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**A REPORT ON A PHASE 1 HIA  
FOR PROPOSED SAND MINE DEVELOPMENT ON  
OLIFANTSFONTEIN 410JR, NEAR TEMBISA, GAUTENG**

For:

***EcoPartners (Pty) Ltd  
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**REPORT: APAC016/27**

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A handwritten signature in black ink, appearing to be 'J. Pel' or similar, written in a cursive style.

## SUMMARY

APelser Archaeological Consulting was appointed by EcoPartners (Pty) Ltd to conduct a Phase 1 Heritage Impact Assessment for proposed sand mine on a portion of Portion 179 of the farm Olifantsfontein 410JR, near Midrand/Tembisa in Gauteng. The areas surrounding the development section is characterized by residential developments, industrial areas and other infrastructure, while the study area itself was utilized for agriculture in the recent past as well as sand mining/quarrying and formal & informal residential dumping in the larger area.

Previous work in the larger geographical area was utilized in the background study. No sites, features or material of cultural heritage (archaeological & historical) origin or significance were identified in the study area, although some are known in the larger geographical area.

This report provides a discussion on the results of the physical assessment that was undertaken, as well as the background research conducted. Previous work in the larger geographical area is referred to as well. No sites, features or material of cultural heritage (archaeological & historical) origin or significance were identified in the study area, although some are known in the larger geographical area. This report provides a number of recommendations in terms of the way forward at the end of the document.

**From a Cultural Heritage point of view the development should be allowed to continue taking cognizance of the recommendations provided at the end of the report.**

## CONTENTS

	page
SUMMARY .....	3
CONTENTS.....	4
1. INTRODUCTION .....	5
2. TERMS OF REFERENCE .....	5
3. LEGISLATIVE REQUIREMENTS.....	5
4. METHODOLOGY .....	8
5. DESCRIPTION OF THE AREA.....	9
6. DISCUSSION.....	15
7. CONCLUSIONS AND RECOMMENDATIONS .....	19
8. REFERENCES .....	20
APPENDIX A – DEFINITION OF TERMS.....	21
APPENDIX B – DEFINITION/ STATEMENT OF SIGNIFICANCE.....	22
APPENDIX C – SIGNIFICANCE AND FIELD RATING .....	23
APPENDIX D – PROTECTION OF HERITAGE RESOURCES.....	24
APPENDIX E – HERITAGE MANAGEMENT IMPACT ASSESSMENT PHASES .....	25

## **1. INTRODUCTION**

APelser Archaeological Consulting was appointed by EcoPartners (Pty) Ltd to conduct a Phase 1 Heritage Impact Assessment for proposed sand mine on a portion of Portion 179 of the farm Olifantsfontein 410JR, near Midrand/Tembisa in Gauteng. The areas surrounding the development section is characterized by residential developments, industrial areas and other infrastructure, while the study area itself was utilized for agriculture in the recent past as well as sand mining/quarrying and formal & informal residential dumping in the larger area.

Previous work in the larger geographical area, was utilized in the background study. No sites, features or material of cultural heritage (archaeological & historical) origin or significance were identified in the study area, although some are known in the larger geographical area.

The client indicated the location and boundaries of the study area and the assessment focused on this demarcated portion of land.

## **2. TERMS OF REFERENCE**

The Terms of Reference for the study, based on the methodology employed by Heritage Impact Assessors, were to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located in the proposed development area;
2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;
3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;
4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;
5. Review applicable legislative requirements;

## **3. LEGISLATIVE REQUIREMENTS**

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

### **3.1 The National Heritage Resources Act**

According to the above-mentioned act the following is protected as cultural heritage resources:

- a. Archaeological artifacts, structures and sites older than 100 years
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography

- c. Objects of decorative and visual arts
- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The National Estate includes the following:

- a. Places, buildings, structures and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Sites of Archaeological and palaeontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources. An HIA must be done under the following circumstances:

- a. The construction of a linear development (road, wall, power line, canal etc.) exceeding 300m in length
- b. The construction of a bridge or similar structure exceeding 50m in length
- c. Any development or other activity that will change the character of a site and exceed 5 000m<sup>2</sup> or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m<sup>2</sup>
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

### **Structures**

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

A 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 the decoration or any other means.

