

**GOEDEHOOP MINE, MPUMALANGA:  
ARCHAEOLOGICAL AND CULTURAL HISTORICAL  
SURVEY AND IMPACT ASSESSMENT**

For:

**ORYX ENVIRONMENTAL**

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## **SUMMARY**

### **Goedehoop Mine, Mpumalanga: archaeological and cultural historical survey and impact assessment.**

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of the area in which it is proposed to develop the mine and its infrastructure.

Nothing was found that would be impacted upon by the proposed development and it therefore recommended that the proposed development can continue in the area, on condition of acceptance of the following recommendations:

- The developer should also be notified that archaeological sites might be exposed during the construction work. If anything is noticed, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.

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## **GOEDEHOOP MINE, MPUMALANGA: ARCHAEOLOGICAL AND CULTURAL HISTORICAL SURVEY AND IMPACT ASSESSMENT**

### **1. AIMS OF THE SURVEY**

The National Cultural History Museum was contracted by ORYX ENVIRONMENTAL to survey an area in which it is proposed to develop an open cast coal mining operation. The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of the area that is to be impacted by the developed.

### **2. TERMS OF REFERENCE**

The **Terms of Reference** for the study were to:

- 2.1 Identify all objects, sites, occurrences and structures of an archaeological or historical nature located in the area of the proposed development.
- 2.2 Assess the significance of the cultural resources in terms of their historical, social, religious, aesthetic and scientific value.
- 2.3 Determine the possible impacts on the known and potential cultural resources in the area of interest.
- 2.4 Develop mitigation or control measures for impact minimization and cultural resources preservation.
- 2.5 Develop procedures to be implemented if previously unidentified cultural resources are uncovered during the construction.

### **3. DEFINITIONS AND ASSUMPTIONS**

The following aspects have a direct bearing on the survey and the resulting report:

- X **Cultural resources** are all nonphysical and physical human-made occurrences, as well as natural occurrences that are associated with human activity. These include all sites, structures and artefacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development.
- X The **significance** of the sites and artefacts are determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.
- X Sites regarded as having low significance have already been recorded in full and require no further mitigation. Sites with medium to high significance require further mitigation.

- X The latitude and longitude of archaeological sites are to be treated as sensitive information by the developer and should not be disclosed to members of the public.

#### 4. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are mainly dealt within two acts. These are the South Africa Heritage Resources Act (Act 25 of 1999) and the Environmental Conservation Act (Act 73 of 1989).

##### 4.1 South African Heritage Resources Act

###### **Archaeology, palaeontology and meteorites**

In terms of Section 35(4) of this act, no person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or material or any meteorite; bring onto, or use at an archaeological or palaeontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

###### **Structures:**

Section 34(1) of this act states that no person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority. "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; "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.

###### **Human remains:**

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- (b) destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Human remains that are less than 60 years old is subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations.

Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925). Permission must also be gained from the descendants (where known), the National Department of Health,

Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (ie where the graves are located and where they are to be relocated) before exhumation can take place.

Human remains can only be handled by a registered undertaker or an institution declared under the **Human Tissues Act (Act 65 of 1983 as amended)**.

#### 4.2 Environmental Conservation Act

This act states that a survey and an evaluation of cultural resources should be undertaken in areas where development, which will change the face of the environment, is to be made. The impact of the development on the cultural resources should also be determined and proposals to mitigate this impact is to be formulated.

### 5. METHODOLOGY

#### 5.1 Preliminary investigation

##### 5.1.1 Survey of the literature

A survey of the relevant literature was conducted with the aim of reviewing the previous research done and determining the potential of the area. In this regard, various anthropological, archaeological and historical sources were consulted - see the list of references below. Nothing pertaining to the archaeology of this particular area was found, although a number of survey reports from adjacent areas exist.

##### 5.1.2 Data bases

The **Archaeological Data Recording Centre (ADRC)**, housed at the National Cultural History Museum, Pretoria, was consulted. The **Environmental Potential Atlas** was also consulted.

##### 5.1.3 Other sources

The topocadastral and other maps were also studied - see the list of references below.

