

**A SURVEY OF CULTURAL RESOURCES FOR THE ARNOT
MINING DEVELOPMENT, MIDDELBURG DISTRICT,
MPUMALANGA PROVINCE**

For:

ORYX ENVIRONMENTAL

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REPORT: 2002KH21

Date of survey: June 2002 Date of report: June 2002



NASIONALE KULTUURHISTORIESE MUSEUM
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SUMMARY

A survey of cultural resources for the Arnot mining development, Middelburg District, Mpumalanga Province

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.

Based on what was found and its evaluation, it is recommended that the proposed development can continue in the area, on condition of acceptance of the following recommendations:

- All graves should be relocated if they are to be impacted upon by the development and then only after consultation with the local community.
- Some sites that fall outside the development area are indicated in the survey. This serves to indicate the richness of the area. The implication is that no development (eg, roads, routes, borrow pits, etc. can be developed unless those specific areas were investigated by an archaeologist.
- 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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A SURVEY OF CULTURAL RESOURCES FOR THE ARNOT MINING DEVELOPMENT, MIDDELBURG DISTRICT MPUMALANGA PROVINCE

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 extend coal mining operations. 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 artifacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development.

- X The **significance** of the sites and artifacts 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

Section 35(4) of this act states that no person may, without a permit issued by the responsible heritage resources authority:

- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
- (c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency.

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 are 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 are 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. Some source on historical events that took place in the area also exists.

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

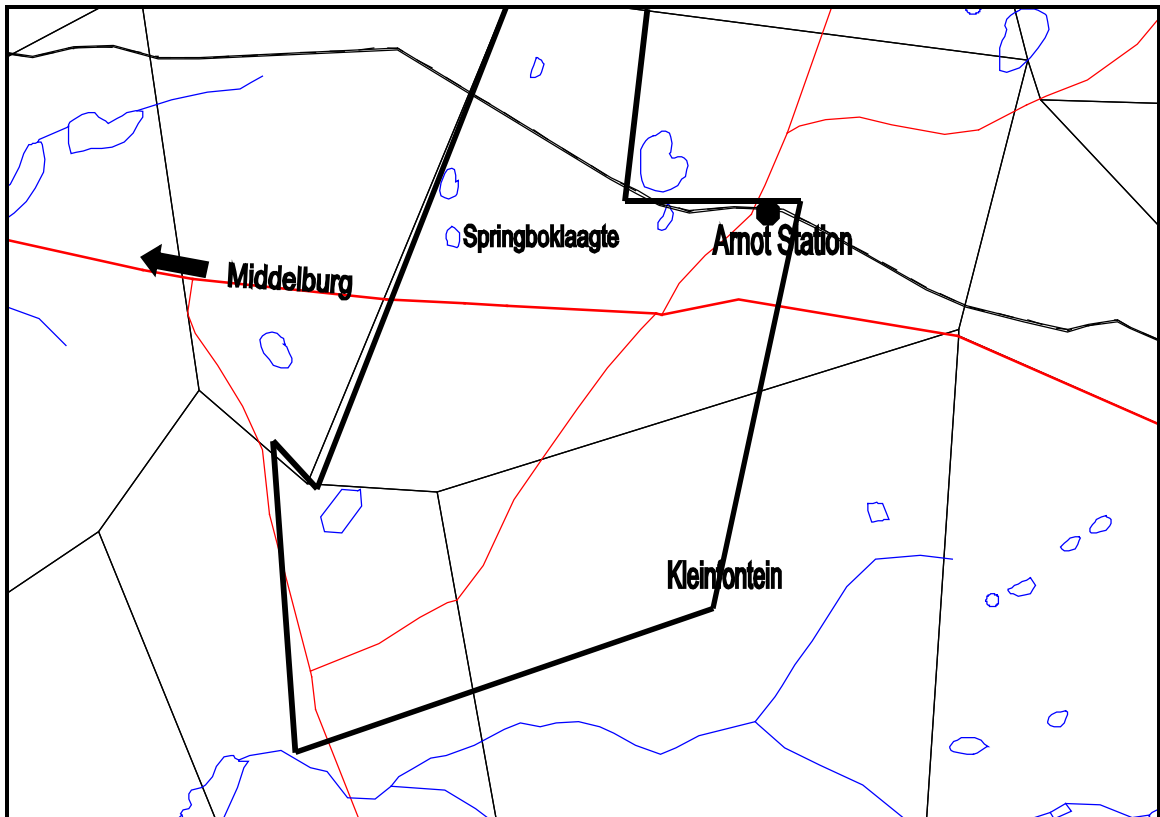
The field survey was done according to generally accepted archaeological practices, and was aimed at locating all possible sites, objects and structures. The area that had to be investigated was identified by Oryx Environmental on maps. The area was investigated by walking and driving across it. Special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

Where possible, local people were interviewed in an effort to obtain information on the existence of known sites.

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)**¹ and plotted on a map. This information was added to the description in order to facilitate the identification of each locality.

