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**Heritage survey for the
WATERVAL OUTFALL SEWER, SEDIBENG DISTRICT
MUNICIPALITY, GAUTENG PROVINCE**

THE PROJECT:

Installation of an outfall sewer pipeline

THIS REPORT:

HERITAGE SURVEY FOR THE WATERVAL OUTFALL SEWER, SEDIBENG DISTRICT MUNICIPALITY, GAUTENG PROVINCE

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Prepared for:
Exigent Environmental
Representative: Ms A Swanepoel

Postal Address: P O Box 11634, Erasmuskloof, 0048
Tel: 012 347 6099
E-mail: ansie@exigent.co.za

Prepared by:
J van Schalkwyk (D Lit et Phil), Heritage Consultant
Principal Investigator: Iron Age, Colonial Period, Industrial Heritage
ASAPA Registration No. 164

Postal Address: 62 Coetzer Ave, Monument Park, 0181
Tel: 012 347 7270
E-mail: jvschalkwyk@mweb.co.za

EXECUTIVE SUMMARY

HERITAGE SURVEY FOR THE WATERVAL OUTFALL SEWER, SEDIBENG DISTRICT MUNICIPALITY, GAUTENG PROVINCE

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area in which it is proposed to develop an outfall sewer.

Past activities in the study area consisted mostly of farming.

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

If construction takes place and archaeological sites are exposed, 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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GLOSSARY OF TERMS AND ABBREVIATIONS**STONE AGE**

Early Stone Age	2 000 000 - 150 000 Before Present
Middle Stone Age	150 000 - 30 000 BP
Late Stone Age	30 000 - until c. AD 200

IRON AGE

Early Iron Age	AD 200 - AD 1000
Later Iron Age	AD 1000 - AD 1840

HISTORIC PERIOD

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

ADRC	Archaeological Data Recording Centre
ASAPA	Association of Southern African Professional Archaeologists
EIA	Early Iron Age
ESA	Early Stone Age
LIA	Late Iron Age
LSA	Late Stone Age
MSA	Middle Stone Age
NASA	National Archives of South Africa
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Agency
SAHRA	South African Heritage Resources Agency

HERITAGE SURVEY FOR THE WATERVAL OUTFALL SEWER, SEDIBENG DISTRICT MUNICIPALITY, GAUTENG PROVINCE

1. INTRODUCTION

An independent heritage consultant was appointed by Exigent Consulting to conduct a survey to locate, identify, evaluate and document sites, objects and features of cultural significance located within the boundaries of an area in which it is proposed to install an outfall sewer pipeline. This sewer is to serve a new mixed used development that will take place in the northern section of the pipeline.

2. TERMS OF REFERENCE

The scope of work consisted of conducting a Phase 1 archaeological survey of the site in accordance with the requirements of Section 38(3) of the National Heritage Resources Act (Act 25 of 1999).

This include:

- Conducting a desk-top investigation of the area
- A visit to the proposed development site

The objectives were to

- Identify possible archaeological, cultural and historic sites within the proposed development areas;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources;
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

3. DEFINITIONS AND ASSUMPTIONS

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

- *Cultural resources* are all non-physical 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.
- 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.
- 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.

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

4. STUDY APPROACH AND METHODOLOGY

4.1 Extent of the Study

This survey and impact assessment covers the area as presented in Section 5 and as illustrated in Figure 1.

4.2 Methodology

4.1 Preliminary investigation

4.1.1 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.

4.1.2 Data bases

The *Heritage Sites Database* and the *Environmental Potential Atlas* was consulted. The *National Archives of South Africa* was also consulted

4.1.4 Other sources

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

4.2 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 Exigent Environmental by means of maps. As this is a linear development, the entire route was followed, except for short sections where the vegetation was too dense to allow access. Special attention was given to topographical occurrences such as trenches, holes, outcrops and clusters of trees.

4.3 Documentation

All sites, objects and structures that are identified are documented according to the general minimum standards accepted by the archaeological profession. Coordinates of individual localities are determined by means of the *Global Positioning System (GPS)*¹ and plotted on a map. This information is added to the description in order to facilitate the identification of each locality.