#### 5.2 Field survey

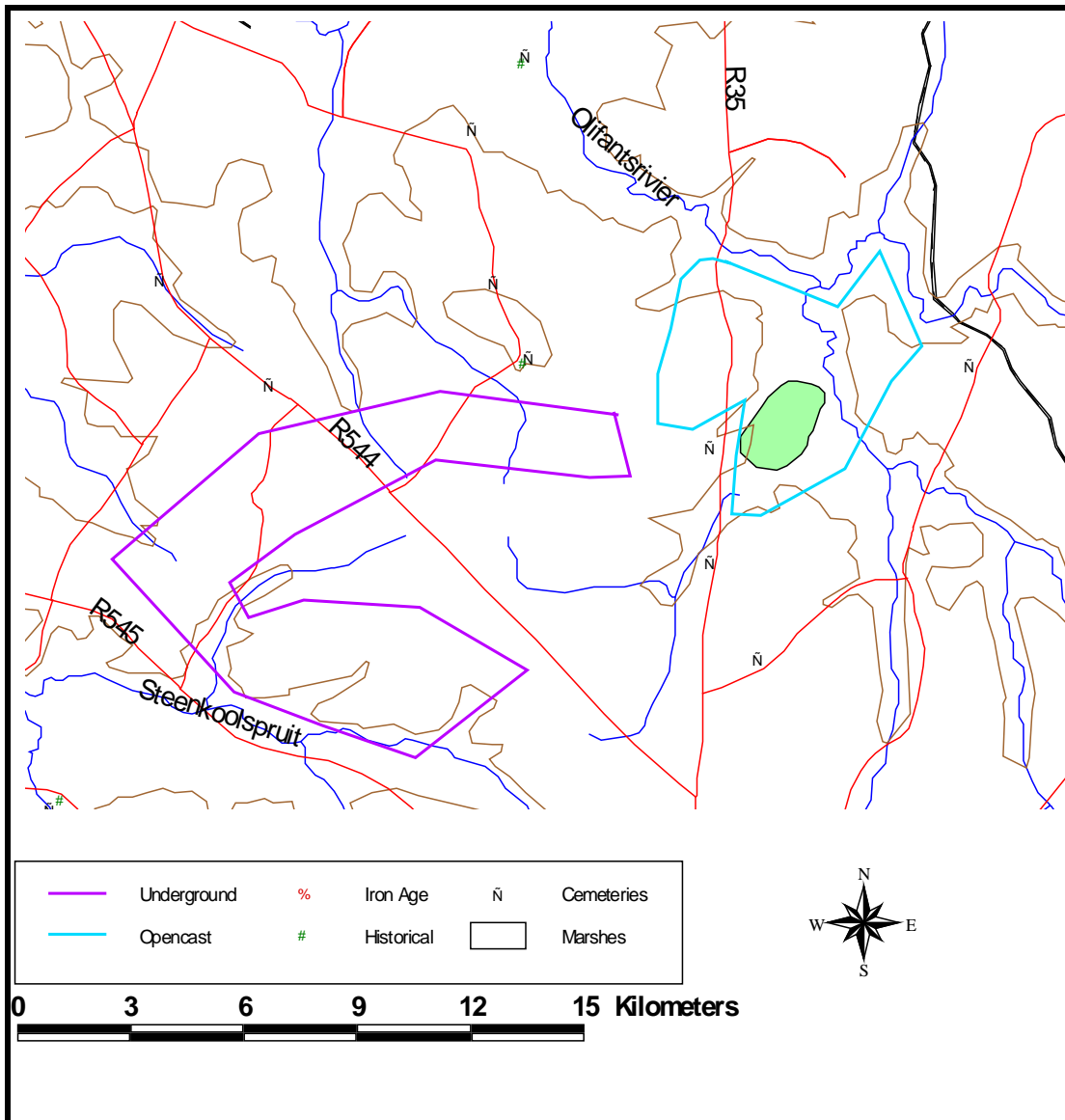
The field survey was done according to generally accepted archaeological practices, and was aimed at locating all possible sites, objects and structures. The area that had to be investigated was identified by Oryx Environmental by means of maps. The investigation was done by driving and walking across the area. Special attention was given to unnatural topographical occurrences such as trenches, holes, outcrops and clusters of trees were investigated.

