with the Smithfield industry (Mason, 1969; Mitchell, 2002). One of the larger sites that was identified in the 1960s, namely Munro's site, however presented with one hand-axe which was suggestive of an Early Stone Age technology (Mason, 1969). Munro's site mainly presented with Late Stone Age assemblages in the form of microliths as well as a large scatter of faunal remains (Mason, 1969). Late Stone Age graves were also identified and excavated at Munro's site (Mason, 1969). A possible fossil site was also identified about 8 miles (13 km) downstream from Hoopstad on the banks of the Vet River (Mason, 1969).

#### **Rock Art sites:**

During the survey undertaken in the 1960s many rock overhangs were identified, but none of these presented with rock art (Mason, 1969). No known rock art sites could be identified in the area.

#### **Iron Age**

The Iron Age as a whole represents the spread of Bantu speaking people and includes both the Pre-Historic and Historic Periods. Similar to the Stone Age it can be divided into three periods:

*The Early Iron Age (EIA):* Most of the first millennium AD. (e.g. Happy Rest, Silver Leaves).

*The Middle Iron Age (MIA):* 10th to 13th centuries AD. (e.g. K2, Mapungubwe, Thavhatsena).

*The Late Iron Age (LIA):* 14th century to colonial period. (e.g. Icon, Letaba, Mutamba).

Iron Age sites identified in the vicinity of Hoopstad include sites dating to the Middle and Late Iron Age.

Middle Iron Age sites represent the Olifantspoort facies of the Moloko branch of the Urewe tradition (Huffman, 2007). These sites date to AD 1500 – AD 1700 (Huffman, 2007).

The Late Iron Age sites represent the Thabeng facies also of the Moloko branch of the Urewe tradition (Huffman, 2007). These sites date to AD 1700 – AD 1840 (Huffman, 2007).



Starting after AD 1600 the Sotho-Tswana moved into the area of the central highveld (including the northern parts of the Free State) and was responsible for all the stone walling sites in the area (Dreyer, 1992; Hammond-Tooke, 1993).

### **Historic Period**

The Historic Period intermingles with the later parts of the Stone and Iron Age, and can loosely be regarded as times when written and oral recounts of incidents became available. It also refers to the period of colonial expansion and settlement.

17th Century to present AD (1600 – 2000).

The first Europeans to move into the area of Hoopstad were two explorers namely Hodgson and Archbell in 1826, followed by Krebs in 1838 (Berg, 1999).

The town of Hoopstad was founded in 1876 on the farm Kameeldoorns by order of the Orange Free State Volksraad (Erasmus, 1995). No major historical sites could be identified in the vicinity of Hoopstad. This area, however, saw intense activity during the Anglo-Boer War. During the Second Anglo-Boer War, the town was part of the main British movement towards the two Boer Capitals (Cloete, 2000). On the 1<sup>st</sup> of April 1900 the Boer forces lead by General De Villebois-Mareuil left Hoopstad to attack the British forces, commanded by Lord Methuen, stationed at Boshof (Cloete, 2000; Grobler, 2004). The attack fails and consequently Lord Methuen advances from Boshof to Hoopstad on the 15<sup>th</sup> of April 1900, which was a centre of Boer activity for the area (Cloete, 2000; Grobler, 2004). Two days later the town is occupied by Lord Methuen. During the guerrilla phase of the war (late 1900-1902) this area saw activity mostly in the form of the Boer invasion force led by General Jan Smuts (Cloete, 2000; Grobler, 2004). On the 30<sup>th</sup> of April, 1902, an official report states that the block house line between Boshof and Hoopstad is completed (Cloete, 2000). There may still be remnants of this blockhouse line within the town borders of Hoopstad.

## **6. Methodology**

### **Physical Survey**

The extent of the proposed development sites were determined as well as the extent of the areas to be affected by secondary activities (access route, construction camp, etc.) during the development.

The physical survey was conducted on foot over the entire area proposed for development. Priority was placed on the undisturbed areas. A systematic inspection of the area on foot along linear transects resulted in the maximum coverage of the proposed area. The survey was conducted on September 27, 2011 and was performed by M. Hutten and field worker T. Mulaudzi.

No sampling was done as no sites or finds of heritage significance were found.

### **Interviews**

Passersby (people working/living in the area) were casually questioned during the survey and they indicated that they were not aware of any sites of heritage value or significance (such as graves) in the proposed area.