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

Section 35(4) of this act deals with archaeology, palaeontology and meteorites. The act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial):

- 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 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.
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

**The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.**

### **Human remains**

Graves and burial grounds are divided into the following:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. 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 (i.e. where the graves are located and where they are to be relocated to) 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)**.

**Unidentified/unknown graves are also handled as older than 60 until proven otherwise.**

### **3.2 The National Environmental Management Act**

This act states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

## **4. METHODOLOGY**

### **4.1 Survey of literature**

A survey of available literature, including previous heritage studies in the area, was undertaken in order to place the development area in an archaeological and historical context. The sources consulted in this regard are indicated in the bibliography.

### **4.2 Field survey**

The assessment was conducted according to generally accepted HIA practices and in this case was aimed at identifying and recording any possible cultural heritage resources that might be located in the development area, assessing their archaeological & historical significance, while taking into consideration the negative impacts of the proposed development on these resources. The location/position of all sites, features and objects are determined by means of a Global Positioning System (GPS) where possible, while photographs are also taken where needed.



### **4.3 Oral histories**

People from local communities are sometimes interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography.

### **4.4 Documentation**

All sites, objects, features and structures identified are documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities are determined by means of the Global Positioning System (GPS). The information is added to the description in order to facilitate the identification of each locality.

## **5. DESCRIPTION OF THE AREA**

The proposed development is situated on Portion 179 of the farm Olifantsfontein 410JR, within the Ekurhuleni Municipality, to the east of Glen Austin Agricultural Holdings. Ivory Park and Tembisa are situated to the south-east of the property development site. The study area is bordered by various existing residential and industrial developments and has been disturbed extensively by sand quarrying/mining activities in the recent past and earlier agricultural activities. If any sites, features or objects of cultural heritage (archaeological and/or historical) did occur here in the past it would have been destroyed or severely disturbed as a result.

Sections of the area are characterized by clumps of bluegum and wattle trees, while some parts are open, grass land with a generally flat topography. Dense tree and other vegetation (grass) cover in places made visibility and access during the assessment difficult. Large-scale dumping of building and residential refuse has also impacted on the area.





**Fig. 2: Closer view of study area. The area in red was assessed in 2011 during another heritage survey by Stephan Gaiger, while the area in green needed to be assessed for the current proposed development by Pelsner et al. (Google 2016).**





**Fig. 3: Sections of the area is open & flat and characterized by grass veld.**



**Fig. 4: A view of part of the old quarry area.**





**Fig.5: A view from the study area showing the large scale urban/residential and industrial developments that surrounds it.**



**Fig.6: Informal dumping occurs throughout the area.**





**Fig.7: A view of the large quarry dam.**



**Fig.8: Erosion in the area. Note the dumped building rubble in the foreground.**

## **6. DISCUSSION**

A short background to the archaeology & history of the larger geographical and specific study area is given in the section below before the results of the fieldwork will be discussed.

The Stone Age is the period in human history when lithic (stone) material was mainly used to produce tools. In South Africa the Stone Age can be divided basically into three periods. It is however important to note that these dates are relative and only provide a broad framework for interpretation. A basic sequence for the South African Stone Age (Lombard et.al 2012) is as follows:

Earlier Stone Age (ESA) up to 2 million – more than 200 000 years ago

Middle Stone Age (MSA) less than 300 000 – 20 000 years ago

Later Stone Age (LSA) 40 000 years ago – 2000 years ago

It should also be noted that these dates are not a neat fit because of variability and overlapping ages between sites (Lombard et.al 2012: 125).