#### 5.3 Documentation

All sites, objects and structures identified were documented according to the general minimum standards accepted by the archaeological profession. Coordinates of individual localities were

determined by means of the **Global Positioning System (GPS)**<sup>1</sup> and plotted on a map. This information was added to the description in order to facilitate the identification of each locality. Map datum used: WGS 84.

## 6. DESCRIPTION OF THE AREA



**Figure 1.** Approximate borders of study area.

<sup>11</sup> According to the manufacturer a certain deviation may be expected for each reading. Care was, however, taken to obtain as accurate a reading as possible, and then correlate it with reference to the physical environment before plotting it on the map.

The areas surveyed were determined by the proposed development and is indicated in Fig. 1. Open cast mining operations is to take place on the following farms: Schurvekop 227IS, Vlakkuielen 76IS, Middelkraal 50IS and Halfgewonnen 190IS. Underground mining is to take place on the following farms: Elandsfontein 147IS, Vlakkuielen 76IS, Rensburghoop 74IS and Kafferstad 79IS.

The topography of the area can be described as undulating hills, bisected by a number of smaller rivers.

The geology of the area consists of arenite, with some granite and rhyolite intrusions as outcrops.

The original vegetation of the area is classified as Higveld grassland. Large sections are used for agricultural activities – ploughing and grazing – which changed the original vegetation drastically.

## **7. DISCUSSION**

A number of sites were identified. However, none of these are located inside the area of impact. Furthermore, as the largest area is to be mined below ground, it would have very little effect on cultural resources, except if subsidence occurs.

### **7.1 Stone Age**

No sites, features or artefacts dating to the Stone Age were identified.

### **7.2 Iron Age**

No sites, features or artefacts dating to the Iron Age were identified.

### **7.3 Historical period**

A number of sites containing graves were identified. Fortunately, all of these fall just outside the area of impact.

During the period of investigation, the grass and different agricultural crops was very high and dense, making the location of similar sites very difficult. However, all effort was made to identify these sites by interviewing a number of farm labourers in different areas, but it is believed that it is still possible to have missed some due to the indicated reasons.

## **8. RECOMMENDATIONS**



The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of the area in which it is proposed to develop the mine and its infrastructure.

Nothing was found that would be impacted upon by the proposed development and it therefore recommended that the proposed development can continue in the area, on condition of acceptance of the following recommendations:

- The developer should also be notified that archaeological sites might be exposed during the construction work. If anything is noticed, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.

## 9. REFERENCES

### 9.1 Data bases

Archaeological Data Recording Centre, National Cultural History Museum, Pretoria.

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.

### 9.2 Literature

Holm, S.E. 1966. *Bibliography of South African Pre- and Protohistoric archaeology*. Pretoria: J.L. van Schaik.

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Van Warmelo, N.J. 1935. *A Preliminary survey of the Bantu Tribes of South Africa*. Ethnological Publications No. 5. Pretoria: Government Printer.

Van Warmelo, N.J. 1977. *Anthropology of Southern Africa in Periodicals to 1950*. Pretoria: Government Printer.

### 9.3 Maps

1: 50 000 Topocadastral maps – 2629AB, 2629AD, 2629BA, 2629BC

**10. PROJECT TEAM**

J van Schalkwyk

S Moifatswane

## **APPENDIX 1: STANDARDIZED SET OF CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON CULTURAL RESOURCES**

### **Significance of impact:**

- low where the impact will not have an influence on or require to be significantly accommodated in the project design
- medium where the impact could have an influence which will require modification of the project design or alternative mitigation
- high where it would have a “no-go” implication on the project regardless of any mitigation

### **Certainty of prediction:**

- Definite: More than 90% sure of a particular fact. Substantial supportive data to verify assessment
- Probable: More than 70% sure of a particular fact, or of the likelihood of that impact occurring
- Possible: Only more than 40% sure of a particular fact, or of the likelihood of an impact occurring
- Unsure: Less than 40% sure of a particular fact, or the likelihood of an impact occurring

### **Recommended management action:**

For each impact, the recommended practically attainable mitigation actions which would result in a measurable reduction of the impact, must be identified. This is expressed according to the following:

- 1 = no further investigation/action necessary
- 2 = controlled sampling and/or mapping of the site necessary
- 3 = preserve site if possible, otherwise extensive salvage excavation and/or mapping necessary
- 4 = preserve site at all costs

### **Legal requirements:**

Identify and list the specific legislation and permit requirements which potentially could be infringed upon by the proposed project, if mitigation is necessary.

