

**Cultural Heritage Assessment for the Proposed Construction of the
Additional Meredale Reservoir (210 Ml) (Eikenhof System), City of
Johannesburg District Municipality, City of Johannesburg Metropolitan
Municipality, Gauteng**

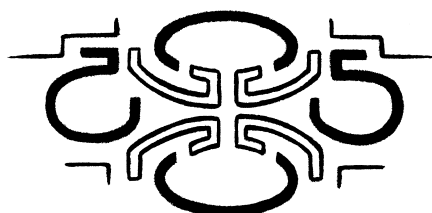


For

<p>Project Applicant Rand Water 522 Impala Road Glenvista PO Box 1127 Johannesburg 2000 Tel: 011 682 0911</p>	<p>Environmental Consultant Asande Projects Consulting & Engineering 217 Nupen Crescent Palms Office Park Halfway Ext 12 Midrand 1685 Tel: 011 315 6794 Fax: 011 312 3359</p>
--	--

By

Francois P Coetzee
Department of Anthropology & Archaeology
University of South Africa
PO Box 392
Pretoria
0003
Tel: (012) 429 6297
Fax: (012) 429 6091
coetzfp@unisa.ac.za



Date:	May 2015
Revised:	August , September & November 2016
Version:	5 (Final Report)

Executive Summary

This report contains a comprehensive heritage impact assessment investigation in accordance with the provisions of Sections 38(1) and 38(3) of the *National Heritage Resources Act* (Act No. 25 of 1999) and focuses on the survey results from a cultural heritage survey. Asande Projects has been appointed as an independent consultant to conduct the Basic Assessment of the proposed additional Meredale Water Reservoir which forms part of the Rand Water's Eikenhof System.

The survey revealed recent cement structures and concrete bases that were probably used for some industrial activity (Site 1). However no historical structures or remains were recorded.

Please note that a cluster of Late Iron Age stone-walled settlements (Site 2) were recorded some distance to the south of the survey area. No direct impact will result during the construction phase of the proposed water reservoir and associated infrastructure (i.e. pipelines) as it is approximately 600 metres away at the nearest point.

Archaeological remains

One Late Iron Age stone-walled settlement (Site 2) was recorded during the survey. However, no Stone Age settlements, features, structures or assemblages (artefact scatters) were recorded.

Historical Structures

Although recently constructed concrete and cement structures were recorded (Site 1), no historical structures or associated features were recorded.

Graveyard

No graves were recorded.

Conclusion and Recommendations

Based on the assessment, from a heritage perspective, there is no impact on cultural heritage remains and it is recommended that the proposed activities, which include a new reservoir, outlet pipeline and an access road, be allowed to continue, taking cognizance of the following aspects:

Archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal material be revealed in the area during development activities, such activities should be halted, and a university or museum notified in order for an investigation and evaluation of the find(s) to take place (*cf. NHRA (Act No. 25 of 1999), Section 36 (6)*).

Definitions and abbreviations

AD:	Anno Domini (after Christ)
ASAPA:	Association of Southern African Professional Archaeologists
CRM:	Cultural Resources Management
DEA:	Department of Environmental Affairs
DMR:	Department of Mineral Resources
EIA:	Environmental Impact Assessment
ESA:	Early Stone Age
Midden:	Refuse that accumulates in a concentrated heap.
Stone Age:	An archaeological term used to define a period of stone tool use and manufacture
Iron Age:	An archaeological term used to define a period associated with domesticated livestock and grains, metal working and ceramic manufacture
NHRA:	National Heritage Resources Act (Act No. 25 of 1999)
SAHRA:	South African Heritage Resources Agency
SAHRIS:	South African Heritage Resources Information System
PHRA-G:	Provincial Heritage Resources Authority - Gauteng
GDARD:	Gauteng Department of Agriculture and Rural Development
HIA:	Heritage Impact Assessment
DMR:	Department of Mineral Resources

I, Francois Coetzee, hereby confirm my independence as a cultural heritage specialist and declare that I do not have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of the listed environmental processes, other than fair remuneration for work performed on this project.



Francois P Coetzee
Cultural Heritage Consultant
Accredited Archaeologist for the SADC Region
Professional Member of ASAPA (CRM Section) Reg no: 28

Contents

1. Introduction.....	6
2. Objectives.....	6
3. Study Area.....	6
4. Proposed Project Activities.....	12
5. Legal Framework.....	13
6. Study Approach/Methods.....	16
6.1 Review of existing information/data.....	16
6.2 Site visit.....	18
6.3 Impact assessment.....	18
6.4 Assumptions, restrictions and gaps in knowledge.....	19
7. Description and Evaluation of Cultural Heritage Sites.....	19
8. Summary of Site Locations.....	20
9. Recommendations and Conclusions.....	20
10. References.....	21
Addendum 1: Archaeological and Historical Sequence.....	23
Addendum 2: Description and Evaluation of Sites.....	34
Addendum 3: Surveyor General Farm Diagram.....	39

Figures

Figure 1: Regional context of the survey area (indicated by the red circle south of Johannesburg).....	7
Figure 2: Local context of the survey area (south of Johannesburg).....	7
Figure 3: Detail view of the survey areas as indicated on the 1:50 000 topographic map 2627BD.....	8
Figure 4: The detail of the survey area as indicated on Google Earth (2015).....	8
Figure 5: General land use of the survey area.....	9
Figure 6: The proposed survey area showing existing infrastructure (water reservoirs).....	10
Figure 7: General view of the location of the new proposed water reservoir.....	10
Figure 8: Valley in which the new inlet outlet pipeline will be constructed.....	11
Figure 9: General view to the south east of the reservoir site.....	11
Figure 10: The new municipal supply line links up with an existing reservoir in Naturena... ..	12
Figure 11: Detailed layout of the proposed Meredale Reservoir Project.....	13
Figure 12: Recorded survey tracks for the project.....	16
Figure 13: Jeppe's Map dating to 1899 clearly indicates the farm Eikenhof and the location of the Klip River.....	17
Figure 14: War Office Map (1900) indicating the location of early roads leading north through to Klipriviersberg from Klipriver Railway Station.....	17
Figure 15: An example of one of the Late Iron Age stone-walled settlement clusters at Klipriviersberg, probably dating to the late 19 th century.....	18
Figure 16: The location of the recorded sites relative to the proposed development.....	19
Figure 17: Krugersdorp Sheet of the 1:125 00 Map Series, 1913.....	25
Figure 18: Topographical Sheet 2627BD (1:50 000), surveyed in 1954.....	26
Figure 19: Pimville Topographical Sheet (2727 F8), predating 1968.....	27

<i>Figure 20: Map published in Amery (1906) showing the Battle of Doornkop (Battle of Klipriviersberg) which took place during 28 and 29 May 1900. The British forces are shown in red and the Boer forces in green.</i>	28
<i>Figure 21: General view of the two cement structures.....</i>	35
<i>Figure 22: General view of the concrete bases</i>	36
<i>Figure 23: Aerial view of the Late Iron Age settlements.....</i>	38
<i>Figure 24: Surveyor General's map of the farm Eikenhof 323 IQ first surveyed in 1904.....</i>	39

Tables

<i>Table 1: Rating the significance of sites.....</i>	14
<i>Table 2: Level of protection of buildings/structures.....</i>	15
<i>Table 3: Summary of the site coordinates.....</i>	20

1. Introduction

Asande Projects has been appointed as an independent consultant to conduct a Basic Assessment of the proposed construction of additional bulk storage infrastructure (reservoirs) to augment the Rand Water's Eikenhof system. The project entails the construction of an additional 210 Mℓ reservoir (including a new overflow and access road) at the existing Meredale Reservoir Complex. The complex currently comprises two reservoirs with a combined capacity of 310 Mℓ. In addition, a review of the operations and capacity of bulk distribution infrastructure (pipelines) coming in and out of existing and proposed Meredale reservoirs will also be undertaken and probably upgraded.

2. Objectives

The general aim of this cultural heritage survey is to record and document cultural heritage remains consisting of both tangible and intangible archaeological and historical artefacts, structures (including graves), settlements and oral traditions of cultural significance.

As such the terms of reference of this survey are as follows:

- Identify and provide a detailed description of all artefacts, assemblages, settlements and structures of an archaeological or historical nature (cultural heritage sites) located on the study area,
- Estimate the level of significance/importance of the these remains in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value,
- Assess any possible impact on the archaeological and historical remains within the area emanating from the proposed development activities, and
- Propose possible mitigation measures which will limit or prevent any impact provided that such action is necessitated by the development.

3. Study Area

The project area is situated south of the City of Johannesburg (City of Johannesburg District Municipality) and borders several residential areas and suburbs, namely:

- Meredale Suburb;
- Lougherin Agricultural Holdings;
- Comptonville; and
- Naturena.

Also note that the Olifantsvlei Municipal Nature Reserve and a stone aggregate quarry (Outeniqua on Klip Pty Ltd) are situated to the south of the survey area. In addition the Kliprivier River is located to the south with several historical furrows. Several recreational resorts (lodge and caravan parks) are also situated in the vicinity of the project area. The existing two Meredale Reservoirs and the additional proposed reservoir are situated on the farm Eikenhof 323 IQ with some of the proposed pipelines on an extent of the farm Misgund 322 IQ.

In general, the survey area is dominated by a large rocky ridge with various outcrops which forms part of the Klipriviersberg Mountain range (western section). The area is generally

characterised by open angulating slopes with grasslands and tree clusters. The area falls within the Andesite Mountain Bushveld (Central Bushveld Bioregion) in the larger Savanna Biome (Mucina & Rutherford 2010). Several drainage lines are indicated in area, ultimately flowing into the Kliprivier River to the south. The Surveyor General’s map of the farm drawn in 1904 confirms that the farm Eikenhof 323 IQ was subdivided into a number of portions.