Map datum used: Hartebeeshoek 94 (WGS84).

¹ 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 to correlate it with reference to the physical environment before plotting it on the map.

4.4 Limitations

Some sections of the routes was very densely vegetated, seriously limiting archaeological visibility.

5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

5.1 Site location and description

The location and extent of the study area can be determined from the map in Figure 1. It is located at the intersection of the R59/R550, east and west of the intersection. the farm Waterval 150IR, in the Sedibeng Municipal District of Gauteng (Fig. 1). The sewer runs from a point (S 26,41718, E 28.08311) at the junction with the R550, southwards to the southern side of the junction with Joan Road (S 26.45330, E 28.07509).

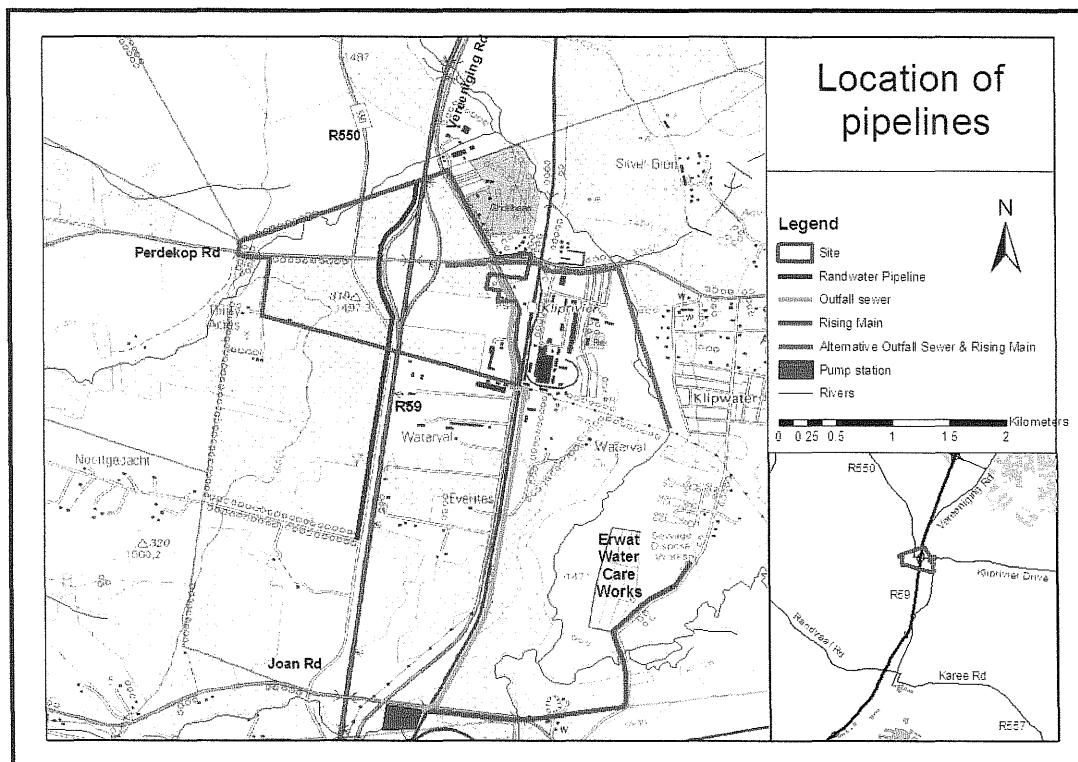


Fig. 1. Location of the study area, indicated by the orange line running parallel to the M61 motorway (Map2628AC: Government Printer).

The geology is made up of dolomite and the original vegetation of the area is described as Rocky Highveld Grassland. The area that was investigated shows heavy signs of disturbance. This is the result of it running parallel to the M61 (R59) and the railroad. Both these features cross over land that was used in the past for crop farming.

5.2 Identified sites

5.2.1 Stone Age

No sites, features or objects of significance dating to the Stone Age were identified in the study area.

5.2.2 Iron Age

No sites, features or objects of significance dating to the Iron Age were identified in the study area.

