

**HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED MOKOLO AND  
CROCODILE RIVER (WEST): WATER AUGMENTATION PROJECT (MCWAP)  
– PHASE 1: AUGMENT SUPPLY FROM MOKOLO DAM**

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February 2010 (initial report June 2009)

## **ACKNOWLEDGEMENTS**

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National Heritage Resources Act (Act 25 of 1999)

The National Archives, in particular the “Transvaalse Argiefbewaarplek” database.

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## **ABOUT THIS REPORT**

*The heritage report must reflect that consideration has been given to the history and heritage significance of the study area and that the proposed work is sensitive towards the heritage resources and does not alter or destroy the heritage significance of the study area.*

*The heritage report must refer to the heritage resources currently in the study area.*

*The opinion of an independent heritage consultant is required to evaluate if the proposed work generally follows a good approach that will ensure the conservation of the heritage resources.*

*The National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998) are the guideline documents for a report of this nature.*

*Leonie Marais-Botes was requested by Nema Consulting to carry out a Heritage Impact Assessment (HIA) for Phase 1 of the proposed Mokolo and Crocodile River (West): Water Augmentation Project (MCWAP)*

- *Phase 1 consists of a pipeline to augment the supply from Mokolo Dam. This is to supply in the growing water requirement and also to supply more water for the interim period until a transfer line from the Crocodile River (West) can be implemented. The system will utilise the available yield from Mokolo Dam, Phase 1 consist of the following;*

*Rising main from Mokolo Dam to Wolvenfontein balancing dams;*

*Gravity line from Wolvenfontein to Matimba Power Station; and*

*Gravity line from Matimba Power Station to Steenbokpan.*



## **EXECUTIVE SUMMARY**

The Department of Water Affairs (DWA) is expanding water infrastructure in the Limpopo Water Management Area. This project is referred to as the proposed Mokolo and Crocodile River (West): Water Augmentation Project (MCWAP).

Phase 1 of this project (as described above) may impact on any types and ranges of heritage resources that are outlined in Section 3 of the National Heritage Resources Act (Act 25 of 1999). Subsequently a Heritage Impact Assessment was commissioned by Nema Consulting and conducted by Leonie Marais-Botes (Heritage Practitioner).

The main types and ranges of heritage resources that were identified in the study area were:

- Ruins that were identified from the Surveyor General's 1 : 50 000 topographical maps (identified as from the more recent past)
- Family cemetery
- Unmarked graves
- Heritage structures

There is one cemetery in the study area and one group of unmarked graves. The cemetery is situated near the road on the farm Goedgedacht and the unmarked graves on the farm Sterkfontein. All graves and cemeteries are of high significance and are protected by various laws. Legislation with regard to graves included the National Heritage Resources Act (Act 25 of 1999) whenever graves are 60 years and older. Other legislation with regard to graves includes those when graves are exhumed and relocated, namely the Ordinance on Exhumations (no 12 of 1980) and the Human Tissues Act (Act 65 of 1983 as amended)

## INTRODUCTION

The Department of Water Affairs (DWA) is expanding water infrastructure in the Limpopo Water Management Area. This project is referred to as the proposed Mokolo and Crocodile River (West): Water Augmentation Project (MCWAP).

- Phase 1 consists of a pipeline to augment the supply from Mokolo Dam. This is to supply in the growing water requirement and also to supply more water for the interim period until a transfer line from the Crocodile River (West) can be implemented. The system will utilise the available yield from Mokolo Dam, Phase 1 consist of the following;

Rising main from Mokolo Dam to Wolvenfontein balancing dams;

Gravity line from Wolvenfontein to Matimba Power Station; and

Gravity line from Matimba Power Station to Steenbokpan

It is envisaged that the proposed water pipeline follows an already existing Exxaro pipeline with certain deviations as part of environmental best practise. The preferred line is referred to as the “preferred alternative”; a deviation near Medupi electricity generation facility is referred to as “Preferred DL”. Other specific investigation areas are referred to as “Wider Environmental Survey” (in the area of the farm Fancy) and “Environmental Corridor” (in the area of the farm Witbank, the farm Smutsfontein and Rem of the Farm Wolvenfontein).



Route adjacent to already existing Exxaro pipeline



Deviation at Medupi electricity generation facility referred to as DL Preferred





Area near the wider environmental survey



The Environmental Corridor in the area of the farm Witbank, the farm Smutsfontein and Rem of the Farm Wolvenfontein.

The main aim of this project is to provide water to the expanding electrical infrastructure at Lephalale (Ellisras) and other consequent/subsequent developments.