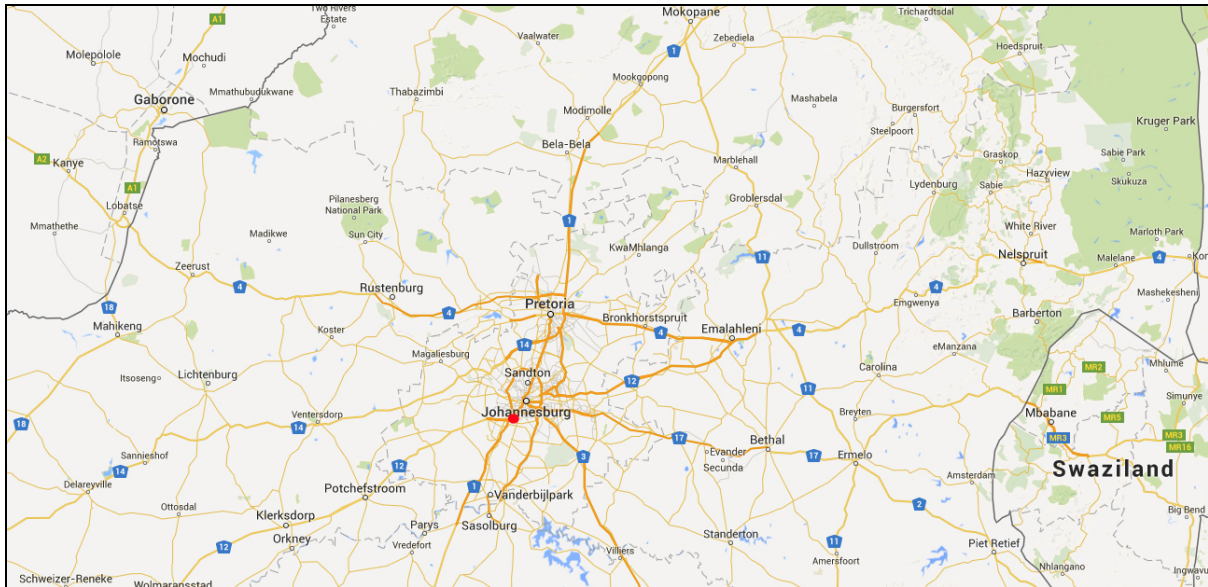


Figure 1: Regional context of the survey area (indicated by the red circle south of Johannesburg)

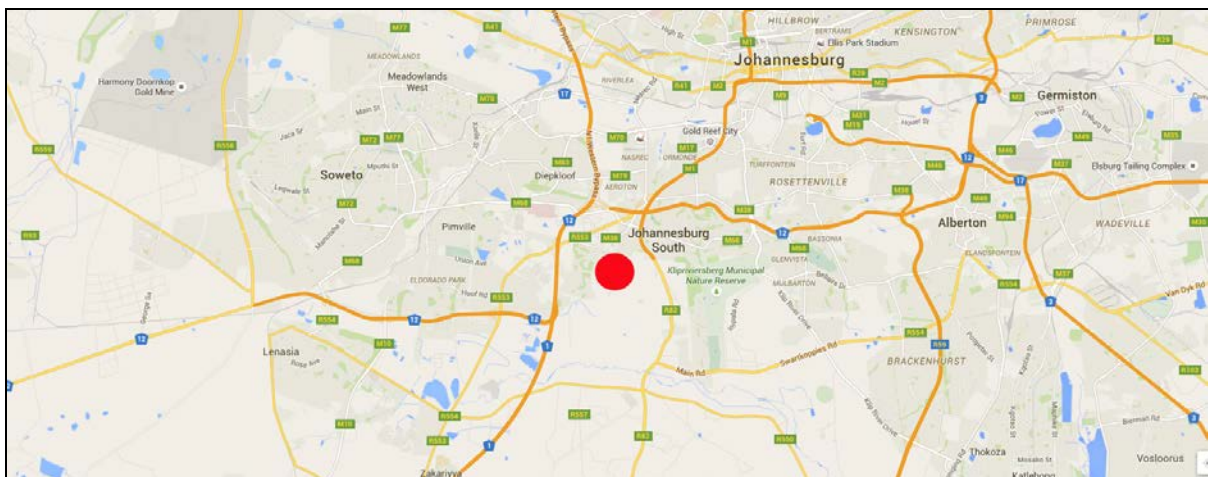


Figure 2: Local context of the survey area (south of Johannesburg)

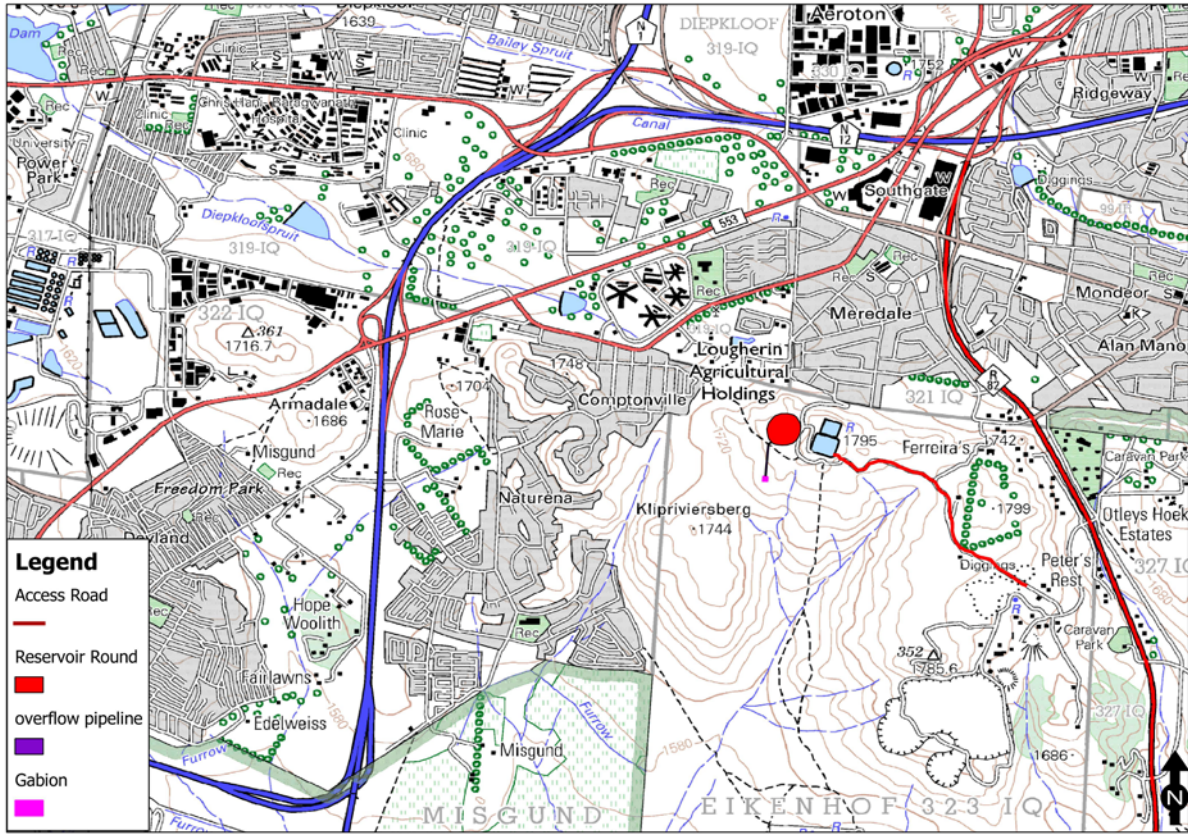


Figure 3: Detail view of the survey areas as indicated on the 1:50 000 topographic map 2627BD

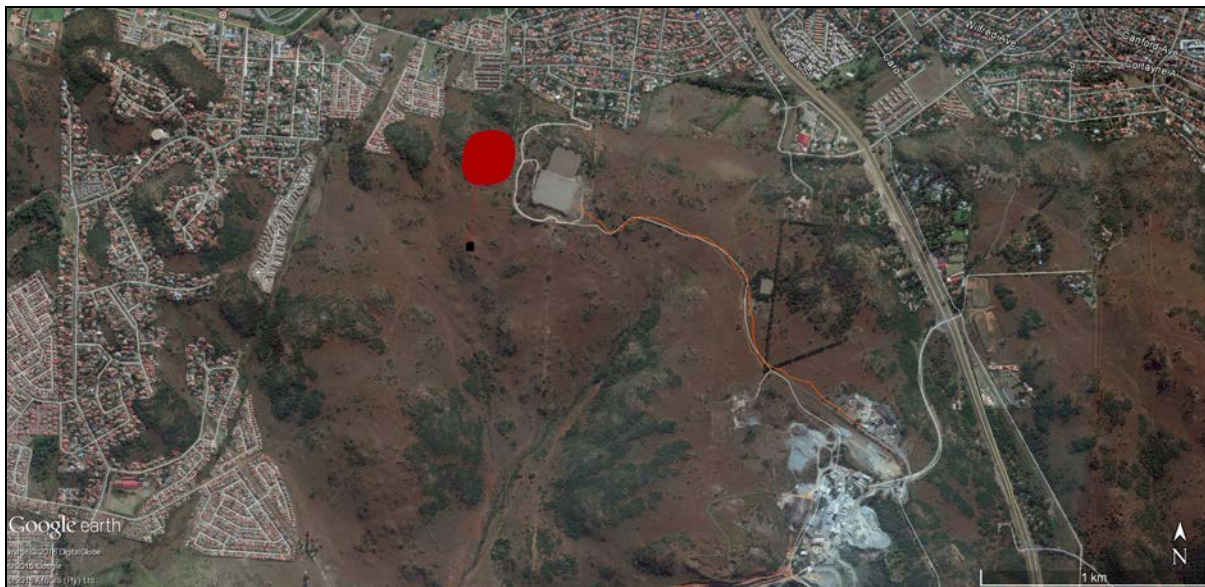


Figure 4: The detail of the survey area as indicated on Google Earth (2015)