**APPENDIX 2: SURVEY RESULTS<sup>2</sup>**

[Previous site numbers relate to other known sites on a particular ¼ degree sheet already documented in the ADRC, and does not necessarily refer to sites occurring on or close to the specific area of development.]

1. Site number: 2629AD96

Location: Legdaar 78IS: S 26.29778; E 29.46056

Description: Cemetery with graves, mostly Krugers, some very old headstones.

Discussion: This feature falls outside the area of impact.

Significance of impact: Low

Certainty of prediction: Definite

Recommended management action: 1 = no further investigation/action necessary

Legal requirements: None

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Location: Legdaar 78IS: S 26.29778; E 29.46056

Description: Cemetery with graves, mostly Krugers, some very old headstones.

Discussion: This feature falls outside the area of impact.

Significance of impact: Low

Certainty of prediction: Definite

Recommended management action: 1 = no further investigation/action necessary

Legal requirements: None

2. Site number: 2629AD97

Location: Vlakfontein 72IS: S 26.25556; E 29.35556

Description: Cemetery with two graves.

Discussion: This feature falls outside the area of impact.

Significance of impact: Low

Certainty of prediction: Definite

Recommended management action: 1 = no further investigation/action necessary

Legal requirements: None

3. Site number: 2629AD98

Location: Uitgedacht 299IS: S 26.32056; E 29.47194

Description: Cemetery with approximately 30 graves. Only a few have headstones, the others are marked with stones.

Discussion: This feature falls outside the area of impact.

Significance of impact: Low

Certainty of prediction: Definite

Recommended management action: 1 = no further investigation/action necessary

Legal requirements: None

4. Site number: 2629AD99

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<sup>22</sup> See Appendix 1 for an explanation of the conventions used in assessing the cultural remains.

Location: Elandsfontein 147IS: S 26.25082; E 29.41611

Description: Old cattle kraal complex built from stone.

Discussion: This feature falls outside the area of impact.

Significance of impact: Low

Certainty of prediction: Definite

Recommended management action: 1 = no further investigation/action necessary

Legal requirements: None

5. Site number: 2629AD101

Location: Vlakkuielen 75IS: S 26.27056; E 29.46056

Description: Cemetery with more than 50 graves, most marked with stone cairns, only a few headstones.

Discussion: This feature falls just outside the area of impact.

Significance of impact: Low

Certainty of prediction: Definite

Recommended management action: 1 = no further investigation/action necessary

Legal requirements: None

6. Site number: 2629AB9

Location: Elandsfontein 147IS: S 26.24944; E 29.41722

Description: Cemetery with graves, mostly Malan's, some very old headstones.

Discussion: This feature falls outside the area of impact.

Significance of impact: Low

Certainty of prediction: Definite

Recommended management action: 1 = no further investigation/action necessary

Legal requirements: None

### APPENDIX 3: GLOSSARY AND ABBREVIATIONS

This section is included to give the reader some necessary background. It must be kept in mind, however, that these dates are all relative and serve only to give a very broad framework for interpretation.

#### STONE AGE

Early Stone Age (ESA)	2 000 000 - 150 000 Before Present
Middle Stone Age (MSA)	150 000 - 30 000 BP
Late Stone Age (LSA)	30 000 - until c. AD 200

#### IRON AGE

Early Iron Age (EIA)	AD 200 - AD 1000
Late Iron Age (LIA)	AD 1000 - AD 1830

#### HISTORICAL PERIOD

Since the arrival of the white settlers - c. AD 1840 in this part of the country

ADRC - Archaeological Data Recording Centre

core - a piece of stone from which flakes were removed to be used or made into tools

SAHRA - South African Heritage Resources Agency