There are no known Stone Age sites or features in the specific study area, and no material were identified during the area assessment. It should be noted that it is possible that single out of context tools could be located in the area. The closest known Stone Age sites in the larger

geographical area are located at Zwartkops, at the Hennopsrivier, Glenferness, Pietkloof and Zevenfontein. These sites are all dated to the Later Stone Age (Bergh 1999: 4).

The Iron Age is the name given to the period of human history when metal was mainly used to produce artifacts. In South Africa it can be divided in two separate phases according to Van der Ryst & Meyer (Bergh 1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.

Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) however indicates that a Middle Iron Age should be included. His dates, which now seem to be widely accepted in archaeological circles, are:

Early Iron Age (EIA) 250 – 900 A.D.

Middle Iron Age (MIA) 900 – 1300 A.D.

Late Iron Age (LIA) 1300 – 1840 A.D.

The closest known Iron Age sites to the area are those of Melville Koppies and Bruma Lake (Bergh 1999: 7) dating to the Late Iron Age. There are no known Early Iron Age sites in the larger area (Bergh 1999: 6-7). No Iron Age sites, features or material were identified in the area during the assessment.

The historical period started with the moving into the area of people who could read and write (European travellers, missionaries, the Voortrekkers). The first Europeans to move into and close to the study area were the groups of Moffat & Archbell in 1829, followed by Cornwallis Harris in 1836 and then by David Livingstone in 1847 (Bergh 1999: 12-13). They were followed closely by the Voortrekkers and European farmers (p. 14).

During the Anglo-Boer War (1899-1902) there was a skirmish between Boer and British forces near Olifantsfontein, while there was also a Black Concentration Camp built by the British near Olifantsfontein station/railway (Bergh 1999: 51; 55). Olifantsfontein station (around which a small town/residential area would have developed) are shown on Jeppe's 1899 Map already (Bergh 1999: 148).

The oldest map that could be located in the Chief Surveyor General's database ([www.csg.dla.gov.za](http://www.csg.dla.gov.za)) dates to 1890 and indicates that Olifantsfontein 410 was first surveyed and mapped for one F.Botha in 1889 (CSG Document 10324762).

No sites, features or objects of historical origin or significance were identified or recorded in the study area. The only structures located in the larger area are associated with the recent sand quarrying/mining activities that most likely date from the 1970's onwards. According to Gaiger (2011) the proposed landfill site that he had to assess is a vacant and derelict land portion that was historically used as a river sand quarry. The quarry was abandoned without rehabilitation taking place. As the site stands, the high walls and excavations pose a safety risk. Local residents are known to be using the excavations for baptisms and two deaths have been reported on site due to persons drowning in the excavations. The site requires significant rehabilitation to improve the environmental condition of the site as well as to reduce the safety risk of the site.



In 2011 the proposal for the site was to backfill the excavations through disposal of predominantly building rubble. Building material will be brought in for disposal. The building rubble will be sorted, crushed and screened. Stock sand and building sand will be resold. Suitable material, such as wood, paper, glass, plastic, will be sorted and sent to be recycled. The remaining processed discard material will be used to backfill the excavations. Furthermore, according to Gaiger, the site has been utilized for sand mining since at least 2004. The area is highly disturbed due to the past and present illegal mining operations (Gaiger 2011: 3-4).

The 2011 assessment by Gaiger did not record any sites, features or material of cultural heritage significance in the larger area. The only structures identified in the area is some concrete/cement features associated with the modern sand quarrying and a structure Gaiger identified as a bridge approach (Gaiger 2011: 11).

The proposed development should, from a Heritage point of view, therefore be allowed to continue, taking cognizance of the recommendations put forward at the end of this report.





**Fig.10: Cement structure (possibly part of crusher) at old quarry site.**



**Fig.11: View of the bridge approach at the quarry site.**

## **7. CONCLUSIONS AND RECOMMENDATIONS**

In conclusion it is possible to say that Phase 1 Heritage Impact Assessment for a proposed sand mine on a portion of Portion 179 of the farm Olifantsfontein 410JR, near Midrand/Tembisa in Gauteng. The areas surrounding the development section is characterized by residential developments, industrial areas and other infrastructure, while the

study area itself was utilized for agriculture in the recent past as well as sand mining/quarrying and formal & informal residential dumping in the larger area.