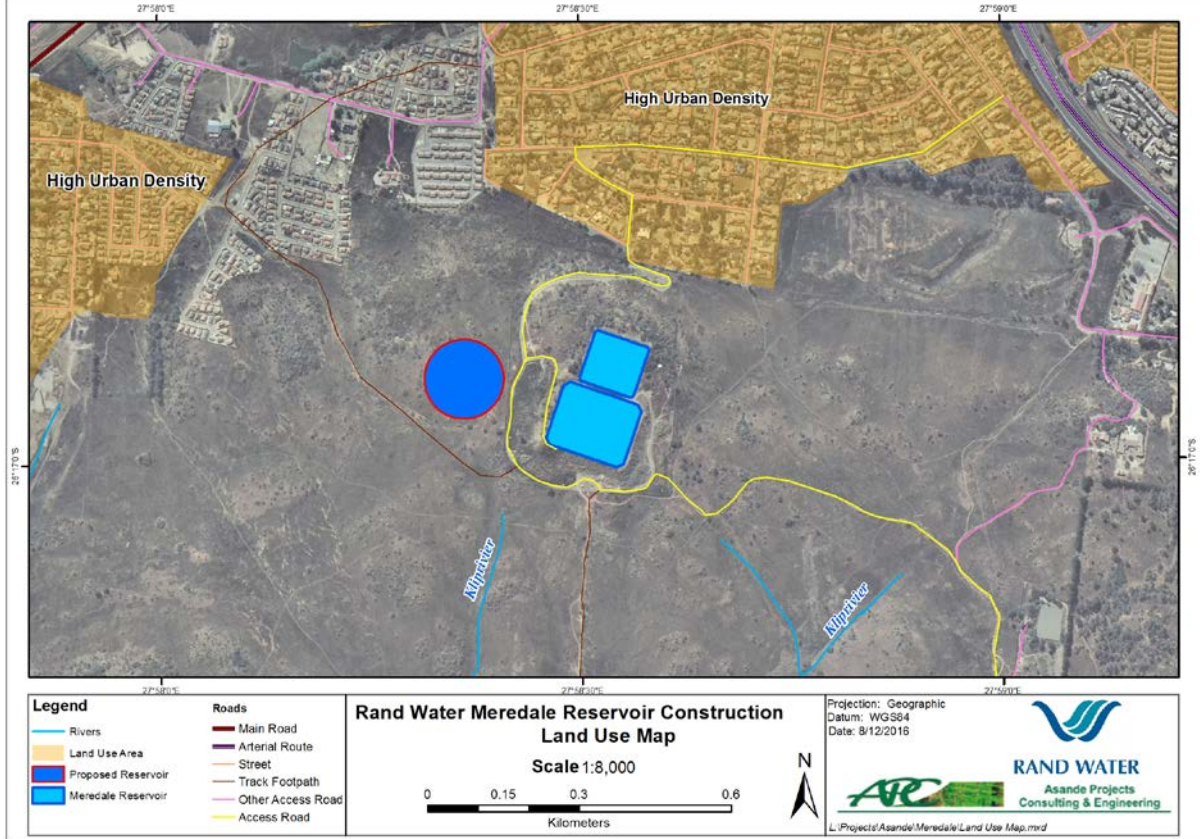


Figure 5: General land use of the survey area



Figure 6: The proposed survey area showing existing infrastructure (water reservoirs)



Figure 7: General view of the location of the new proposed water reservoir



Figure 8: Valley in which the new inlet outlet pipeline will be constructed



Figure 9: General view to the south east of the reservoir site



Figure 10: The new municipal supply line links up with an existing reservoir in Naturena

4. Proposed Project Activities

Rand Water intends to construct an additional 210ML reservoir with an associated approximately 710 metres overflow pipeline with a diameter of 1650 mm at the existing Meredale Reservoir Complex. As part of the proposed project, the already existing 4 metres gravel access road shall be widened to 15 metres to allow for construction vehicles to be able to manoeuvre. The complex currently comprises of two reservoirs with a combined capacity of 310 ML. Construction of the additional 210 ML reservoir in Meredale constitutes a listed activity for which an environmental authorisation is required before construction can commence.

The main construction of the additional Meredale Reservoir Project will focus around a new circular water reservoir (Res#3) of 210 ML, which will include the following:

- Reservoir inlets and outlets;
- Connection to the existing Outlet pipeline (G23) and Inlet (Q7) pipeline;
- Reservoir drainpipe;
- Inlet pipe from Q3 (Booster Station)
- Supply to G34
- Access road to the reservoir (adjacent to stone aggregate quarry)

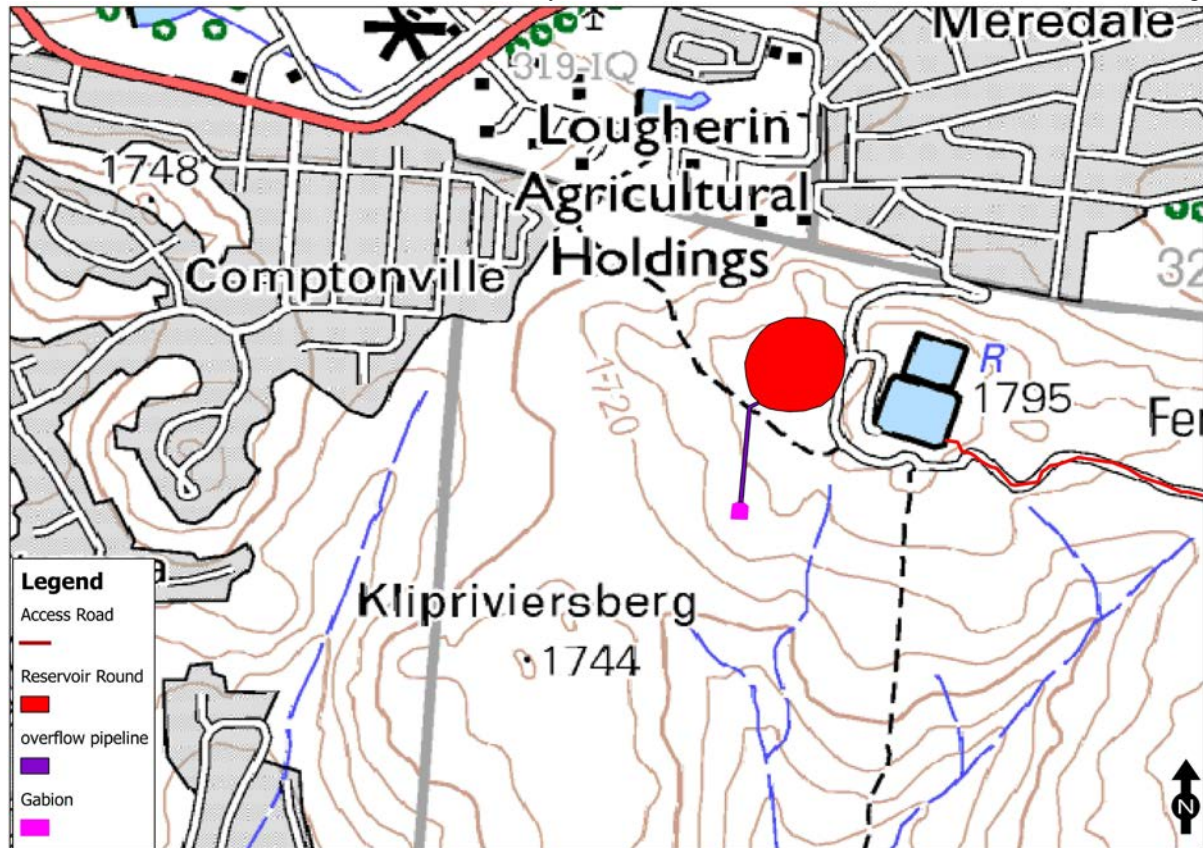


Figure 11: Detailed layout of the proposed Meredale Reservoir Project

5. Legal Framework

- Archaeological remains can be defined as human-made objects, which reflect past ways of life, deposited on or in the ground.
- Heritage resources have lasting value in their own right and provide evidence of the origins of South African society and they are valuable, finite, non-renewable and irreplaceable.
- All archaeological remains, features, structures and artefacts older than 100 years and historic structures older than 60 years are protected by the relevant legislation, in this case the **National Heritage Resources Act (NHRA) (Act No. 25 of 1999, Section 34 & 35)**. The Act makes an archaeological impact assessment as part of an EIA and EMPR mandatory (see **Section 38**). No archaeological artefact, assemblage or settlement (site) may be moved or destroyed without the necessary approval from the **South African Heritage Resources Agency (SAHRA)**. Full cognisance is taken of this Act in making recommendations in this report.
- Cognisance will also be taken of the **Mineral and Petroleum Resources Development Act (Act No 28 of 2002)** and the **National Environmental Management Act (Act No 107 of 1998)** when making any recommendations.
- Human remains older than 60 years are protected by the **NHRA**, with reference to **Section 36**. Human remains that are less than 60 years old are protected by the

Regulations Relating to the Management of Human Remains (GNR 363 of 22 May 2013) made in terms of the National Health Act No. 61 of 2003 as well as local Ordinances and regulations.

- **Mitigation guidelines (The significance of the site):**

Rating the significance of the impact on a historical or archaeological site is linked to the significance of the site itself. If the significance of the site is rated high, the significance of the impact will also result in a high rating. The same rule applies if the significance rating of the site is low (also see Table 1).

Significance Rating	Action
Not protected	1. None
Low	2a. Recording and documentation (Phase 1) of site adequate; no further action required
	2b. Controlled sampling (shovel test pits, auguring), mapping and documentation (Phase 2 investigation); permit required for sampling and destruction
Medium	3. Excavation of representative sample, C ¹⁴ dating, mapping and documentation (Phase 2 investigation); permit required for sampling and destruction [including 2a & 2b]
High	4a. Nomination for listing on Heritage Register (National, Provincial or Local) (Phase 2 & 3 investigation); site management plan; permit required if utilised for education or tourism 4b. Graves: Locate demonstrable descendants through social consulting; obtain permits from applicable legislation, ordinances and regional by-laws; exhumation and reinterment [including 2a, 2b & 3]

Table 1: Rating the significance of sites

- With reference to the evaluation of sites, the certainty of prediction is definite, unless stated otherwise.
- The guidelines as provided by the **NHRA (Act No. 25 of 1999)** in Section 3, with special reference to subsection 3, and the Australian ICOMOS (International Council on Monuments and Sites) Charter (also known as the Burra Charter) are used when determining the cultural significance or other special value of archaeological or historical sites.
- It should be kept in mind that archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal material be revealed in the area during development activities, such activities should be halted, and a university or museum notified in order for an investigation and evaluation of the find(s) to take place (*cf.* **NHRA (Act No. 25 of 1999)**, Section 36 (6)).

- **Architectural significance:**
 - Does the site contain any important examples of a building type?
 - Are any of the buildings important examples of a style or period?
 - Do any of the buildings contain fine details and or reflect fine workmanship?
 - Are any of the buildings the work of a major architect or builder?
 - Are the buildings important examples of an industrial, technological or engineering development?
 - What is the integrity of the buildings?
 - Are the buildings still utilised?
 - Has the buildings been altered and are these alterations sympathetic to the original intent of the design?

- **Spatial significance of architecture:**
 - Is the site or any of the buildings a landmark in the city or town?
 - Does the plant contribute to the character of the neighbourhood/region?
 - Do the buildings contribute to the character of the street or square?
 - Is the place or building part of an important group of buildings?

- **Architecture: Levels of significance are:**
 - Protect
 - Highly significant
 - Possible significance
 - Least significance
 - No significance

- **Architecture: Levels of protection are:**

Retain and protect	Considered to be of high significance. The building or structure can be used as part of the development but must be suitably protected. Should not include major structural alterations. If the building is older than 60 years a modification permit is required from SAHRA.
Retain and re-use	Considered to be of moderate significance. The building or structure can be altered to be accommodated within the development plans. Structural alterations can be included. If the building is older than 60 years a modification permit is required from SAHRA.
Alter and re-use	Considered to be of low significance. The building or structure can be structurally altered or destruction can be considered following further documentation. If the building is older than 60 years a modification/destruction permit is required from SAHRA.
Can be demolished	Considered to be of negligible significance and can be demolished. If the building is older than 60 years a destruction permit is required from SAHRA.