6. DESCRIPTION OF THE AREA



¹¹ 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 area surveyed include sections of the farms Springboklaagte 416JS, Elandsfontein 433JS and Kleinfontein 432JS in the Middelburg district of Mpumalanga.

The topography of the area can be described as gently rolling hills, with the most distinctive feature the various natural pans in the area. The area is largely used for agricultural purposes (farmlands and grazing) and little of the original vegetation remains.

7. DISCUSSION

No sites, structures or objects relating to the Stone Age and Iron Age were found.

A few cemeteries were identified. However, as the development is largely an underground operation, the impact on these would be negligible.

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.

Based on what was found and its evaluation, it is recommended that the proposed development can continue in the area, on condition of acceptance of the following recommendations:

- All graves should be relocated if they are to be impacted upon by the development and then only after consultation with the local community.
- Some sites that fall outside the development area are indicated in the survey. This serves to indicate the richness of the area. The implication is that no development (eg, roads, routes, borrow pits, etc. can be developed unless those specific areas were investigated by an archaeologist.
- 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 Unpublished sources

9.1.1 Data base

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

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.

9.2 Published sources

9.2.1 Books and journals

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

Mason, R.J. 1962. *Prehistory of the Transvaal*. Johannesburg: Witwatersrand University Press.

Van Riet Lowe, C. n.d. *The distribution of Prehistoric rock engravings and paintings in South Africa*. Archaeological Survey, Archaeological Series No. 7.

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.

9.2.2 Maps

1: 50 000 Topocadastral maps – 2529DC, 2529DD

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 RESULTS²

[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: 2529DD1

Location: Springboklaagte 416JS: S 25E46'45.6"; E 29E46'05.1"

Description: Informal cemetery, with one grave marked by cement headstone. Difficult to say how many graves as the grass is quite long.

Discussion: If mining activities impact upon the graves, they will have to be relocated.

Significance of impact: Low

Certainty of prediction: Probable

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

Legal requirements: None

2. Site number: 2529DD2

Location: Springboklaagte 416JS: S 25E46'41.5"; E 29E45'44.5"

Description: Cemetery with approximately 20 graves, two with marble headstones

Discussion: If mining activities impact upon the graves, they will have to be relocated.

Significance of impact: Low

Certainty of prediction: Probable

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

Legal requirements: None

3. Site number: 2529DD3

Location: Springboklaagte 416JS: S 25E46'30.7"; E 29E45'03.7"

Description: Cemetery with approximately nine graves, mostly Botha family, some dating back to the 1920s

Discussion: If mining activities impact upon the graves, they will have to be relocated.

Significance of impact: Low

Certainty of prediction: Probable

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

Legal requirements: None

4. Site number: 2529DD4

Location: Springboklaagte 416JS: S 25E46'15.6"; E 29E45'01.1"

Description: Old farmstead built from dressed sandstone

Discussion: Only a few structures remain and is judged not to be of any significance

Significance of impact: Low

Certainty of prediction: Definite

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

Legal requirements: None

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

5. Site number: 2529DD5

Location: Kleinfontein 432JS: S 25E47'24.9"; E 29E46'36.5"

Description: Cemetery with approximately 10 graves, marked with stone cairns.

Discussion: If mining activities will impact upon the graves, they will have to be relocated.

Significance of impact: Low

Certainty of prediction: Probable

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

Legal requirements: None

6. Site number: 2529DD6

Location: Kleinfontein 432JS: S 25E49'44.9"; E 29E46'43.4"

Description: Cemetery with approximately 20 graves, marked with stone cairns

Discussion: 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

7. Site number: 2529DD7

Location: Kleinfontein 432JS: S 25E49'01.6"; E 29E47'19.4"

Description: Approximately 26 graves, 6 with marble headstones

Discussion: 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

8. Site number: 2529DD8

Location: Kleinfontein 432JS: S 25E48'51.8"; E 29E47'29.2"

Description: 16 graves inside and outside an old cattle kraal. Two have marble headstones

Discussion: 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

9. Site number: 2529DD9

Location: Kleinfontein 432JS: S 25E48'10.2"; E 29E46'00.8"

Description: Approximately 30 graves marked with stone cairns.

Discussion: If mining activities will impact upon the graves, they will have to be relocated.

Significance of impact: Low

Certainty of prediction: Probable

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

Legal requirements: None

10. Site number: 2529DD10

Location: Kleinfontein 432JS: S 25E49'20.9"; E 29E46'28.1"

Description: Old farmstead built from dressed stone. It is in all probability older than 60 years and is therefore protected by the Heritage Act.

Discussion: It is located just outside the area of impact.

Significance of impact: Low

Certainty of prediction: Probable

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

Legal requirements: None

11. Site number: 2529DC1

Location: Springboklaagte 416JS: S25E47'02.5"; E 29E44'03.0"

Description: Cemetery with approximately 20 graves, one with a marble headstone

Discussion: If mining activities will impact upon the graves, they will have to be relocated.

Significance of impact: Low

Certainty of prediction: Probable

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