## Restrictions

Vegetation proved the major restriction in accessibility to some of the areas and also contributed to poor surface visibility after the spate of recent good rains.

## Documentation

All sites/findspots located during the foot surveys were briefly documented. The documentation included digital photographs and descriptions as to the nature and condition of the site and recovered materials. The sites/findspots were plotted using a Global Positioning System (GPS) (Garmin GPSmap 60CSx) and numbered accordingly.

## 7. Assessment Criteria

This chapter describes the evaluation criteria used for determining the significance of archaeological and heritage sites. The significance of archaeological and heritage sites were based on the following criteria:

- The unique nature of a site
- The amount/depth of the archaeological deposit and the range of features (stone walls, activity areas etc.)
- The wider historic, archaeological and geographic context of the site
- The preservation condition and integrity of the site
- The potential to answer present research questions.

## Site Significance

Site significance classification standards prescribed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used for the purpose of this report.

<i><b>FIELD RATING</b></i>	<i><b>GRADE</b></i>	<i><b>SIGNIFICANCE</b></i>	<i><b>RECOMMENDED MITIGATION</b></i>
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance	Grade 3A	High Significance	Conservation; Mitigation not

(LS)			advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP.A)	Grade 4A	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	Grade 4B	Medium Significance	Recording before destruction
Generally Protected C (GP.C)	Grade 4C	Low Significance	Destruction

**Impact Rating:**

**Low or No Significance:**

The constraint is absent, but in instances where present, poses a negligible significance on the proposed development in terms of heritage concerns.

**Moderate Significance:**

The constraint is present and poses a notable but not major significance on the proposed development in terms of heritage concerns. If the constraint can not be avoided, appropriate mitigation measures must be implemented to minimize the significance.

**High Significance:**

The constraint is present and poses a high significance on the proposed development in terms of heritage concerns. It is recommended that the constraint be avoided or appropriate mitigation measures must be implemented to minimize the significance.

**Certainty:**

**Definite:**

More than 90% sure of a particular fact. Substantial supportive data exist to verify the assessment.

**Probable:**

Over 70% sure of a particular fact, or of the likelihood of an impact occurring.

**Possible:**

Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.

**Unsure:**

Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.

**Duration:**

**Short Term:** 0 – 5 years

**Medium Term:** 6 – 20 years

**Long Term:** more than 20 years

**Demolished:** site will be demolished or is already demolished

**Mitigation:**

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be classified as follows:

- **A** – No further action necessary
- **B** – Mapping of the site and controlled sampling required
- **C** – Preserve site, or extensive data collection and mapping required; and
- **D** – Preserve site

**8. Assessment of Sites and Finds**

This section will contain the results of the heritage site/find assessment.

**Tikwana Solar Park**

The properties were situated in Hoopstad Extension 14 which was situated next to the Tikwana township next to the town of Hoopstad. Existing houses and infra-structure from the Tikwana township were situated on the eastern side of the proposed properties. The R34 tar road from Hoopstad to Wesselsbron bordered the properties to the north. Farm lands with ploughed fields were situated on the eastern and southern sides. The Eskom Hoopstad substation was situated on the eastern side of the proposed development. The study included the areas around the substation. An Eskom power line crossed the southern parts of the properties.

The properties were previously exposed to intensive agricultural activities and most of it was bush cleared in order to open fields for ploughing. Large plough ridges were still present. Currently the properties are not being farmed and were being earmarked to be developed as part of the township district.

After intensive investigations, no sites or finds of any heritage value or potential were identified.

Field Rating: None

Heritage Significance: None

Impact:	None
Certainty:	None
Duration:	None
Mitigation:	A – No further action necessary

## **9. Recommendations**

The following steps and measures are recommended regarding the investigated area:

### **Tikwana Solar Park**

- The proposed area to be developed was largely disturbed due to previous intensive agricultural activities such as ploughing and planting of crops.
- No further site-specific actions or any further heritage mitigation measures are recommended as no heritage resource sites or finds of any value or significance were identified in the indicated study area.
- The proposed development of the Tikwana Solar Park in the indicated area can continue from a heritage point of view.

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# **APPENDIX A**

# **Photographs**





Photo 1: General view of the proposed site from the north-east.



Photo 2: View of the Hoopstad substation.



Photo 3: View of the power lines on the southern side.



Photo 4: View of the ploughed ridges across the site.