Table 2: Level of protection of buildings/structures

- A copy of this report will be lodged with the **SAHRA** as stipulated by the National Heritage Resources Act (NHRA) (Act No. 25 of 1999), Section 38 (especially subsection 4) and the relevant Provincial Heritage Resources Authority (PHRA).

- Note that the final decision for the approval of permits, or the removal or destruction of sites, structures and artefacts identified in this report, rests with the SAHRA (or relevant PHRA).

6. Study Approach/Methods

Regional maps and other geographical information (ESRI shapefiles) were supplied by Rand Water and Asande Projects. In addition Google images and topographic maps were used to indicate the survey area. The survey area was localised on the 1:50 000 topographic map 2627BD. Please note that all maps are orientated with north facing upwards (unless stated otherwise).

The survey area was preliminary surveyed and selected areas were investigation on foot using both systematic and intuitive pedestrian survey techniques.

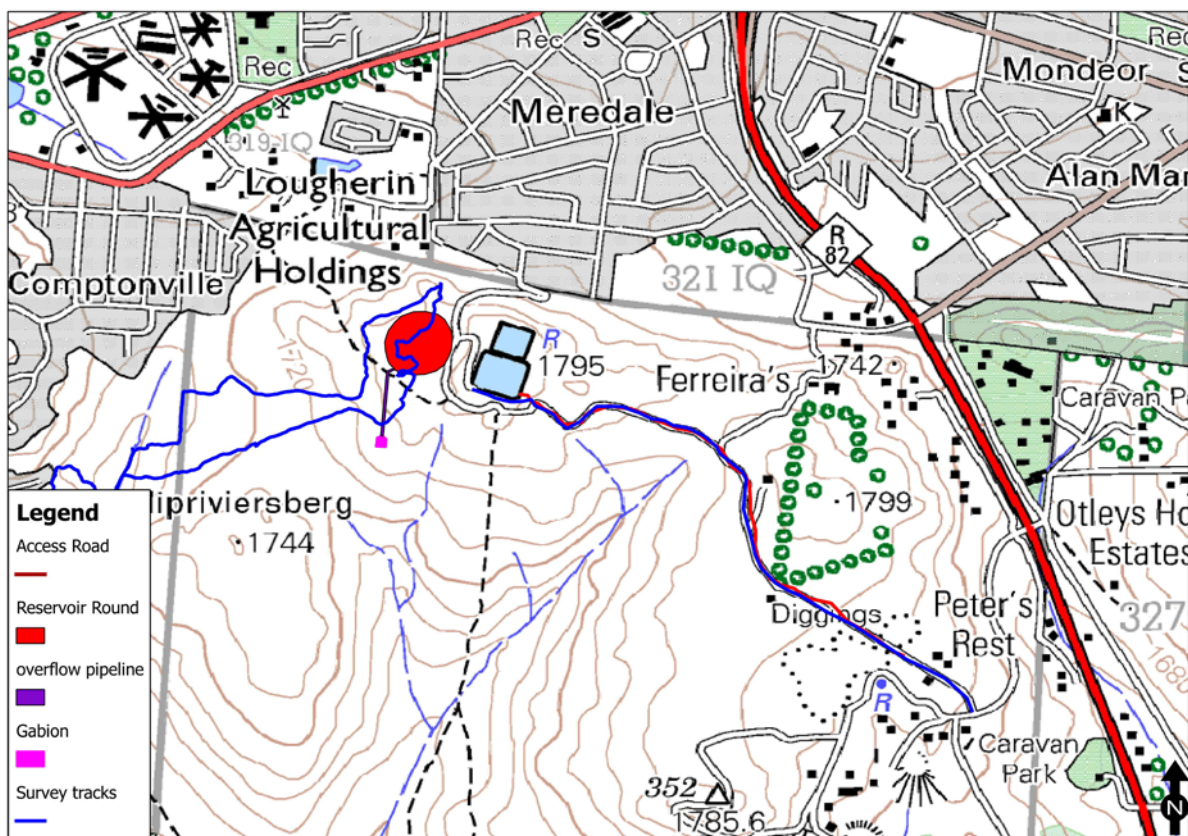


Figure 12: Recorded survey tracks for the project

6.1 Review of existing information/data

Additional information on the cultural heritage of the area was sourced from the following records:

- National Mapping Project by SAHRA (which lists heritage impact assessment reports submitted for South Africa)
- Online SAHRIS database
- Maps and information documents supplied by the client

- Published material on the area

The Surveyor General's database shows that the farm Eikenhof 323 IQ was first surveyed in 1904 (see Addendum 2). As no early 20th historical structures were recorded in the survey area the farm was probably used for additional farming activities (livestock pastures) and no historical farm house complex was built. The farm is also indicated in Jeppe's map of 1899.

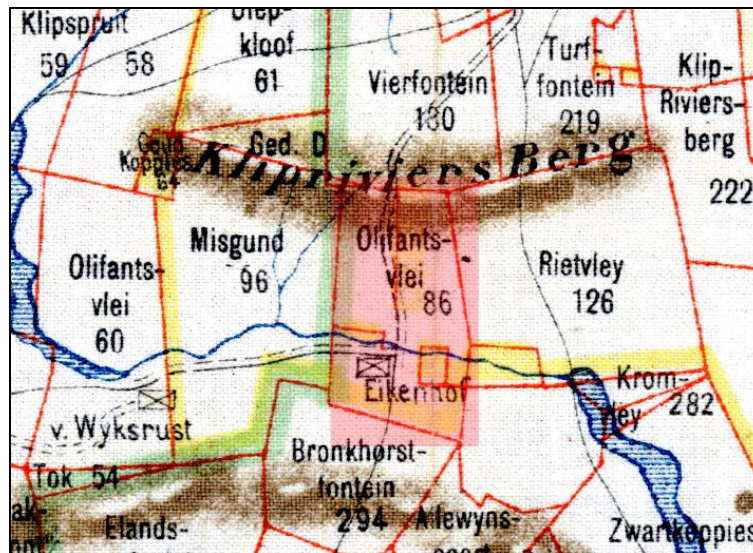


Figure 13: Jeppe's Map dating to 1899 clearly indicates the farm Eikenhof and the location of the Klip River



Figure 14: War Office Map (1900) indicating the location of early roads leading north through to Klipriviersberg from Klipriver Railway Station

Early trading (ossewa) routes are indicated on the War Office Maps dated to 1900. However, it seems that these routes crossed the mountain range further to the east from the current survey area.

However, please note that the survey area forms part of the Klipriviersberg Mountain Range at which extensively archaeological research has been conducted during the last 30 years. Archaeological studies have confirmed that Klipriviersberg has been extensively occupied by Late Iron Age farming communities since the middle AD 1600. Most of the stone-walled settlements were occupied up to the late 1820s (see Mason 1962 & 1986, Huffman & Lathy 1997 and Huffman & Marimbika 2001).



Figure 15: An example of one of the Late Iron Age stone-walled settlement clusters at Klipriviersberg, probably dating to the late 19th century

6.2 Site visit

A site meeting took place on 7 May 2015 and the site investigation took place on 12 May 2015.

6.3 Impact assessment

The criteria used to describe heritage resources and to provide a significance rating of recorded sites are listed in the NHRA (Act No. 25 of 1999) specifically Section 7(7) and

Section 38. SAHRA also published various regulations including: Minimum standards: Archaeological and palaeontological components of impact assessment reports in 2006 and updated requirements in 2012.

6.4 Assumptions, restrictions and gaps in knowledge

No severe physical restrictions were encountered as access to the survey area was granted by Rand Water. However, please note that due to the subterranean nature of cultural remains this report should not be construed as a record of all archaeological and historic sites in the area.

7. Description and Evaluation of Cultural Heritage Sites

The survey revealed recent cement structures and concrete bases that were probably used for some industrial activity (Site 1). However no Historical structures or remains were recorded.

Please note that a cluster of Late Iron Age stone-walled settlements (Site 2) were recorded some distance to the south of the survey area. No direct impact will result during the construction phase of the proposed water reservoir and associated infrastructure (i.e. pipelines) as it is approximately 600 metres away at the nearest point.

No Stone Age settlements, features, structures or assemblages (artefact scatters) were recorded.

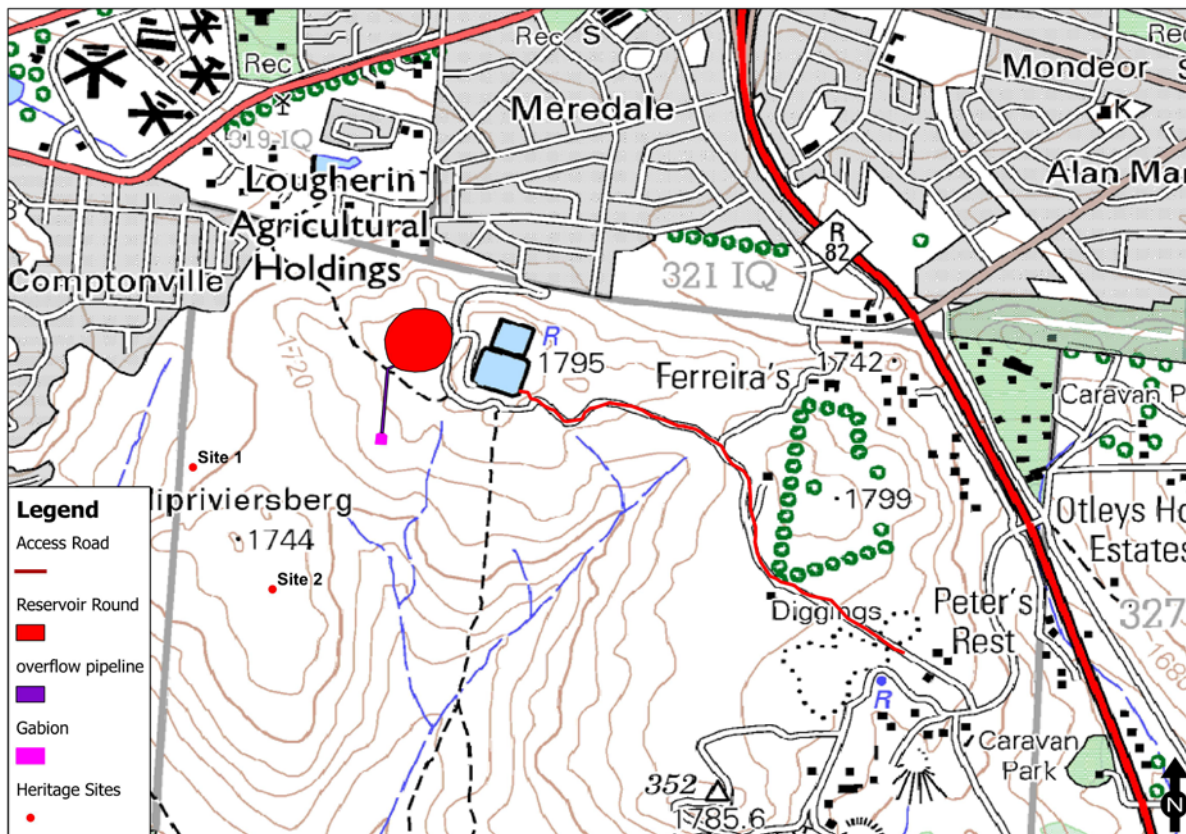


Figure 16: The location of the recorded sites relative to the proposed development

8. Summary of Site Locations

Site No	Coordinates
Site 1	27.965559°E 26.285660°S
Site 2	27.968120°E 26.289588°S

Table 3: Summary of the site coordinates

9. Recommendations and Conclusions

Archaeological remains

One Late Iron Age stone-walled settlement (Site 2) was recorded during the survey.