Previous work in the larger geographical area was utilized in the background study. No sites, features or material of cultural heritage (archaeological & historical) origin or significance were identified in the study area, although some are known in the larger geographical area.

No sites, features or objects of any cultural heritage (archaeological and/or historical) origin or significance were identified in the study area or larger area during the recent (2016) and earlier (2011) assessments. This includes low stone-packer or unknown graves. From a Heritage point of view it is therefore recommended that the development be allowed to continue.

**However, the subterranean presence of archaeological and/or historical sites, features or artifacts are always a distinct possibility and this aspect needs to be kept in mind at all times. This could include unknown and unmarked burials. If during any development activities, if any sites, features and objects of a cultural heritage (archaeological or historical) nature, are exposed, an expert should be called in to investigate and suitable mitigation measures are implemented. All development in these areas should be halted until the situation had been satisfactorily resolved.**

## **8. REFERENCES**

Aerial views of study area location: Google Earth 2016.

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Republic of South Africa. 1999. **National Heritage Resources Act** (No 25 of 1999). Pretoria: the Government Printer.

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## **APPENDIX A**

### **DEFINITION OF TERMS:**

**Site:** A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

**Structure:** A permanent building found in isolation or which forms a site in conjunction with other structures.

**Feature:** A coincidental find of movable cultural objects.

**Object:** Artifact (cultural object).

(Also see Knudson 1978: 20).

## **APPENDIX B**

### **DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE:**

Historic value:	Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.
Aesthetic value:	Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
Scientific value:	Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period
Social value:	Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
Rarity:	Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.
Representivity:	Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province region or locality.

## APPENDIX C

### SIGNIFICANCE AND FIELD RATING:

#### Cultural significance:

- Low            A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.
- Medium       Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.
- High          Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

#### Heritage significance:

- Grade I       Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II      Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III     Other heritage resources of local importance and therefore worthy of conservation

#### Field ratings:

- |                                      |  |
|--------------------------------------|--|
| i. National Grade I significance     | should be managed as part of the national estate   |
| ii. Provincial Grade II significance | should be managed as part of the provincial estate   |
| iii. Local Grade IIIA                | should be included in the heritage register and not be mitigated (high significance)         |
| iv. Local Grade IIIB                 | should be included in the heritage register and may be mitigated (high/ medium significance) |
| v. General protection A (IV A)       | site should be mitigated before destruction (high/ medium significance)                      |
| vi. General protection B (IV B)      | site should be recorded before destruction (medium significance)                             |
| vii. General protection C (IV C)     | phase 1 is seen as sufficient recording and it may be demolished (low significance)          |

## **APPENDIX D**

### **PROTECTION OF HERITAGE RESOURCES:**

#### **Formal protection:**

National heritage sites and Provincial heritage sites – Grade I and II

Protected areas - An area surrounding a heritage site

Provisional protection – For a maximum period of two years

Heritage registers – Listing Grades II and III

Heritage areas – Areas with more than one heritage site included

Heritage objects – e.g. Archaeological, palaeontological, meteorites, geological specimens, visual art, military, numismatic, books, etc.

#### **General protection:**

Objects protected by the laws of foreign states

Structures – Older than 60 years

Archaeology, palaeontology and meteorites

Burial grounds and graves

Public monuments and memorials



## **APPENDIX E**

### **HERITAGE IMPACT ASSESSMENT PHASES**

1. Pre-assessment or Scoping phase – Establishment of the scope of the project and terms of reference.
2. Baseline Assessment – Establishment of a broad framework of the potential heritage of an area.
3. Phase I Impact Assessment – Identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.
4. Letter of Recommendation for Exemption – If there is no likelihood that any sites will be impacted.
5. Phase II Mitigation or Rescue – Planning for the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
6. Phase III Management Plan – For rare cases where sites are so important that development cannot be allowed.