Activities in the greater study area include:

- Agricultural activities (crop and cattle)
- Tourism (guest farms, eco farms)
- Game Hunting
- Commercial Activities (towns)
- Mining (mainly coal)
- Formal and Informal Housing

## **DESCRIPTION OF THE GREATER STUDY AREA**

The study area is situated in the Limpopo Province of the Republic of South Africa, approximately 400 km from Johannesburg. Vegetation in the area includes tropical flood plains (near rivers), Bushveld on sandy soil and Bushveld on clay soil. The main town in the study area is Lephalale (formerly known as Ellisras). The area adjacent to Lephalale is particularly known for coal mining and electricity generation. Other activities in the area include farming (crop and cattle), tourism and game hunting.

The rocks of the area under consideration embrace three major geological units: the Archaean Beit Bridge Complex in the north, the Proterozoic Waterberg Group in the south and the Phanerozoic Karoo Sequence in the intervening area.

## **METHOD**

The objective of this study was not to undertake a detailed heritage survey, but to gain an overall understanding of the heritage sensitivities of the area and indicate how they may be impacted on through development activities. The initial survey took place in the week of 23-27 March 2009 and subsequent studies were undertaken from 30 January to 2 February 2010.

The entire study area including the preferred option and alternatives were covered with vehicles. At certain pre-determined points foot surveys were conducted to establish an overall understanding of the study area and the sensitivities associated with it in heritage context. In extensive study areas as this it is difficult to do a foot survey of the entire area in the limited time available. 1:50 000 maps were studied to determine possible sensitive areas previously identified. The initial study took place in late summer, early autumn and the additional study in summer. Due to good rainfall in both the above seasons the vegetation was dense and visibility limited.

After the field studies a literature and archival search were conducted to find additional and contextual information.



In order to establish heritage significance the following method was followed:

- Investigation of primary resources (archival information)
- Investigation of secondary resources (literature and maps)
- Physical evidence (site investigation)
- Determining Heritage Significance

## **PROPOSED PHASE 1 DEVELOPMENT: MCWAP**

### **1. BRIEF BACKGROUND HISTORY**

The study area was sparsely populated by humans in the past. However archaeological findings in the greater study area suggest that occupation occurred from the Stone Age, throughout the early Iron Age which covers the first millennium AD and the historical period which commenced with the arrival of the first colonial hunters, traders and farmers (latter part of the 19<sup>th</sup> century). Very little evidence of the first colonial hunters, traders and farmers survived in the greater study area.



Drawing by Erich Mayer: Showing the first settlers in the Bushveld

From documents in the National Archives and in specific the TAB (Transvaalse Argiefbewaarplek) the first administration with regard to farms was conducted in the late 19<sup>th</sup> century. Very little physical evidence of this period still remains. Most of the heritage structures in the study area dates from the 1930's and 1940's.

The Geological Survey Division of the Department of Mining launched an exploration program in the area in 1942. ISCOR, at that stage the country's largest steel producer and also the biggest consumer of coal, actively partook in the program. Drilling was completed in 1952 and in 1957 ISCOR obtained the surface rights to six farms in the area, including Grootgeluk. Mining at Grootgeluk commenced in 1975. The Grootgeluk mine is situated on the economically most important unit of the Karoo Sequence as it contains a number of thick mine able coal seams. Grootgeluk is currently mined by the Exxaro group.

In addition to the above ESKOM (Electricity Supply Company) also decided to extend interest to Lephalale (then Ellisras) seeing that the coal produced in the area is suitable for use in power stations. ESKOM decided to build an air-cooled power station called Matimba in close vicinity of the ISCOR coal mine. Construction of the power station commenced in April 1981. Matimba was officially opened in 1989. In addition to this various electricity supply developments are currently either planned or executed in the greater study area. Currently the Medupi power generation facility is being built and two more such facilities are to follow.

## **2. FINDINGS**

### **2.1 PRE-COLONIAL HERITAGE SITES**

No pre-colonial heritage sites were observed in the study area. The main reason the sparse population of the area in the past.

There is a University of the Witwatersrand cave site at Mokolo Dam, but the above mentioned site is not threatened by the planned development referred to as Phase 1 of the MCWAP.

### **2.2 COLONIAL AND UNION PERIOD SITES**

From documentation in the National Archives and in particular the TAB (Transvaalse Argief Bewaarplek) it is clear that the majority of settlers came to the area in the latter part of the 19<sup>th</sup> century. The indication in literature is that the first structures were the so-called "Hartbeeshuise".

Very little physical evidence of these settlers has remained. Most of the heritage structures in the area dates from the 1930's and 1940's.