Historical Structures

Although recently constructed concrete and cement structures were recorded (Site 1), no historical structures or associated features were recorded.

Graveyard

No graves were recorded.

Conclusion and Recommendations

Based on the assessment, from a heritage perspective, there is no impact on cultural heritage remains and it is recommended that the proposed activities, which include a new reservoir, outlet pipeline and an access road, be allowed to continue, taking cognizance of the following aspects:

Archaeological deposits usually occur below ground level. Should archaeological artefacts or skeletal material be revealed in the area during development activities, such activities should be halted, and a university or museum notified in order for an investigation and evaluation of the find(s) to take place (*cf.* NHRA (Act No. 25 of 1999), Section 36 (6)).

10. References

- Amery, L.S., 1906. *The Times History of the War in South Africa 1899-1902*. Vol. 4. Sampson Low, Marston and Co. Ltd: London.
- Birkholtz, P.D. 2006. *Heritage Inventory of Portion 80 of the Farm Eikenhof 323 IQ, Gauteng Province*. Unpublished Report.
- Breutz, P.-L. 1989. *History of the Batswana*. Ramsgate.
- Breytenbach, J.H. 1983. *Die Geskiedenis van die Tweede Vryheidsoorlog in Suid-Afrika: Deel V: Die Britse Opmars tot in Pretoria*. Government Press: Pretoria.
- Huffman, T.N. 2002. *Archaeological assessment of stone-walled settlements on the Meyersdal Nature Reserve, Klipriviersberg, Alberton*. Unpublished report. Archaeological Resources Management. University of the Witwatersrand.
- Huffman, T.N. & Lathy, G. 1997. *Archaeological investigations at Meyersdal Koppie, Alberton*. Unpublished report. Archaeological Resources Management. University of the Witwatersrand.
- Huffman, T.N. & Marimbika, M.T. 2002. *Salvage excavations at Michelle Avenue, Alberton*. Unpublished report. Archaeological Resources Management. University of the Witwatersrand.
- Jeppe, F. 1899. *Jeppe's Map of the Transvaal*. London: Edward Stanford.
- Legassick, M. 1978. *The Sotho-Tswana Peoples before 1800*. In Thompson, L. (ed) *African Societies in Southern Africa*. London: Heinemann.
- Mason, R.J. 1962. *Prehistory of the Transvaal*. Johannesburg. Witwatersrand University Press.
- Mason, R.J. 1986. *The origins of black people of Johannesburg and the southern western central Transvaal, AD350 – 1880*. Johannesburg. University of the Witwatersrand Archaeological Research Unit, Occasional Paper 16.
- Mucina, L. & Rutherford, M.C. 2010. *The Vegetation of South Africa, Lesotho and Swaziland*. *Strelitzia* 19. Pretoria: South African National Biodiversity Institute.
- National Heritage Resources Act. Act no 25 of 1999. Government Printer: Pretoria.
- Ordnance Survey Office (Intelligence Division). 1900. *Transvaal and Orange Free State: Heidelberg*. War Office No. 1367. Southampton: War Office.
- SAHRIS Website: www.sahra.org.za (accessed January 2015)
- Schapera, I. 1952. *The Ethnic Composition of Tswana Tribes*. Monographs on Social

Addendum 1: Archaeological and Historical Sequence

The table provides a general overview of the chronological sequence of the archaeological periods in South Africa.

PERIOD	APPROXIMATE DATE
Early Stone Age	More than c. 2 million years ago - c. 250 000 years ago
Middle Stone Age	c. 250 000 years ago – c. 25 000 years ago
Later Stone Age (Includes San Rock Art)	c. 25 000 years ago - c. AD 200 (up to historic times in certain areas)
Early Iron Age	c. AD 400 - c. AD 1025
Late Iron Age (Stonewalled sites)	c. AD 1025 - c. AD 1830 (c. AD 1640 - c. AD 1830)

Archaeological Context

Stone Age Sequence

Concentrations of Early Stone Age (ESA) sites are usually present on the flood-plains of perennial rivers and may date to over 2 million years ago. These ESA open sites may contain scatters of stone tools and manufacturing debris and secondly, large concentrated deposits ranging from pebble tool choppers to core tools such as handaxes and cleavers. The earliest hominins who made these stone tools, probably not always actively hunted, instead relying on the opportunistic scavenging of meat from carnivore kill sites.

Middle Stone Age (MSA) sites also occur on flood plains, but are also associated with caves and rock shelters (overhangs). Sites usually consist of large concentrations of knapped stone flakes such as scrapers, points and blades and associated manufacturing debris. Tools may have been hafted but organic materials, such as those used in hafting, seldom preserve. Limited drive-hunting activities are also associated with this period.

Sites dating to the Later Stone Age (LSA) are better preserved in rock shelters, although open sites with scatters of mainly stone tools can occur. Well-protected deposits in shelters allow for stable conditions that result in the preservation of organic materials such as wood, bone, hearths, ostrich eggshell beads and even bedding material. By using San (Bushman) ethnographic data a better understanding of this period is possible. South African rock art is also associated with the LSA.

Iron Age Sequence

In the northern regions of South Africa at least three settlement phases have been distinguished for early prehistoric agropastoralist settlements during the **Early Iron Age** (EIA). Diagnostic pottery assemblages can be used to infer group identities and to trace movements across the landscape. The first phase of the Early Iron Age, known as **Happy**

Rest (named after the site where the ceramics were first identified), is representative of the Western Stream of migrations, and dates to AD 400 - AD 600. The second phase of **Diamant** is dated to AD 600 - AD 900 and was first recognized at the eponymous site of Diamant in the western Waterberg. The third phase, characterised by herringbone-decorated pottery of the **Eiland** tradition, is regarded as the final expression of the Early Iron Age (EIA) and occurs over large parts of the North West Province, Northern Province, Gauteng and Mpumalanga. This phase has been dated to about AD 900 - AD 1200. These sites are usually located on low-lying spurs close to water.

The **Late Iron Age** (LIA) settlements are characterised by stone-walled enclosures situated on defensive hilltops c. AD 1640 - AD 1830). This occupation phase has been linked to the arrival of ancestral Northern Sotho, Tswana and Ndebele (Nguni-speakers) in the northern regions of South Africa with associated sites dating between the sixteenth and seventeenth centuries AD. The terminal LIA is represented by late 18th/early 19th century settlements with multichrome Moloko pottery commonly attributed to the Sotho-Tswana. These settlements can in many instances be correlated with oral traditions on population movements during which African farming communities sought refuge in mountainous regions during the processes of disruption in the northern interior of South Africa, resulting from the so-called *difaqane* (or *mfecane*).

Substantial archaeological research has been done in the Klipriviersberg region for some time (see Mason 1962, Huffman & Lathy 1997, Huffman & Marimbika 2001 and Mason 1986). The stone-walled Late Iron Age settlements in the region can be classified as either Group I or Group II. Group I (dated to AD 1600 to AD 1700) settlements consists of a central kraal surrounded by a smooth outer periphery wall incorporating small stock enclosures. Group II (dated AD 1700 to 1830s) settlements seem to have developed from Group I and are characterised by more central enclosures and the outer wall includes some embayments for houses along with the typical small stock enclosures. Both settlement types are associated with the Bafokeng, a division of the Sotho-Tswana.

Historical Context

The first reference to the area is from the map sheet entitled 'Heidelberg' of the Major Jackson Map Series (Map 13) compiled by the Field Intelligence Department during the Second Boer War (1899 – 1902) (Birkholtz 2006:7). The road between Vereeniging and Johannesburg already existed during this time. Of interest is that the map indicates some buildings along the southern banks of the Klip River. It is unclear at this stage whether any of these can be associated with the current structure, but it seems highly unlikely.

Please note that in the 1:125 000 Krugersdorp Sheet of 1913 several features are indicated in the study area. It seems that there was a branch of the South African Police (SAP) which might be associated with several of the indicated buildings. Also a building is indicated further south adjacent to the main road (southern edge).

In the following 1:50 000 topographical sheet (2627BD) which was surveyed in 1954 a structure indicated as a shop (symbol W) is clearly seen.

Several buildings can also be seen later on, on the Pimville Topographical Sheet (2727 F8) which predates 1968.