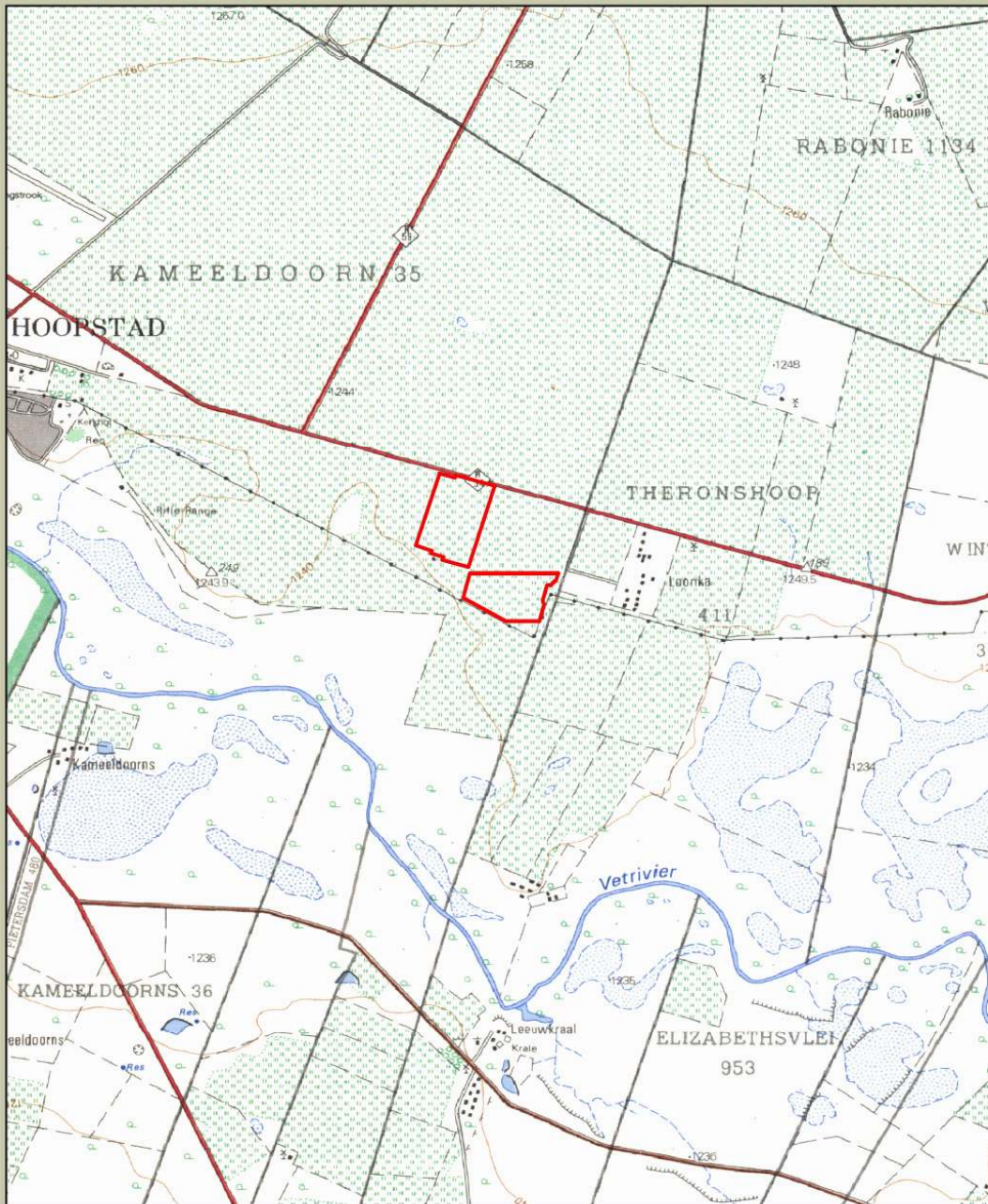
# **APPENDIX B**

## **Location Maps**




# Tikwana Solar Park


1:50 000 series, Hoopstad 2725DD



**Legend**

 Study area

0 1.5 3 Kilometres





# Tikwana Solar Park Spot 5 National Mosaic 2725D



**Legend**

 Study area

0 1.5 3 Kilometres





# Tikwana Solar Park Spot 5 National Mosaic 2725D



**Legend**

 Study area

0 0.5 1  
Kilometres