**Image of a “Hartbeeshuis” (at back): None remaining in the study area.**



**Farmhouse on the farm Goedgedacht. Possibly earlier than the 1930's, but with significant changes.**





**Hennie de Lange's Café at Theunispan cc. 1930-1940**

### **2.3 ORIGINAL LANDSCAPE**

There is some stretches of undisturbed Bushveld still evident in the study area.



**Undisturbed Bushveld view**

## **2.4. INTANGIBLE HERITAGE**

Very little intangible heritage remains as no historically known tribal groupings occupied the study area and most of the original settlers descendents moved away from the area (reasons include drought, employment opportunities in larger centres ect).

## **3. CATEGORIES OF HERITAGE VALUE (ACT 25 OF 1999)**

*The National Heritage Resources Act (Act 25 of 1999) identifies the following categories of value under section 3(1) and (2) of the Act under the heading "National Estate":*

“3 (1) For the purpose of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.

(2) Without limiting the generality of subsection (1), the national estate may include-

- (a) places, buildings, structures and equipment of cultural significance;
- (b) places which oral traditions are attached or which are associated with living heritage;
- (c) historical settlements and townscapes;
- (d) landscapes and natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and palaeontological sites;
- (g) 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

- (vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
  - (h) sites of significance relating to the history in South Africa;
  - (i) movable objects, including-
    - (i) objects recovered from the soil or waters of South Africa including archaeological and palaeontological 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 interests; 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 I (xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).
- (3) Without limiting the generality of the subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of-
- (a) Its importance in the community, or pattern of South Africa's history;
  - (b) Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
  - (c) Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
  - (d) Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural objects;
  - (e) Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
  - (f) Its importance in demonstrating a high degree of creative or technical achievement at a particular period;

- (g) Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
- (h) Its strong or special association with the life and work of a person, group or organisation of importance in the history of South Africa; and
- (i) Sites of significance relating to the history of slavery in South Africa.”

## **1.1 HERITAGE VALUE OF PHASE 1 OF THE PROPOSED MOKOLO AND CROCODILE RIVER (WEST); WATER AUGMENTATION PROJECT (MCWAP) AREA WEIGHED AGAINST CULTURAL SIGNIFICANCE CATEGORIES**

### **1.1.1 Spiritual value**

There is no indication of any spiritual activity other than in places of formal worship in any part of the study area.

### **1.1.2 Scientific value**

The structures and associated infrastructure in the specific study area does not contain any scientific value in terms of section 3(3)(d) of the Act. No natural feature or other infrastructure associated with scientific importance could be identified in the study area.

### **1.1.3 Historical value**

The structures built in the 1930's and earlier have historical value and are protected by Section 34 of the National Heritage Resources Act, Act 25 of 1999.

### **1.1.4 Aesthetic value**

No heritage item with exceptional aesthetic (architectural) value was identified in the study area.

### **1.1.5 Social value**

The study area does not contain sites that are associated with social value. These sites may include meeting places, parks ect.

## **1.2 SPECIFIC CATEGORIES INVESTIGATED AS PER SECTION 3 (1), (2) AND (3) OF THE NATIONAL HERITAGE LEGISLATION (ACT 25 OF 1999)**

### **1.2.1 Does the site/s provide the context for a wider number of places, buildings, structures and equipment of cultural significance?**

The study area does not provide context for a wider number of places, buildings, structures and equipment of cultural significance. The reason can be accredited to the relatively low number of heritage structures remaining in the study area.

### **1.2.2 Does the site/s contain places to which oral traditions are attached or which are associated with living heritage?**

Due to the Bushveld being sparsely populated and that there is no particular tribe or clan associated with the area no indication of oral traditions could be found.

### **1.2.3 Does the site/s contain historical settlements?**

No historical settlement was identified in the study area as indicated on the study area map. Again the reason is the absence of a particular tribe or clan associated with the study area.

### **1.2.4 Does the site/s contain landscapes and natural features of cultural significance?**

The specific study area although situated in an area known for its geological formations contain no landscapes and natural features of cultural significance.

### **1.2.5 Does the site/s contain geological sites of cultural importance?**

Although the greater study area is known for its geological importance especially coal and coking coal deposits the geological landscape associated with the specific study area contain no such features of cultural importance.

### **1.2.6 Does the site/s contain a wide range of archaeological sites?**

No significant surface archaeological deposits were observed. The reason again can be accredited to the sparseness in population in the area and the fact that the preferred option and other options mainly stretch next to existing infra-structure. There is a slight possibility of

sub-surface archaeological material being uncovered during the construction phase and it is advised that an archaeologist be placed on stand-by if required.