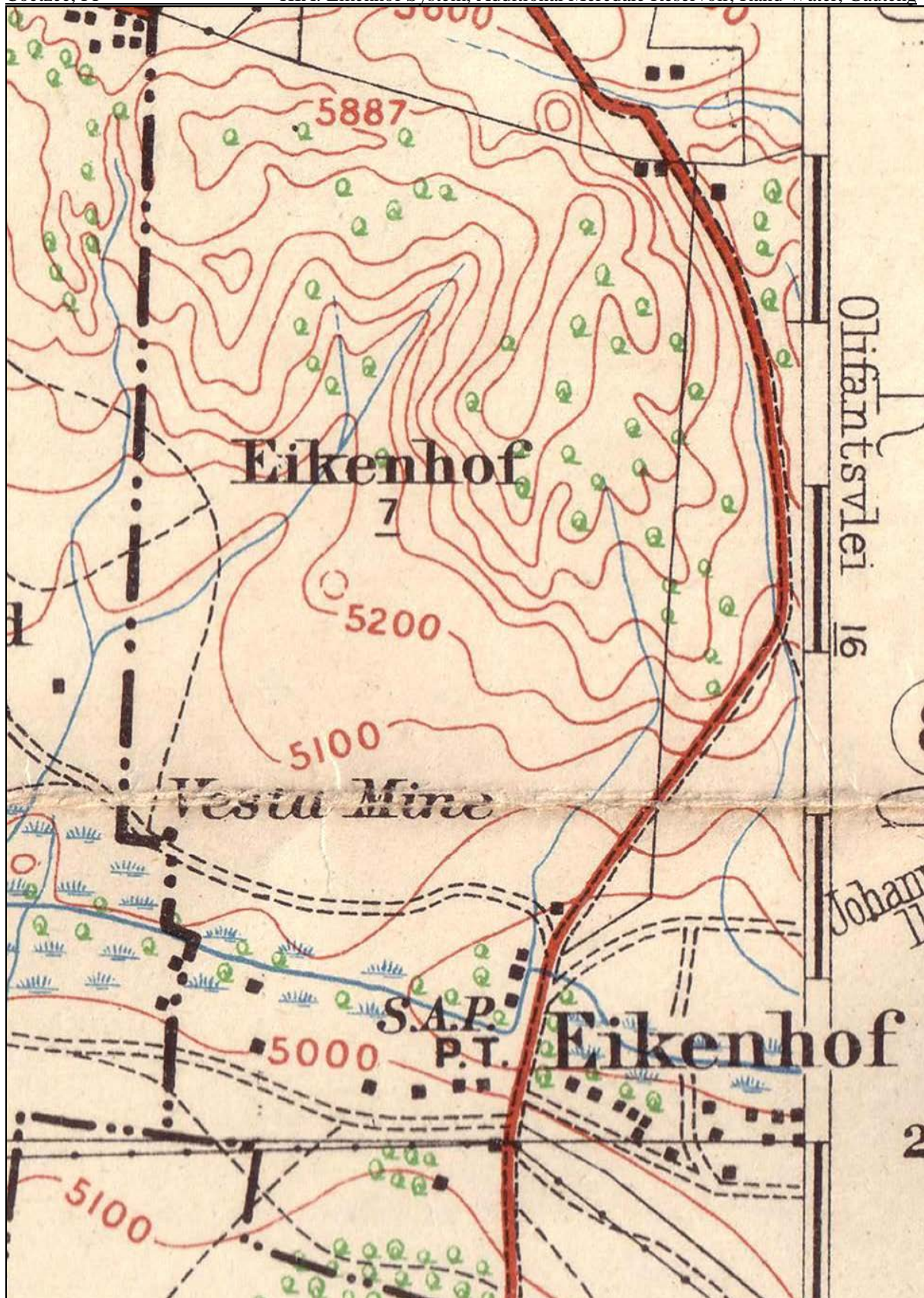


Figure 17: Krugersdorp Sheet of the 1:125 00 Map Series, 1913

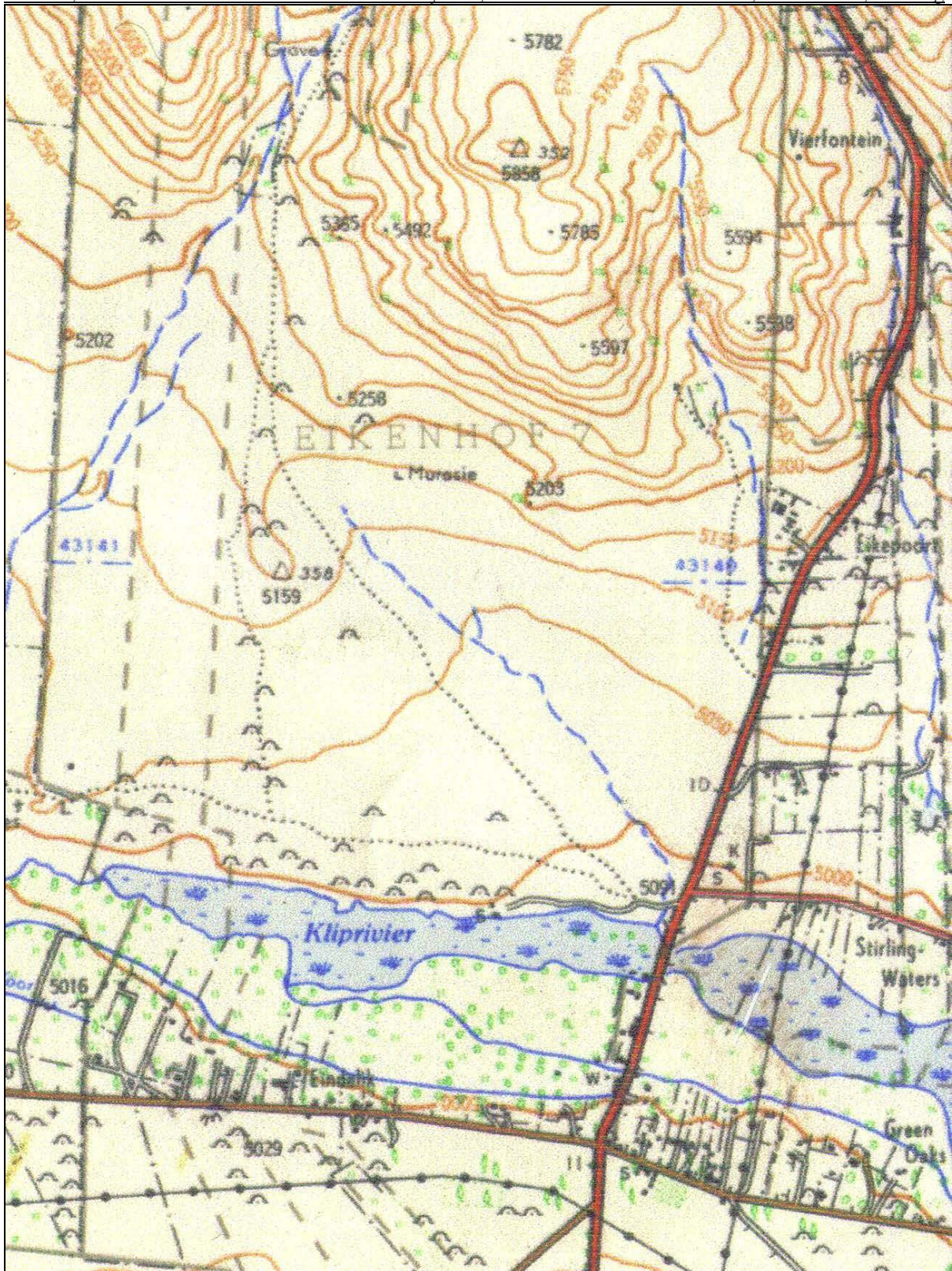


Figure 18: Topographical Sheet 2627BD (1:50 000), surveyed in 1954



Figure 19: Pimville Topographical Sheet (2727 F8), predating 1968

On 28 and 29 May 1900 a decisive battle of the Anglo-Boer War of 1899-1902 took place along a wide strip of land to the south of Johannesburg. The Battle of Doornkop (also known as the is known as The Battle of Klipriviersberg) present study area formed part of this battlefield. The British forces under the overall command of Lord F.S. Roberts had achieved a number of victories in the period leading up to this battle. On 27 February 1900, for example, General Piet Cronjé and 4000 of his men surrendered to the British at Paardeberg. Bloemfontein was occupied on 13 March 1900, and the besieged British towns of Ladysmith and Mafeking were relieved on 28 February 1900 and 17 May 1900 respectively. These breakthroughs led Lord Roberts to advance with his army towards Johannesburg. General Louis Botha, in command of the forces of the Zuid-Afrikaansche Republiek (Z.A.R.) responded to this threat by positioning his men in a defensive line all along the Klipriviersberg ridge, from Natalspruit in the east to Doornkop in the west. This was a very good defensive position in that the Klip River forms a barrier which could only really be crossed at three points, namely Klipriviersoog, a bridge near Van Wyksrust as well as at Jacksonsdrift. On 28 and 29 May 1900 the British forces attacked the Boer positions, culminating in an infantry attack on the Boer position at Doornkop in the vicinity of present-day Soweto. This attack led to the Boer forces being driven off. On 31 May 1900 Lord Roberts occupied Johannesburg (Amery 1906, Bergh 1999, Breytenbach 1983).

In terms of the study area and surroundings, the most significant aspect of the battle took place on 29 May 1900 when a force of West-Australians under Pilkington was ordered to hold the crossing at Jackson's Drift. From the reconstruction of the battle undertaken by Amery (1906) and depicted in Map 17, it is evident that Pilkington's force held the northern bank of the Klip River and at the time was faced by the commandos of Grobler and Lemmer (Birkholtz 2006:13).

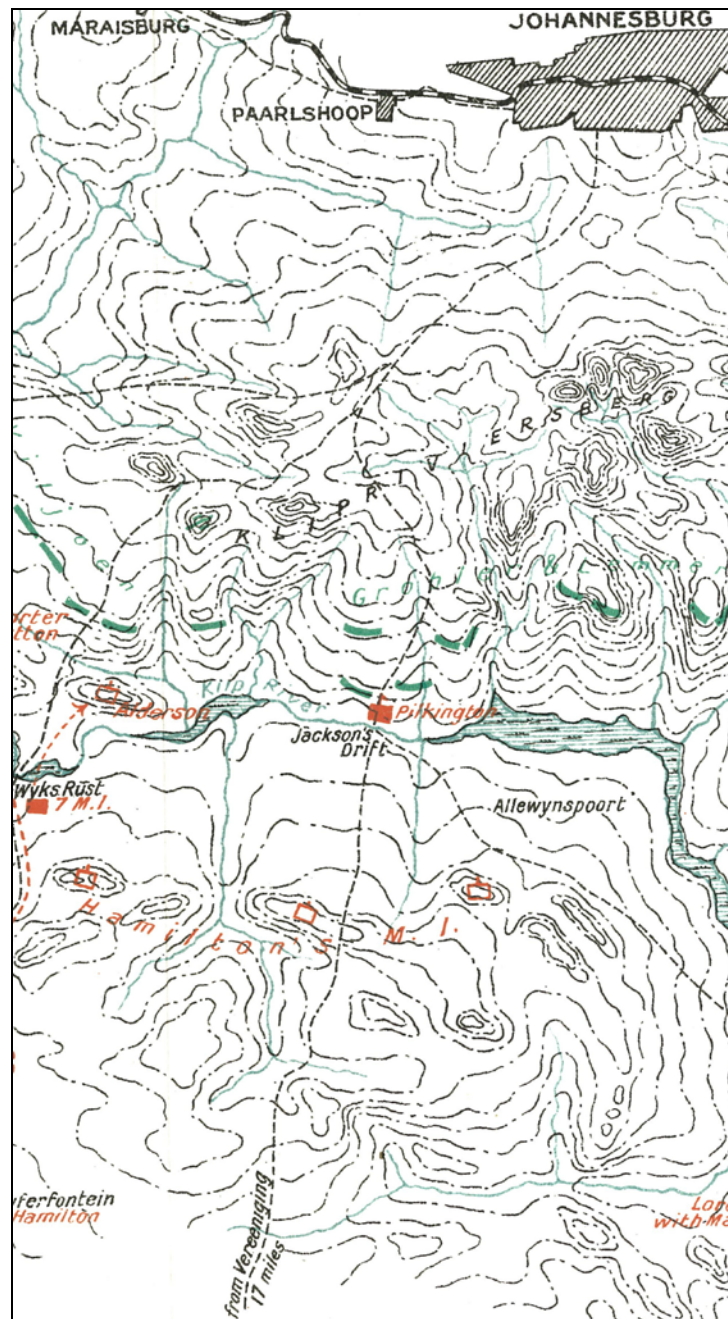


Figure 20: Map published in Amery (1906) showing the Battle of Doornkop (Battle of Klipriviersberg) which took place during 28 and 29 May 1900. The British forces are shown in red and the Boer forces in green.