5.2.3 Historic period

Only one site of cultural significance is known to exist in the region. This is a large informal cemetery that occurs to the north of the study area. Apart from this, no sites, features or objects of significance dating to historic times were identified in the study area.

6. SITE SIGNIFICANCE AND ASSESSMENT

Impact analysis of cultural resources under threat of the proposed development, are based on the present understanding of the sewer outfall pipeline development.

The **significance** of a heritage site and artefacts is determined by its **historical, social, aesthetic, technological and scientific value in relation to the 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.

Sites regarded as having low significance are viewed as been recorded in full after identification and would require no further mitigation. Impact from the development would therefore be judged to be low. Sites with a medium to high significance would therefore require mitigation. Mitigation, in most cases the excavation of a site, is in essence destructive and therefore the impact can be viewed as high and as permanent.

No sites, features or objects of cultural significance were identified in the study area.

7. IDENTIFICATION OF RISK SOURCES

A Heritage Impact Assessment is focused on two phases of a proposed development: **the construction and operation phases**. However, from a cultural heritage perspective, this distinction does not apply. Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the development can be excavated/recorded and a management plan can be developed for future action.

Those sites that are not impacted, can be written into the management plan, whence they can be avoided or cared for in the future.

The following project actions may impact negatively on archaeological sites and other features of cultural importance. The actions are most likely to occur during the construction phase of a project.

Construction phase:

Possible Risks	Source of the risk
Actually identified risks	
- damage to sites	Construction work
Anticipated risks	
- looting of sites	Curious workers

Operation phase:

Possible Risks	Source of the risk
Actually identified risks	
- damage to sites	Not keeping to management plans
Anticipated risks	
- damage to sites	Unscheduled construction/developments
- looting of sites	Visitors removing objects as keepsakes

8. RECOMMENDATIONS

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area in which it is proposed to develop an outfall sewer.

Past activities in the study area consisted mostly of farming.

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

- If construction takes place and archaeological sites are exposed, 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

Heritage Sites Database, Pretoria.

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.

National Archives of South Africa: SAB, NTS, Vol. 3855, Ref 3193/308 (1955).

9.2 Literature

Acocks, J.P.H. 1975. *Veld Types of South Africa*. Memoirs of the Botanical Survey of South Africa, No. 40. Pretoria: Botanical Research Institute.

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

Oberholster, J.J. 1972. *The historical monuments of South Africa*. Cape Town: Rembrandt van Rijn Foundation.

Van Schalkwyk, J.A. 2007. *Heritage impact assessment of various portions of Waterval 150IR, Sedibeng district municipality, Gauteng Province*. Unpublished report 2007KH101. Pretoria: National Cultural History Museum.

9.3 Maps and photographs

1: 50 000 Topocadastral maps – 2628AC

APPENDIX 1: CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON HERITAGE RESOURCES

Significance

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.

Matrix used for assessing the significance of each identified site/feature

1. Historic value			
Is it important in the community, or pattern of history			
Does it have strong or special association with the life or work of a person, group or organisation of importance in history			
Does it have significance relating to the history of slavery			
2. Aesthetic value			
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group			
3. Scientific value			
Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage			
Is it important in demonstrating a high degree of creative or technical achievement at a particular period			
4. Social value			
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons			
5. Rarity			
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage			
6. Representivity			
Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects			
Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class			
Importance in demonstrating the principal characteristics 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.			
7. Sphere of Significance			
	High	Medium	Low
International			
National			
Provincial			
Regional			
Local			
Specific community			
8. Significance rating of feature			
1.	Low		
2.	Medium		
3.	High		

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
- 5 = retain graves or, alternatively, relocate after following correct procedure

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. RELEVANT LEGISLATION

All archaeological and palaeontological sites, and meteorites are protected by the National Heritage Resources Act (Act no 25 of 1999) as stated in Section 35:

(1) Subject to the provisions of section 8, the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority: Provided that the protection of any wreck in the territorial waters and the maritime cultural zone shall be the responsibility of SAHRA.