#### **1.2.7 Does the site/s contain any marked graves and burial grounds?**

A family cemetery was identified on the farm Goedgedacht in the study area. The graves appear not to be of an historic nature, but due to access difficulties this could not be confirmed.



Graves on the farm Goedgedacht near the preferred option



Graves located on the farm Sterkfontein 642 LQ, which belongs to Mr. Costa Zervas. They were pointed out by a farm worker, seven unmarked graves alongside one another (in a row) with piles of rocks on the. The farm worker does not know who the unmarked graves belong to. These graves are approximately 30-35m east of the existing Exxaro pipeline servitude and the coordinates (DMS) are as follow: S23°56'18.6", E 27°38'05.3"

The possibility of the uncovering of sub-surface unmarked graves during the construction phase is a possibility and it is advised that an archaeologist be put on stand-by in order to manage such a situation if incurred.

**1.2.8 Does the site/s contain aspects that relate to the history of slavery?**

This is not an area associated with the history of slavery.

**1.2.9 Can the place be considered as a place that is important to the community or in the pattern of South African history?**

Although the greater study area can be regarded as important to the community in terms of mining, farming and other activities, the specific study area can not be considered a place of this importance.

**1.2.10 Does the site/s embody the quality of a place possessing uncommon or rare endangered aspects of South Africa's natural and cultural heritage?**

Although some areas in the study area still contains undisturbed Bushveld this is not an uncommon, rare or endangered aspect of South Africa's natural and cultural heritage.

**1.2.11 Does the site/s demonstrate the principal characteristics of South Africa's natural or cultural places?**

Although some areas in the greater study area still portray undisturbed Bushveld sequences which demonstrate a principal characteristic of South Africa's natural places, the so-called Bushveld, the proposed development is planned next to existing infrastructure which will greatly reduce damage to this natural feature.

**1.2.12 Does the site/s exhibit particular aesthetic characteristics valued by the community or cultural groups?**

This part of the greater study area does exhibit particular aesthetic characteristics valued by the community or cultural groups.

**1.2.13 Does the site/s contain elements, which are important in demonstrating a high degree of creative technical achievement?**



The sites do not contain elements, which are important in demonstrating a high degree of creative technical achievement.

**1.2.14 Does the site/s have strong and special associations with particular communities and cultural groups for social, cultural and spiritual reasons?**

From primary and secondary sources it was established that the sites in question do not have strong and special associations with particular communities and cultural groups for social, cultural and spiritual reasons.

**1.2.15 Does the site/s have a strong and special association with the life or work of a person, group or organisation?**

From primary and secondary sources it was established that the sites in question do not have strong and special association with the life or work of a person, group or organisation.

**4. Table indicating known heritage resources in the vicinity the proposed Phase 1 development.**

<b>Pipeline Route</b>	<b>Heritage Resource</b>	<b>Level of Significance</b>	<b>Magnitude of Impact</b>
Preferred Aternative	Cemetery (recent) on the farm Goedgedacht	HIGH	MEDIUM TO HIGH/ if mitigated LOW
	Farm House on Goedgedacht	LOW	LOW
	Hennie de Lange se Kafee Theunispan	LOW	LOW
	Steenbokpan Bosveld Drankwinkel	LOW	LOW
DL Preferred	Heritage resources (mainly graves) in this area were exhumed and removed when the Medupi electricity generation facility was planned.	LOW	LOW



WIDER ENVIRONMENTAL SURVEY AREA	No heritage resources identified	LOW	LOW
ENVIRONMENTAL CORRIDOR	No heritage resources identified	LOW	LOW
Construction Camp site	Cemetery on the farm Sterkfontein	HIGH	MEDIUM TO HIGH/ if mitigated LOW

## 5. OPPORTUNITIES, RESTRICTIONS, IMPACTS

- The major concern in the study area in terms of heritage is the family cemetery located on the farm Goedgedacht and the unmarked graves on the farm Sterkfontein. Firstly it has to be determined if the graves are 60 years or older. If the graves are of an historic nature and need to be exhumed and relocated the prescribed process must be followed in consultation with the relevant heritage authority, in this case the Limpopo Heritage Resources Agency (LIHRA).
- Archaeologist to be put on stand by as prescribed in 3.2.6 and 3.2.7.
- Structures older than 60 years are protected by the National Heritage Resources Act, Act 25 of 1999, Section 34. If it is planned to demolish such structures an application to demolish must timeously be submitted to the relevant heritage authority in this case the Limpopo Heritage Resources Agency (LIHRA).

## 6. THE WAY FORWARD

It is advised that this Heritage Impact Assessment be submitted to the Limpopo Heritage Resources Agency (LIHRA) as per section 38 of the National Heritage Resources Act, Act 25 of 1999, for approval.