Khoisan Community at Eikenhof

[Please note that the following paragraphs were selected from the following webpage: http://www.joburg.org.za/index.php?option=com_content&id=6144&Itemid=266].

They are to be found at the Eikenhof Khoisan Farm, portion 80, consisting of 247 hectares of land immediately south of the Klipriviersberg mountain, on the banks of the Klip River. The site has been occupied by Khoisan people for about 100 years, squeezed between several farms belonging to whites, who moved into the area from the 1850s onwards.

The Khoisan community appears to have settled on the site in the mid-1890s. A cluster of houses was established in the veld around a church, which doubled as a school. In those days it was known as Jackson's Drift, a reference to a crossing point about a kilometre downstream. Over thousands of years the original peoples of South Africa – the San or Bushmen, and the Khoi – have lived side by side, and are now commonly called the Khoisan.

There are other interesting elements to the site: Stone Age artefacts, early traces of gold mining exploration, the battleground for control of Joburg in 1900, and a wetland.

Today the site consists of four buildings: the Ebenezer Congregational Church; two dilapidated, unoccupied houses; and a new house, positioned around a patch of mown grass some 30 metres north of the Klip River. The grass is scattered with rocks and syringa trees and beds of cannas and bright orange marigolds. Traces of other structures can be seen in the surrounding tall grass, mostly made of stone and clay; some are believed to be cattle kraals, others houses.

On a line flutters the washing of Hester Williams, the caretaker of the church. She lives with her husband in the newly built house, constructed in October last year by the church. She has been on the site for the past 30 years, and still draws her water from a well alongside her house, but has no electricity.

Walking westwards along a raised rocky bank, there are four tunnels running into the bank, remnants of unsuccessful gold diggings. The site runs up the hill, to the top of the koppie. At the base of the koppie is a Rand Water plant, and further north is the Afrisam quarry.

South of the river is a large wetland, running east and over the R554 freeway. Just beyond the freeway is Jackson's Drift, now a bridge. In the immediate vicinity of the bridge are abandoned buildings, remnants of what used to be the small village of Eikenhof. The ruins of a school, a post office and a hotel are discernible.

It was at Jackson's Drift and other places along the Klip River that British forces crossed in their successful assault upon Johannesburg in 1900 during the South African War of 1899-1902. From the site the faint hum of the traffic on the R554 is audible. The farm runs over the freeway – a housing development now fills the eastern boundary, where a graveyard once stood. About 122 graves were moved to Sharpeville to make way for the development.

Besides the mild traffic din, the open space exudes the tranquillity of the countryside, with birds twittering and a breeze rustling through the tall grass.

"This church has immense symbolic significance for the erstwhile residents of the property. Its significance is augmented by the church building's relatively unique architectural characteristics as well as its possible age that is in excess of 100 years."

It appears that there was always a larger population of Khoisan or coloured people in the area, than white settlers. In 1921, it was estimated that there were three times the number of coloureds to whites.

Birkholtz states that in a letter by Inspector BJE Badenhorst, dated 1 November 1949 and addressed to the district commandant of the South African Police, there were "from 600 to 700 natives, Coloured, and Hottentot families on the farms around Eikenhof adjoining the

Municipal area of Johannesburg" and that "some farmers have large Coloured and Hottentot families on their farms and the Native Laws are not applicable to them".

He indicates that families with names such as Damakwa, Le Batie and Goliath used to live at Eikenhof. Fruit trees were planted. "The sawn-off stump of one of three large apricot trees which used to stand inside this yard was also found. Every year over the Festive Season, the reverend Mr Vernon de Jager would decorate one of these trees as a Christmas tree."

Birkholtz reveals that the farm Eikenhof was established in 1904 from two neighbouring farms: the eastern section of Misgund and the western section of Olifantsvlei. A mine, Vesta Mine, operated in the area, covering Eikenhof farm. When it was established in 1911 that mining operations were not profitable, the mine closed down.

In the early 1960s, the community was removed to Eldorado Park in Soweto.

Adam Mathysen, the project co-ordinator of the Jackson's Drift Khoisan Development Association, has made an application to the Johannesburg Property Company (JPC) – the City owns the site – to enable the displaced community to possibly formally re-occupy the land.

The JPC confirms that they have received the application. A valuation of the site has been done by JPC, and the next phase of the process, going before the Transactions Committee, is possibly going to happen in March.

"We welcome initiatives that not only meet our social needs but enhance our historical and heritage sites," says JPC's media officer, Brian Mahlangu. "This project is one of them, and we are, as said earlier, working on it to ensure we achieve maximum benefit for our residents and stakeholders."

Mathysen was born in Eikenhof and attended school at the church. He moved with his family in the 1960s to Eldorado Park. He would like to see the repatriation of the graves that were moved to Sharpeville, and would also like to see it re-established as a farm, run as a co-operative.

His aunt, 89-year-old Elizabeth van Wyk, has fond memories of living at Eikenhof. Born on the farm in 1922, she says she was "always happy" there. She recounts stories of snakes in the Klip River, only visible when it stormed. She too attended school in the church building, like her nephew. She was married in the church and raised eight of her 10 children at Eikenhof.

She was sad at leaving. "They were nice times. We were all friends who looked after each other," she says.

Herbert Hofmeyr, an executive on the Ebenezer church board, says a land claim application was submitted to the government in 1995. "It has gone to and fro, with very little progress," he adds.

"According to records, the land was given to the church by the owner of the Lido Hotel in the late 1930s."

Jackson's Drift was one of only three crossing points of the Klip River in this vicinity. Several years after the end of the war in 1902, farmers requested a "wagon bridge". It was

completed in 1913; the present bridge is most likely a later construction, according to the report.

There are only three relatively intact original buildings left on the site – the church, and two dilapidated houses, which, together with the well, date back about 100 years. One of the houses was for the school teacher. The well is significant not only because it provided water for the community, but because the water was used for baptising congregants.

The church, begun in 1903 and completed in 1912, is known as the Ebenezer Congregational Church. It is still in use, with a congregation of 20 to 30 people.

It's a modest structure, built originally with mud bricks but later given wooden interior walls and ceiling, and corrugated iron walls outside, with an iron roof. Light filters through several curtained wooden windows, and the floor is laid with snatches of carpeting.

The church is divided into three segments – the church itself, about 20m by 6m; a vestry; and a small attached dwelling for the pastor. Outside the front door is a cast-iron bell positioned between two wooden posts.

The Khoisan community arrived in Johannesburg around 1894, just eight years after gold was discovered. The men worked on the mines as unskilled labourers, but the Kruger government provided very little for them.

Reverend Charles Phillips of the Congregational Church in Graaff Reinet in the Eastern Cape, arrived in Joburg in 1896, to preach to the fledgling Ebenezer congregation, then numbering 26 members, according to Harry Dugmore in his 1991 paper "Knowing all the Names: The Ebenezer Congregational Church and the Creation of Community Among the Coloured Population of Johannesburg 1894-1939".

"Ebenezer's rapid success in Johannesburg was, like that of the LMS [London Missionary Society] in the Cape, rooted in the provision of material resources which other institutions, including the state, were not prepared to provide," explains Dugmore.

"The first and most 'material' reason for Ebenezer's popularity lay in its skilful exploitation of the lack of educational facilities for Coloureds in the ZAR."

Phillips developed the strategy of building a church, then renting it to the government for educational purposes, says Dugmore. From the money obtained, another church was built, laying the foundation for the construction of more churches.

By 1903, there were five Ebenezer schools with about 500 pupils. By the early 1930s, 25 schools for coloureds were established across the reef, with membership of Ebenezer standing at over 5 000, the fastest growing denomination on the Witwatersrand.

"Education was thus a highly desirable commodity offered by no other organisation save Ebenezer. By providing for this deeply felt need, Ebenezer created a sound basis for its enduring popularity."

The Ebenezer church had a greatly unifying effect on the coloured community of the reef. Each church had a women's prayer group, a Wednesday evening class for adolescents, Sunday school for younger children, and junior and senior choirs. In addition, deacons, who could be any elected member of the community, would visit their own as well as other

congregations, thus creating one large community across the reef. The church operated as a bottom-up structure, unlike other denominations.

The women's groups met on Mondays at 3pm, and women developed a great bond through these meetings. While political participation was stifled at all levels, everyone participated in the activities of the Ebenezer church.

"Ebenezer was the only real force in Coloured social life in [the] Witwatersrand of the 1920s and 1930s," says Dugmore. "As such, the church played an important role in developing the sense of 'being Coloured' in the wider Johannesburg and Reef area, and of 'being part of' a developing Coloured community."

That coloured community was nurtured in an "atmosphere of compassion and outreach" provided by the church, bringing together a "dispersed and often demoralised group".

The Ebenezer Congregational Church still exists in Joburg. Besides the Eikenhof church, there are four other churches scattered around the suburbs, with a membership of about 1 800 congregants – at Noordgesig and Eldorado Park in Soweto; Rust ter Vaal, in the far south of Johannesburg and Ennerdale, on the edge of Lenasia.

Rand Water an overview

When gold was discovered in the Witwatersrand in 1886, scarcity of water was a problem. At the time water was drawn from the Fordsburgspruit River, as well as from a spring at the eastern end of Commissioner Street, near the present day End Street. The source was named Natalspruit. Another water point was a spring at the site of the present Johannesburg General hospital in Parktown. Later it was realised that more water was needed for the processing of ore.