(2) Subject to the provisions of subsection (8)(a), all archaeological objects, palaeontological material and meteorites are the property of the State. The responsible heritage authority must, on behalf of the State, at its discretion ensure that such objects are lodged with a museum or other public institution that has a collection policy acceptable to the heritage resources authority and may in so doing establish such terms and conditions as it sees fit for the conservation of such objects.

(3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.

(4) 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 assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

The National Heritage Resources Act (Act no 25 of 1999) stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

- **Grade I:** Heritage resources with qualities so exceptional that they are of special national significance;
- **Grade II:** Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; and
- **Grade III:** Other heritage resources worthy of conservation, and which prescribes heritage resources assessment criteria, consistent with the criteria set out in section 3(3), which must be used by a heritage resources authority or a local authority to assess the intrinsic, comparative and contextual significance of a heritage resource and the relative benefits and costs of its protection, so that the appropriate level of grading of the resource and the consequent responsibility for its management may be allocated in terms of section 8.

APPENDIX 3: SURVEY RESULTS

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

Sites identified: Nil

APPENDIX 4: ILLUSTRATIONS

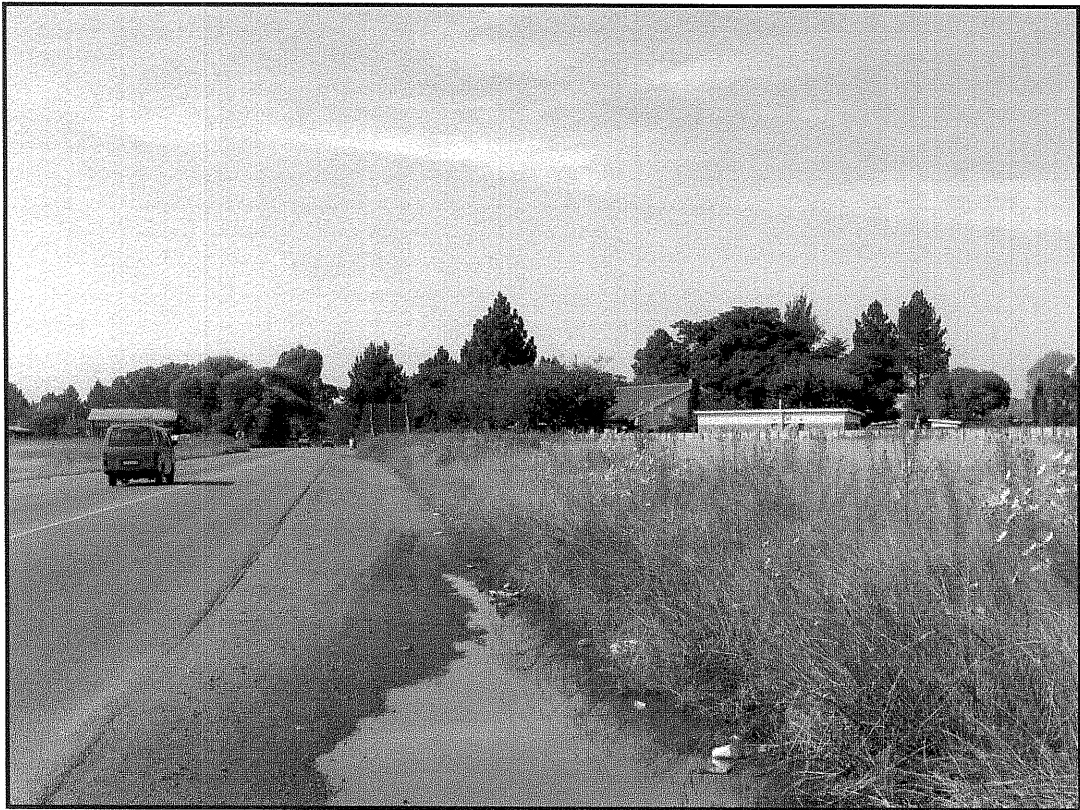


Fig. 2. Looking south along the route of the pipeline next to the road.



Fig. 3. Looking north at the route the pipeline would follow adjacent to the railway line.