The growing demand for water that reached a demand of between 2, 89 MI/d and 5, 86 MI/d, prompted other small companies to start operating, like the Braamfontein Water Company and the Vierfontein Syndicate (1893). The Braamfontein Water Company supplied some 0, 6 MI/d to the Parktown area from two wells in that part of the town. The Vierfontein Syndicate supplied water of different qualities, one for mining purposes and the other for potable use.

The first major grant to a private company to supply water on the Witwatersrand was the "Sivewright Concession" of 1887. Sivewright established the Johannesburg Waterworks and Exploration Company, which Barney Barnato took over in 1889. Water was said to be so expensive then that people opted to cook their food in soda water as it was cheaper than water. After the peace agreement between the British Government and the Boer Republics on 31 May 1902, the British, who gained control of Johannesburg realised that it was imperative to investigate the water supply and sanitation services. On 8 May 1903 The Rand Water Board was officially established by the Rand Water Board Incorporation Ordinance No. 32 of May 1903 to supply water to the entire area.

The Rand Water Board was to include members of the Johannesburg Town Council, The Chamber of Mines, and other existing local authorities in the Witwatersrand. In 1904 Rand Water was required to take over the undertakings of the companies at that time supplying or potentially capable of supplying water to the Witwatersrand. Rand Water was to supply water in bulk only.

It was only in 1905 that Rand Water commenced with full operations. By 1906 the annual daily consumption of water supplied by Rand Water was about 11 Ml/d and it has been growing ever since. In fact Rand Water's major challenge to date has been to augment its water sources to meet the growing demand.

The following were some of the major development schemes to date:

- The Vaal River scheme, which included the Barrage: 1914 - 1924 (yielded 91 Ml/d)
- Vereeniging Pumping Station: 1924
- Zwartkopjes Pumping Station
- Vaal Dam: 1938 – 354 Ml/d
- Zuikerbosch Pumping Station: 1949
- Lesotho Highlands Water Project: 1998

Addendum 2: Description and Evaluation of Sites**Site 1**

A. GENERAL SITE DESCRIPTION			
The site comprises several concrete bases and two cement structures approximately 100 metres apart. It is unclear what these structures were used for but probably for some industrial applications. These remains seem recent and are therefore not regarded as older than 60 years and are therefore not protected by the NHRA (Act No. 25 of 1999).			
B. SITE EVALUATION			
B1. HERITAGE VALUE	Yes	No	
Historic Value			
It has importance to the community or pattern of South Africa's history or precolonial history.		√	
It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√	
It has significance relating to the history of slavery in South Africa.		√	
Aesthetic Value			
It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√	
Scientific Value			
It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.		√	
It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		√	
It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.		√	
Social Value			
It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).		√	
Tourism Value			
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.		√	
Rarity Value			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.		√	
Representative Value			
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.		√	
B2. REGIONAL CONTEXT			
Other similar sites in the regional landscape.		√	
B3. CONDITION OF SITE			
Integrity of deposits/structures.	Stable		
C. SPHERE OF SIGNIFICANCE	High	Medium	Low
International			
National			


Provincial			
Local			
Specific community			
D. FIELD REGISTER RATING			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]			
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
E. GENERAL STATEMENT OF SITE SIGNIFICANCE			
Low			
Medium			
High			
F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT			
None			
Peripheral			
Destruction			
Uncertain			
G. RECOMMENDED MITIGATION			
<ul style="list-style-type: none"> • None 			
H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS			
<ul style="list-style-type: none"> • None 			
I. PHOTOGRAPHS			
			
<p>Figure 21: General view of the two cement structures</p>			



Figure 22: General view of the concrete bases

Site 2

A. GENERAL SITE DESCRIPTION

The site comprises cluster of Late Iron Age stone-walled settlements. It seems like a number of large livestock enclosures with associated smaller kraals and households. The site forms part of the larger Klipriversberg settlement sequence which is very significant within archaeological research in the region.

Please note the site is older than 100 years and is therefore protected by the NHRA (Act No. 25 of 1999).

B. SITE EVALUATION

B1. HERITAGE VALUE

Yes	No
-----	----

Historic Value

It has importance to the community or pattern of South Africa's history or precolonial history.	√	
---	---	--

It has strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa.		√
---	--	---

It has significance relating to the history of slavery in South Africa.		√
---	--	---

Aesthetic Value

It has importance in exhibiting particular aesthetic characteristics valued by a particular community or cultural group.		√
--	--	---

Scientific Value

It has potential to yield information that will contribute to an understanding of South Africa's natural and cultural heritage.	√	
---	---	--

It has importance in demonstrating a high degree of creative or technical achievement at a particular period.		√
---	--	---

It has importance to the wider understanding of the temporal change of cultural landscapes, settlement patterns and human occupation.	√	
---	---	--

Social Value

It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (sense of place).			√
Tourism Value			
It has significance through its contribution towards the promotion of a local sociocultural identity and can be developed as tourist destination.		√	
Rarity Value			
It possesses unique, uncommon, rare or endangered aspects of South Africa's natural or cultural heritage.		√	
Representative Value			
It is importance in demonstrating the principle characteristics of a particular class of South Africa's natural or cultural places or objects.			√
B2. REGIONAL CONTEXT			
Other similar sites in the regional landscape.		√	
B3. CONDITION OF SITE			
Integrity of deposits/structures.		Stable	
C. SPHERE OF SIGNIFICANCE	High	Medium	Low
International			√
National			√
Provincial	√		
Local	√		
Specific community	√		
D. FIELD REGISTER RATING			
National/Grade 1 [should be registered, retained]			
Provincial/Grade 2 [should be registered, retained]			
Local/Grade 3A [should be registered, mitigation not advised]			
Local/Grade 3B [High significance; mitigation, partly retained]		√	
Generally Protected A [High/Medium significance, mitigation]			
Generally protected B [Medium significance, to be recorded]			
Generally Protected C [Low significance, no further action]			
E. GENERAL STATEMENT OF SITE SIGNIFICANCE			
Low			
Medium			
High		√	
F. RATING OF POTENTIAL IMPACT OF DEVELOPMENT			
None		√	
Peripheral			
Destruction			
Uncertain			
G. RECOMMENDED MITIGATION			
No impact is envisaged during the construction phase of the reservoir and associated pipelines.			
H. APPLICABLE LEGISLATION AND LEGAL REQUIREMENTS			
<ul style="list-style-type: none"> National Heritage Resources Act (Act No. 25 of 1999, Section 35) 			
I. PHOTOGRAPHS			



Figure 23: Aerial view of the Late Iron Age settlements

Addendum 3: Surveyor General Farm Diagram

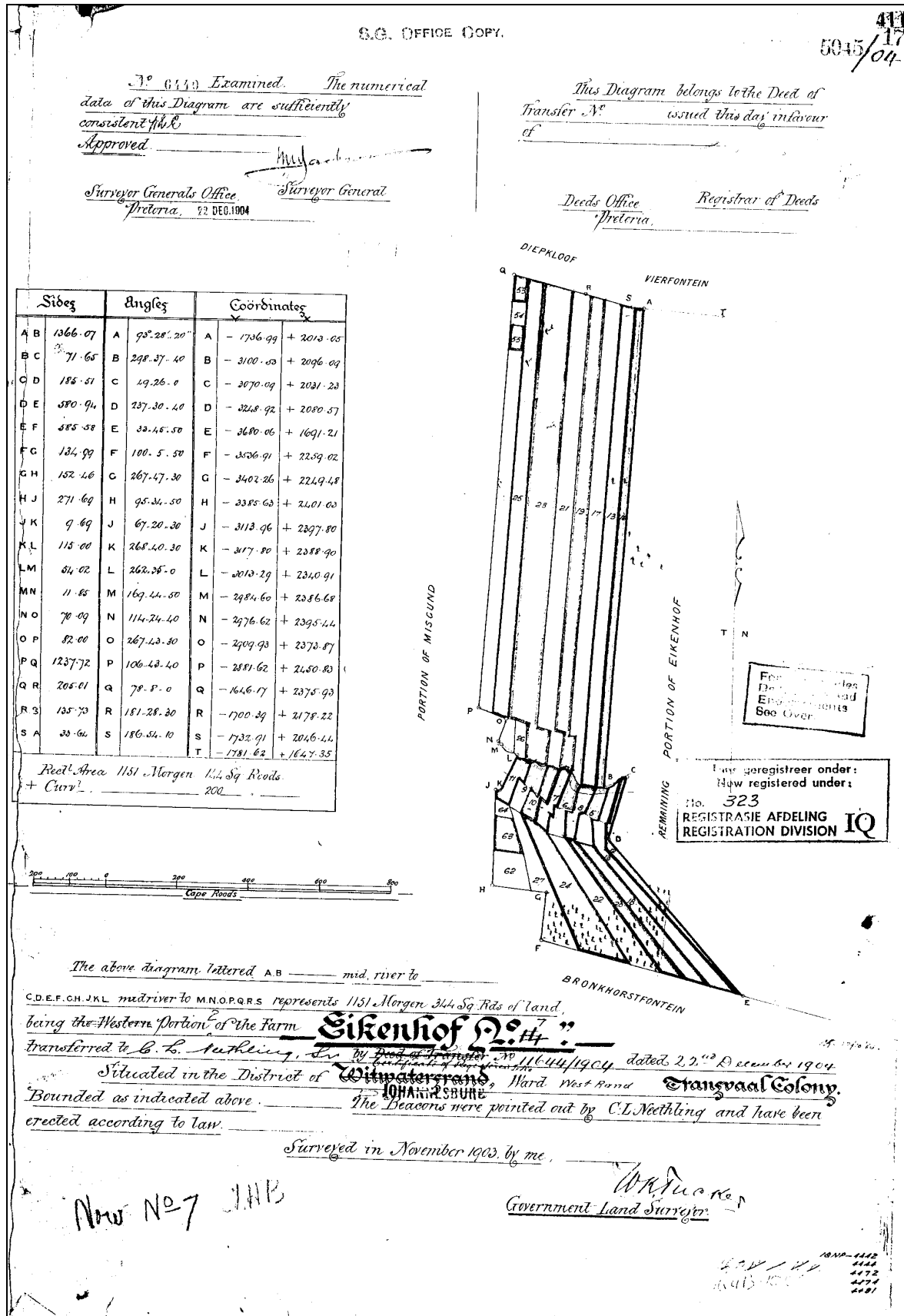


Figure 24: Surveyor General's map of the farm Eikenhof 323 IQ first surveyed in 1904